

1 **Application by COGEMA**
2 **Resources Inc. for an amendment**
3 **to the McClean Lake Operation's**
4 **Uranium Mining Operating Licence**
5 **to allow Phase II of the Mining**
6 **Equipment Development Program**

7
8 **06-H6.1 / 06-H6.1A**
9 **Oral presentation by**
10 **COGEMA Resources Inc.**

11 **MR. POLLOCK:** Good morning, Madam Chair,
12 Members of the Commission. For the record, I am Bob
13 Pollock, Vice-President, Environment, Health and Safety
14 for COGEMA Resources.

15 Also present today on behalf of COGEMA
16 Resources are Mr. Sylvain Eckert to my right, Manager of
17 Mine Projects; Mr. Dale Huffman, Manager of Special
18 Projects and Radiation Protection to my left.

19 We are here today to support our
20 Application to amend the Uranium Mine Operating Licence
21 for McClean Lake Operation to extend the scope of our
22 activities associated with the Mining Equipment
23 Development Program referred to as the MED Program.

24 This program is evaluating whether
25 underground mining techniques using equipment deployed

1 from surface will render economically viable a number of
2 small and relatively deep uranium mineralized deposits,
3 which I refer to as pods, identified within the McClean
4 Operation surface lease area.

5 This slide outlines today's presentation.
6 I will start by describing the setting of the MED Program
7 within the McClean Lake site and briefly describe the
8 uranium ore pods referred to collectively as the McClean
9 underground deposit, including a brief history of related
10 environmental assessments.

11 Mr. Eckert will then describe the MED
12 Program activities. Mr. Huffman will then address project
13 management and the protection of workers in the
14 environment. He will also provide some comments on
15 intervenors' submissions before closing with an overview
16 of future plans and a summary.

17 I will start with these maps. On the
18 right, the McClean Lake site is shown within the Athabasca
19 Basin in northern Saskatchewan. On the left, the MED
20 Program site is identified near the site entry gate
21 between McClean Lake and Candy Lake. Also shown are the
22 JEB site in the northern part of the mining lease area,
23 the Sink Vulture Treated Effluent Management System, the
24 light green area in the central part in the middle of the
25 site, and the Sue mining area in the south to the lower

1 right in the figure.

2 The next slide expands the areas shown
3 within the dashed lines.

4 The uranium ore bodies referred to as the
5 McClean underground pods consist of a series of small
6 discrete mineralized deposits, the grade of which is
7 fairly high but with relatively low tonnage. The pods are
8 shown in orange in this picture, with Pod 1 circled in
9 yellow.

10 The MED Phase I and II tests will be
11 conducted in the area with the best ore grades in the
12 eastern zone of Pod 1. There, the top horizon of the ore
13 zone is situated about 150 metres from surface and the
14 bottom is situated at about 170 metres. On average, the
15 thickness of the ore zone in Pod 1 ranges from eight to
16 ten metres.

17 In 1991, the mining of three of the McClean
18 pods using available underground mining methods was
19 assessed by the Joint Federal-Provincial Panel Review
20 Process and included in the subsequent government
21 approvals. The three pods considered, which included Pod
22 1 are circled in this figure, which is an excerpt from the
23 1991 Environmental Impact Statement.

24 Given several key considerations, a non-
25 entry vertical panel method was chosen while recognizing

1 that -- and I quote from the document:

2 "Advances in mining technology will be
3 monitored and could support changes to
4 the mining method."

5 The equipment and methods being developed
6 under the MED Program represent just such an advancement
7 and do not transform the approved McClean Lake Project
8 into a new proposal.

9 We would also like to note the recent
10 environmental assessment conducted for the Sue E Project
11 considered by the Commission in June of 2005.

12 In addition to evaluating the incremental
13 impacts of Sue E mining, the Sue E Project considered
14 within its scope all current licensed activities and all
15 projects for which EA approvals have been obtained. This
16 included the mining of the McClean underground ore bodies
17 previously considered in the 1991 EAS, the processing of
18 ores from this source, the disposal of tailings in the
19 tailings management facility and treatment of waste waters
20 at the water treatment plants.

21 The CNSC, as the responsible authority,
22 concluded that the project, taking into account the
23 appropriate mitigation measures identified in the
24 screening report, is not likely to cause significant
25 adverse environmental effects.

1 COGEMA believes that the MED Program will,
2 in fact, further improve workers' safety and environmental
3 protection beyond the levels which have already been
4 concluded, through the Sue E assessment, as being not
5 likely to cause significant adverse effects.

6 In June of 2005, the uranium mine operating
7 licence for the McClean Lake Operation was amended to
8 include Phase I of the MED Program as an authorized
9 activity.

10 The main activities in Phase I included the
11 construction of the test facility, which was completed
12 this past summer, and the excavation of up to five bore
13 holes to test the mining equipment. This work is
14 currently underway.

15 This slide lists the main activities of
16 Phase II of the MED Program which will involve an
17 additional 15 bore holes.

18 I will now turn the presentation over to
19 Mr. Eckert to describe the MED Program and the Phase II
20 activities.

21 **MR. ECKERT:** Thank you, Bob.

22 For the record, my name is Sylvain Eckert.
23 I am the Manager of Mine Projects and the Project Manager
24 for the MED Program.

25 The MED Program is a multi-phase project to

1 conduct technical viability and economic feasibility for
2 the underground mining equipment and mining techniques.

3 Effectively, Phase I is considered as a
4 research and development level test phase.

5 The photo you see on this slide was taken
6 in August 2005 and shows the drill rig set up at the MED
7 site. The Phase I work has focussed on testing the mining
8 equipment which I will show you in the next few slides.

9 This slide shows a conventional rotary
10 drill bit used to excavate a borehole to the ore zone.
11 The tool cuts a hole approximately 60 centimetres in
12 diameter.

13 This slide shows a photo on the schematic
14 of the mining tool. This tool replaces the cutting end
15 once in the ore zone. The tool first expands the cavity
16 with mechanical reamer arms and then is fitted with water
17 jets to further cut the rock. Specialty piping is used to
18 supply water and air to lift the cuttings to the surface.

19 The mining method being developed in the
20 MED Program is not new. However, the specific techniques
21 have not been used as a production method.

22 Jet boring and other methods are being
23 applied at Cigar Lake and McArthur River using water jets
24 and reaming tools respectively. The MED Program aims to
25 apply these methods on a smaller scale from the surface,

1 eliminating the need for underground shafts and drifts to
2 get the equipment relatively close to the ore body for
3 deployment.

4 The cutting tool is connected to the
5 specialty piping shown in the slide. High-pressure water
6 is supplied through the small diameter lines at the edge
7 of the pipe to liquefy the cuttings which are brought to
8 the surface through the large diameter centre pipe.

9 Air is injected from lines at the edge of
10 this piping in order to lower the density of the resultant
11 slurry. The density difference acts as a driver to
12 circulate the slurry through the system; that is, the
13 hydraulic aid of the water input line is greater than on
14 the slurry return line due to the lower density in the
15 return line. This is commonly referred to as an
16 "airlift".

17 Phase II is the subject of our Application.
18 Phase II is a prototype-level test phase and will involve
19 the excavation of a further 15 boreholes to test a variety
20 of mining parameters.

21 This slide shows the development sequence,
22 beginning with the delineation drilling. The sequence
23 continues with overburden drilling, represented by the top
24 three layers and directional logging flow by deployment of
25 the production reaming jetting tool. The cavity is then

1 logged before being backfilled.

2 For Phase I, the boreholes through the
3 sandstone overburden are being cased. It is currently
4 anticipated that casing the hole will not be necessary
5 during Phase II and future mining operations.

6 COGEMA has conducted a preliminary
7 evaluation and concluded that significant contamination of
8 the groundwater is unlikely when the hole is not cased.
9 COGEMA will further assess the need for borehole casing
10 and submit the results to regulatory authorities for
11 approval before eliminating the practice of using casings.

12 On the surface the cuttings are directed to
13 the trailer-mounted separation facility which, through a
14 series of cycles and shale shakers separates the water
15 from the solids. The facility is shown in the photo on
16 the left and the shale shakers are shown on the right.
17 The coarse materials are directed to an ore pad and the
18 fines are directed to the settling ponds. From the ore
19 pad, ore will be transferred to the JEB Mill for
20 processing. About 4,000 tonnes of ore are expected.

21 The settling pond is shown in these photos.
22 On the left the pond is empty and the concrete base can be
23 seen. The concrete base allows the material which settles
24 on the bottom to be subsequently recovered. On the right,
25 the pond is shown partially filled. The sedimentation

1 pond overflows to a clarification pond from which water is
2 recycled for the mining process.

3 This slide shows the MED site. The mining
4 pod is outlined within the underlying ore pods shown in
5 orange, and the current settling and clarification ponds
6 are shown to the northeast of the mining pad near the
7 road.

8 Currently, mining cannot be conducted while
9 the slimes fine particle size are being recovered.

10 For the Phase II program in 2006,
11 modifications to the pollution pond facilities are
12 proposed to facilitate continuous operation. It is
13 proposed to install a second set of ponds to the west of
14 the current ponds, as shown in this figure. Upon
15 completion of the project work, water collected in the
16 pond will be transferred to the Sue C water treatment
17 plant for treatment before being released.

18 The mining facilities will also need to be
19 modified to better accommodate winter conditions.
20 Winterization of the facility will include the heat
21 tracing of pipelines and the design of enclosures for
22 areas where significant quantities of water will be
23 handled, including the drill rig and its ancillaries and
24 the separation plant on the ore pod.

25 I will now turn the presentation over to

1 Dale Huffman.

2 **MR. HUFFMAN:** Thank you, Sylvain. For the
3 record, my name is Dale Huffman.

4 The overall structure of the licensing
5 documentation is depicted in this slide. Activities of
6 the McClean Lake Operation are performed through a
7 comprehensive integrated quality management system.

8 On the left side of this slide are the
9 manuals which describe ongoing activities for McClean Lake
10 Operation.

11 The documents on the right describe the JEB
12 Mill expansion and the MED Program and will only exist for
13 the life of these projects.

14 The Mining Facility Licensing Manual,
15 suitably updated, remains the primary reference in the
16 CNSC licence.

17 The next tier of documents has been
18 expanded to include project-specific documents, shown
19 shaded in orange. A project description manual for each
20 of the phases has been created to describe the equipment
21 and its use and a Project Management Plan has been created
22 to govern the MED Program activities.

23 This slide shows the organizational
24 hierarchy for the MED Program. For the program, the
25 contractors, consultants and COGEMA support staff report

1 to Mr. Eckert, the Project Manager for the MED Program.
2 Mr. Eckert, in turn, reports to the McClean Lake General
3 Manager for activities conducted at McClean Lake.

4 The environmental, health, safety and
5 radiation programs at McClean Lake Operation are unchanged
6 by the MED Program activities. Project-specific
7 environmental protection practices in monitoring for the
8 MED Program, which includes groundwater monitoring, spill
9 response and routine site inspections, are described
10 within the Project Management Plan and associated project-
11 specific procedures and work instructions. The locations
12 of the piezometres for the groundwater monitoring are
13 shown in this slide.

14 Similar to environmental protection,
15 project-specific radiation protection practices and
16 monitoring for the MED Program are described within the
17 MED Program documents. Safe work procedures have been
18 developed for the field test activities, including the
19 operation of the drill rig in the high-pressure
20 waterlines. Beyond the immediate monitoring and
21 protection of environment, health and safety the project-
22 specific activities have been developed to collect
23 information to be used in the evaluation of future mining
24 activities.

25 The McClean Lake Operation Preliminary

1 Decommissioning Plan and Financial Assurance was updated
2 in 2005 to include the decommissioning of the MED Program
3 site. The plan, which includes financial assurance of
4 approximately \$34,000 for the MED Program site, has been
5 reviewed and accepted by CNSC and Saskatchewan Environment
6 staff.

7 We also wish to comment briefly on the
8 interventions; in particular, to the objections made to
9 the CNSC staff determination that further environmental
10 assessment is not required under CEAA prior to licensing
11 decisions for the MED Program.

12 In our view, interventions CMD 06-H6.2 and
13 CMD 06-H6.3 fail to adequately distinguish between
14 proposed activities which would extend the McClean Lake
15 project beyond the envelope of activities considered in
16 existing EAs and proposed activities which are simply
17 improved means of implementing the previously considered
18 projects.

19 The former require new environmental
20 assessments and this slide lists the additional
21 assessments completed or in progress under the *Canadian*
22 *Environmental Assessment Act* since the completion of the
23 Federal-Provincial Panel assessments initiated under the
24 Environmental Assessment Review Process Guideline Order
25 (EARPGO).

1 The common thread to these assessments is
2 that they were triggered by proposed activities which were
3 outside the envelope considered by the panel. The track
4 record shows that the CNSC has been rigorous in its role
5 as responsible authority for additional environmental
6 assessments required under CEAA.

7 In contrast, the MED is well within the
8 envelope of activities considered by the Federal-
9 Provincial Panel and, more recently, by the CNSC through
10 the Sue E screening under CEAA. The scope of the
11 underground mining activities already considered at the
12 McClellan underground pods exceeds those for the MED Program
13 in all aspects important to environmental assessment,
14 including the disturbed area footprint, amount of ore to
15 be mined and subsequently processed, which determines the
16 amount of tailings; amount of uranium to be produced and
17 the amount of treated water effluent.

18 The recognition by the federal-provincial
19 panel that changes in technology over the life of the
20 McClellan Lake Project would need to be evaluated as part of
21 the licensing responsibilities of the regulator is
22 confirmed in the recent Federal Court of Appeal Reasons
23 for Judgment in a case involving McClellan Lake Operation,
24 citation (2004) F.C.A. 218, paragraph 49. The full text
25 at paragraph 49 was provided in an attachment to this

1 presentation with a key sentence being and I quote:

2 "The panel recognized that changes in
3 science and technology would occur
4 over the lifetime of the project and
5 acknowledged that it would be the
6 Board's (the AECEB, now the CNSC)
7 responsibility to evaluate the effects
8 of these developments in the context
9 of licensing responsibilities."

10 It is COGEMA's opinion that determinations
11 by the CNSC staff that the MED Program does not require
12 further assessment under CEAA are entirely consistent with
13 the intent and correct interpretation of the decision by
14 the Federal Court of Appeal.

15 A similar argument extends to the other
16 interventions which fail to recognize that the ore from
17 the MED Program and its associated radioactive materials
18 are substantially less than had already been fully
19 considered in both the original assessment under the panel
20 and the more recent Sue E screening under CEAA. It is our
21 opinion that the conclusions of these assessments are not
22 affected by these interventions.

23 I would like to speak briefly to future
24 plans. This chart shows a planned schedule for the MED
25 Program. Phase I will continue through to July and

1 pending approval Phase II will commence immediately
2 following Phase I. COGEMA has proposed to conduct the
3 Phase II Program without the use of borehole casings based
4 on the results of mathematical modelling simulations. We
5 will further assess the need for borehole casings using
6 information gathered during the Phase I field activities
7 and submit the results of these evaluations to regulatory
8 authorities. We are aware of the proposed licence
9 condition which addresses this issue and support the
10 staff's recommendation.

11 Phase III will be the subject of a future
12 licensing application. This will be a production level
13 test phase and will likely aim to excavate the remainder
14 of Pod 1 to prove the technology, including, in
15 particular, the average ore recovery and economics of the
16 method at a production scale. Again, we are aware of the
17 licence condition proposed by CNSC staff and support the
18 staff's recommendation.

19 Should the MED prove successful we
20 anticipate future application to put this technology into
21 routine production, likely beginning with the McClean
22 underground and Caribou pods. We will need to revisit
23 both EA and licensing at that time.

24 Before concluding I would like to briefly
25 note an unrelated matter, which is that COGEMA Resources

1 Inc., is in the process of formally changing its name to
2 AREVA Resources Canada Inc. We will be making application
3 in the near future for this administrative change to our
4 licences.

5 In summary, the MED Program is applying
6 innovation to the mining of uranium ore bodies.
7 Successful deployment of this technology will bring
8 substantial advantages to mining projects in terms of
9 protection of the environment and worker safety.

10 The non-entry surface deployment techniques
11 will minimize worker exposure to radiation and to the
12 mining hazards associated with conventional mining methods
13 while greatly reducing water treatment requirements.

14 COGEMA is using a conservative multi-faced
15 approach to develop the equipment and methods for this
16 mining technique and has demonstrated its ability to
17 consistently achieve a high level of performance in its
18 operating facilities.

19 COGEMA Resources thus requests an amendment
20 of the licence issued by the Commission to extend the
21 scope of the Mining Equipment Development Program.

22 We would be pleased to answer any questions
23 which Members of the Commission may have.

24 Thank you.

25 **THE CHAIRPERSON:** Thank you.

1 Before I turn to staff I would like to note
2 that we will not be discussing the change of name here
3 today.

4 I would like now to move to staff's
5 presentation as outlined in CMD 06-H6 and I will turn to
6 Mr. Barclay Howden who is the Director General
7 responsible.

8 The floor is yours, sir.

9

10 **06-H6**

11 **Oral presentation by**

12 **CNSC staff**

13 **MR. HOWDEN:** Thank you.

14 Good morning, Madam Chair and Members of
15 the Commission. For the record, my name is Barclay
16 Howden, the Director General of the Directorate of Nuclear
17 Cycle and Facilities Regulation. With me today are Mr.
18 Kevin Scissons, Director of the Uranium Mines and Mills
19 Division; Mr. Rick Forbes, Project Officer for the McClean
20 Lake Operation; and the rest of the CNSC licensing team
21 for the project.

22 COGEMA Resources has applied to amend the
23 McClean Lake Uranium Mine Operating Licence to allow them
24 to proceed with Phase II of the Mining Equipment
25 Development Program. This presentation contains an

1 assessment of the Application and staff's recommendation
2 for the amendment of the licence.

3 I will now ask Mr. Forbes to present an
4 overview of the information and recommendations prepared
5 by CNSC staff.

6 **MR. FORBES:** Good morning, Madam Keen and
7 Commission Members. My name is Rick Forbes. I am the
8 CNSC's Project Officer for the McClean Lake Operation.

9 This presentation will provide an overview
10 of the approved activities and the requested amendment
11 activities. CNSC staff's CEAA determination, program
12 assessment and assessment of the requested activities will
13 be discussed. I will then present CNSC staff's
14 conclusions and recommendations.

15 This slide summarizes the recent licensing
16 activities concerning McClean Lake. The licence was
17 renewed in 2005 which included permission to construct the
18 JEB Mill expansion that was required to be able to mill
19 the Cigar Lake ore in the future. The licence was
20 effective May 19th, 2005.

21 The first amendment was for Phase I of the
22 Mining Equipment Development Test Program. The Designated
23 Officer decision was issued as an amendment on June 10th,
24 2005. The second amendment was for weather-sensitive
25 preparatory work for the proposed Sue E open pit mining.

1 The reason for decision was issued July 21st, 2005. The
2 third amendment was for the mining of the Sue E open pit.
3 The reason for decision was issued on December 9th, 2005.
4 We are, therefore, before the Commission for the fourth
5 amendment.

6 The approved activities in the current
7 Uranium Mine Operating Licence include milling ore at an
8 annual rate of 3.6 million kilograms per year of U₃₀₈; mine
9 Sue A, B and E pits produce and ship a uranium
10 concentrate; modify the JEB Mill for the proposed Cigar
11 Lake ore milling and Phase I of the Mining Equipment
12 Development or MED Program in Pod 1 of the McClean
13 underground deposit.

14 The MED Program was proposed by COGEMA --
15 is a small scale mining test to determine the suitability
16 of using specialized equipment on surface to extract ore
17 from underground deposits through drill holes. Phase I of
18 the MED Program was for five holes to allow for research
19 development to determine the technical viability of the
20 proposed equipment. This included the preparation of the
21 lined drilling pad, two settling pods and a concrete ore
22 storage pad.

23 Phase I was to be completed in 2005 but was
24 not finished due to delays. COGEMA submitted an
25 application to reschedule the completion to 2006 and for

1 winterization of the drilling equipment to allow drilling
2 in overburden during winter. CNSC staff reviewed and
3 approved the application.

4 This photo was taken during the CNSC
5 inspection of the MED site on September 15th, 2005. On
6 the left you can see the drill rig which was drilling the
7 hole to the ore zone. On the right is the ore separation
8 equipment sitting on the concrete storage pad.

9 Phase II is a developmental stage with the
10 objective to identify further technology changes and to
11 determine the economic feasibility. The requested
12 activities for the Phase II of the MED Program include two
13 additional polishing ponds, evaluate the technical
14 feasibility of drilling holes without the casing to the
15 ore zone, winterization of the surface ore separation
16 facility to allow ore excavation during the winter, drill
17 and excavate 15 additional holes at Pod 1, a McClean
18 underground deposit, including the testing and
19 modifications of the specialized mining equipment;
20 transfer the excavated ore to JEB Mill.

21 COGEMA has stated in the Application that a
22 third stage may be required. This is not part of the
23 current assessment. A detailed CNSC staff assessment of
24 any Phase III work would be performed prior to the CNSC
25 issuance of any approval as stated in Condition 1.5 of the

1 proposed licence.

2 The MED Program focuses on Pod 1 of the
3 McClean underground deposit. The project would involve
4 undertakings in relation to a physical work and would
5 require an amendment to the McClean Uranium Operating
6 Licence under subsection 24(2) of the *Nuclear Safety and*
7 *Control Act* in order for the MED Program to proceed.

8 Therefore, there is both a project and a
9 trigger under the CEAA.

10 Mining three pods, including Pod 1 in the
11 McClean underground deposit, was assessed in the 1991
12 McClean Lake Project Environmental Impact Statement.

13 The EARPGO Panel report in 1993 recommended
14 the proposal for approval. The method of mining assessed
15 by the EARPGO Panel involved accessing the ore remotely
16 from underground workings.

17 The present proposed remote mining of JEB
18 boring was originally an underground method which has been
19 tested at the Cigar Lake Project. The method has been
20 modified to use surface bore holes to access the ore zone
21 rather than bore holes from tunnels below the ore zone.

22 The proposed program may also demonstrate
23 environmental and worker health and safety advantages.

24 A detailed comparison was made between the
25 undertakings proposed under the MED Program and the

1 undertakings assessed in 1991. Both proposals involved
2 mining Pod 1 and then milling the ore at the JEB Mill and
3 tailings management in the JEB TMF.

4 In both proposals the ore would be mined
5 remotely so as to protect the worker. The MED proposal
6 would also protect the worker from underground safety
7 hazards. The ore would be temporarily stored on surface
8 and then transported for milling at the JEB Mill in both
9 cases.

10 In both proposals, the clean waste would be
11 stockpiled at the Sue site. The MED proposal has a
12 greatly reduced volume of clean waste rock.

13 In both proposals, the ore zone areas would
14 be backfilled. The water from mining would be stored in
15 lined ponds on surface and then treated as required in
16 both proposals, although the MED proposal would have a
17 significantly reduced volume of water because there would
18 be no underground development.

19 In both proposals, ore separation would be
20 on surface. The results of this comparison indicate that
21 the proposed program represents either a partial
22 implementation of the project that was assessed in 1991 or
23 the proposal involves changes in technology that are
24 consistent with changes in technology that are expected to
25 occur over the life of the McClean Lake Operation that

1 would be evaluated as part of the licensing
2 responsibilities of the CNSC.

3 This was confirmed in the Federal Court of
4 Appeal's Reasons for Judgment for Inter-Church Uranium
5 Committee Educational Cooperative v. Atomic Energy Control
6 Board and COGEMA. Subsection 74(1) of the CEAA is
7 therefore interpreted as applying to the current
8 application and, accordingly, no further environmental
9 assessment of the project is required.

10 CNSC staff conducted assessments for the
11 licence renewal in 2005 and the three subsequent
12 amendments. CMD 06-H6 updated the assessments to December
13 2005.

14 In conclusion, there is no significant
15 change to the CNSC staff's assessment based on their
16 performance.

17 There were five Type 2 inspections done
18 during the review period by CNSC. Three involved the MED
19 site, including one surprise inspection. Three Type 2
20 inspections were done by a Saskatchewan Environment
21 Project Officer as a qualified CNSC inspector.

22 A review of the implementation of the
23 Project Management Plan and change control was done. The
24 CNSC inspectors found the MED work site to be in good
25 order and the work being done in a safe manner, in

1 accordance with the Project Management Plan.

2 The change controls were found to be up-to-
3 date and complete. There have been consultations with
4 Sask Environment and Sask Labour about the application.
5 There is agreement that COGEMA has made and is expected to
6 continue to make adequate provision for the protection of
7 the environment and the health and safety of persons.

8 There has also been consultation with the
9 EQC at two recent meetings with no concerns expressed
10 about the project.

11 The ratings for each program area are
12 summarized in this table. All program areas have the
13 program and implementation rated as "B".

14 The mill has operated throughout the period
15 with a Christmas shutdown. The Sue A pit has been mined.
16 The Sue E pit is in progress.

17 The inspections showed consistent
18 compliance for the operations. There were no radiation
19 protection regulatory exceedences during the report
20 period.

21 The inspections showed consistent
22 compliance for radiation protection. There were no
23 environmental regulatory exceedences and one reportable
24 spill during the reporting period. The spill was a small
25 amount of sludge from a frozen line adjacent to the JEB

1 water treatment plant, which was repaired and cleaned up
2 immediately.

3 The mass loadings of the effluent to the
4 environment continue to be well under the administrative
5 levels. The inspections showed consistent compliance for
6 environmental protection.

7 There has been three lost-time accidents.
8 The first was a contractor that slipped getting off a
9 bulldozer, twisting his knee. The second was the
10 contractor truck collision in Sue E pit, occurring on
11 January 31st, 2006. This was reported as a Significant
12 Development Report at the February 16th, 2006 Commission
13 Hearing. The third is a hand pinch resulting in a broken
14 finger.

15 COGEMA and the contractor followed up on
16 the incidents promptly. The inspections show consistent
17 compliance for non-radiological health and safety
18 protection.

19 For the remaining safety areas, there has
20 been no change.

21 CNSC staff has reviewed the Project
22 Description Manual and Project Management Plan for the
23 proposed MED Project, Phase II. The following are the
24 requested activities and CNSC staff's findings.

25 Construction of two additional ponds.

1 These ponds are double lined with leak detection. CNSC
2 staff accepts that the design prevents unreasonable risk
3 to the environment.

4 Evaluate the technical feasibility of
5 drilling holes without casing to the ore zone. COGEMA
6 commits to provide sufficient technical information in a
7 validation program in the proposed application.

8 CNSC staff recommends a licence condition
9 requiring approval by the Commission or a person
10 authorized by the Commission after CNSC staff has received
11 and assessed an application with sufficient technical,
12 operational and program information to determine the
13 practice will prevent unreasonable risk to the
14 environment, particularly the potential for contamination
15 of the groundwater.

16 Winterization of the surface ore separation
17 facility to allow ore excavation during the winter months.
18 COGEMA commits to following its design control and change
19 control process to make the necessary modifications.

20 CNSC staff finds this practice acceptable
21 and it will pose no unreasonable risk to the environment
22 or health and safety of persons.

23 Drill and excavate 15 additional holes at
24 McClellan Pod 1. CNSC staff finds that COGEMA has
25 demonstrated that they have effectively implemented the

1 Project Management Plan in order to manage the drilling of
2 the requested holes without posing unreasonable risk to
3 the environment or health and safety of persons.

4 Transfer ore to the JEB Mill for
5 processing. The ore from this area has been tested and
6 found compatible with the present milling process. The
7 handling of the ore is within the scope of activities
8 already approved.

9 CNSC staff finds that COGEMA has and will
10 continue to make reasonable precautions in transporting
11 the ore.

12 Based on CNSC staff's assessment in the
13 CMD, CNSC staff concludes that subsection 74(1) of the
14 CEAA is therefore interpreted as applying to the current
15 application based on the comparison to the 1991 EIS,
16 taking into account the Federal Court decision in 2004, as
17 stated in the CEAA determination slide. No further EA is
18 required.

19 COGEMA is qualified to carry on activities
20 including the requested activities that the proposed
21 amended licence will authorize. COGEMA made, and is
22 expected to continue to make, adequate provision for the
23 protection of the environment, the health and safety of
24 persons and COGEMA made; and is expected to continue to
25 make, adequate provision for the maintenance of security

1 and the implementation of international obligations.

2 To conclude, CNSC staff recommends that the
3 Commission accept CNSC staff's assessment that the
4 Applicant is qualified to carry on activities that the
5 amended licence will authorize, and will make adequate
6 provision in carrying out those activities for the
7 protection of the environment, the health and safety of
8 persons and the maintenance of national security and
9 measures required to implement international obligations
10 to which Canada has agreed.

11 Amend the current Uranium Mine Operating
12 Licence (UMOL) Mine Mill, McClean.03 2009 to allow the
13 Phase II of the Mining Equipment Development Program to
14 proceed with the following changes to the licence:

15 Remove the existing condition of 1.5
16 concerning the dewatering of Sils Lake. It is complete.

17 Modify licence activity 4G to specify the
18 Mining Equipment Development Program in accordance with
19 the new conditions 1.5 and 1.6 which allows Phase I and II
20 but requires approval by the Commission or persons
21 authorized by the Commission for Phase III, and requires
22 approval by the Commission or a person authorized by the
23 Commission prior to eliminating the use of the drill
24 casing to the ore zone.

25 Also, update Appendix B documents in the

1 licence. It should be noted that Reference Document 1
2 should be Version 3 dated January 2006.

3 I would now like to turn it back to Mr.
4 Howden.

5 **MR. HOWDEN:** Thank you very much.

6 Madam Chair, that concludes our
7 presentation and staff is prepared to respond to
8 questions.

9 **THE CHAIRPERSON:** The Commission is going
10 to proceed with the interventions before it opens the
11 floor so the floor -- the questioning will be to the
12 licensee, to the staff and to the intervenors all at the
13 same time.

14 So we'll now move to interventions which
15 will be happening from the Saskatoon office.

16 Before I start, I'd like to remind
17 intervenors before appearing before the Commission today
18 that we have -- the Commission has had the opportunity to
19 read your intervention and, as such, for the oral
20 interventions we have allocated approximately 10 minutes
21 for each oral presentation in order for you to speak to
22 your submission that you have already given to us and,
23 certainly, your more detailed written submissions as
24 applicable will be duly considered as well as your oral
25 presentation.

1 As such, I'd like to move to the first oral
2 presentation. This is by Inter-Church Uranium Committee
3 Educational Cooperative as outlined in CMD 06-H6.2 and, I
4 believe, Mr. Fleming is joining us from Saskatoon.

5 Mr. Fleming, the floor is yours, sir.
6 Welcome.

7

8 **06-H6.2**

9 **Oral presentation by**
10 **Inter-Church Uranium**
11 **Committee Educational**
12 **Cooperative (ICUCEC)**

13 **MR. FLEMING:** Thank you, Madam Chair and
14 Members of the Commission.

15 For the record, my name is Randy Fleming.
16 I am a member of the Inter-Church Uranium Committee
17 Educational Cooperative and I am going to make my comments
18 brief this morning because I believe that what I covered
19 was adequately addressed in the document that was filed
20 with the Commission.

21 I can do no better than to quote the
22 preamble to the *Canadian Environmental Assessment Act*
23 where it states that:

24 "The Government of Canada seeks to
25 achieve a sustainable development by

1 conserving and enhancing environmental
2 quality and by encouraging and
3 promoting economic development it
4 conserves and enhances environmental
5 quality."

6 Further along in the preamble, I'm sure
7 that Members of the Commission will note that it recites
8 the Government of Canada's commitment domestically as well
9 as internationally to "anticipate and prevent the
10 degradation of environmental quality in the projects which
11 are being undertaken".

12 I, once again, pose to the Commission the
13 serious concerns and reservations that ICUCEC has in
14 regards to the development of the project at McClean Lake
15 wherein it appears as though what has happened is we have
16 grandfathered environmental development -- environmental
17 impact assessments onto the original impact assessment
18 which occurred almost 15 years ago. We ask, frankly,
19 where in this project is there any evidence of long-term
20 risk management assessment having been undertaken or
21 adverted to by either the CNSC staff or COGEMA, AREVA.

22 We sat and listened to the presentations of
23 both the proponent as well as CNSC staff and, quite
24 frankly, this morning I come away with the irresistible
25 conclusion that adaptive management without adequate risk

1 assessment is alive and well in this particular project.

2 I look at the documents that have been
3 filed and the oral presentations where they talk about
4 risk assessment and the likelihood or lack of expectation
5 of there being any problems arising; for instance, the
6 removal of any requirement for doing environmental impact
7 assessments and risk analysis of whether or not drill
8 casings are going to be something that would -- the
9 absence of which could potentially cause groundwater
10 contamination and ultimately affect the water quality in a
11 large watershed in this country.

12 The other thing that troubles me as well is
13 the fact that the major deficiencies that have been
14 identified this morning by the technical review group at
15 COGEMA, AREVA doesn't really document adequately the
16 dangers that potentially could impact either the operation
17 as its taking place or the possible adverse effects that
18 could happen long term in the operation, particularly with
19 regards to worker safety. I wonder whether or not there
20 has been adequate assessment being done either by labour
21 standards as to the threshold levels of contamination that
22 will occur during the course of the operations either in
23 Phase II or the remainder of Phase I.

24 They mention -- CNSC staff has mentioned
25 about EQC evaluations not having had any adverse or any

1 negative comments or feedback. I seriously question
2 whether or not you would find any independent assessments
3 or responses coming from members of the EQC, principally
4 because there's probably a question in our mind as to
5 whether or not these persons could exercise independent
6 judgment or assessment absent some fiduciary or
7 contractual relationship to the proponent.

8 We think that in terms of having an
9 evaluation done that it should be done by somebody who is
10 independent of either the proponent or CNSC staff to make
11 some kind of qualified and qualitative evaluation as to
12 the long term safety.

13 We also wonder whether or not the changes
14 in the technology that have been proposed over the life of
15 this particular MED test project are consistent with the
16 original technology that was proposed back in 1991 when
17 the EIS took place. It's significant that when the
18 original EIS took place that COGEMA was not a party to
19 this particular process and, therefore, we wonder why at
20 this point in time that the Commission would continue to
21 steadfastly adhere to its position that a 1991
22 environmental assessment could still have the same
23 validity and force and effect that it had had in 1991, now
24 in 2006.

25 I also attached to the appendix -- or to my

1 submission, an appendix which dealt with the impacts both
2 locally, regionally and as well as nationally, to the
3 development of projects where you had this kind of
4 assessment that was not updated or -- excuse me, was not
5 renewed with a new environmental assessment.

6 And I believe that, in summation or in
7 conclusion, that this environmental assessment does
8 represent a significant technological change that does
9 warrant a new environmental assessment at this particular
10 time.

11 I would like to thank the Commission for
12 the opportunity of making this submissions this morning.

13 **THE CHAIRPERSON:** Thank you very much, Mr.
14 Fleming. As I mentioned, we also have had an opportunity
15 to read your submission as well.

16 We would like now then to move to the --
17 and please be available for questions, if you could, sir,
18 at the end.

19 We will now move to the next submission
20 which is an oral presentation by Ms. Fortugno from the
21 Fortugno Law Office, CMD 06-8-6.1. Again, she will be
22 joining us by videoconference from Saskatoon.

23 Ma'am, the floor is yours.

24 **06-H6.3**

25 **Oral presentation by**

1 necessarily transform a project into a
2 new proposal.”

3 That’s incorrect because that was not a
4 statement by the joint panel. That was a statement by the
5 Court of Appeal, and that was the court finding of fact
6 that was specific to the case before it dealing with the
7 JEB pit. And that finding of fact was that the changes in
8 the JEB pit situation did not transform that project into
9 a new proposal.

10 However, we’re faced with a different set
11 of circumstances and situations in the matter before the
12 Commission at present. For example, I’ll just refer
13 briefly to some of the comments by some of the AREVA
14 representatives. This is at page 25 of the AREVA document
15 that was referred to this morning. That:

16 “AREVA is applying innovation to
17 mining of uranium ore bodies and that
18 successful deployment could lead to
19 certain advantages.”

20 However, again, innovation suggests and
21 demonstrates that this is new and untested, and
22 “successful deployment”, that phrasing, suggests that
23 there could be unsuccessful deployment, and what are the
24 consequences of that unsuccessful deployment, and I don’t
25 believe we have a full adequate comment on that scenario.

1 So that is one reason we would seek a new environmental
2 assessment under the *Canadian Environmental Assessment*
3 *Act*.

4 Another issue that I believe arises are
5 some of the site-specific concerns with regard to using
6 the jet boring, the new proposed method for the
7 underground deposits, because Cigar Lake's situation is in
8 a different context. There may be different groundwater
9 flows. There may be different composition of the ore. So
10 these site-specific matters need to be addressed with
11 respect to this new proposal.

12 Again, I would even reiterate some of the
13 comments by the CNSC staff this morning. I believe it was
14 Rick Forbes who stated that the MED Program is a small
15 scale experimental mining method. That's not an exact
16 quote but that was the gist of what I understood him to be
17 saying. And this small scale project or program is used
18 to undertake research to develop and determine the
19 technical feasibility of the proposed mining methods.
20 Again, this is a new and experimental system.

21 Another issue that I believe arises is also
22 the mathematical modelling which is being used as the
23 substantive support for the elimination of casing and the
24 drilling method, and I believe mathematical modelling is
25 fine in a theoretical plane, but I don't believe that

1 that's adequate to deal with the reality and the site
2 specific concerns that exist.

3 For example, in the global warming context
4 scientists have shown that mathematical modelling leaves
5 out important natural phenomena, including positive
6 feedback and reinforcement that amplifies a certain
7 phenomenon in nature.

8 So that mathematical modelling may not be
9 adequate to properly address some of the outstanding
10 issues and we would seek an environmental assessment to
11 deal with those concerns.

12 Again, I just wish to reiterate some of my
13 comments in my written presentation that the proposed
14 mining method was not assessed by the panel in 1993 for
15 the underground deposits. Therefore section 74.1 of the
16 Act does not apply to exclude the project from minimum
17 screening requirements of the Act. And as no second
18 assessment is at issue, the first assessment needs to be
19 undertaken.

20 And I did review the Court of Appeal
21 decision in detail and I believe that paragraph 47 more
22 accurately reflects the situation rather than paragraph 49
23 of the decision. There, I did quote that in my written
24 submission where Madam Justice Sharlow stated that a CEAA
25 environmental screening and assessment process may be

1 triggered in future if subsection 74(3) of the Act
2 applies. For example, if, quote:

3 "...there is a proposal to undertake
4 some activity relating to the McClean
5 Lake Project that was not within the
6 panel's terms of reference such as the
7 increase and production proposed and
8 permitted by the Commission in 2001
9 which had not been considered by the
10 panel established under the
11 Guidelines..."

12 I would submit that the experimental mining
13 method, the MED Program is an activity relating to the
14 McClean Lake Project that was clearly not within the
15 panel's terms of reference.

16 Therefore, as section 74(3) of the Act
17 applies, section 74(1) of the Act does not apply and it
18 does not therefore relieve the proponent and the
19 responsible authorities from conducting an environmental
20 assessment under the terms of CEAA.

21 And I would just reiterate that my clients
22 submit respectfully that a CEAA assessment is required,
23 particularly when the environmental and health effects of
24 bore drilling and the proposed elimination of casing to
25 isolate the drill holes have not been adequately assessed,

1 studied, or proven.

2 Thank you.

3 **THE CHAIRPERSON:** Thank you very much,
4 Ma'am.

5 We're now going to just note the two
6 written submissions. One is by Maisie Shiell, as outlined
7 in CMD 06-H6.4. The other written submission is by Marion
8 Penna, as outlined in CMD 06-H6.5.

9 **06-H6.4**

10 **Written submissions from**

11 **Maisie Shiell**

12 **06-H6.5**

13 **Written submission from**

14 **Marion Penna**

15 **THE CHAIRPERSON:** And now we'll open the
16 floor for questions and start with Dr. McDill, please.

17 **MEMBER McDILL:** Thank you.

18 I wonder if I could start by asking staff
19 to clarify for the Commission, for the record, why this is
20 being brought to us as opposed to being dealt with by a
21 DO?

22 **MR. HOWDEN:** Barclay Howden, for the
23 record.

24 Last year when Phase I was considered, it
25 was considered that this was a research phase of this

1 mining technology and, as such, it wasn't necessary to
2 change any safety programs at the facility and we are of
3 the view that the programs in place were appropriate and
4 that there is no change to the risk profile and that the
5 scale was sufficiently small that the amendment could be
6 considered at the DO level. This is consistent with other
7 amendments that were made by DOs previously with other
8 facilities for research scale technology focussed.

9 Now, for Phase II, this is now -- COGEMA
10 calls it a prototype phase or a broader development phase
11 which could be done that might lead to a further Phase III
12 which is at a production level. In our view, expansion to
13 the Phase II scale is a much broader scale that will
14 involve significant work to enhance the technology. Even
15 though the current McClean programs are designed to
16 accommodate this work, we felt that the broader scale is
17 more appropriate for the consideration by the Commission,
18 and that was the reason we brought it forward.

19 **MEMBER MCDILL:** Thank you.

20 I have several questions, but I'd like to
21 start with page 13. This is in COGEMA's CMD H16.1A.

22 I'd like to ask COGEMA what was the basis
23 of the preliminary evaluation? I understand that it was a
24 mathematical model. I'd like to know the history of the
25 code that was used, its testing methodology, whether the

1 model was 1, 2 or 3D, whether it was transient or steady
2 state and then I'll go onto my next question.

3 **MR. POLLOCK:** Bob Pollock, for the record.

4 Let me start and if either Dale or Sylvain
5 wish to augment what I say, jump in.

6 The numerical simulation or the modelling
7 was basically involved -- in some cases analytical
8 solutions. For example, there's analytical solutions out
9 there having to do with the interpretation of tracer tests
10 which can be applied to the assumed injection of liquid
11 materials from the borehole into the surrounding material.
12 The question becomes one of what values do you use for
13 various parameters that you need to substitute into these
14 analytical equations.

15 We believe we have used conservative
16 assumptions to pick the values we used for these
17 analytical parameters. An obvious one, for example; what
18 concentration of a potential contaminant such as uranium
19 or arsenic do you assume to be present in the water that's
20 in the borehole during the testing program? Clearly,
21 running a real test to get real numbers will remove
22 significant uncertainties. We would expect to see lower
23 numbers than we have assumed. That's one of the fairly
24 obvious types of parameters to be established during the
25 actual physical testing.

1 Also, have used numerical modelling, basic
2 computer models where one uses various mathematical
3 algorithms to simulate the behaviour of the real world
4 systems typically divided into grids where one establishes
5 parameters for the properties of the grid; for example,
6 the hydraulic conductivity of the sandstone.

7 In this case, we have a large regional
8 model which has been well developed and I can't recall the
9 precise statistics but literally hundreds of results for
10 Hydraulic Conductivity Tests, thousands of boreholes to
11 establish the elevations of different types of geologic
12 strata and measurements such as flows and hydraulic heads
13 in the wells and flows in the surface streams. This large
14 regional model used modflow; a very well-known well-
15 established numerical model. It's at a large regional
16 scale so it removes uncertainties on the boundary
17 conditions and the advantage is that you can then setup a
18 small local sub-model; in effect, just the region around
19 the MED Program area and you can use the results out of
20 this large regional model so that you can establish the
21 boundary conditions for the sub-model with confidence that
22 you're consistent with your overall regional modelling.

23 So we have a combination of parameters that
24 are well established or, certainly, their ranges are well
25 established; things like hydraulic conductivities of

1 sandstone, et cetera, in the McClean Lake area, and you
2 have models which go in which are assumptions thought to
3 be conservative. As they pointed out, an obvious one is
4 the actual concentration that you assume for uranium or
5 arsenic in the water.

6 We've run the model in transient
7 conditions; also run it with and without periods of
8 recovery pumping. In other words, if you run the mining
9 test for perhaps 48 hours to mine a cavity and then you
10 run after you've -- we would then pump out the cavity in
11 preparation for backfilling but if you then run that
12 pumping period out for varying periods of time or varying
13 rates, how much do you estimate that you would recover of
14 whatever you have estimated might have been lost into the
15 aquifer.

16 Another key parameter; and again, we need
17 operation experiences; what are the actual head
18 differences? It is possible that we may actually be able
19 to run this test at overall negative heads relative to the
20 surrounding aquifer, in which case there won't be any loss
21 of a material out to the aquifer. We didn't make that
22 assumption for the modelling. We again made assumptions
23 on what we think is a conservative amount of material that
24 would be released.

25 So we need some real data to confirm some

1 of these assumptions that we believe were conservative but
2 that's yet to be confirmed.

3 **MEMBER McDILL:** Thank you. That answered
4 most of them.

5 I wonder, just for clarification, is it a
6 three dimensional flow model or is it an axi-symmetric or
7 what; do you know?

8 **MR. POLLOCK:** Well, modflow and, again, I'm
9 starting to get along the edge of my expertise here is, to
10 the best of my knowledge, it's a -- well, certainly it's a
11 three-dimensional model; that is, finite differences as
12 opposed to finite element structures and it's a very well-
13 known, widely-used -- if you wanted a further comment on
14 modflow, I see Dr. Flavelle sitting over behind me to my
15 left. He's well familiar with modflow and its
16 capabilities.

17 **MEMBER McDILL:** Thank you.

18 Maybe I'll just shift over and ask for a
19 comment from staff whether you're satisfied that the
20 modelling that was undertaken to this point is an adequate
21 representation of the real physical conditions.

22 **MR. HOWDEN:** I'm going to ask Peter
23 Flavelle to respond to that.

24 **MR. FLAVELLE:** Thank you. For the record,
25 I'm Peter Flavelle. I'm with the Geosciences and

1 Environmental Compliance Division.

2 I can offer you some general comments on
3 modelling and modelling of the McClean Operation on the
4 larger scale that Mr. Pollock referred to, but at the
5 moment we are in the process of examining the modelling
6 that they have submitted in support of removing the
7 casings and I think it would be premature to offer any
8 comments on that in a public hearing.

9 Generally, for the larger scale of the site
10 COGEMA has revised their modelling over the past few
11 years, consolidated several different subsets of the
12 modelling which were done originally into a consistent
13 large-scale model and calibrated it with their operational
14 compliance monitoring data. So we are well satisfied with
15 their current version of the larger site model.

16 How they have extracted from that the
17 smaller scale model for the MED Program and what
18 assumptions and limitations they are applying to using
19 that smaller model is currently under review. We expect
20 that we will not be able to say anything definitive about
21 that until we see some results from the Phase I testing
22 that they are currently undertaking.

23 **MEMBER McDILL:** Roughly how long will it be
24 before some of those results come in?

25 **MR. HUFFMAN:** The evaluations will be

1 conducted as part of the Phase I testing so we expect
2 those results to be June-July of this year.

3 **MEMBER McDILL:** One more ---

4 **MR. HUFFMAN:** Dale Huffman, for the record.
5 Sorry.

6 **MEMBER McDILL:** My last question for this
7 round.

8 What is the advantage -- financial comes to
9 mind immediately, but what is the advantage other than
10 that of removing the casing?

11 **MR. POLLOCK:** Bob Pollock, for the record.

12 I believe you have identified the driving
13 force behind not using casings.

14 Clearly, it's much more economical both in
15 terms of the materials and the timing to carry out these
16 activities without casing.

17 We note that our commitment is to continue
18 using casing until we have demonstrated the lack of
19 significant impacts by not using them. As we have
20 mentioned, right now we're using what we think are
21 conservative estimates of key parameters. We need some
22 real data.

23 **MEMBER McDILL:** Thank you.

24 **THE CHAIRPERSON:** Dr. Barnes.

25 **MEMBER BARNES:** Thanks.

1 I'm puzzled and somewhat concerned about
2 the submission because, first of all, the level of
3 information, I think, on both sides is rather limited and
4 I think particularly on the staff in terms of, I would
5 say, critical evaluation as opposed to repeating some of
6 the basic items of information.

7 But as I understand the proposals here for
8 Stages 1, 2 and 3; Stage 1 is a research phase; Stage 2 is
9 a development stage or prototype; Stage 3 is a production
10 phase, and you've given a schedule for that.

11 Being a research phase, that's to take us
12 at least through a certainly level of understanding in
13 order to justify that you then go on into the development
14 stage.

15 And Stage 1 as proposed was to drill five
16 holes in order to demonstrate and understand the situation
17 that we're dealing with here. And what you've given us in
18 the information is sort of some general information, but
19 when it comes down to specifics, there's almost nothing
20 here.

21 In fact, what's reported is essentially one
22 hole that wasn't drilled straight. And so as a research
23 project, getting information to justify going on to Phase
24 II, I don't see that the data is there and we can come on
25 to whether it's the casing or whether it's the groundwater

1 conditions, et cetera, et cetera. So it seems to me that
2 this hearing is essentially premature on the basis that
3 these are three logical phases.

4 Now, obviously there's some practical
5 applications that I think we all understand in the
6 licensing condition, particularly because some of these
7 situations are weather related in terms of being able to
8 get in, but in times that you've come before, you've been
9 one to do the drilling in the winter because it's been
10 easier there than in the summer, and here we are sort of
11 coming into the -- I won't say summer yet, but into the
12 spring.

13 And so again, there's no information here
14 about when the other four holes are going to be drilled
15 and perhaps they're underway now. Perhaps some have been
16 completed since these documents were submitted.

17 But basically, I'm looking at some
18 justification for the moving to Phase II based on Phase I
19 when so little information has come out of Phase 1. And
20 so I don't see that from the proponent and I'm not quite
21 sure how staff can give us the kind of assurances that
22 were implied in their documents to let us move to Phase
23 II. So that's my first question.

24 Why are you here today and why should we
25 consider moving to Phase II at this stage with so little

1 information?

2 **MR. POLLOCK:** Bob Pollock for the record.

3 We had originally hoped to have made more
4 progress last summer and fall than it turned out we did.
5 We had equipment problems and problems with getting the
6 holes sufficiently straight to be able to case them so
7 that we're now moving forward with those five holes.

8 If one looks at the test, we would like to
9 continue this testing during the periods when the weather
10 is good in northern Saskatchewan, not go through this
11 development activity later in the year, or at least not
12 start into when it's later in the year, when it's cold
13 out. So we'd basically like to be able to move
14 continuously from Phase I into Phase II. We don't see
15 where the impacts at Phase II are potentially
16 significantly different than those from Phase I. We have
17 committed to leave the boreholes in -- sorry, leave the
18 casings in until such time as we've made our case so that
19 they can be removed.

20 We simply don't see where there's any
21 substantive difference in potential impacts on just moving
22 continuously from Phase I to Phase II. We have made, we
23 think, conservative estimates of the groundwater impact
24 and this will be relatively quickly confirmed from the
25 results that are in the early holes.

1 **MEMBER BARNES:** But your last statement is
2 exactly my point. You're making it on the basis of
3 estimates.

4 **MR. POLLOCK:** Well, if we ---

5 **MEMBER BARNES:** And I assume those
6 estimates are the mathematical modelling that Dr. McDill
7 has just discussed, for which you ---

8 **MR. POLLOCK:** The alternative is then just
9 to leave the casing. If we don't make our case in terms
10 of removing the borehole casings, then clearly one -- and
11 again, the licence condition is quite explicit there --
12 then we continue to case -- we continue to case the holes.
13 If it takes longer to make the arguments than we think it
14 probably should take, so be it. We leave the casings in
15 place.

16 **MEMBER BARNES:** How many holes have you
17 drilled as of today?

18 **MR. POLLOCK:** In terms of holes that are
19 down into the ore body, we have not drilled any into the
20 ore body or done any work in the ore. We are -- Sylvain
21 can -- in fact, I'll ask Sylvain to update us on where we
22 are. We're in the process of drilling in the zone above
23 the ore body for the five holes.

24 **MEMBER BARNES:** So perhaps you could refer
25 to Figure 13 which gives us the sequence of eight phases.

1 But again, I would remind you that we're --
2 you were to do under Phase I, five holes; is that right?
3 Now, were those five holes through the full eight stages
4 as we see here, or to what level in that numerical listing
5 were the five holes to have been done in your Phase 1?

6 **MR. POLLOCK:** In Phase I we were
7 unsuccessful in drilling ---

8 **MEMBER BARNES:** No, what I was asking is
9 what was planned? What was stated as what work you were
10 going to propose in drilling those five holes? What did
11 that mean relative to the diagram that you've got on page
12 13?

13 **MR. POLLOCK:** We had planned to complete
14 all of the phases shown for those five holes.

15 **MEMBER BARNES:** Right. Up to Stage 8 for
16 each of those five holes; correct?

17 **MR. POLLOCK:** Yes.

18 **MEMBER BARNES:** And what we're seeing at
19 the moment is one hole, which is probably equivalent to
20 Stage 2?

21 **MR. ECKERT:** Sylvain Eckert for the record.
22 We drill one hole through the overburden to
23 the top of the ore zone. This hole was not drilled
24 straight and we couldn't put a casing in and we couldn't
25 lower the mining tool down because there was a high risk

1 of losing all the mining tools down the hole.

2 **MEMBER BARNES:** So really, that's Stage 1
3 on this diagram, is it?

4 **MR. ECKERT:** Stage 1 is delineation
5 drilling. We have done already delineation drilling based
6 on the exploration bore holes that were drilled back in
7 the eighties.

8 **MEMBER BARNES:** So really, there isn't a
9 diagram on this that really adequately covers it, where
10 essentially you've got one hole that goes down to the
11 bottom of the diagram.

12 **MR. POLLOCK:** We have one hole now which
13 has been successfully drilled to the ore zone.

14 **MEMBER BARNES:** Right.

15 **MR. POLLOCK:** We don't wish to carry out
16 the testing in the ore zone until we're past freezing
17 conditions.

18 **MEMBER BARNES:** Right.

19 **MR. POLLOCK:** We're not set up for
20 winterization of that part.

21 I think the other four holes are all
22 drilled down through the surficial overburden, not through
23 the sandstone. The hole is wider down through the first
24 few metres of overburden. Those are completed. So we
25 believe we now have behind us the issues around being able

1 to drill down to the ore zone. It's simply a matter of
2 getting it done.

3 **MEMBER BARNES:** And again, just to come
4 back, to follow up to Dr. McDill's -- are you saying that
5 drilling those five holes down to Stage 8 -- when would
6 you anticipate that being completed?

7 **MR. POLLOCK:** Bob Pollock for the record.
8 Our bar chart on page -- in our submission,
9 right near the end, the second-last figure on page 24 of
10 our oral presentation this morning shows Phase I running
11 from March through to July of this year, and then Phase II
12 continuing on to take advantage of the summer weather
13 continuously.

14 **MEMBER BARNES:** I'm just trying to get away
15 from general comments as to the reality of these things.
16 So since you had difficulty drilling one hole straight
17 with the casing, and here we are, as of tomorrow, into
18 April, I guess, you're saying that you will have drilled
19 five holes all through stages 8 on Figure 13 by the end of
20 July?

21 **MR. POLLOCK:** I think we have resolved -- we
22 have different equipment this year than we had last year.
23 So I think we resolved the issue of being able to drill
24 these relatively larger diameter holes down through the
25 rock.

1 **THE CHAIRPERSON:** I'm sorry, that doesn't
2 answer the question. The question is will you have gone
3 through all five of those -- through all eight stages and
4 when will you have done that?

5 **MR. POLLOCK:** Bob Pollock for the record.
6 We're projecting to get that done between
7 now and the end of July.

8 **MEMBER BARNES:** Thank you.
9 Let me come to the casing issue, and I
10 understand the cost and, to some extent, the complexity of
11 putting casing in, but casing helps -- correct me if I'm
12 wrong here -- in two things, in giving stability to the
13 holes that you're putting in and also better control on
14 fluid migration in and out of the holes.

15 So we're looking at a prospect here in
16 Phase III in a fairly small area of drilling 180 holes,
17 each of which, at least at the lower end, would have a
18 diameter of 60 centimetres; correct? And, as we just
19 heard, much wider at the top the hole. What would be the
20 diameter at the top of the hole and the overburden?

21 **MR. ECKERT:** The top of the hole would be
22 40 inches.

23 **MEMBER BARNES:** Okay. Now, am I right in
24 thinking that at this stage, setting aside sort of the
25 regional groundwater flow system -- I'll formulate my

1 question better.

2 Do you think you've done delineation
3 drilling around this pod to really understand the
4 groundwater flow within the area that you're going to be
5 drilling, within this sort of fairly narrow area of Pod 1,
6 given all the things we've talking about in many other
7 hearings about -- you're admitting to poor ground
8 conditions. When you get down to this scale of situation,
9 there can be a lot of local variation. You've seen this
10 in some of the other mine difficulties you've had with
11 very high groundwater flows and so forth.

12 At this point, do you feel that you have an
13 understanding of the groundwater situation associated with
14 this specific pod?

15 **MR. POLLOCK:** Yes, with the caveat that we
16 will collect information such as piezometre heads or
17 hydraulic heads in this array of holes as we drill them.
18 So that will help confirm if there's any local anomalies
19 that should be superimposed on top of the broader regional
20 scale model.

21 **MEMBER BARNES:** Okay. And as I understand
22 it, when you're finished with these holes you're going to
23 have some kind of -- let me just follow up with another
24 thing.

25 Mr. Pollock, you just said that you would

1 essentially pump out the cavity once drilled before
2 putting in sort of the concrete mix. But in an uncased
3 hole like this where you show groundwater pretty well up
4 to the surface, do you have enough assurance that this
5 hole isn't simply going to fill with water before you get
6 a chance? How are you going to control the pumping out
7 versus the concrete -- versus particularly any spoiling
8 down to the hole if it's in an uncased situation?

9 **MR. ECKERT:** Sylvain Eckert for the record.

10 What we will do is pumping the holes via
11 airlift. So it means basically lowering down a compressed
12 air line down to the bottom of the hole and develop it
13 using that airlift method. After that, if the hole stays
14 without water, we'll just dump some concrete in to
15 backfill the cavity. If we experience a high groundwater
16 flow, which is very unlikely, we'll draw the concrete down
17 to the hole.

18 **MEMBER BARNES:** And the 60-diameter
19 borehole that you will drill, as I read the document, will
20 be filled in with the waste chips. Is that correct?

21 **MR. ECKERT:** That's correct.

22 **MEMBER BARNES:** So what we will have
23 towards the end of Phase III is 180 vertical pipes of
24 about 60 centimetres in diameter going down 150-170 metres
25 with rather relatively high permeability. Is that

1 correct?

2 **MR. POLLOCK:** In the borehole, yes, but
3 that's .6 metres. We would expect these cavities to be
4 about three metres in diameter so that you have a three-
5 metre -- essentially, three-metre centres of these
6 boreholes in the array. So if you look at the overall
7 volume of rock that's affected by these vertical holes
8 versus the overall volume of rock, it's .6 over 3 squared.
9 I didn't do the number in my head, but it's not a
10 particular large number, and I think it's fairly
11 straightforward, certainly in terms of groundwater
12 transport to make some type of adjustment to the
13 macroscopic -- to the hydraulic conductivity of the
14 region, to take into account that you've got some
15 relatively small zones within the region, symmetrically
16 placed where you've made a difference to the hydraulic
17 conductivity.

18 **MEMBER BARNES:** I'm trying to determine
19 whether your proposed drilling technique, which is to
20 drill down, have the reaming, in a sense take out that ore
21 body, surface and mine it, but almost certainly you will
22 leave a certain amount of ore down there, right? Almost
23 certainly the concrete backfill will not necessarily be
24 perfect in filling up every space. Almost certainly there
25 will be groundwater in that situation in contact with

1 residual uranium ore that itself might be fractured
2 throughout this whole process.

3 So I'm trying to envisage, with that as the
4 subsurface situation into which you're penetrating with
5 180 boreholes, 60 centimetres in diameter, backfilled with
6 somewhat of a, I anticipate, permeable material, whether
7 this is leading to a process whereby those -- I'll call
8 them contaminated groundwaters, because we haven't done
9 enough drilling to know what that is -- have then a 180
10 potential routes up to the surface. Again, we're not
11 given any detail on the groundwater situation.

12 And I'm going to turn to staff to perhaps
13 get some specialist advice on this. Is this a potential
14 hazard that you're putting into the mechanism of drilling
15 and the mechanism of backfill?

16 **MR. POLLOCK:** Bob Pollock for the record.

17 The modelling that we have done to support
18 this particular second phase application looked at -- and
19 we believe on the basis of a conservative amount of
20 material put into the aquifer, what would then be the
21 transport of that material over time back to the surface
22 environment, and we even assumed that the transport
23 surfaced in a very small creek which is closer to the site
24 than the likely discharge zone at McClean Lake, Collins
25 Creek in the long term, and we showed in the modelling

1 quite low concentrations below the applicable surface
2 water quality criteria for long-term transport.

3 So it has been considered for the work that
4 we're currently proposing. It will be considered as part
5 of supporting any application for Phase III.

6 One is a bit reluctant to go too far with
7 modelling with some of the absolutely key parameters still
8 being -- needed to be confirmed -- but the modelling we
9 have done, which we believe shows that the long-term
10 impacts are well below those adversely affecting surface
11 water quality.

12 **MEMBER BARNES:** I understand, but I think
13 we're coming back to the modelling of a somewhat generic
14 type of modelling, more based on regional flow situations,
15 and I think I heard Mr. Flavelle say that at this point he
16 was not obviously prepared in a public hearing to comment
17 on the more specific plans that you have, but it seems to
18 me that until you've got more drill holes, you won't be
19 able to really use modelling in a -- to verify the results
20 of modelling and put it in the terms of the scale in
21 geometry of the particular pod that we're dealing with
22 here; correct, for which you're being licensed.

23 Could I just turn to staff and get some
24 comment, particularly specialist advice on is there any
25 long-term environmental, I will call hazard, of moving

1 contaminated groundwater from subsurface through the order
2 of 180 drill holes in Phase III? It's obviously going to
3 be up to 20 in Phase II by simply backfilling these with
4 the chips of the overburden?

5 **MR. FLAVELLE:** For the record, this is
6 Peter Flavelle.

7 You have identified one of our major
8 concerns with looking at this; it's the potential of
9 essentially scale effects of moving up from a research and
10 demonstration phase to a full mining phase.

11 As I mentioned earlier, we have not yet
12 seen complete modelling of this and we're in the process
13 of examining what modelling had been submitted to us. But
14 one of our first concerns is having a borehole every 3 to
15 3.5 metres over that area.

16 And in looking at the Application to
17 eliminate the casings we will be explicitly looking at the
18 difference in potential impacts between the cased holes
19 and the uncased holes.

20 Quite apart from the issues that you've
21 identified as to the stability of the walls of the
22 boreholes and potential problems with actually operating
23 in an uncased hole, as I said, we will look explicitly to
24 see groundwater flow modelling and contaminant transport
25 projections for having the entire array of holes in place

1 and either cased or uncased.

2 At the moment it is premature, without
3 seeing some operational data on how much contamination may
4 be released from a hole, to speculate on what that may be.
5 But we'll be looking to confirm or refute their assumption
6 test to the amount of contaminants which may be released
7 from the hole compared to what they actually monitored
8 during the testing in Phase I.

9 **MEMBER BARNES:** Could I also ask staff the
10 same, most especially this question: Given that you're
11 drilling up to 180 holes -- and the number actually
12 probably doesn't matter -- and the next phase it's up to
13 20 and the point is that they're very close to each other
14 and you're having a drill rig of the scale that we've
15 looked at imposes quite a local loading on a readily sort
16 of unconsolidated maybe firm till.

17 Is this of any concern to staff in the
18 actual mechanism, moving from hole to hole which is really
19 just a few metres and the viability of these holes
20 remaining open?

21 **MR. FLAVELLE:** It's Peter Flavelle again.

22 The logistics of performing this is
23 something which we intend to look at in terms of potential
24 environmental effects and possible hazards for health
25 effects.

1 As to the technical viability of
2 maintaining the holes open and moving that much equipment
3 around and using it in such a confined space is more of an
4 economic issue for the company to deal with the logistics
5 of that. We'll be looking at that in terms of the
6 potential impact on worker safety and eventual
7 environmental impact; what that may end up -- the problems
8 that it may pose.

9 For example, if they lose a well because
10 it's uncased and the walls cave, we will be looking for
11 plans and programs to remediate that, to deal with such a
12 contingency.

13 **MEMBER BARNES:** But you are moving -- I
14 mean, you've got various pipes and tubes going down the
15 holes, but you're also moving a very large amount of water
16 through here. There's an admission of a fair amount of
17 spillage of water, as I read the document, around the
18 site. It could be contaminated water. We've got workers
19 right at the drill site.

20 Again, I was concerned about uncased
21 situations creating a hazard to drilling personnel like
22 that.

23 **MR. SCISSONS:** Kevin Scissons, Director,
24 Uranium Mines and Mills Division.

25 There's two parts to this question that we

1 can relate to. One, if I can get our slides, and we can
2 refer back to our Slide No. 5 with the drill rig?

3 I first want to demonstrate in that slide,
4 that picture, underneath the drill rig the truck and
5 obviously the drill rig, it's on a lined concrete pad and
6 the drilling -- sorry, it's on a lined pad drill pad area
7 and the drilling would be performed on that so the
8 collection containment of materials on and in around the
9 surface are contained on that for the immediate controls.

10 The other aspect with respect to previous
11 experience by this same operator, COGEMA, at the Cluff
12 Lake Project, it was drilling of a -- from surface --
13 techniques from surface of drilling down and accessing
14 through freezing and then trying to recover ore off there.
15 The same experience is a very tight grid pattern
16 controlled on surface, monitored through operation from
17 the surface. Those controls were in place. The success
18 of doing this in and about -- from surface in close
19 pattern and even close to water bodies has been
20 successfully tried and proven not only at what we were
21 expecting to see continue at McClean Lake, but as has been
22 done previously at Cluff Lake Facility from the surface.

23 So those measures and controls of drilling
24 and a close pattern drilling have been tried and proven,
25 monitored and verified.

1 **MEMBER BARNES:** The technique, but not the
2 fact that you are drilling 180 holes from the surface?
3 Sorry.

4 **MR. SCISSONS:** Kevin Scissons.

5 I may have to refer back to COGEMA as to
6 how many holes were drilled at the Cluff Lake testing, but
7 those quantities, I believe, were upwards of 50 to 80
8 holes in a very tight pattern and it may be more. I'm not
9 sure if we have that number readily available. That went
10 through the Commission a number of years ago on a previous
11 licence for Cluff Lake. So I'm sorry; I don't have those
12 data or pictures even available.

13 The overall basis of this test and this
14 test work really is going to be one hole at a time. We
15 have seen the licensee put in place methods and procedures
16 and oversight, and we verified it with our own inspections
17 including our unannounced drive-up surprise inspection to
18 verify that they are indeed carrying on the activities as
19 they have been approved and they are following the
20 oversight supervision and changed management controls on
21 site.

22 We can speak to the licensee's record of
23 maintaining control and close scrutiny, especially in this
24 test phase of this project thus far.

25 **THE CHAIRPERSON:** Dr. Dosman.

1 **MEMBER DOSMAN:** Thank you, Madam Chair.

2 Several questions. I'm just wondering if
3 it would be possible to see the group in Saskatoon? Thank
4 you.

5 My first is really a comment to Mr. Fleming
6 of the Inter-Church Committee. I'm just wanting to
7 comment on your comment which I interpreted as encouraging
8 the Commission to, if you like, not take full account of
9 views of the Environmental Quality Committee, and I would
10 like to assure you that Madam Chair and I have met with
11 that committee in La Ronge and I personally, as a
12 Commissioner, consider the Environmental Quality Committee
13 to be an extremely important element of obtaining views
14 from the people of northern Saskatchewan.

15 Now, I have a question on the financial
16 guarantees, perhaps for staff. The amount of \$34,000
17 somehow, without me being an engineer, seemed somewhat low
18 and I'm just wondering if staff is able to comment on the
19 issue of the financial guarantees?

20 **MR. FORBES:** Rick Forbes, for the record.

21 We were submitted documents on their
22 estimates on that which included moving the material, the
23 pad that's there, which is a relatively small pad, with
24 their mining equipment. It was a matter of days of the
25 cleanup that would be taken in order to clean that

1 material all up and take it to the Sue C pit.

2 So that's a reasonable estimate.

3 **MEMBER BARNES:** This is a hole that's about
4 400 or 500 feet deep and some 60 centimetres in diameter
5 and so on, and I take it staff is confident that what
6 seems like a relatively low figure is appropriate?

7 **MR. FORBES:** Rick Forbes.

8 As far as the holes go, each hole is filled
9 as they complete it and the filling is -- the cavity where
10 the ore is will be backfilled with concrete which will
11 eliminate concerns about water migration into the hole,
12 and at this point in time the holes will be cased and the
13 backfilling will be done to surface with air so that the
14 casing will protect the environment from any outward
15 migration as well too.

16 So that is done as they move along. So
17 this won't be part of the decommissioning.

18 **MEMBER DOSMAN:** Madam Chair, for COGEMA, I
19 have some questions with regard to the pumping of water
20 and the pressures.

21 I take it the pressure head is one to two
22 metres. These are relatively high pressures and I think I
23 can understand why these kinds of pressures would be
24 required, but does the company have previous experience in
25 handling pressures of this nature in dealing with the

1 extraction of the slurry?

2 **MR. ECKERT:** Sylvain Eckert for the record.

3 As a company, we don't have much experience
4 with dealing with high pressure water and high pressure
5 plumbing, but all the high-pressure pumps, high-pressure
6 plumbing and looking at all the lines to the rig is
7 subcontracted to a company which is a jet grinding company
8 and has experience working with that. They actually
9 manufacture the high-pressure pumps and high-pressure
10 jetting equipment for similar works.

11 **MEMBER DOSMAN:** Could I just ask the
12 company if you have confidence that pumping at these
13 pressures will not represent any undue occupational health
14 and safety risks to the workers involved?

15 **MR. POLLOCK:** Bob Pollock for the record.

16 As we've noted, part of the planning for
17 this is to develop what are called Safe Work Plans. It's
18 a standard part of our planning process for any type of
19 activity that has potential hazards, regardless of whether
20 it's tearing down the mill at Cluff Lake or pumping high
21 pressure water.

22 So the people that are directly involved
23 with this and their supervision look very carefully at
24 what can go wrong and what precautions are needed to
25 establish a safe work plan for the activity.

1 **MEMBER DOSMAN:** Thank you.

2 I guess my question, really, relative to
3 that, is the occupational health and safety of workers
4 working around in the area of an uncased hole of 60
5 centimeters in terms of potential collapse of terrain and
6 so on, and does this represent any undue risk for injury
7 amongst the workers?

8 **MR. POLLOCK:** I'll ask Sylvain to comment
9 on that.

10 But again, the risk is more one that at a
11 depth one has some amount of material that falls into the
12 hole and traps this mining tool which is a fairly
13 expensive tool. So we're going to be fairly cautious, for
14 example, in terms of if the ground conditions are poor
15 we're going to want to case that -- even if we're
16 generally not casing holes, we're going to want to case
17 that hole just to protect our investment in the mining
18 tool. The person that loses that tool would not be
19 popular.

20 So there is a certain measure there that if
21 the ground conditions are poor, we'll probably case the
22 hole for that part. And I can't -- you know, the scenario
23 you project of some sort of more broad collapse of ground,
24 given 60-centimetre holes on three-meter centres, it just
25 doesn't strike me that this is the type of thing that in

1 any way propagates or where one hole has the -- the risk
2 is more a collapsing of the hole than a collapse of the
3 area. But I'll ask Sylvain to comment more on the
4 backfilling.

5 **MR. ECKERT:** On the surface when the hole
6 is finished when we're not working on it anymore, we'll
7 cap the hole with a concrete plug as well to make sure
8 that there is no hazard associated to that hole.

9 **MEMBER DOSMAN:** Madam Chair, just one more
10 question, and that involves potential radiation risk to
11 workers in the context of the aeration of the slurry,
12 which I think is -- I take it the pumping of air down is
13 to lighten the slurry so that it's possible to extract it
14 from the height given the pressures involved. It would be
15 sort of like opening up a can of pop presumably. And I'm
16 just wondering whether this -- whether COGEMA has any
17 experience with aeration of the slurry and whether the
18 aeration and those pressures and so on, evaporation,
19 results in any potential for radiation risk to nearby
20 workers?

21 **MR. HUFFMAN:** Dale Huffman for the record.

22 The air is added to the slurry to reduce
23 the volume and this material be directed to the separation
24 facilities. That's kind of the outlet for this which is
25 an open air facility so that any sort of concern about

1 radon gas and that would dissipate rather quickly.

2 However, this is a project that our
3 radiation protection folks are going to watch carefully to
4 learn about these sorts of things, what the exposure
5 hazards are and we're taking quite a conservative approach
6 to start.

7 **MEMBER DOSMAN:** If I may, does COGEMA have
8 any experience with the aeration of slurry?

9 **MR. ECKERT:** No, we don't. We have
10 experience through Cigar Lake and McCarthur operation in
11 which we are partners, and we have also Saskatchewan
12 Research Council as a group which worked for us last year
13 in that airlift and slurry pumping design.

14 **MEMBER DOSMAN:** Thank you.

15 **THE CHAIRPERSON:** Mr. Graham.

16 **MEMBER GRAHAM:** Thank you, Madam Chair.

17 Some of the questions this morning lead to
18 more questions, really, and I guess one of my first
19 questions would be as a follow-up to Dr. Dosman's question
20 on the financial guarantees.

21 To CNSC staff, you've indicated that 34,000
22 was adequate because all the holes would be cased, but
23 we're also talking about perhaps the holes not being
24 cased, or some of them not being cased.

25 My question then is will there be a

1 licensing condition that this will change if their method
2 of drilling and casing is different?

3 **MR. FORBES:** Rick Forbes for the record.

4 First, the case in issue is a condition
5 there and we share the same concern about the conductivity
6 of the drill hole and that will be part of the assessment
7 of that.

8 As the drilling is progressing they still
9 will be filled though and we want to make sure that there
10 will be no migration of contaminants into the environment.

11 **MEMBER GRAHAM:** My question is though if a
12 hole is not cased or certain holes are not cased will the
13 financial guarantees be increased?

14 **MR. FORBES:** Rick Forbes for the record.

15 Yes, that will have to be evaluated. But
16 still one of the key criteria in the assessment will be
17 not contaminating the environment as part of the casing
18 proposal.

19 **MEMBER GRAHAM:** Somewhere else in the
20 presentation or in the documents there was talk of a
21 possible pipeline to -- I believe the pipeline was to Sue
22 E. The pipeline was being considered to Sue E. If that
23 is built, then would the decommissioning of that pipeline
24 also change the financial guarantees?

25 **MR. FORBES:** Rick Forbes for the record.

1 The pipeline is not part of this
2 application. If they want to put a pipeline in, they'll
3 have to put an application in.

4 **MR. GRAHAM:** My next question then goes
5 back to slide 24 of AREVA with regard to timeframes. In
6 Phase I you want to have it finished by the end of July,
7 Phase II by the end of December, and so that would mean
8 that 20 holes would be completed by the end of December;
9 is that correct?

10 **MR. POLLOCK:** Bob Pollock for the record.
11 That's our current projection.

12 **MEMBER GRAHAM:** Also, then I presume that
13 October, November, December is relatively cold up in that
14 part of Saskatchewan. Pumping slurry to the top, to the
15 surface, having winter -- participating in winter
16 conditions, has that all been -- will that all -- I guess,
17 will all those holes be winterized, will all that slurry
18 and operating equipment be winterized to be able to handle
19 that up until the end of December?

20 **MR. HUFFMAN:** Dale Huffman for the record.
21 Part of the application includes comments
22 about winterizing all of this equipment so that we can
23 adequately continue, yes.

24 **MEMBER GRAHAM:** A question to CNSC staff.
25 Are you satisfied that the plan for winterization to

1 complete Phase II by the end of December is adequate to
2 accommodate the slurry coming to the surface and that it
3 won't contaminate the environment?

4 **MR. SCISSONS:** Kevin Scissons.

5 The winterization of drill rigs, drilling
6 wells, water wells in northern Saskatchewan is a proven
7 technology and the basis of that is something we would
8 clearly want to see bringing forward.

9 We've reviewed some recent review of
10 winterizing of the current Phase I equipment and process.
11 We will do a technical review on that to ensure that it
12 could be undertaken safely again through the winterization
13 of that program on almost the hole-by-hole basis.

14 And the design controls and change
15 management controls to undertake that activity would
16 follow the same scrutiny and approval process not only by
17 the licensee but by ourselves in reviewing those
18 applications and winterization of that equipment.

19 **MEMBER GRAHAM:** Another question to AREVA
20 with regard to the backfilling. You indicated in 3.4.2
21 that approximately 4,000 tonnes of ore will be extracted
22 from this Pod 1. So I would presume that the backfill of
23 concrete will be about 4,000 tonnes; is that correct?

24 **MR. ECKERT:** That's correct. It's going to
25 be a little bit more because we probably will go a little

1 bit in the hole with the concrete.

2 **MEMBER GRAHAM:** So then you pour the
3 concrete. You fill the chamber. Then the rest of the
4 cylinder upwards will be backfilled just with
5 uncontaminated material; is that correct?

6 **MR. ECKERT:** That's correct.

7 **MEMBER GRAHAM:** What accommodations do you
8 have then for settlement? Because these holes are going
9 to be really 10-foot centres probably and they're going to
10 be 40 centimeters, which is about two-foot diameter holes.
11 So there's going to be a lot of them. Do you cap every
12 one of those with concrete before you proceed to the next
13 one, or how does that work?

14 **MR. ECKERT:** Sylvain Eckert for the record.
15 Yes, that's correct. We will be capping
16 all the holes before proceeding to the next one.

17 **MEMBER GRAHAM:** How big is the cap that
18 you're putting? How thick is the cap that you're putting
19 on these to accommodate non settlement of sediment so you
20 don't get a sinkhole effect in the area?

21 **MR. ECKERT:** Right now we're putting a cap
22 which is already built, and it's built outside of the area
23 and brought to the hole because we're still working on it.

24 What we're going to do is design properly
25 using design control and change control management to

1 capping of these holes.

2 **MEMBER GRAHAM:** But the geology as such of
3 the area -- what I'm concerned about is the safety of
4 workers on the site, and you're developing a cap or a plug
5 to go on the top, and we don't know yet what the thickness
6 of that is, and so on. I presume CNSC will have to
7 approve it.

8 But what concerns me is if you get
9 deterioration between the concrete cylinder, the concrete
10 cell on the bottom and you have water flow and so on with
11 a lot of holes and so on with -- I'll use layman's terms
12 -- 10 feet on the centre, 20-inch holes or 24-inch holes,
13 there's a lot of instability in the ground.

14 What assurance do you have that we don't
15 get into a sinkhole or a type of collapse of a hole area
16 which might -- because you're going to have heavy
17 equipment up there on top, drilling next to it and so on,
18 and the safety of workers. How can you assure that this
19 process will not affect the safety of workers?

20 **MR. ECKERT:** Sylvain Eckert for the record.

21 Right now, the cap I was talking about, its
22 diameter is much bigger than the diameter of the hole
23 itself. So it covers a wider area than just the area of
24 the hole, but protects the hole.

25 **MEMBER GRAHAM:** So what you're saying then,

1 in essence, because it's larger, the hole area will
2 probably be -- the caps will meet each other from one hole
3 to the other or what? I just don't follow. If they're
4 going to be much larger, it's not much larger. Ten (10)
5 feet is not much larger.

6 So are you going to have the hole area
7 concreted in a cap?

8 **MR. ECKERT:** Sylvain Eckert for the record.
9 At the end of the day, yes.

10 **MEMBER GRAHAM:** CNSC approved this method.

11 And are you satisfied that safety workers and the
12 stability of the soil will warrant the support of this
13 type of plug or cap?

14 **MR. SCISSONS:** Kevin Scissons.

15 The plug as a proven method for capping a
16 hole is part of the evaluation that will take it from
17 Phase II to Phase III. In other words, there could be
18 upwards of 20 holes that will be going through this
19 capping process. So overall, there's a minimal risk in
20 that area of those 20 holes.

21 And in this evaluation of the capping
22 method and outcomes of the success of that capping, we
23 would also be undertaking a review not only by the
24 licensees and their contractors and consultants, but also
25 by CNSC and in concert with Saskatchewan Labour because

1 worker health and safety is an issue we deal with in a
2 harmonized or joint approach. So we will assess those
3 activities in the close-out of those holes and in terms of
4 capping and worker protection and safety in a very joint
5 approach and it will be done and formalized through the
6 end of the Phase II and before moving the proposed Phase
7 III.

8 **MEMBER GRAHAM:** So you'll have known
9 technology and proven technology before you come back to a
10 Phase III approach -- or Phase III Application. Is that
11 what you're saying?

12 **MR. SCISSONS:** Kevin Scissons?

13 Yes, that's what we would be seeking before
14 they would be moving to a Phase III approval.

15 **MEMBER GRAHAM:** Madam Chair, I just have
16 one further question, and I don't want to belabour it, but
17 with regard to the water in "Water Management", 3.7 on
18 page 3, section 3.3 of 7. And you're talking about
19 approximately 10,000 cubic metres of water, the handling
20 of that, and that you'll have a vacuum truck that will
21 transport this water to the Sue Water Treatment Facility.

22 If the capacity of a water treatment truck
23 is about 20 cubic metres, that's a tremendous amount of
24 trips. Has this been taken into consideration, the
25 transportation of that volume of water and road

1 conditions, winter conditions, and so on? Has that method
2 been proven and is that -- not the economic part, but the
3 safety part?

4 **MR. HUFFMAN:** Dale Huffman for the record.

5 We routinely transport water in that volume
6 from the site using a vacuum truck. The 10,000 cubic
7 metres does appear like a lot and we don't claim that this
8 will be an efficient method to move that water to the
9 water treatment plant, and it is why we have indicated
10 that we'll likely be back, if we're going to use that
11 volume of water, perhaps be back with a proposal to
12 pipeline it over to Sue.

13 **MEMBER GRAHAM:** So if this is not adequate,
14 then you have to come back for a licence amendment. Is
15 that correct, CNSC, for a pipeline?

16 **MR. SCISSONS:** Kevin Scissons.

17 Either it will be a licence amendment or
18 potentially it could be an approval under a licence
19 condition of the current licence, depending on the
20 significance and the application itself.

21 **THE CHAIRPERSON:** I have a couple of
22 questions. I would like to refer to the intervenor's
23 submission H6.5. There was a comment on page 3 of 3 that
24 the paragraph 3 on page 3 of 3, and the intervenor showed
25 concern about an unnamed person to approve proceeding

1 further, which was, I think, indicating a lack of
2 specificity, a person authorized by the Commission for
3 Phase III.

4 Who would be the person that would be
5 involved in that case?

6 **MR. HOWDEN:** Barclay Howden speaking for
7 the record.

8 That would be the Director General of the
9 Directorate of Nuclear Cycle and Facilities Regulation,
10 which is currently me.

11 **THE CHAIRPERSON:** There was some comments
12 made by intervenors with regards to section 74(1) and
13 74(3).

14 I would like staff to respond to the
15 intervenor's submissions regarding those sections.

16 **MR. HOWDEN:** Barclay Howden speaking.

17 I'm going to ask Michael Rinker, our
18 Environmental Assessment Specialist, to reply to that.

19 **MR. RINKER:** Mike Rinker for the record.

20 How I would like to respond is perhaps to
21 put forward staff's conclusion followed by the rationale,
22 how staff came to this conclusion on the application of
23 the Canadian Environmental Assessment Act.

24 The staff conclusion on this project was
25 that the design change as proposed by COGEMA did not

1 transform the McClean Lake Project into a new proposal,
2 and section 74(1) of the CEAA would apply and no further
3 environmental assessment under the *Canadian Environmental*
4 *Assessment Act* would be required.

5 The previous assessment that was conducted
6 for mining Pod 1, Pod 2 and I believe Pod 5 of the McClean
7 Lake deposits included mining of the ore, milling of that
8 ore at the JEB Mill. It included tailings management in
9 the JEB TMF, waste rock management, water management,
10 construction of surface facilities such as roads, pads,
11 separation facilities, et cetera. All of these things
12 were assessed in the 1991 McClean Lake EIS and considered
13 in the environmental assessment and review process
14 guidelines order in their 1993 report.

15 The rationale that the staff used to
16 consider whether this was a new proposal or not is based
17 on a couple of questions; is this a design change that is
18 based on technological improvement, and would this
19 technological change transform the project into a new
20 proposal.

21 In the Federal Court of Appeal Reasons for
22 Judgment involving a McClean Lake Project, it was
23 recognized that design changes resulting from changes in
24 technology would be, at the time -- the AECB is now the
25 CNSC's responsibility to consider under our licensing.

1 The EIS that was developed in 1991
2 considered a number of different mining alternatives such
3 as blind boring, raised boring, non-entry vertical panel
4 and undercut methods. These are all underground methods
5 whereby ore is accessed remotely, fed by gravity to
6 underground workings and then pumped to surface for
7 processing.

8 The mining methods that are currently being
9 tested are those methods that are proposed to be used at
10 Cigar Lake, which is an underground mine, and the method
11 that is used currently at McArthur River, again an
12 underground mine.

13 So we are still talking about using
14 underground methods. However, instead of having the ore
15 gravity fed to underground workings and pumped to surface,
16 the ore is pumped directly to surface.

17 So it is staff's conclusion that all of the
18 activities -- and this was conducted in a side-by-side
19 comparison at the micro level of what activities would be
20 in place. For every activity that is required under this
21 proposal, there is a parallel and, in fact, much broader
22 activity that was assessed in 1991. So based on that,
23 staff's conclusion was this is not transforming into a new
24 proposal and therefore section 74(1) would apply.

25 The next question would be well, why

1 wouldn't 74(3) apply where, for example, does this
2 proposal change the manner in which the proponent is
3 proposing the project?

4 And there are a few precedents that I could
5 discuss perhaps for illustration to talk about what would
6 constitute an EA under 74(3) and what would not.

7 In a separate proposal, which we are not
8 considering today, however, which COGEMA applied, was for
9 mining the Midwest ore deposit and milling it at the JEB
10 Mill. This again was a project that was assessed under
11 panel and approved in 1997. However, it was assessed
12 previously as an underground mine and the proposal now is
13 as an open pit.

14 That change has resulted in activities that
15 were not assessed previously. Water is now to be treated
16 at the JEB Mill as opposed to on site. Waste rock is now
17 going to be managed at the Midwest site as opposed to the
18 Sue C pit. So the proposal is now being presented in a
19 different manner than what was presented in the past and
20 therefore an EA has been initiated for that project.

21 By contrast, in their Reasons for Judgment,
22 the Appeal Court considered two other proposals by the
23 proponent for the McClean Lake operation that did not
24 require an EA under 74(3).

25 One of them was the proposal for the JEB

1 Mill to switch from an acid leaching to an oxidative and
2 ammonia precipitation type of removal and considered that
3 to be a technological change or a design change for the
4 operation of the mill that is not the type of change that
5 would mean conducting the project in a different manner.

6 Also under consideration was the tailings
7 and management within the JEB pit whereby natural surround
8 versus impervious surround were considered to be in fact
9 the same proposal, although there are changes in design
10 that would be assessed under licensing.

11 It was staff's conclusion that this MED
12 Program falls into this latter class and that subsection
13 74(3) of the CEAA would not apply and indeed section 74(1)
14 does apply and no further EA is required.

15 **THE CHAIRPERSON:** Thank you.

16 Does COGEMA have any comments on that?

17 **MR. POLLOCK:** Bob Pollock for the record.

18 Just one brief further comment and that is
19 that there has certainly been no hesitation or reluctance
20 on the part of our company to carry out additional
21 environmental assessments under the *Canadian Environmental*
22 *Assessment Act*. We in fact listed five such assessments
23 in our submission on page 21, three of which are complete
24 and two of which are in progress, and in all cases what is
25 common is that we are now, one way or the other, getting

1 outside of the envelope of what was previously considered.

2 We are very strongly of the view that we
3 are well within the envelope. This is a very minimal
4 partial implementation of the scope of the previous
5 project considered for McClean underground deposits. So
6 we are fully concurrent with the conclusions that the
7 staff have come to and certainly not at all reluctant when
8 there is an EA requirement to carry it out.

9 **THE CHAIRPERSON:** I'm going now to
10 Saskatoon. Ms. Fortugno, this is your point, so I thought
11 you may wish to comment, having heard what the staff and
12 the proponent just mentioned.

13 **MS. FORTUGNO:** I would like to comment on
14 -- are you able to hear me? This is Ms. Fortugno.

15 I would like to comment on the Court of
16 Appeal decision. The Court of Appeal did not get into the
17 technical specifics of the changes with regard to the JEB
18 pit or the JEB Mill facilities and they rather glossed
19 over it in a vague manner to determine that it was not a
20 new project and, further, that decision was a fact finding
21 that was specific to that particular phase of the McClean
22 Lake Project.

23 I believe that the current proposal is a
24 different ballgame and requires more scrutiny by the
25 Commission and through the mechanism of the environmental

1 assessment process under the Act.

2 **THE CHAIRPERSON:** Thank you.

3 I have a question for the proponent. This
4 goes back to a question that came earlier from Dr. Barnes
5 with regards to the progress that you've made on Phase I
6 and you applying for Phase II. My question is, based on
7 the progress that you've made or perhaps that still
8 remains to be done on Phase I, you seem to be very
9 optimistic that you're going to be moving a great deal
10 faster on the remaining part of Phase I than you have yet
11 to date.

12 What exactly are the pros and cons of the
13 continuity, I suppose? Why you're here today is to talk
14 about the continuity from Phase I to II and seeking
15 approval to go to Phase II, so that my interpretation is
16 that you are looking for the approval of the Commission so
17 you will have this continuity.

18 Can you describe to us why that is so
19 essential in various terms, particularly focusing on the
20 safety issues, which is the responsibility of the
21 Commission?

22 **MR. HUFFMAN:** Dale Huffman for the record.

23 Yes, we didn't make much progress on Phase
24 I last year and have been working to sort out our issues.
25 One major one is the contractors that we used and their

1 experience limited our progress last year and we've since
2 found -- contracted different folks and are seeing good
3 progress so far.

4 Part of a continuity issue would be to
5 continue to run this project, maintaining the same people,
6 knowledge and equipment through both phases back-to-back
7 this summer.

8 That's a start at an answer. Bob wants to
9 add a comment.

10 **MR. POLLOCK:** Bob Pollock for the record.

11 I think that's the essence of it, that once
12 we're up and running, we have the contractor there, we
13 have staff trained, that one wants to continue that
14 without having perhaps to go back.

15 And also just in terms of sort of knowledge
16 and how to carry out various activities, we don't really
17 want to go through the learning curve again. We
18 particularly would like to keep going in the summertime
19 and get as far ahead as we can so when it comes to
20 winterizing it, carrying out winter operations, that we're
21 not also going through some sort of learning curve with
22 potentially a new or partially new team, so that we
23 acquire as much experience as we can during the good
24 weather.

25 I might add that we're optimistic, but then

1 you have to be optimistic to be in the business, I think,
2 at times. So it's not actually -- nobody has actually
3 given us a concrete guarantee yet that we will in fact
4 make as fast a progress as we're projecting here. We're
5 hopeful, but we think it's important in terms of the
6 knowledge and the skills of the people to be able to carry
7 this forward in a continuous manner and not have to, in
8 effect, shut down and perhaps start up with a largely new
9 group, particularly if we're getting into adverse weather
10 at that time.

11 **THE CHAIRPERSON:** But my question was -- I
12 can understand the timing and can understand the
13 economics, but what exactly would be the safety
14 considerations, including worker safety, protection of the
15 environment, et cetera? If you could contrast this
16 situation, if you had continuity versus if you didn't have
17 continuity?

18 And I will ask staff afterwards for their
19 opinion with regards to that.

20 I'm trying to get a sense of why -- going
21 back to Dr. Barnes' question -- why should we proceed at
22 this point? What exactly are the advantages and
23 disadvantages of that procedure?

24 **MR. POLLOCK:** Bob Pollock for the record.
25 It's hard to put a quantifiable number to

1 it. Many things are learned by doing it. I guess that's
2 the -- certainly, we're not going to carry out an
3 operation that we don't think is safe. So it becomes one
4 perhaps of reducing the likelihood of somebody
5 inadvertently making a mistake that causes an unsafe
6 condition from lack of experience versus people that have
7 acquired the familiarity.

8 I guess the flip side is we have said that
9 we will leave these casings in, which seems to be the
10 major point around which much of this discussion has
11 revolved this morning, about how can we provide assurance
12 that we aren't going to contaminate groundwater.

13 We have provided, and it's written right
14 into the licence condition, that we will leave the
15 borehole casings in until such time as we have a
16 compelling argument to take them out.

17 So it's not clear to me that I've heard any
18 compelling arguments as to why there's some sort of
19 difference in health safety or environmental risk or
20 hazard in proceeding directly to Phase II.

21 I acknowledge that some of the estimates
22 that are now on the table will be firmed up considerably
23 when we acquire those -- when we acquire that information,
24 but it's really more for the matter of making the argument
25 as to why we can remove the borehole -- or the casings.

1 We've made it quite clear they will remain there until
2 there's a compelling argument to take them out. So I'm
3 not sure that I've heard any compelling argument as to why
4 Phase II shouldn't proceed directly onto Phase I.

5 **THE CHAIRPERSON:** I'm going to ask another
6 question and then I'm going to turn to Dr. Barnes.

7 Maybe -- perhaps I'll just reframe it a bit
8 and then I'll ask staff to speak and then come back to
9 COGEMA.

10 The proposal is that you will, between now
11 and July, complete the work that was under Phase I and you
12 will learn more about this. In fact, my question isn't
13 about the casings at all. It's to say that you would be
14 going between now and July and you would be able to look
15 at this information that came out of Phase I and then know
16 more about it and perhaps even adjust Phase II. And then
17 you would be going forward to Phase II.

18 What I hear now is that your plan is, which
19 could be optimistic, maybe not -- as you said, you've got
20 more staff, experienced contractors on -- that you would
21 move from now until July and then you would start
22 immediately, I believe -- that's what I understand -- with
23 Phase II. So you would be moving July, August, September,
24 moving in the summer, and then you would be moving into
25 fall with this.

1 So to me, that's making -- that has some
2 implications, not just in terms of having the contractors
3 available and therefore having experienced contractors
4 which have perhaps slower safety issues, because they are
5 experienced, but there would be other reasons to do that.
6 For example, obviously, to me, there's a question of how
7 the groundwater and other elements of the environment
8 would respond to a continuity in late summer and early
9 fall versus not having that continuity, for example.

10 So that's what I'm trying to seek, because
11 obviously what's before the Commission is one possibility
12 is to say, "You finish Phase I and then come back with
13 that evidence, with that greater amount of material of
14 evidence; come back and start to discuss Phase II versus
15 the continuity." So I'm trying to understand what is
16 exactly those parameters that are on the table with
17 regards to this particular question.

18 So if I could ask staff and then come back
19 to the proponent on that? Is there anything that would
20 give the Commission any information on that?

21 **MR. SCISSONS:** Kevin Scissons.

22 When you look at the proposal before us,
23 including which is the Phase II and Phase III, as Mr.
24 Howden explained earlier, we've come to the Commission
25 with this proposal because the initial one was looking at

1 five holes. Now the proposal is going upward an
2 additional 15 for 20 holes and then the potential for
3 moving into Phase III for the full undertaking of the pod
4 ore removal.

5 So in those terms, we have looked at
6 proposing not only the outcome of the results of the Phase
7 I to Phase II work of upwards of 20 holes. The methods to
8 be employed and determined, field data obtained, including
9 groundwater, groundwater levels, water level, elevation of
10 pumping, the capping of holes, the need for casing or no
11 casing. The elements have been described as the stop-
12 point measure before we go from Phase II to allow a Phase
13 III.

14 In putting that all together, it was a
15 matter of bringing this all as one licence package to the
16 Commission and identify and seek a concurrence with the
17 staff that these phased approached with stop conditions in
18 place for the two licence conditions, and in conjunction
19 with the current operation of the facility. Our slide 10
20 we have up here demonstrates the different safety areas,
21 that this is a qualified operator that has met our program
22 areas and program trends and development implementation to
23 allow it to go ahead.

24 The continuity of it is important in any
25 good test, to look at the viability of it, and ongoing

1 radiation protection, environmental protection, water
2 handling, oversight, worker orientation, training, that
3 there is some continuity there. It does have to have
4 benefits not only for the licensee but for the inspectors
5 who are there and periodically on site to verify its
6 operation.

7 So when we look at all those elements
8 together, we believe that bringing this to the Commission
9 with the stop points and the two proposed licence
10 conditions is a reasonable way to allow this project to
11 proceed under the approval of either the designated
12 officer or back to the Commission if deemed necessary
13 before the project moves from any Phase II to Phase III
14 development.

15 **THE CHAIRPERSON:** Any further comments from
16 the proponent?

17 **MR. POLLOCK:** Bob Pollock, for the record.

18 A couple of fairly brief ones. If I go
19 back and look at what we had originally thought about
20 doing, we had originally thought we would just go from
21 Phase I to actually the full-blown test pod mining test at
22 a production scale. At one time that was going to be
23 Phase II. Given our lack of progress last year, we
24 clearly see a need to have an intermediate step here that
25 will let us further refine the method.

1 When we've done the analysis on groundwater
2 impacts, we've looked at this 20-hole test scope as what's
3 been analyzed, so I don't see any impacts that are
4 substantively different from Phase II compared to Phase I.

5 **THE CHAIRPERSON:** Dr. Barnes.

6 **MEMBER BARNES:** I'll try to be brief, Madam
7 Chair, but I think there's still a few remaining issues
8 here. So I'll have a few quick sort of yes or no answers
9 and then others.

10 But just to come back to what I see as the
11 core issue -- or one of the core issues for me, and Mr.
12 Forbes put it, "There should be no contamination of
13 groundwater into the environment." That was the focus of
14 my comments.

15 So if I just go back to your illustration
16 13, page 13, which is the eight stages, drill holes down
17 into the ore body. Could you just tell me -- because
18 again, it's just this lack of information we have -- could
19 you just give information on what the upper three levels
20 are there in the stratigraphy?

21 **MR. ECKERT:** Sylvain Eckert, for the
22 record.

23 On these pictures, the three layers do not
24 represent anything. You got only sandstones from the top

25 ---

1 **MEMBER BARNES:** So you've got the
2 sandstone, but you do have the quaternary till overburden,
3 do you not?

4 **MR. ECKERT:** Yes, that's correct.

5 **MEMBER BARNES:** So you have two layers?

6 **MR. ECKERT:** Yes, the till overburden ---

7 **MEMBER BARNES:** Two dominant layers, both
8 of which are relatively impermeable, would you say?

9 **MR. ECKERT:** That's correct.

10 **MEMBER BARNES:** From your delineation --
11 and I would like staff to comment if they find the answers
12 to be incorrect unless we need to go back -- I don't
13 necessarily need to go back separately. Usually in a
14 stratigraphy like this -- and you've got 170-odd metres --
15 these units aren't uniform. So just to sort of say
16 they're relatively impermeable regionally may be adequate,
17 but when you're looking at a highly focussed zone here, it
18 would be good for us to have some confidence that in the
19 delineation drilling or any kind of drilling that you've
20 done to this point, that you could say categorically there
21 are no zones in that 150 metres above the ore body where
22 there are no significant levels of high permeability or
23 higher permeability.

24 And the reason for the comment here is if
25 there is a contaminated groundwater zone, it's going to be

1 at the level of the ore body, which you're going to
2 interfere with.

3 And what we've heard is you're going to cap
4 more or less, which surprised me -- and I'll come back to
5 it -- essentially cover this whole area with concrete. So
6 you're going to seal it off from the surface rainwater, et
7 cetera. This doesn't mean that any -- and then you're
8 going to have in the development stage 180 boreholes.

9 Now, just before I come back to that, Mr.
10 Pollock was trying to say that about the casing, but in
11 fact your statement on page 13, Mr. Pollock, is that it
12 says:

13 "For Phase I, the boreholes, through
14 the sandstone overburden are being
15 cased. It is currently anticipated
16 that casing or grouting of the holes
17 will not be necessary during Phase II
18 and future mining operations."

19 So I read this to say that the first five
20 holes, of which we've only got one, will be cased. This
21 is sort of a test case, but your preference is not to have
22 casing. So I'm looking ahead through Stage 2 and you're
23 going to have a situation of potential -- we don't have
24 any information from you -- of contaminated groundwater
25 associated with the ore body itself. And we know that

1 that's weak ground conditions.

2 And you know we have a relatively
3 impermeable cover, and then you're going to put concrete
4 on top. So again, it sounds as though this is a nice
5 enclosed system, unless there are some permeable intervals
6 within that 150 stratigraphy which you're going to
7 penetrate by up to 175 uncased boreholes filled in with
8 chips, chip material, which are potentially even more
9 permeable than anything in the overburden that could bring
10 contaminated groundwaters up into certain levels of high
11 permeability and then spread that contamination, in a
12 sense, be on the site itself.

13 How would you know that? So Mr. Forbes was
14 concerned about that. How would you know it? What you
15 have is just one diagram, your Figure 19 where you show
16 the monitoring wells, but there are just three of these
17 wells. Again, I'm not sure. Staff may wish to comment
18 whether three wells is enough. This again would depend on
19 the local variability, which I'm not sure you have enough
20 information until you drill those holes because we don't
21 see any information on the number of delineation holes.

22 And then looking ahead through Phase III,
23 this whole body runs presumably along an old fault zone
24 over a kilometres which, presumably, you're going to
25 concrete virtually a whole kilometre zone in here.

1 So I think you're not convincing me that
2 the groundwater could not be contaminated and could not
3 spread laterally through high permeability. And I'm not
4 being convinced because I have no information on that.

5 So if you have information that you can
6 definitely show there are no higher permeability zones
7 through which contaminated groundwater could come up
8 through these borehole, readily permeable zones and spread
9 laterally and, therefore, get into other parts of the
10 groundwater system, I would like to know about it.

11 **MR. POLLOCK:** Bob Pollock for the record.

12 First of all, a comment on the permeability
13 of the geological zones as you go down. The most
14 permeable zone in our modelling is the -- we have an
15 overburden zone which is a few metres at the top, then
16 sandstone broken down into two or three vertical zones
17 with the upper sandstone zone being by far the most
18 permeable, and that's based on a lot of site data.

19 **MEMBER BARNES:** Because it's been
20 weathered.

21 **MR. POLLOCK:** Yes, the top sandstone is
22 more weathered. So the top sandstone is typically, in
23 permeability numbers, 10 to minus 5 metres per second.
24 And then as you move down through the sandstone, you get
25 somewhat lower permeability.

1 When you get down to the actual ore zone in
2 the unconformity region, you have a lot more fine material
3 that is present. So in terms of permeability, lateral
4 flow is much more difficult down at the horizon of the ore
5 zone than it is up in the sandstone.

6 So the modelling that we have done, the
7 modelling that Dr. Flavelle is reviewing, the assumption
8 we made -- and we didn't speculate on how this might
9 happen; we just assumed it would -- is that what we
10 believe to be quite a high concentration of things like
11 uranium or arsenic in the water is uniformly mixed all the
12 way up to the water table. And the water table is around
13 5 or 10 metres below the surface. So the issue here is
14 lateral flow.

15 We're not looking at flow coming up all the
16 way to the surface and overflowing the tops of the holes.
17 So what we modelled is we said, "Okay. Let's assume that
18 we can get this uranium or arsenic-contaminated water,
19 uniformly distribute it over the whole water-bearing
20 length of the borehole," and then we made what we believe
21 to be a pessimistic assumption on the hydraulic head that
22 would be the driving force to cause this to go out into
23 the formation, and we looked at, over a period
24 corresponding to the mining period, how far does this move
25 out of the bore hole and how much might we recover from

1 pumping afterwards. Because if you have a lot that moves
2 out, then you would also be able to recover a significant
3 fraction by pumping back.

4 And pessimistically, if we didn't recover
5 any and you have this zone, and that zone then moves
6 gradually over time through the flow system -- and we
7 picked a pessimistic location, we believe, for the return
8 to the surface -- what would have been the impact on
9 surface water? And our conclusion was that the impact is
10 quite minimal, that we stay well within the surface water
11 quality objectives.

12 So we believe we've set up quite a
13 pessimistic simulation of what might happen.

14 So I would be more than curious on this
15 first hole or two; are we able to run these at an overall
16 negative hydraulic head? And the prime purpose of those
17 three piezometres is actually to establish the -- sort of
18 what is the hydraulic head conditions out in the aquifer
19 versus those at the borehole. We're not claiming that
20 three piezometres would necessarily intercept a plume
21 which may well be falling somewhere toward a different
22 path in the sandstone.

23 So we have modelled this projected
24 contamination of a zone up in the upper sandstone. I
25 would be curious as to whether we actually do get much

1 mixing.

2 If it turns out we can actually run this at
3 an overall negative head relative to the surrounding
4 aquifer, this whole discussion this morning turns out to
5 be pretty hypothetical.

6 The flow will be from the aquifer into the
7 hole, but we don't want to guarantee that we will actually
8 be able to achieve that. We might. We've assumed a
9 certain head to drive this presumed mixed water out into
10 the aquifer and then look to what would be the long-term
11 transport.

12 So that's the essence of the analysis that
13 has been submitted to staff and clearly we need to collect
14 some real data, and then if we don't have a compelling
15 case to remove the casings, we would need to further run
16 perhaps modifications to the equipment and/or procedures
17 to attempt to get to the point where that would in fact be
18 the outcome.

19 **MEMBER BARNES:** Yes, I think we're all
20 speculating to some degree, I guess. On our part we're
21 trying to explore what might be a hazard, and it's based
22 on lack of information on your part. It's because Phase I
23 has not proceeded far enough long to be able to give us a
24 significant amount of information at this stage.

25 I guess we'll deliberate but I certainly

1 would anticipate, Madam Chair, when it comes to going from
2 Stage 2 to Stage 3, which is a rather more significant
3 event, that we would expect to have a lot more information
4 on this sort of thing.

5 Just a few very quick comments then.
6 During Phases I and II, or Phase II since this is what
7 this is about, you anticipate simply to use one drill rig;
8 is that correct?

9 **MR. ECKERT:** Sylvain Eckert for the record.
10 That's correct.

11 **MEMBER BARNES:** And to this point you have
12 not actually used the reaming device?

13 **MR. ECKERT:** Sylvain Eckert for the record.
14 We have used the reaming device in the
15 sandstone.

16 **MEMBER BARNES:** To the extent that you wish
17 to -- that you are going to deploy it in the body?

18 **MR. ECKERT:** Yes. We commissioned it. So
19 that means we deployed it down the hole.

20 **MEMBER BARNES:** At what depths?

21 **MR. ECKERT:** At 50-metre depths.

22 **MEMBER BARNES:** Fifteen (15), 1-5?

23 **MR. ECKERT:** Fifty (50).

24 **MEMBER BARNES:** Okay. Thanks.

25 That will be fine. Thank you.

1 **THE CHAIRPERSON:** Are there further
2 questions?

3 Dr. McDill.

4 **MEMBER McDILL:** Thank you.

5 As with Dr. Barnes, I would be more
6 comfortable if staff at least had seen some of the
7 projections from some of the models that will be coming.

8 One quick question with respect to the
9 ponds and the base of the pond. How do you get the
10 machinery to the base of the pond to clean it out?

11 **MR. ECKERT:** Sylvain Eckert for the record.

12 On the picture it has a concrete form which
13 is not shown on the picture which will be built before we
14 can access the base of the pond.

15 **MEMBER McDILL:** Thank you. That clarifies
16 that.

17 Next, in rough numbers, if this were a
18 successful method using the reamer and the bore and
19 pumping the rock back to the surface, in rough fractions
20 how much less clean waste rock will you produce, and I
21 guess then how much less contaminated waste will be
22 produced?

23 **MR. ECKERT:** Sylvain Eckert for the record.

24 In terms of clean waste rock, it is much
25 less -- well, I cannot give you a ratio, but it's probably

1 from ten to one or something like that. It's going ---

2 **MEMBER McDILL:** So perhaps a tenth?

3 **MR. ECKERT:** Yes.

4 **MEMBER McDILL:** Okay.

5 **MR. ECKERT:** And we don't anticipate to
6 produce any special waste just because all material which
7 will be extracted using the reaming tool will go to the
8 mill.

9 **MEMBER McDILL:** And in terms of water,
10 there will be substantially more used, so two times, ten
11 times?

12 **MR. POLLOCK:** Bob Pollock for the record.

13 On the water issue, I think the number that
14 was there was something like an inventory of about 10,000
15 cubic meters inventory of water. If we only had to treat
16 it once, that's only 10,000 cubic metres. Our
17 environmental assessment is based on 10,000 cubic metres
18 per day for four years as the amount of water we'd have to
19 treat from the underground mine. That's probably a bit on
20 the pessimistic side, but the big environmental advantage
21 here is we recycle the water as opposed to pumping and
22 treating large amounts of water to dewater this formation
23 if you mine it by a conventional underground means.

24 **MEMBER McDILL:** So if I could ask staff
25 just to confirm then that there would be substantially

1 less clean waste -- there would be no special contaminated
2 waste and the water usage in terms of environmental impact
3 would be substantially improved?

4 **MR. SCISSONS:** Kevin Scissons.

5 Yes, we absolutely want to confirm that as
6 well. That it is a finding that is an area that is key to
7 us. When you look at applying the principles of ALERA and
8 continuous improvement, this hits high up on our scale of
9 looking at reducing environmental impacts and reducing
10 potential exposures to workers, not only to underground
11 mine conditions which can be riskier, but also the volume
12 of waste that's produced, radiation protection, as well as
13 the overall water handling effluent treatment and controls
14 overall. We have assessed this to be -- this a very
15 significant improvement and a lot less environmental
16 impacts overall for the mining of this ore body if it was
17 to proceed.

18 And we also, at the same time, want to echo
19 again that we share the concerns of the Commission on the
20 outcomes of Phase I and Phase II work, the issues on the
21 casing, groundwater, capping of the holes, and that really
22 was a main driver in our regulatory process in the
23 proposal of our two licence conditions 1.5 and 1.6.

24 And if I can finally add, you will note
25 that 1.6 is a separate condition on the elimination of the

1 casing. So whether that happens during Phase I, II or III
2 as proposed by the licensee and assessed by staff, that is
3 a separate licence condition and that is the
4 recommendation we want to stay with, as well as before
5 they move from a Phase II to a Phase III.

6 So we are looking for results and not only
7 just modelling theories, but we're looking for tried and
8 proven field results.

9 Thank you.

10 **MEMBER McDILL:** Thank you.

11 **THE CHAIRPERSON:** May I ask, Dr. Flavelle
12 mentioned that he was looking at some of the data. When
13 would his analysis of that be available?

14 **MR. FLAVELLE:** For the record, it's Peter
15 Flavelle.

16 The data I am looking at is incomplete. We
17 have not had an opportunity to consolidate our reviews to
18 date and to discuss them with COGEMA to inform them of
19 what further information and what further data we would
20 need to complete our review.

21 So at the moment, I am reluctant to
22 postulate when certainly a formal review and statement
23 could be made about the information that they have
24 supplied.

25 **THE CHAIRPERSON:** I would just like to make

1 a statement. A couple of the intervenors have asked
2 questions with regards to the CNSC's neutrality and the
3 CNSC's staff neutrality as well. In particular, there was
4 a comment that was made -- a question made on 06-H6.5.

5 I wish to note for the record that the CNSC
6 is independent from the federal government with regards to
7 the determination of nuclear policy. We have no role in
8 that, and the government neither asks us to have a role
9 nor does the CNSC Commission or staff offer policy. We
10 are not obliged to endorse any policy. If there is a
11 determination that a substance, material or an energy
12 source goes forward, it is the role of the CNSC under the
13 *Nuclear Safety and Control Act* to determine -- to ensure
14 that that is used safely in all the senses under the Act
15 in terms of people, the environment and security, et
16 cetera, and international requirements. So we have
17 nothing whatsoever to do with government policy, nor are
18 we subject to that.

19 The second comment that was made, I
20 believe, orally was with regards to requirements that
21 implied that the CNSC staff and the Commission are not
22 neutral. The CNSC staff are experts that have been hired
23 to provide assessments on behalf of the people of Canada
24 and the Commission on the projects. As such, they are a
25 neutral source. That's why the Commission was created and

1 that's why the Commission is in place.

2 Are there further questions from the
3 members here?

4 I would like to then -- with respect to
5 this matter, I propose that the Commission confer with
6 regards to the information that we have considered today
7 and then determine if further information is needed or if
8 the Commission is ready to proceed with the decision, and
9 we will advise accordingly.

10 Thank you very much for your attendance
11 today.

12 We will take a one-hour break. It's 13:18.
13 At 14:18 we will be back for the next hearing. Thank you
14 very much.

15

16

17

18

19

20

21

22

23

24

25

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14