--- Upon resuming in public at 10:36 a.m.

THE CHAIRPERSON: Good morning, ladies and gentleman, and welcome to this public hearing of the Canadian Nuclear Safety Commission.

I would like to begin by introducing the Members of the Commission who are with us today for the hearing.

On my right is Dr. Moyra McDill and Dr. Christopher Barnes. On my left is Mr. Alan Graham.

Monsieur André Harvey who was with us for Day One can't be with us today unfortunately. And therefore, he will not, Mr. Harvey will not participate in the decision process.

In addition to Mr. Marc Leblanc, the Secretary of the Commission, we also have Miss Samantha Maislin-Dickson, who is the Acting General Counsel to the Commission, with us on the podium today.

I would like to emphasise that the Commission is a quasi-judicial administrative tribunal. It’s independent of all influence, be that political government, private sector or non-governmental organizations.

The Commission Members are appointed by the Governor in Council to serve during good behaviour, not at pleasure, on the basis of their exceptional achievements

and their excellent reputation.

Our responsibility is to ensure that the use of nuclear materials and the operation of nuclear facilities is done in a manner that protects the environment, health, safety, security of Canadians. The Commission does not have an economic mandate and its decisions are not based on the economic impact of the facility nor on the impact of our decision on the facility. It is the safety and security of people and the protection of the environment that are paramount.

I would also like to note that the Commission is still on enhanced security status as are many of the facilities that we regulate, including the Chalk River laboratories today.

I will, if necessary, take measures to ensure that security matters of a sensitive nature are not discussed in public and we will, if necessary, move in camera at any time for discussions on security matters.

The item on the agenda today is Hearing Day Two on the matter of the application by Atomic Energy of Canada Limited for an operating licence for its Dedicated Isotope Facilities located at the AECL's Chalk River Laboratories in Chalk River.

MR. LEBLANC: As the President has indicated, this is Public Hearing Day Two. Day One of the

public hearing on this application was held on June 22nd, 2007. The Notice of Public Hearing 2007-H10 was published on April 19th, 2007. The public was invited to participate either by oral presentation or written submission. August 13, 2007 was the deadline set for filing by intervenors.

The Commission received 13 requests for intervention. One submission was received shortly after the deadline. Based on a consideration of the matter, a panel of the Commission accepted the intervention.

The Commission strongly urges all parties to file their submissions within the deadlines that are set in the public Notice of hearings, in compliance with the CNSC Rules of Procedure.

Presentations were made on Day One by the applicant, Atomic Energy of Canada Limited, under Commission Member Documents, or CMD 07-H16.1 and 07-H16.1A, and by Commission staff under CMD 07-H16 and 07-H16.A.

September 5th was the deadline for filing of supplementary information. We know that supplementary information has been filed by CNSC staff, AECL, as well as intervenors.

THE CHAIRPERSON: With that preamble, I would like to start the hearing today by calling on the

presentation from AECL outlined in Commission Member Document 07-H16.1B. I note that Mr. Brian McGee is with us today, but I understand that Dr. Torgerson, who is the Senior Vice-President and Chief Technology Officer will be involved in the presentation today.

Welcome, gentlemen, to the Commission and the floor is yours, gentlemen. Thank you.

Atomic Energy of Canada Limited:
Application for an operating
licence for its Dedicated
Isotope Facilities Located at AECL's
Chalk River Laboratories in
Chalk River, Ontario

07-H16.1B
Oral presentation by
Atomic Energy of Canada Limited

MR. TORGERSON: Well, good morning, and thank you very much, Madam Chair and members of the Commission.

My name is Dave Torgerson. I am Senior Vice-President and Chief Technology Officer of Atomic Energy of Canada Limited.

With me today are Mr. Brian McGee who is Vice-President and Chief Nuclear Officer, and Mr. Ron Cullen, Vice-President Projects, as well as some of the members of AECL's team who have been working on this very important project.

We are here today in support of our application for the renewal of the MAPLE reactors and New Processing Facilities licences for a period of 47 months to October 31st, 2011.

We have also requested the Commission combine these licences into one licence for the Dedicated Isotope Facilities, or DIF, which consist of MAPLE 1 and 2, the Iodine Production Facility and the New Processing Facility.

Combining the licences and the 47-month renewal period will align the DIF licence with the CRL site licence and will facilitate the eventual inclusion of the DIF licence into the CRL site licence.

We recognize and fully accept our obligation to demonstrate to the Commission that we have operated the Dedicated Isotope Facility safely and that we will continue to do so with due regard to the environment, security and Canada's international obligations. I want to assure the Commission that I take this obligation very seriously, as does our board of directors.

I would like to thank all of the stakeholders who have either travelled here today to participate in the licence renewal process or have submitted written interventions. We are very appreciative of the support and interest from our community stakeholders.

In closing, Madam Chair, I want to reiterate to the Commission that AECL is deeply committed to the safe and responsible operation of our facilities. We recognize our obligations to uphold the trust and confidence of both the Commission as well as the public and we will not compromise this trust.

I will now turn it over to Brian McGee and Ron Cullen to provide a further update. Thank you for your attention.

MR. McGEE: Good morning, Madam Chair and Members of the Commission. For the record, I am Brian McGee, Vice-President and Chief Nuclear Officer of AECL.

At the Public Hearing Day One on June 22nd, 2007 we committed to provide certain information for Day Two. Our Day Two CMD includes this information, as well as an update on progress between Day One and Day Two.

Our presentation today covers key issues from Day One, specifically the organizational structure associated with the Dedicated Isotope Facilities,

elaboration of how the operations organization exercises oversight of the project, an update on our plan and schedule and an update on the positive coefficient of reactivity issue.

We will also provide an update on progress we have made at DIF since the Hearing Day One.

This slide shows how the Dedicated Isotope Facilities and the MMIR project organizations are linked and where the quality assurance functions sits.

The President and Chief Executive Officer has overall responsibility for all of AECL’s activities and operations.

The authority for operation of AECL licence facilities, including DIF, is delegated to the Chief Technology Officer, Dr. Torgerson, as shown on the left-hand side of this slide. This authority is further delegated to me as the Chief Nuclear Officer.

The Dedicated Isotope Facilities Operations Director, who is also the Facility Authority, reports to me, to the General Manager of Reactor Operations. The Facility Authority has the responsibility for the safe operation of the Dedicated Isotope Facilities, including approval of modifications to the facilities.

The Authority for the management of the Dedicated Isotope Facilities project is delegated from the

President and Chief Executive Officer to the Chief Operating Officer shown on the right-hand side of this slide. This authority is further delegated to Ron Cullen, Vice-President of Projects.

The MMIR Project Director reports to the Vice-President of Projects. The Project Director is responsible for the work undertaken by the MMIR project personnel. He also has the overall line management responsibility and accountability for the effective implementation of the MMIR Project Quality Assurance Program.

The Manager for Dedicated Isotope Facility Quality Assurance works in the MMIR project organization and reports administratively to the MMIR Project Director and functionally to the Director of Corporate Standards and CANDU products and services quality assurance. This ensures a functional link to the corporate quality assurance organization.

The Dedicated Isotope Facility Quality Representative, or FQR, Facility Quality Representative, works in the Dedicated Isotope Facility Operations organization.

The FQR reports administratively to the Director, DIF Operations, and functionally to the Manager, DIF Quality Assurance.

Both the manager for DIF quality assurance and the DIF Facility Quality Representative, or FQR, work closely together to ensure integration of the quality assurance function in both organizations.

This slide illustrates how the operations organization exercises authority for overseeing all activities in DIF, including project activities that affect the facility.

The Facility Authority, or the Facility Manager, approves all changes or modifications to the DIF including their installation, ensuring that both operations and maintenance considerations are taken into account. All fieldwork is controlled by procedures developed to meet the Operations Quality Assurance manual. There is no distinction between execution of project work or operations work from a quality assurance perspective. In addition, the Facility Manager or Facility Authority has to accept a system or a facility before it can be put into service.

At the Hearing Day One there were questions around our plan and schedule for the Dedicated Isotope Facilities. I would like to clarify our intentions.

During the proposed 47-month licence period, we intend to finish the PCR tests and resolve the PCR issue.

This will likely require design changes. The nature of these changes will be determined by the results of the tests remaining to be done over the next few months.

Following implementation of the design changes we'll commission them and bring MAPLE 1 into service. We note the proposed licence condition requiring Commission approval prior to MAPLE 1 being turned over to Operations. This would involve a public hearing at which we would seek Commission approval.

We also intend to bring the New Processing Facility into service and produce medical isotopes from targets irradiated in MAPLE 1.

Finally, we will bring MAPLE 2 into service. We in the Operations organization are relying on our colleagues in the MMIR project to complete the project and to deliver the facilities to us.

I will now turn the presentation over to Ron Cullen, Vice-President of Projects, to update you on our progress on the project.

MR. CULLEN: For the record my name is Ron Cullen; Vice-President of Projects. Thank you, Brian.

Madam Chair, Commissioners, before I get into the schedule itself I think it is important to point out that the overall DIF schedule; that is, the schedule

for MAPLE 1, MAPLE 2, and NPF, depends very much on the schedule and success of the PCR tests that are presently underway on MAPLE 1.

We need to complete the test to determine the solution to the PCR issue so that we can resolve the issue and get MAPLE 1 up and running.

This needs to be completed prior to resuming the commissioning of MAPLE 2, as shown on the top path of this slide.

We will also need to irradiate targets in MAPLE 1 so that we can complete active commissioning in NPF, as shown on the bottom path. So the overall schedule is highly dependant on the schedule and results for PCR testing in MAPLE 1.

This slide and the next one focus on the MAPLE 1 schedule. At the Day One Hearing we were asked to return on Day Two with an updated schedule and to compare our current schedule to the one we presented at the hearing for the previous licence renewal in 2005.

We have provided this information in the CMD and the next few slides are a summary.

This slide shows the key MAPLE 1 milestones from the 2005 schedule, on the top line, and the same milestones from the schedule we presented on Day One on the bottom line. As indicated by the middle line, in

February 2006 the entire project was redefined as AECL became owner of DIF.

The schedule was reviewed and revised and the target in-service date moved to October 2008. This meant that after February 2006 the schedule presented in 2005 was no longer applicable. As reflected by the dotted line and the shaded milestones on the top line of this slide, CNSC staff was kept fully appraised of this change and we informed the Commission of this change in our mid-term report in December 2006.

The key milestones, as presented at the Day One Hearing in June of this year are shown on the bottom line. The blue colour denotes the progress up to Day One Hearing and the green represents the plan after Day One.

For example, we exited the guaranteed shutdown state, or GSS, in April 2006 and operated MAPLE 1 at two kilowatts, as stated in the June 2006 and up to Day One we were preparing for the PCR test at five megawatts.

Progress since Day One, and our plan going forward; that is, the green part of the bottom slide -- on this slide is expanded upon the next slide. This slide expands the timeline from the Hearing Day One to mid-2008.

As a reminder, at the time of the hearing on Day One we were preparing the MAPLE 1 core to measure the PCR in the Series-300 tests which involves the use of

LEU driver fuel instead of HEU targets.

Between Day One and now we tested the reactivity devices in MAPLE 1 and confirmed that the safety systems have sufficient re-activity depth for the modified core.

We measured the flow with a modified core geometry and assessed the impact on the safety analysis to confirm the adequacy of the safety case for this core configuration.

We received approval from CNSC staff to complete the Series-300 tests, allowing us to start the power manoeuvre from low power to five megawatt to measure the PCR. We completed the tests on August 24th.

I am pleased to report that all of these activities were carried out diligently and safely. There were no significant events associated with this work.

I will come back to the results of the most recent tests after the next few slides on the schedule.

Our plan going forward over the next several months, as shown in the bottom right of this slide, is to complete the Series 400-A and 400 A-1 tests. We expect these tests to be completed in early of the New Year and we would expect our analysis of the results of these tests will help determine the optimum design solution to lower the PCR.

Our overall strategy, following these tests, remains the same as we presented on the Day One Hearing.

Our path forward, after the upcoming PCR tests depends on the outcome of those tests. And as I mentioned earlier, this means that subsequent schedule contains large uncertainties so that we cannot present a firm schedule for the steps after completion of these tests at this time.

Nevertheless, we understand the Commission's interest in the schedule and therefore we propose to come back to the Commission following the PCR testing to provide an update on both the progress and schedule; that is, rather than speculate on exactly what will take place and when it will take place after we complete the PCR testing, we would prefer to update the Commission when we are more confident in the longer term schedule.

In the interim we will continue to have regular communications with CNSC staff and keep them informed of our progress. We will continue to provide CNSC staff with updated working schedules to facilitate CNSC staff resource planning.

We have found that this dialogue with CNSC staff is an effective way to communicate an advance notice

of when requests for approval will be submitted.

Our working schedules for the PCR tests typically assume that we will receive a response from CNSC staff within one month of submitting our request for approval. This allows time for CNSC staff review, receipt of questions and comments and provision of supplementary information.

This slide shows the key NPF milestones from the 2005 schedule, on the top line, and the schedule we presented on Day One on the bottom line.

Similar to MAPLE 1 schedule, the NPF schedule was revised in February of 2006 when the project was redefined.

The bottom line also shows progress in the blue colour, up to the Hearing Day One in June of this year.

This slide expands the timeline from the Hearing Day One to mid-2008. Similarly, to the earlier slide on the MAPLE 1 schedule, between Hearing Day One and now we successfully completed design qualification tests for the cementation system and we have started the tests for the calcination system. This is significant progress as these systems are critical to the success of the NPF.

We implemented all recommendations from the HAZOP studies into the design changes required for the

active commissioning of NPF.

We continued inactive commissioning of NPF systems, such as the MAPLE NPF airlocks and waste disposal canisters as part of the commissioning work.

We prepared commissioning procedures for other systems, such as the active ventilation system, the liquid waste system and the vacuum transfer system.

Going forward over the next several months, we will complete the design qualification test for the calcinations system; continue implementation of the HAZOP recommendations required for the in-service and the implementation of additional design changes.

Beyond that, the schedule for NPF is dependent on the MAPLE 1 schedule, because active commissioning in NPF; that is, commissioning with irradiated targets relies on our ability to irradiate the targets in MAPLE 1. We propose to update the Commission on NPF progress at the same time as the MAPLE 1 update.

As I mentioned earlier, we completed the 300-Series test a few weeks ago providing information on the effects of the HEU targets on the PCR. One proposed mechanism that bowing of the targets; that is, small deformation of the targets due to temperature differentials, has contributed to the PCR.

The most recent test was designed to

investigate the effects of the HEU targets by replacing them with LEU driver fuel. The results showed about a 30 percent reduction in the PCR, which is within the expected range. This reduction confirms that the HEU targets are a significant contributor to the PCR.

The next test will investigate the contributions from other phenomena believed to contribute to the positive PCR.

After all of these tests are completed and evaluated we will be in a better position to identify the specific design changes required to finally resolve the PCR issue, and at the same time to provide an update schedule for the next steps.

This slide summarizes the independent support of other organizations provided on the PCR. The PCR measurements, how they are measured, processing and analysis were reviewed by two independent and third-party organizations, Brookhaven National Laboratory in the United States and INVAP in Argentina. These reviews concluded that all measurements and data analysis were done correctly. Both organizations made recommendations which have been included in the PCR test plan.

The Idaho National Laboratory has been contracted to provide an independent calculation to support AECL’s work to investigate the positive power

coefficient of reactivity issue.

The scope of these independent calculations were described in our CMD for the Day One Public Hearing.

I will now turn the presentation back to Mr. Brian McGee.

Thank you.

MR. McGEE: Thank you, Ron.

Brian McGee for the record.

Over the last couple of months we have also completed other tests. The MAPLE 2 Reactor has been defueled and now resides in the guaranteed shutdown state.

After receiving the CNSC staff report from the April 2007 commissioning audit we prepared an action plan to resolve the items detailed in the report. The actions are now being implemented and we are actively resolving the outstanding issues.

We have continued to operate MAPLE 1 safely and to commission the New Processing Facility safely and we will continue to do so.

Since Hearing Day One we have had no free day resets and no lost time accidents in the Dedicated Isotope Facilities. We continue to raise impact reports as a vehicle to prevent significant events.

In conclusion, we believe that our performance and progress since Public Hearing Day One

supports our application for a 47-month renewal of DIF licence. Our Commission Member Document and presentation today have responded to the questions raised during the Public Hearing Day One.

We have also updated the Members of the Commission on activities at DIF since Day One. In particular, we are pleased to report the progress of the series 300 test which have confirmed one significant contributor to the positive PCR.

We have been in discussions with the CNSC staff on the proposed modifications to the DIF licence included in their CMD. We agree with these proposed changes. Specifically with respect to the clauses on criticality safety, these clauses are consistent with those added to the Chalk River Laboratory site licence last year. While we are still gaining experience with those clauses we have no concerns with adding them to the Dedicated Isotope Facilities licence at this time.

In conclusion, I would like to reiterate that AECL staff has operated the Dedicated Isotope Facilities in a safe and competent manner, and I give you my commitment that we will continue to do so through the proposed licence period.

We are committed to the safe operation of our site and I am accountable to ensure that our

operations meet regulatory requirements and are carried out safely and with due regard to the environment, security and Canada's international obligations.

Thank you. And we would be pleased to answer any questions.

THE CHAIRPERSON: Thank you very much, gentlemen.

We will now turn to the CNSC staff for their presentation outlined in CMD 07-H16.B, and I will turn to Mr. Barclay Howden, the Director General responsible for this facility.

Mr. Howden.

07-H16.B
Oral presentation by
CNSC staff

MR. HOWDEN: Thank you.

Madam Chair, Members of the Commission, for the record, my name is Barclay Howden. I am the Director General of the Directorate of Nuclear Cycle and Facilities Regulation.

With me today are Mr. Miguel Santini, Director of the Chalk River Laboratories Compliance and Licensing Division; Mr. Bruce Pearson, Project Officer for

the MAPLE reactors; Mr. Étienne Langlois, Project Officer for the New Processing Facility, and the rest of our facility assessment and compliance team.

CNSC staff has reviewed the application from AECL to renew the operating licenses for the MAPLE Reactors and New Processing Facility at Chalk River Laboratories and to replace these individual licenses with one consolidated licence for the Dedicated Isotope Facilities and has formed a position on the application and put forward recommendations for your consideration.

Before we proceed with the detailed presentation I wish to note a typographical error made in part three of the proposed licence. The expiry date for the proposed licence is stated as October 30th, 2011. However, it should state October 31st, 2011.

I will now turn the presentation over to Mr. Pearson.

MR. PEARSON: Good morning, Madam Chair and Members of the Commission. For the record, my name is Bruce Pearson, Project Officer for the MAPLE Reactors.

Atomic Energy of Canada Limited has applied for renewal and replacement of licenses to operate the MAPLE Reactors and New Processing Facility at the Chalk River Laboratories.

CNSC staff prepared CMD 07-H16 and 07-H16.B

which contained recommendations for the Commission on this application. This presentation provides an update on progress made since Hearing Day One.

Our presentation has four sections:

First, to update the Commission on additional information made available since Day One that is relevant to our assessment of the safety areas, outstanding licensing actions and project schedule; second, to identify changes to the proposed operating licence; third, to state our overall conclusions, and finally, to make recommendations to the Commission.

Updated information on safety areas will cover operating performance, performance assurance; in particular commissioning and quality assurance, and environmental protection.

In the area of operating performance we can state that there have been no events of major significance that have been reported in the past three months. This is a very limited period of operation. However, the result may be viewed as ongoing support for the improving trend and performance that was identified in CMD 07-H16.

In the area of performance assurance, and in particular commissioning and quality assurance, we can inform the Commission that the report for the Dedicated Isotope Facilities commissioning and quality assurance

program audit, which was referenced in CMD 07-H16, has now been issued. As a result of the audit CNSC staff issued five action notices and one recommendation.

In addition, since Hearing Day One several directives from the 2003 commissioning QA audit have been closed. However, two directives still remain open. One is a repeat finding in the 2007 audit and therefore cannot be closed, and the second requires further improvements to be made to AECL's QA program review process before closure can be achieved.

In the area of environmental protection we can report that the inspection referenced in CMD 07-H16 of the implementation of the environmental protection program at the Dedicated Isotope Facilities was completed during July 23rd to 25th of this year.

As a result of the inspection no significant non-compliances were identified. However, the need for some improvements to document control and program management were noted.

CNSC staff concluded from the inspection that the program meets regulatory requirements and the inspection confirmed a "B" rating for implementation. This table is reproduced from the Hearing Day One CMD.

To summarize, and remind the Commission members of the ratings given to the safety areas for the

MAPLE reactions and New Processing Facility, as indicated, there has been no change in the CNSC staff assessment of these areas since Day One.

Since Hearing Day One some progress has been made towards resolution of the positive power coefficient of reactivity. Despite some schedule delays experienced since Day One the 300-Series of PCR tests are now complete.

The preliminary results from these tests show that the presence of moly targets in the MAPLE reactor core accounts for 36 percent of the magnitude of the measured positive PCR.

This result would indicate that other major contributors to the positive PCR may exist. Such other potential contributors are intended to be assessed during the next phase of PCR tests and that is the 400-Series of tests.

Since Hearing Day One the MAPLE 2 Reactor has been placed into the alternate guaranteed shutdown state as per the approved operational limits and conditions document.

The MAPLE 2 Reactor will remain in the GSS unless removal is granted under licence condition 11.2 of the proposed Dedicated Isotope Facilities operating licence.

In section 3 of CMD 07-H16.B CNSC staff provided tentative dates for in-service operation of the MAPLE 1 and MAPLE 2 Reactors. However, as stated in CMD 07-H16, these dates are uncertain and highly dependant upon the outcome of the PCR test program. Because of this uncertainty AECL has proposed to present an updated plan and schedule at a public meeting of the Commission after the PCR tests are completed.

Since Hearing Day One there have been some additional changes to the proposed operating licence for the Dedicated Isotope Facilities. In particular, the pressure boundary licence condition has been changed to require the use of updated CSA standards. A licence condition has been added to specify requirement for criticality safety and Appendix A has been updated to reference the latest version of the Chalk River laboratory site security report.

Since Hearing Day One CNSC staff's conclusions have remained unchanged. These conclusions are that an environmental assessment under the *Canadian Environmental Assessment Act* is not required for the proposed licence renewal; that AECL is qualified to carry on the licensed activities; and that AECL has made, and in the opinion of staff, will continue to make adequate provision for the protection of the environment, the

health and safety of persons, and the maintenance of national security and measures required to implement international obligations to which Canada has agreed.

As stated in CMD 07-H16 and CMD 07-H16.B, CNSC staff recommends that the Commission accept its assessment that the conduct of an environmental assessment of this project under the *Canadian Environmental Assessment Act* is not required; delegate the authority to staff to make approvals pursuant to licence conditions as detailed in CMD 07-H16 and summarized in section 8.2 of that CMD and renew/replace the proposed operating licence to operate the Dedicated Isotope Facilities for a 47-month period to October 31st, 2011.

That concludes my presentation. I will now return the floor to Mr. Howden.

MR. HOWDEN: Thank you, Barclay Howden speaking.

I just wanted to be clear on what the recommendation on the licence is. Currently there are two licences; one for the MAPLE Reactors and one for the New Processing Facility. So if the Commission accepts the recommendation from staff the result will be a single licence for the Dedicated Isotope Facilities.

And that concludes our presentation and staff is ready to respond to questions.

Thank you.

THE CHAIRPERSON: Thank you very much.

We will open the floor for round one of questions. We will start with Dr. McDill.

MEMBER McDILL: Thank you.

At the end of the last meeting I asked for the PCR resolution document and I was pleased to see it in today's information.

But I have to tell you that it troubles me and I think I'd like to start with -- I don't think it appeared on the screen unless looking down that positive PCR resolution program on Figure 9, on page 24, of the -- of AECL's document.

Does AECL have that as an overhead, as a slide?

MR. MCGEE: We don't have it as a slide.

MEMBER McDILL: That's fine, then I'll discuss it.

THE CHAIRPERSON: I think -- I believe we can put it on as an overhead, can we not? Could we get the document -- the Secretary is bringing it down and we can put it up.

MEMBER McDILL: Thank you, Madam Chair; I'll wait then for a minute.

THE CHAIRPERSON: Unless we can enlarge it.

That's all we've got, but at least leave it there.

MEMBER McDILL: Thank you for that.

I wonder if I could ask -- although it's very small -- AECL to point out roughly where as of today we are positioned on that chart, on that diagram.

MR. McGEE: Brian McGee for the record.

I'll ask Jean-Pierre Labrie to answer that question please.

MR. LABRIE: For the record my name is Jean-Pierre Labrie. I'm the Director of Special Projects, Commercial and Client Interface.

If you start from the bottom of the diagram, above the first diamond, from the bottom of the diagram, you see "test plan" and "in reactor tests". This is where we are currently on our program.

MEMBER McDILL: Thank you.

My focus will be on the diamond below that. I'd like to ask Mr. Howden staff -- pardon me -- on the last day, and I think I'll read it back; Mr. Howden was addressing a question and he said the first part goes back to the original safety analysis report that was performed, setup probably about 10 years ago or so and that report was accepted based on the design that was proposed. And so as we go forward, you know, some of the principles within the safety report, such as the negative PCR has

been carried forward.

So the original safety analysis is based on a certain design and the triangle or diamond below, test plan and in reactor test says “acceptably low or negative PCR.”

And I would like to ask staff, if the original safety analysis report was based on a negative PCR what are the implications of that diamond?

THE CHAIRPERSON: I’d just like to elaborate that Dr. McDill was noting from the transcripts from Day One pages -- I believe it’s 91 and 92 -- 91 and 92. So that’s the material that we’re looking at.

And turn it over to Mr. Howden.

MR. HOWDEN: Barclay Howden speaking.

The position that I stated there remains what I had stated during the mid-term where what we were looking at is the reactor design was such that the PCR was supposed to be negative and then the entire safety analysis was based on that, plus all sorts of other considerations. Our position remains the same today, that the safety analysis that was used for the original issuance of the licence is that there would be a negative PCR. Our position is that the PCR should be negative.

We also stated that if it wasn’t negative we would have a difficult time accepting that, and we have

not gone through, in detail, to develop what our acceptance criteria would be for “acceptably low”. In our view the -- but we are working our way through that process.

However, in our view it’s up to AECL to propose their design changes, redo their safety analysis based on that design and then propose it that it’s an acceptably safe operation.

So at this point we remain of the position that AECL should be working towards returning the PCR to negative for this reactor to support the safety case which supports the original design.

MEMBER McDILL: Thank you. In the original Safety Analysis Report -- can you elaborate on the requirements for containment versus confinement with respect to negative PCR?

THE CHAIRPERSON: Perhaps we’ll start with the licensee and then move to the staff afterwards.

MEMBER McDILL: Thank you, Madam Chair.

THE CHAIRPERSON: So we are looking at the complete envelope.

MR. McGEE: Brian McGee for the record.

I’ll ask Albert Lee to answer that question.

MR. LEE: Albert Lee for the record; the Safety and Licensing Manager for the MMIR Project.

In the original Safety Analysis Report that was produced in 1998, we analyzed all of the design basis accidents based upon a vented confinement concept for the building. The use of -- the crediting of negative reactivity feedback, as power increased, was primarily used in the accident analyses for loss of regulation accidents. These are accidents where one postulates an uncontrolled increase in reactor power as a result of a reactivity addition.

For those events we demonstrated that the two safety systems that are provided could both effectively shutdown the reactor prior to any fuel failure occurring and therefore, the dose to the public from those events was always analyzed to be zero.

Even today, for the safety analyses that we have done, support the PCR tests. For the 100-Series, 200-Series and 300-Series tests we've analyzed it with the assumption of a positive power coefficient reactivity. We have demonstrated in the safety cases that all of the loss of regulation accidents are safely terminated by action of the first and second shutdown systems.

Both are demonstrated to be effective and no fuel failure occurs and therefore, the dose to the

public is always zero. As a result, there is no requirement for us to credit the use of a containment.

MEMBER McDILL: Does staff concur that there is no requirement to credit the use of the negative PCR for containment?

MR. HOWDEN: Barclay Howden speaking.

I'm going to ask Bruce Pearson to speak to the Safety Analysis Report that was done in 1998 and sort of the process that we have reached today.

MR. PEARSON: For the record, Bruce Pearson; Project Officer for the MAPLE Reactors.

When we looked at the original safety case we looked at the overall defence and depth included, and that included crediting inherent safety features, such as the negative feedback that the PCR would provide, and also engineered design features like SS1 and SS2 which met requirements for independence, diversity, et cetera.

Based on the combination of inherently safe features and engineered design features, we concluded that the need for containment was obviated by the fact that the probability of any accidents that would challenge containment would have been extremely low.

So basically, the combination of the design features provided in the original design allowed us to come to the conclusion that confinement would be an

appropriate measure to have in place.

MEMBER McDILL: Thank you.

On page 23 of the same report there is a reference to the higher margin than that assumed in the safety case, a PCR value of 0.402. Is that AECL's position that that's as high as it's going to go or might it go higher or lower?

MR. McGEE: Brian McGee for the record.

I'll ask Albert Lee to answer that question.

MR. LEE: We've developed the value of 0.402 milli-k per megawatt as a bonding limit to be used in the safety analysis by analyzing all of the data that we collected on the power coefficient for reactivity, both in tests done in -- primary tests done in 2003 and further supported by the data collected in tests done in 2007.

We took the best estimate value of the measured power coefficient reactivity from those tests. We increased the value by approximately two standard deviations. In other words, what we did was we increased it by the uncertainties allocated at the 95 percent confidence level one-sided limit to arrive at a constant value of 0.402 milli-k per megawatt. We assume that it would be a constant value in the safety analysis for all power transients, for all power.

MEMBER McDILL: Is staff comfortable with that number?

Maybe I should rephrase that: Does staff agree with that number as opposed to ---

MR. PEARSON: For the record, Bruce Pearson; Project Officer for the MAPLE Reactors.

When we -- the basis for acceptance to proceed with the tests is based on AECL demonstrating that it's adequately safe to proceed with the tests. Included in the assessment that we do, is we recognize that in performing these tests it's for a very short period of time, so that we do give a good deal of consideration to the fact that the time at risk has been minimized and it's just a short term test that's being done.

Other factors that we consider in looking at the safety of the test is the measures in place to confirm that the design itself is safe and catering for the test.

The value of the PCR, we reviewed a considerable amount of data and also the information that AECL produced and for the tests that were being done and that have been approved to date, we were in agreement with the acceptability of the 0.402 that was used in developing the safety case.

DR. McDILL: Thank you.

My last question then for this round is, is that 0.402 the number that is going to be used in Figure 10, where you -- it's not up there -- it's on Figure 10 of the AECL document, there is a diamond near the bottom right-hand corner, which is PCR greater than zero, less than in the safety case. There is also a diamond at the safety case for 8 megawatts in that same part of the block.

Is that the number that is going to be used there or is there a different number that is going to be used there when we get to the safety case for 8 megawatts?

MR. McGEE: Brian McGee, for the record.

I will ask Albert Lee to respond.

MR. LEE: Albert Lee, for the record.

The value of the positive power coefficient reactivity that we would use in a safety case to support our application to operate up to 8 megawatts will be dependent upon the final results of the PCR tests and the measures that we implement to mitigate the positive PCR.

We will not necessarily use a value of 0.402 milli-k per megawatt for the PCR value and the safety analysis if we’re able to demonstrate that we have effective measures to mitigate it and significantly reduce the value.

DR. McDILL: Thank you, Madam Chair.

THE CHAIRPERSON: I would just like to return a bit for just a follow-up question to the AECL. Dr. McDill started by the Figure 9, in terms of the program and asked staff about their view as to what was acceptably low or negative PCR. I would like to have AECL's view as to how that diamond would be defined?

MR. McGEE: Brian McGee, for the record.

I will ask Albert Lee to answer the question, but I want to emphasise that we are focusing on reducing the PCR and eliminating it at this point in time.

I will ask Albert to -- if we came to the point where that was part of our decision-making process, explain how we would go about that.

MR. LEE: Thank you. Albert Lee for the record.

If you turn to Figure 10 on page 25 of the AECL Commission Member Document, you will see a figure that shows the PCR testing logic chart.

The diamond that was on Figure 9 is further elaborated in terms of the bottom part of that figure where we looked to -- we asked questions about whether we have successfully made the PCR negative, as shown in a number of diamonds leading to defining a safety case to operate at 8 megawatts.

If we are successful and to find it to be

negative and measure it to be negative and confirm it to be negative, we will use those results to define a bounding value to use in the safety case that would be acceptably low.

If you go on, there is a diamond in the lower right-hand corner that shows a decision box for where the value of the PCR is greater than zero but less than the value that we would use in the safety case.

The value we would choose would be a value that would effectively demonstrate that for all of the design basis events -- those consequence to members of the public and to the workers, and to onsite staff, meet the same criteria that we used in the original safety analysis in the FSAR.

If we could demonstrate that we have effective trip coverage and meet all the safety analysis acceptance criteria for a value of the PCR that is acceptably low but greater than zero, we would then make an application to operate the reactor, at up to 8 megawatts while we develop a longer term solution to make it negative.

THE CHAIRPERSON: Sorry, I don't quite understand this because it is new information in terms of the process here.

So correct me if I'm wrong in my

understanding of this. My understanding then is if going down Figure 10, the PCR testing logic chart, going down the right-hand side and again the Secretary has sought to put it up, but it's pretty difficult to read on there, but that is the chart you are referring to.

If we go down the side and we get to the block which is PCR that is greater than zero and less than some -- yet unspecified number, if I understand that, and that would have a specific safety case attached to it which would be evaluated within the design specifications and there would be modifications as necessary.

Then, if I understood you, there would be an approval that -- I presume and I'll ask staff to help me understand that -- that would be submitted to the staff. I suppose that would have implications on what staff have suggested in terms of returning to the Commission. So what would the staff do? What would the staff be recommending based on this licence to come to the Commission?

And then AECL would apply for approval to operate that but it would be a two-pronged approach. This is where I get very unclear. It would be approval based on that safety case to operate the MAPLE at 8 megawatts, while at the same time seeking further investigations in terms of moving towards the negative PCR or -- that part

it went too quickly for me to understand, Mr. McGee.

MR. McGee: Brian McGee, for the record.

First, I'd like to emphasise that we would not ask staff or present to staff a request to operate or a safety analysis that we weren't first satisfied was an acceptable safety case. The 4.02 (sic) milli-k number that was discussed earlier is a bounding scenario that is being used for the PCR testing at this time and is a bounding scenario under the current safety analysis.

If we were unsuccessful in completely resolving the PCR issue through design changes, the safety case would be revised to a new bounding number.

So at this point, it is somewhat speculative but I will ask Albert Lee to elaborate, if you would like to, on that response and to help clarify where our thinking is.

But at this point, it is somewhat speculative to go to any decision-making type of criteria at this point because our focus is still to go through the PCR testing, to undertake to resolve the PCR issue, and our belief is that we can reduce it to zero or negative.

But I will ask Albert Lee to respond.

MR. LEE: Thank you. Albert Lee, for the record.

I agree with everything that Mr. McGee has

said. The current value of 0.402 milli-k per megawatt is the bounding value that we are using for the current series of PCR tests.

Our intent is to define possible remedies to reduce the value of the PCR. Based upon how far we are able to reduce the value of the PCR, we will revise and update the safety analysis to support a mode of operation with whatever the remedies are installed in the core.

At this time we are not able to define how low that value of the PCR would be and what we would use in the safety analysis. So we would have to come back with that after we've got the design changes.

THE CHAIRPERSON: But was my interpretation of Figure 10 correct?

MR. LEE: Yes. Your interpretation of Figure 10 is correct. Coming down the right-hand side, we are looking at trying to make it as low as possible, preferably negative and depending on the result and depending on whether we believe we have an acceptable safety case to try and proceed to operate.

THE CHAIRPERSON: Could I have staff's comment please?

MR. HOWDEN: Thank you. Barclay Howden speaking.

The tests that are ongoing now are

important to measure the PCR under different conditions with certain changes to the core and we've reviewed the safety cases with the time at risk and other considerations, we're satisfied they're being done safely.

But the tests are also being done to understand the phenomena and this is -- this is an issue. It's one thing to have the value of what it is, but to –- you need to understand it as well, because if you understand it then it gives you a degree of predictability because then you can model it then you can validate it and then when you go through your safety and accident assessments and you're using your models, you have a high level of confidence.

So I just wanted to emphasize that the measurement is important, but understanding it is equally important.

And so if someone couldn't model it but they were confident of a bound, they'd have to be very convincing that the safety case is then bounded.

And -- and I think that's the issue that staff is struggling with, is that you can measure it but can you understand it well enough to either model it or bound it and -- and such that when a safety case is presented, you say, yes, have a high level of confidence that you are in that safety envelope.

So what we're seeing for the tests are not only measurements but also understanding and you can see each test has a different sort of thing to try to get an idea of what the contribution is.

So I think we agree with AECL that there's a lot of -- a lot of things that still have to be done to reduce the uncertainties.

From our perspective, from a regulatory perspective, the licence that we have and the conditions that we have, we feel is sufficient to provide us with regulatory control to make sure that nothing goes forward unless it's safe and if, in our opinion, it isn't, it just is shut down, you go into the GSS until you ponder your next move.

And so when we look at their plans, we look at it from -- we have two considerations. I think last time I said that activities are very important because they have to be sequenced to make sure that you benefit from the last test before you go to the next one and that's very much focused on being effective, from a regulatory standpoint.

The timing, even though we've downplayed it, it does have importance in terms of managing your resources and trying to be efficient. Like we like to -- we -- we block out our staff's time to do work and so if

we have a good idea of the timing we can be more efficient because if you miss a time slot, that staff member may be unavailable for another month or so.

So, I think at this point we're confident with the regulatory regime.

Where we're uncertain is -- is the understanding of the phenomena and if that could be done that will improve things greatly because you will have a measure and you'll understand why it's there; then you can actually take it and start to engineer solutions to your problem.

Does that respond to your question, Madame?

THE CHAIRPERSON: Well you've actually raised another -- another question.

But just so that I follow my train of thought here, so when the staff looks at Figure 10, which AECL referred to and I looked at the questioning on the right-hand side of Figure 10 at the end.

So the staff are saying that they understand Figure 10 and they understand the -- the options that have been put forward, understanding, you know, what Mr. McGee said in terms of the direction AECL wishes to go. And -- and understanding that in your recommendations to the Commission in terms of when we would -- some of the hold points and when we would come

back, could you just delineate your understanding of that lower, right-hand side of the document and what exactly would the Commission and therefore in a -- I think you've recommended a one-day public hearing -- what would be evident in that -- in that lower, right-hand corner, to the Commission?

MR. SANTINI: Miguel Santini for the record.

The lower box in -- in Figure No.10 in the AECL submission coincides with one of the conditions in the proposed licence which basically the reactor will switch to the in-service status, at which time we'll come to the Commission.

Now, what we have to understand at that moment -- at that moment we will have to see how -- what AECL has put in place in order to resolve the PCR issue and the differences for now in interpretations is what resolution of the PCR is.

In AECL's mind, resolution of the PCR is as low as achievable, considering that the safety case supports operations.

And in our mind, and for now is the PCR ought to be negative in order to -- to come back to original safety basis and licensing basis in -- in the original operating licence.

In AECL’s submission, we would expect that AECL would submit a new safety case, a safety case that will go back to the origins justifying what additional measures that had to be put in place in order to be able to operate at one with a positive PCR.

Now I would like to emphasize what -- what Mr. Howden said with respect to the phenomena in the core.

The problem is not only the value of the PCR but the understanding of what causes it. When you don’t understand what causes it you try to assign in such a way that you always are on the safe side.

When you don’t understand then the safety side -- the safe side is negative because when it is positive you basically you don’t -- you can’t capture everything with the models and you have an undesirable effect to safety.

So basically we will expect AECL to come back to us with a -- with a very robust new safety case where they have demonstrated all of the engineering solutions to address this -- this value but, at the same time, we would expect them to -- to have a very good understanding of what is causing the positive PCR.

THE CHAIRPERSON: That opens a set of questions, but I’ll let my colleagues go and then I’ll come back if it’s necessary to come back to that.

I think, if you agree, Dr. McDill, we'll move to Dr. Barnes.

Dr. Barnes.

MEMBER BARNES: If I can continue the questions on the PCR, if I may.

This has been going on for many years now and I guess I'm surprised at some of the diagrams provided by AECL that suggest -- for example, on your -- your schedule, page 10, where you have an in-service in about one year from now.

And given the fact that we're still -- clearly don't understand the issue in the way that AECL has just said, I'm surprised that you would be bold enough to suggest that you would be in-service, what appears to be the fall of 2008.

Is this realistic or just based on a whole set of assumptions that if they all work that might be conceivable? Given the time it would take to demonstrate the case that's just been stated by -- by staff, I just personally can't see how you could possibly be in-service one year from now.

MR. McGEE: Brian McGee, for the record.

Our focus, right at this point in time, is to execute the PCR test plan. It's a well thought out, well-detailed integrated plan with a series of activities

that were carefully networked as we go through it.

At the outcome of that, we'll have a better understanding of the time that it will take to complete whatever design changes and activities are required to achieve that.

The schedule, beyond the current PCR testing regime, is primarily established for business planning and financial planning and financial decision-making purposes. So at this point in time, from a technical perspective, the schedule that we're focusing on is the schedule to go through the PCR test plan in a rigorous and prudent manner and at the end of that plan we expect to be in a position where we have a greater understanding of the design changes that will be required to achieve the in-service of the facility.

MEMBER BARNES: I come back to the test plan and through this process we certainly encouraged and pleased to see that AECL, for some time now, has been receiving external advice. You had that on the coloured boxes of the previous overhead, which is Figure 9, from INL, BNL and INVAP.

Could you -- just a couple of questions on that, could you give us some kind of verbal assessment of -- of the value you found in those external reviews, relative to your own thinking. Were they substantial, the

contributions, were they sort of simply incremental?

MR. McGEE: Brian McGee for the record. I'll ask Jean-Pierre Labrie to answer.

MR. LABRIE: For the record, my name is Jean-Pierre Labrie.

We have been working with Brookhaven National Laboratory, Idaho National Laboratory and INVAP for a long time now. We've had very regular dialogue and we still have dialogues and meetings with these organizations.

Basically the outcome of the work that Brookhaven has done was to reconfirm that the analysis methods that AECL is using to calculate the PCR from the data is correct.

From INL, what we have as an output is that the models that we've been using are modeling that they've reproduced independently from us, is correct and from INVAP it was mainly their insight into their design of reactors and obviously they have provided very valuable recommendations that we have incorporated in our PCR logic diagram to identify the causes for the positive PCR and the design changes that will be implemented to resolve these.

MEMBER BARNES: And on Figure 9, would we expect those external interactions to continue, in the

lowest part of the diagram?

MR. McGEE: Brian McGee for the record.

I'll ask Jean-Pierre Labrie to answer.

MR. LABRIE: For the record, my name is Jean-Pierre Labrie.

We are still in interactions with these organizations. We still have INL doing some scoping calculations for us, for example, so the activity is still ongoing with these organizations.

MEMBER BARNES: And what proportion of that information that's provided externally is accessible to CNSC staff?

MR. McGEE: Brian McGee for the record.

I'll ask Jean-Pierre Labrie to answer.

MR. LABRIE: For the record, my name is Jean-Pierre Labrie.

We have provided to the CNSC staff all the documents that we have received from these organizations and the recommendations and our proposed disposition of these recommendations in the test plan.

MEMBER BARNES: And to CNSC staff, an encouragement that certainly commission, didn't AECL took on its own direction to seek external advice in what obviously is a very complex issue and -- and sort of difficult issue to resolve.

To what extent has CNSC staff taken external advice?

MR. PEARSON: Bruce Pearson for the record.

The only external advice that we've sought on this issue of the positive PCR was quite some time ago; back when the positive PCR issue was first raised. And we did hire a consultant to do an independent look at -- at the data in parallel with our -- our look at the data.

With regards to our -- our follow-up actions and monitoring the progress that AECL is making with their consultants, we do get the final reports. We do attend progress meetings and there's been two separate occasions that staff has actually traveled to Idaho National Labs and to Brookhaven National Labs to participate in meetings and discussions with consultants.

MEMBER BARNES: Given that we're now -- it seems to me -- over the next several months, going to come into a rather crucial time as the tests go into the 400-Series, 500-Series and the licensee will be coming forward for some final -- I think so-called final recommendations for licensing approvals, do you have any comment whether, in terms of the expertise you have currently in -- CNSC staff it would be wise, beneficial or whatever, to secure external advice to make sure that staff is fully able to cover all aspects given the kind of uncertainties that

staff has just -- just indicated understanding the system, not just having some -- some milestones met?

MR. SANTINI: Miguel Santini for the record.

We haven’t considered seeking external advice on the review of the hypothetical case that the AECL comes back to us requesting approval with a positive PCR because this is still hypothetical, but we will certainly consider, if that happens to have -- to seek external advice on that.

We have done extensive research in terms of how the PCR is considered by -- by other regulators in the world. And in general, as in our case, the PCR is not prescribed as to be negative for the sign and -- and be acceptable. There are only two regulators in the world that prescribe the PCR to be negative.

Now the -- the approach that we use is -- is risk informed, so we will not say that a positive PCR is not acceptable at all until we finally see the safety case and see how that supports operation with a positive PCR.

Having said that, I would like to go back to a previous answer regarding the -- the information obtained from different sources of expertise around the world by AECL.

We have reviewed their reports and in our views, yes, in general AECL's methodology and approaches have been confirmed by these experts. The problem is that they all coincided and the models used are okay and everything seems -- they -- they think they did everything right but the issue is the models do not represent what is happening in the core and that's the issue.

MEMBER BARNES: Just a couple of diagrams -- questions to AECL on your organizational chart which we asked you to provide, and I appreciate that.

This is on page 4 of your CMD.

The first is the location of the Manager, the quality assurance which is towards the bottom right, and Senior Quality Representative. And I wonder if it's appropriate to ask whether in reporting to both the Director, DIF, sort of some degree and also the Director of MMIR, whether that -- given the situation that we're in, whether that should report at a higher level?

MR. McGEE: Brian McGee for the record.

Commissioner Barnes, are you referring to the facility quality representative in your question?

MEMBER BARNES: No, the Manager of Quality Assurance; the one to the right, Senior Quality Representative.

MR. McGEE: Brian McGee for the record,

then.

So your question is, should he report to the Director of DIF operations?

MEMBER BARNES: Yes, or even -- or even higher in the organization?

MR. McGEE: Brian McGee for the record.

The -- we believe that the Manager of Quality Assurance and the Senior Quality Representative is -- is properly placed in the organization given the roles and responsibilities and the accountabilities associated with that role.

The individual has a relationship -- a functional relationship with the corporate quality assurance office, which gives it a strength and relationship to -- for anything that they see that the individual in the role sees that they believe should be changed.

So the nature of the -- the role relationship is the individual identifies something that they believe needs to be changed, they work with the -- with the Director of the MMIR project with it. If they don’t get the adequate satisfaction, the nature of the authorities with the role, give them the ability to go to the Corporate Compliance Organization. So they do have an outlet for -- for identifying give them the ability to go

to the corporate compliance organization so they do have an outlet for identifying concerns, and it's to a senior level person in the corporate compliance organization.

MEMBER BARNES: Does that happen?

MR. McGEE: Brian McGee for the record.

I don't -- I can -- Brian McGee for the record.

I don't have a specific example but I've been told it does, on occasion.

MEMBER BARNES: Staff, are you happy with that positioning of essentially the QA?

MR. HOWDEN: Barclay Howden speaking.

I'm going to ask our Quality Management Specialist, Paul Wong, to respond.

MR. WONG: For the record, my name is Paul Wong; Quality Management Specialist.

We have asked AECL the same question as you raised, many years ago, and we have engaged corporate QA up to the chief quality officer on this question and we have struggled with this arrangement ourselves.

But the resolution -- there were some issues that they managed to -- they took some changes -- made some changes -- and the result is the arrangement that Mr. McGee has just described and also presented in the CMD.

Obviously, we do prefer, as you pointed out, that a senior quality manager reports to a higher level of management and it is indirectly in a way doing so.

CNSC doesn't prescribe an explicit acceptable organization structure. We focus on the effectiveness of this organization and the primary focus we concern ourselves on is whether these individuals, with their assigned responsibilities, are able to discharge these responsibilities and provide the necessary oversight and also have the necessary authority and freedom from any undue pressure.

As a result, what we have been doing, we have monitored the setup and the way it has worked and we have not been -- we haven't found any deficiency as a result of this arrangement and we continue to monitor it and we accept, currently, the situation, unless we find some deficiencies.

MEMBER BARNES: Okay, thank you.

Just while we are on that diagram, it may just be a graphical issue but I notice in the boxes at the bottom that the ones on the left, the five on the left are all managers and the five on the right are all directors. Is a particular reason for that titling?

MR. McGEE: Brian McGee for the record.

I'll talk about the operation side of the organization and then I'll turn it to Ron Cullen to talk about the project side of the organization.

The organizational structure and the level of the managers in the operation side of the Dedicated Isotope Facilities is consistent with the organizational pattern and level that we use across the Chalk River laboratory site for positions of that nature.

I'll turn to Ron Cullen to answer on the project side.

MR. CULLEN: Ron Cullen for the record.

The position of directors as shown under the Projects Group are primarily titles that have derived from when other projects that have been overseas where titles were significant in executing in the projects. So these have carried forward into the current organization and we find them, in a sense, quite effective in executing the physical work in the field.

MEMBER BARNES: That will be it for this round, Madam Chair.

THE CHAIRPERSON: Mr. Graham.

MEMBER GRAHAM: Thank you.

I've just got a couple of questions, first with regard to what my colleagues have been asking. Just to get this clear in my mind, CNSC are still working

towards the fact that we would licence under a negative PCR, I guess that's -- or a negative coefficient. Positive is still hypothetical. I think those words were used. But at the end of the day, AECL will probably be back to operate MAPLE 1 at a positive PCR.

My first question would be is because of that and because it requires design change and because it requires a safety case would that trigger an EA under CEAA?

THE CHAIRPERSON: Mr. Graham will have to ask AECL for comment on your ---

MEMBER GRAHAM: Okay. Would you like to comment -- at the end of the day, if you can -- I mean, I have read here as a layperson, you know, 2.8 and then you're down to different values. And looking at the charts I know the best scenario is to develop what you've always gone after but if you do have to, in timeframes and budgets and so on, which we've all heard about these today -- at the end of the day may you be back? Do you think that it's possible that you may be back to operate the MAPLE 1 with a positive PCR?

MR. McGEE: Brian McGee for the record.

Our total focus, organizational focus at this moment in time is to take the PCR negative. The test regime and all the work that we're putting into the PCR

test plan, in executing those activities, and taking a prudent and rigorous approach as we go through it, is all focused around taking that PCR negative.

In the event that we were unsuccessful and, as Mr. Santini described, we understand the phenomena well enough to be able to construct a safety case; then I cannot preclude the possibility that we would come back with a safety case but it would have to be a sound safety case that we are convinced of and that we're able to convince others of, including the CNSC staff.

I can't preclude that that is a possibility but it's not a part of our focus right at this time. Our focus is to eliminate the PCR, to drive it negative, and to, you know, revise the safety analysis, the safety case associated with a negative PCR and come back for approval at that time.

Does that answer the question?

MEMBER GRAHAM: Yes.

And my next question to you then is the timeframe -- you're looking at that will probably take up to a year to be able to work towards reaching the negative PCR?

MR. McGEE: Brian McGee for the record.

Our PCR test plan shows us coming back to the Commission for a public meeting, not a hearing or an

approval to operate but for a public meeting to describe to you at that time at the completion of PCR testing what we have found. We expect that to happen in Q-1 of 2008. So it's much closer than a one-year time period.

We're now approaching Series 400 testing. This is not -- I want to be clear about this. This is not to come and seek approval to operate. It's to come to a meeting and present to you what we have found as we have completed the PCR test plan.

THE CHAIRPERSON: If I may, Mr. Graham, I realize that this is a hypothetical and, you know, we are discussing these issues.

The reason I think -- if I could just comment on why the Commission wants to talk about this is this is a licensing hearing and so it's meant to be more exhaustive than any updates or one-day hearings or meetings or whatever the Commission decides to do.

So it's extremely important, I think, for us to have an adequate framework so that we can look at these -- perhaps more delineate in specific decisions under a framework of broad understanding about the direction.

So it should not be looked at as the Commission making any comments about what would be acceptable or unacceptable or what the options are; it's

just merely understanding the diagrams that were put on the table. It is not to be seen as anything other than what we understand is the direction of this. It's just to adequately frame it so that later on when we come back with specific ideas, we understand which part of the tree we are hanging this off. So I just am concerned we are going over here a bit.

Mr. Graham?

MEMBER GRAHAM: Thank you. On that, does CNSC staff care to respond?

MR. HOWDEN: Barclay Howden speaking.

Mr. Graham, from the process standpoint is an application would come in, and we would look at it whether it is a project under CEAA, and it would be yes; then it would be what is the licensee requesting, it would be likely an amendment of the license, which is a trigger under CEAA. And then an EA has to be done.

Then you would look and say has an EA previously been done that covers this thing? So we would have to look at the existing EA that exists for this facility to determine whether an EA would be required. And it is either "yes" or "no" and then after that steps are done, you would go back to licensing which would be in front of the Commission.

MEMBER GRAHAM: Thank you.

On the licensing part and with regard to your CMD in number 3, proposed licence length and you are proposing the 47 months but you are also talking about two hold points for Commission consideration and approval.

I believe those are in August of 2008 and August of 2009; is that correct?

MR. HOWDEN: Barclay Howden speaking.

In the original CMD, that was what was proposed based on the schedule known at that time.

Based on all the discussions today and the supplemental information that those dates have been pushed out and they are quite uncertain because they are dependent on the resolution of the PCR issue.

What we have asked from the Commission is that if the Commission issues the licence for 47 months, delegation of authority for certain authorizations but indicating that we recommend that if there is a request to go into service, which was that lower right-hand box on Figure 10, ---

MRMBER GRAHAM: Right.

MR. HOWDEN: --- for MAPLE 1, that that would be -- our proposal was that the Commission would take that particular decision.

When that may occur, we are hearing it might be a year out from now, but really it depends on the

PCR resolution in terms of the path forward before that could come back. So based on our knowledge at the time, that was the intention, is that we would come back to the Commission for MAPLE 1 and MAPLE 2 with those two dates.

Let's not worry about the dates. Let's say there could be two hold points and, in the interim, staff requested delegated authority and also staff proposed a mid-term report, just to update you. I believe AECL has proposed to come back, post-PCR to bring you up to date.

MEMBER GRAHAM: So as it stands right now, there would be a meeting, AECL would come to a meeting on status -- on where status is and we would also do a mid-term. Is that more or less what the process would be right now?

MR. HOWDEN: From information updates, that is correct. From hearing standpoint, that is still speculative as to how the PCR resolution goes.

MEMBER GRAHAM: So really, I guess, just to get it clear in my mind and trying to follow the charts, over a 47-month period, if schedules go as planned, how many times would AECL be back before the Commission, either in meeting or in reviews and hearings?

MR. HOWDEN: Barclay Howden speaking.

There would be two information sessions; post-PCR, mid-term, and then potentially two hearings for

MAPLE 1 and MAPLE 2. So that could be four visits back to the Commission within that 47-month term.

THE CHAIRPERSON: First of all, I would like to point out that this is what is proposed not what the Commission has decided and, if you agree Mr. Graham, I think we should ask -- I was going to do it later anyway, but ask AECL their view on this. This is what is proposed by the staff, but we haven't heard anything from AECL yet on this.

MEMBER GRAHAM: I agree with that. Go ahead.

MR. McGEE: Brian McGee for the record.

We agree with the proposal. We believe it is important to come back and inform the Commission of the results of the PCR testing in an information session. The information session at mid-licence term is fairly typical and we would expect to see that and we support coming to the Commission in a hearing format for declaration of MAPLE 1 in-service, as well as MAPLE 2.

THE CHAIRPERSON: Back to you, Mr. Graham.

MEMBER GRAHAM: That's all.

THE CHAIRPERSON: I just have a couple of areas that I would like to look at.

First of all, I realize looking back at the transcripts in Day One, we had the application to put the

licences together and I think everyone sort of went off assuming that this was -- there was reasons for this.

Just for the record, I think it is important for us to understand from AECL and from staff why there is an advantage to putting the two licences together. It doesn't have to be a long discussion, but I think that we need this for the record. Why do you think this should be done?

MR. McGEE: Brian McGee for the record.

Just for my clarity, are we talking about within the DIF Facility?

THE CHAIRPERSON: Yes.

MR. McGEE: Brian McGee for the record.

We believe that having the DIF Facility managed within -- the operating licence is a significant part of our operating documentation and a significant part of the operation of the facility. So for purposes of clarity and consistency across the organization it is being managed under the leadership of a Director of Operations.

We believe that it's a sound approach to take to have all the facilities, within the facility, if you want, governed under one operating licence. And that way it gives a consolidated and an integrated view of performance as well, so that as we go through the

operational period, both ourselves, staff and the Commission ultimately have an integrated and a consolidated view of how the facilities are being operated.

THE CHAIRPERSON: Staff?

MR. SANTINI: Miguel Santini, for the record.

Yes, we share this view with AECL. We have to consider that all of the facilities at the sites are managed or are kind of conducted using the same site-wide programs, and these site-wide programs should be complied with by all of the activities at the site.

From the administration perspective of the licence it is tremendously simpler to have everything consolidated under a single document. And when amendments are required, when the reviews of these program documents are required and approved by the Commission, it is simpler to go that way.

THE CHAIRPERSON: I would just like to qualify though, Mr. Santini, we’re -- in agreeing to the length of a licence, the Commission is not binding the Commission at that point in terms of that discussion.

What we are talking about just understanding that this is in a more efficient way of operating, without losing the effectiveness of the

regulatory oversight. Is that what I can write down?

MR. SANTINI: Absolutely and that's why we recommended to the Commission to two separate hearings additional, given the licence period for approval to switch to in-service status.

THE CHAIRPERSON: I also think it is interesting that we are seeing in other areas where we have a hearing around a result rather than a time period. I think that's one of the things we have looked at as well.

I would just like to come back, if I may, to a comment that was made by staff in terms of understanding, back to the PCR, in terms of the phenomena. We heard from the staff, Mr. Howden particularly, about the issues of understanding -- and modelling and understanding, how the phenomena are bound and the contribution -- those kinds of issues -- the understanding rather than necessarily the number.

Mr. McGee, I would like to hear from AECL, your thoughts on the importance of that understanding to your confidence in operating this facility safely under whatever is the bottom-line number.

MR. McGEE: Brian McGee for the record.

I will make a couple of comments and I will turn it over to Albert Bell (sic) to expand on as he sees

fit.

The safety analysis is really part of the design basis of the facility and managing that design basis effectively and having a sound understanding of the design basis is really a cornerstone of sound operations, safe and reliable operations.

So, understanding the phenomena that make up the safety analysis, that piece of your design basis, are really critical from an operating perspective in terms of defining the safe operating envelope and those operational aspects that are critical -- understanding the phenomena is a central part of having a sound safety analysis.

I'll turn it over to Albert Bell (sic), if he'd like to expand on that.

MR. LEE: Albert Lee for the record.

I agree with Mr. McGee's comments. Having a sound understanding of the phenomena and the behaviour is very important to supporting a robust and well developed safety case. It also provides support to how operations can proceed in day-to-day operation.

So among the efforts that we're undertaking to resolve the PCR issue, we are investigating all the phenomena and investigating the best means to understand the cause of the phenomena and how to mathematically

represent the phenomena in the models.

THE CHAIRPERSON: Thank you very much.

I propose that we take a break. We will take a one-hour break for lunch and we will be back then at 12:18.

The Commission will decide if it wants further questions on round two and then we will do the intervenors after that. So we will move back here in one hour.

Thank you.

--- Upon recessing at 12:19 p.m.

--- Upon resuming at 1:18 p.m.

THE CHAIRPERSON: If I could ask you to take your seats, please?

I understand from my colleagues that we may have a couple of more questions on round two and then we'll be moving quite soon into the intervenors for today.

So we will start then with Dr. McDill.

MEMBER McDILL: Thank you.

My question is general in nature and it's directed at staff. If basically we have information one year out and the licence is for 47 months, because AECL has said decisions have to be based on results that will come in.

Is a 47-month licence appropriate?

MR. HOWDEN: Barclay Howden for the record.

In terms of regulating this particular facility, Dr. McDill, what we've done is, like we've done with other facilities, we've done an assessment of all the programs that are needed to operate it safely, as well as an assessment of their implementation and we've provided that information to you in the form of "meets requirements" or "doesn't meet requirements".

We followed up on an ongoing basis, so in terms of -- from an ongoing regulatory oversight and safe operation, we're satisfied that over a 47-month period that there's not an issue.

I guess from the perspective of issues that are unresolved, hence should we be licensing more on a phased basis which is what we used -- which what we do often is that we go through construction, commissioning, operations, et cetera.

And normally what we tried to do was tie the licence in to those particular phases. And we did do that with this reactor, but then we got to the point where we ran into significant issues. The first issues were the shutoff rods didn't drop and then once they got past that issue then we got to the point of getting actually into commissioning and this PCR issue raising its head.

So from our perspective we would normally,

I think, go along in a phased approach. But I think just because this is on an established site and it is drawing off the site-wide programs, we have a high level of confidence that those programs can be maintained over the period of 47 months.

Because of the uncertainties we've tried to introduce the regulatory hold points to basically say, okay, over the course of this licence period there's going to be a number of regulatory decision points, some for staff under delegated authority and some for the Commission.

What we wanted to do with those is have focussed hearings, very much on the particular issue at hand as opposed to having a broad re-licensing hearing where we revisit all the programs in a systematic way.

What we would do is report our compliance results to assure you that those programs that are underpinning operations are still in good shape but we wanted to focus on the regulatory issue at hand.

So that's a long answer to say that we can go both ways. We could propose, "Let's just have a one-year licence and come back in a year", or we can go for four years.

Because of the schedule issues it's difficult to start putting temporal times on the licence.

So that’s why we tried to bound it with the 47 months and then put forward the activities that had to be accomplished during the course of the licence period without knowing the timing.

So from our perspective we also saw it as a way that we could from a regulatory standpoint, manage the licence in an efficient manner while maintaining our effectiveness. Certainly, the 47 months allows us to roll it into our baseline compliance activities with our site office.

So the -- even though we’ve got these project-related issues, the site office is still working in the background on all the programs that support the facility; doing rounds, looking at environmental protection.

So from a planning perspective it does promote some efficiency for us, to be able to just come back to you on topic-specific issues.

MEMBER McDILL: Thank you. Maybe AECL would like to comment as well.

MR. McGEE: Brian McGee for the record.

A 47-month licence is appropriate in this case. The controls available to CNSC staff and to the Commission, ranging from routine monitoring discussions that we have on a regular basis with staff, to more

elaborate oversight mechanisms to inspection and audit tools available, as well as enforcement tools, provide a robust framework for the licensing of the facility.

In addition to that, the -- our proposal to come back at the end of the PCR testing gives the Commission itself another opportunity to monitor performance at that level through an information session. The mid-term licence review is another opportunity that provides the Commission with a firsthand look at how performance is trending.

And then of course the actual approval points, the hold points that has been described by CNSC staff, where we will come back to the Commission in a full hearing session; all provide robust mechanisms to support a 47-month licence.

MEMBER McDILL: Thank you, Madam Chair.

THE CHAIRPERSON: Other questions; Mr. Graham?

MEMBER GRAHAM: Yes, I just have two questions. The first one is to CNSC staff. In 2.3 of your CMD H-16.B, under the heading of "Environmental Protection" regarding the DIF review that was done on July 23rd to the 25th, you go on to say that:

> "The implementation process still needs improvements, mainly in document

control and program management."

Is there anything that should be reported to the Commission with regard to deficiencies in this program or anything that was not of a routine -- improvements that were needed but of major improvements over?

MR. HOWDEN: Barclay Howden speaking.

I think overall our view is that we didn't have anything to report to you that would be significant.

But I'm going to ask Christian Carrier who is the project officer who was involved in the inspection to provide you, just a very brief overview of some of the things that were found and whether -- and why we saw them as just things that just needed improvement, just part of normal program improvement.

Thank you.

MR. CARRIER: Christian Carrier for the record, from the Chalk River Laboratories Compliance and Licensing Division.

So we carried out an inspection in July. It was a two day and a half inspection and we covered a number of aspects in the environmental monitoring program and the facilities.

So we reviewed document control, calibration, maintenance of records, verification of the

airborne monitoring systems and effluent system in general, including liquid.

Configuration management of the facility; project management; monitoring laboratory -- it was analysing the samples -- and the training program for the people at the facilities on the environmental monitoring program.

So generally speaking we had made a number of observations that translated into a number of action notices and recommendations.

We have four action notices and two recommendations and we have one positive observation regarding the training of staff at the facility, regarding implementation of the program which we thought was important to note.

So regarding the action notices, we have observed that some of the documentation was out dated. According to AECL’s own procedure the documentation should be updated and reviewed every year on a yearly basis and some of the documentation dated as late as the year 2000.

I understand from the discussion with AECL staff that the overall program at the Chalk River site is under review and consideration was being made as to incorporate some of this information within the site.

So part of that situation of outdated

information may relate to the fact that the facilities have not really been -- have been operating but not very heavily during those years. In addition, there are considerations into changing the structure of that documentation.

Another observation that was made was that some of the equipment in the field that we are seeing was -- had a calibration sticker suggesting that the calibration was outdated. Again, some of this equipment was not that critical for the effluent monitoring but they were part of the configuration so AECL normally should ensure that these pieces of equipment should be calibrated.

Another observation that has been made is some components in the field were found to have been replaced with other components that didn’t meet the prescribed quality for the monitoring equipment. That is expected from time to time.

However, we have seen that at least one piece of equipment had been replaced and had been staying in position for about six months. It doesn’t mean the facility was not being monitored at that stage. However, the facility -- well, there is redundant capability to monitor the facility in this case. However, it is an observation we have to note in the inspection report. So

that was not a situation by which a facility would not have been monitored properly.

And one last observation that was made is in some cases we have observed that the documentation that was describing the facility in the final Safety Analysis Report and in other documents were not consistent in what was observed in the field. So observations were made to AECL to ensure that consistency between documentation and what existed in the field would be consistent.

So I don't know if that answers your question.

In terms of significance, if I were to summarize, I do believe that the facilities were properly monitored for the status of operation in those days. In some cases some of the pieces of equipment were not functional but in areas where actually no radioactive material was present. So the observation was made to AECL that our expectation was that -- well, our position was that the facility was in operation and normally the equipment should have been able to do the monitoring even though there was no radioactive material present.

It is an observation. We don't feel that it has a significant impact on the program. However, we clarified our expectations to AECL on that.

We do believe also that the systems in

place currently gives us confidence at a time of more operation of the facility, the equipment will be in place to do proper monitoring of the facilities for effluent monitoring.

So I hope that answers your question.

MEMBER GRAHAM: Yes, it does, and thank you.

I guess my question would be to AECL. I mean, even though it may not be of significance it still indicates lack of control in some of these things. Would you like to care to comment as to when you'll have those -- at least those four action notices, action items resolved and brought up to the expectation of CNSC?

MR. McGEE: Brian McGee for the record.

I'll ask Don Taylor to describe the timeline associated with the specifics of those action notices.

The Environmental Management System at Chalk River Laboratories is a site-wide program and an area of demonstrated performance. It is ISO-14001 certified and has just now gone through this fiscal year a subsequent recertification. So we now have two 14001 certifications under our belts from an experiential perspective.

The other aspect of the environmental

program is that under the site licence that was obtained mid -- last calendar year -- were required to migrate to S-296 and we are well on the way to doing that. On a site-wide basis we are driving the environmental program to meet the S-296 requirements for the CNSC. So the program is a demonstrated area of performance.

Central in both of those aspects is continuous improvement. And so the continuous improvement aspects that are identified as part of the CNSC inspection are important as well as the ongoing improvements and on an annual basis we have an improvement plan for each of the facilities onsite to address improved performance in the environmental management system.

I'll turn it over to Don to talk specifically about the timeline.

MR. TAYLOR: For the record Don Taylor, Director of DIF Operations.

I'm afraid I don't know the detailed timelines for these four actions at this point in time but we do have knowledge of the observations and we are setting action plans to take care of them through our processes. We will treat them very seriously as we do with all of these.

MEMBER GRAHAM: Thank you.

I just have one other question and this is

for clarification, I guess; 2.4.3 regarding the MIPF production.

MIPF is continuing. However, there is no substantive progress to report from Hearing Day One. Does that production -- is that subject to MAPLE 1 in full production or can it be -- is the MIPF producing when you are at stage 300 Series or 400 Series and so on, just for clarification?

MR. McGEE: Brian McGee for the record.

The MIPF is reliant on MAPLE 1 full commercial operation, that's correct.

THE CHAIRPERSON: Any further questions?

Dr. Barnes.

MEMBER BARNES: This might be a duplication, for which I apologize. I'll just go back to staff because I'm struggling a little bit myself.

I can understand the logic for the various licenses and to some extent the logic for a 47-month term, but given the issues that we've been addressing here now for quite some time and the difficulty of AECL being able to achieve the appropriate resolution to the PCR problem which affects MAPLE 1, MAPLE 2, it seems to me that on the one hand there is a need to have some extended licence length, but there certainly needs to be some review points. On the one hand you're talking about certain hold

points from a milestone perspective. Second, in your document, although it's sort of -- a little bit buried in there -- it's not in the initial sort of final recommendations -- you're talking about having a sort of a mid-term review in, I think, about October or thereabouts in 2009.

It would seem to me that it would be good to have a review towards sort of active commissioning of MAPLE 1 and, presumably, MAPLE 2 that might be twinned depending on progress and then the NPF commissioning and of course with the NIPF too.

So on the one hand we have a longer licence term. We have the specific problem with PCR which makes it difficult today to predict when there would be active commissioning of MAPLE 1, 2 and the NPF but four years is a long time for a licence when there has been this important issue before us. So the nature of these meetings, I think, is important to me and the timing of them.

So could I just ask you -- sorry for the repetition but from a staff viewpoint, how do you think it is best to have the Commission look at these and particularly in a public forum?

MR. HOWDEN: Thank you. Barclay Howden speaking.

I think the way we structured things with the mid-term and then the two hold points, we thought that they would be staggered such that you would be getting that information. With AECL proposing a post-PCR testing update I think that's a good thing.

We would definitely take direction from the Commission whether you wanted another update at the active commissioning phase. I would suggest that if the timing -- it all depends on how things pan out but the timing might actually align with the mid-term so we could kill those two at the same time. But if they were stretched out, certainly if the Commission desired we would be more than happy to provide an update to make sure that you're well-apprised and that the public is well-apprised.

We're not against making those updates and I think something around active commissioning could -- could be taken care of for sure, because 47 months, as you say, is a long period for a facility that is undergoing change, as opposed to one that's just steady with not very many changes, so we certainly take that direction from the Commission.

MEMBER BARNES: I particularly consider it still to, I think, significant C-ratings in operating performance and performance assurance, which seem to be tied to some of the difficulties that AECL is having.

MR. HOWDEN: Barclay Howden speaking.

Yes, we acknowledge that and we also acknowledge that AECL makes strong commitments to bring those up to meet expectations and I think if they reach those that would -- that would also -- rather than reporting updates, which tend to be negative, to provide some positive updates as well.

Thank you.

THE CHAIRPERSON: I will recall, for the staff, that I had -- and I'm trying to recall which licence it was, a recent licence at CRL -- mentioned that what would be helpful because of the complexity of the site, for a background document to be developed that would offer this continuity as well, no matter what the licence's like because it's a complex site, you know, looking at pulling out the various aspects without having to go back to a total relooking at things because one should not assume that the Commission looks at this every day.

I mean, it looks at it a very -- period of time and in pulling that out in a way that would cite this appropriately, I think, no matter what is the decision of the Commission would be helpful and I think you'll recall that I asked for that to be done.

Further questions at this time?

Okay, well thank you very much, we've finished round one and now we're going to move to the intervenor's part of the hearing today, Hearing Day Two.

Before I start, I would like to mention to all the intervenors that we do appreciate you taking the time to interest yourself in this particular licence and we will be -- we will be -- we can assure you that we've read your written submissions in -- in great detail and that your written submissions will also be considered, as well as your orals today and that we've allotted approximately 10 minutes to each of the presentations and look forward to your oral and written comments.

First I'd like to move to the first written presentation by the Canadian Nuclear Workers' Council. Mr. David Shier has been with us before. We do have CMD 07-H16.2, O7 H16.2A.

And the floor is yours, sir.

07-H16.2 / 07-H16.2A
Oral presentation by the
Canadian Nuclear
Workers' Council

MR. SHIER: Thank you and good afternoon, Madam Chairperson and Members of the Commission.

For the record, my name is David Shier; I'm the President of the Canadian Nuclear Workers' Council.

With me today I have several leaders of the unions that are members of our council from Chalk River and I would like to take the time to introduce them.

To my right is Gord Tapp. Gord is one of the leaders of the Chalk River Technicians and Technologists Union.

Beside Gord is Tom Brunette. Tom is the Union Leader for the Operators at the MAPLE site, as well as the other facilities at the Chalk River site.

Behind me is Pam Pickering. Pam is the Leader of the Allied Trades Council, which represents eight unions on the site.

And beside Pam is Ken Philipose. Ken is the representative of the union for the professional engineers at -- and scientists at Chalk River.

We are here today in support of the AECL's application for the renewal of the licence and you do have our written submissions so we're going to be fairly brief and just highlight a few points we'd like to expand on.

So our presentation will consist of a quick overview of the labour relations, conventional health and safety, radiological health and safety, community perspective and our conclusions and recommendations. And

again, this is all from the view of the people in the workplace, through the leaders of their union.

As we indicated, there is 11 bargaining units onsite and there is approximately eight collective agreements and it's fortunate at this time that all the bargaining is being completed and most of the unions are into collective agreements up until 2011, except for the Power Worker Unit, which theirs is up to 2009.

The health and safety structure, as we're very -- health and safety is a very paramount point of the Nuclear Worker Council and we're encouraged to see the improvements in the health and safety performance and we assure you that the workers onsite are very well aware of their safety rights.

In putting together this presentation, the authors, we toured the actual facility and talked to the workers and we can assure you that they are well aware of their rights and feel safe in working in the facility.

The Joint Health and Safety Committee has been very active and they are, as you'll see from our written submission, they are undergoing a quantification, which basically reducing their numbers to make the committee more effective and we're optimistic that is going to happen.

The dose reduction; we looked right across

the site and it has been reduced and again we believe that is from the involvement of the -- of the workers and some of the new processes that are in place.

The community perspective; as we always indicate, it's the workers that reside in the communities and they are involved with a lot of community functions so they're continually in contact with members of the public and they're naturally questioned about the site and they're able to give their views, naturally.

As we say, if it wasn't safe there they wouldn't be there or they would be making sure that the issues were dealt with.

The Nuclear Worker Council; we coordinate some efforts in the area at different times and I guess one area is the Renfrew and District Labour Council, which has a large number of unions in the area and there's several of the unions at Chalk River which are members of that council, which again provides the opportunity for the workers to tell -- answer any questions and tell people exactly what it's like at that particular location.

So in conclusion, we indicate that the public can be assured any issue involving public safety will be addressed by the onsite unions and we encourage the Commission to renew the operating licence for the site.

And in conclusion, I would like to -- and naturally we are prepared to take any questions that you may have at this time.

Thank you.

THE CHAIRPERSON: Thank you very much.

And although we've had individual members before, we haven't had the organization together so that was an interesting development for us as well.

Any questions from my colleagues?

Yes, Dr. Barnes.

MEMBER BARNES: There has been a significant reshaping of AECL's management, individuals and organizational charts; that's why we asked probably for it for this Day Two meeting, but it's now been in place for a little while so I would appreciate any comments that the unions might want to make on whether you've seen any significant -- I'll say -- improvement, from the viewpoint of workers on -- onsite?

MR. SHIER: I'll give you a response from my perspective and then I'll ask if any of the other members would like to add anything.

But from what I get from being external to the site and hearing from the -- the different unions that they indicate to me there has been a big positive affect; that a lot of the things are being brought forward now

that weren't before; health and safety is improving; there's more of an open atmosphere.

And now, with that, I'll ask if anybody else wants to make any comments to that effect.

MR. PHILIPOSE: For the record, my name is Ken Philipose. I represent the Chalk River Professional Employees Union.

Yes, there was -- there have been a lot of changes in management and our site is growing; we have new people and there are new challenges.

Like Dave said, just to the -- I mention that many of these organizational changes are brought in -- improvements in the way reporting structure and the way things are being heard, so it's -- it's positive.

THE CHAIRPERSON: Any questions?

Mr. Graham?

One of the changes that has also happened on the same time is that there is a CNSC site presence.

Mr. Shier is used to this because of his involvement in the NPP site, so I just wondered if there was any comments with regards to -- you don't get to choose whether we have site staff, let me make that clear, but any comments about having a site -- CNSC staff -- site staff on the -- in Chalk River?

MR. SHIER: David Shier, for the record.

Yes, we just found out about that and -- well, we'll probably be having some discussions with the unions there to have some dialogue with the -- the site representative. We found that fairly positive, especially around the generating stations. So we think also publicly that it is a good move as well because it shows a regular -- being onsite -- and I think that will help solve some problems with the public.

But definitely from a worker perspective, we will be pursuing that avenue of having some meetings with them.

THE CHAIRPERSON: For those that aren't aware, on the NPP sites what we have said to the representatives is it's important for them to know that that is another safety valve, I guess, if I can put it that way that if there are issues that come up onsite that the CNSC site staff are requested to interact with employees if they feel that there is some safety issue that you need to talk about.

Clearly, we don't want to get into the union management issues. We very clearly do not get into that, but we do want to know that that's an added safety issue for the employees and also for the management under Mr. Santini as well.

But that is what we do at the NPP sites, is

one of the beauties of having onsite staff.

Further questions?

Well, thank you very much. We do appreciate it. We realize we are a little bit delayed, but thank you very much for coming.

We are now going to move to the next intervention, which is an oral presentation by the Corporation of the Town of Deep River outlined in MCD 07-H16.3. We are pleased to welcome Her Worship, the Mayor of Deep River, to us today. Thank you very much, ma'am, for coming. We will let you get seated here.

Thank you very much for coming. The floor is yours.

07-H16.3
Oral presentation by the
Corporation of the
Town of Deep River

MS. AIKENS: Thank you very much. For the record, my name is Ann Aikens, the Mayor of Deep River.

I would like to thank you for the opportunity to appear before the Commission to express my support for the 47-month renewal for the operating licence for MAPLE and NPF.

As head of council, it is important for me to make the time to personally hear the submissions by AECL, by CNSC staff and to listen to the thoughtful and probing questions asked by Commission Members because it continues to assure me and my community that safety continues to be the primary consideration for everyone involved.

Deep River and Renfrew County are very proud to be home to AECL and to Chalk River Laboratories. The economic impact of AECL is very important to our community.

AECL is the second largest employer in the County of Renfrew. It employs more than 2,100 employees who live in 25 small communities in the Ottawa Valley. I think sometimes people believe it's just Deep River that is impacted by the employment, but that's not the case. More than half of the employees are spread between other small municipalities in Renfrew County. As such, they constitute four percent of our total labour force. Their salaries contribute to the prosperity of the region and the success of our businesses, large and small. Therefore, they contribute to the health and safety and well being of these communities. So it is a very important contribution.

All that being said, it is important for us

to realize and important for us to make sure that that's being done in a safe environment. We feel fortunate to be living and being involved with a workforce and an employer that has such a rigorous safety oversight. It makes it very beneficial to our communities.

Besides the impact, I want to talk also about some of the major accomplishments that I have seen in the short time that I have been the head of council. AECL's management continues to keep us very well informed.

I am particularly impressed with the efforts that AECL has undertaken to create the Environmental Stewardship Committee. I benefit greatly as head of council from the opportunity to share the opinions of the other stakeholders around the table, and this is a new initiative for us. At some of those meetings, the CNSC representative that you talked about previously with labour unions is available, and I have shared discussions with that person over lunch. It also gives me an opportunity to hear from other stakeholders and to see their perspective and to understand their concerns as we move forward collectively to come up with positive solutions.

None of this would have been possible without the initiative of the new management at AECL, and I would very much like to highlight how important that is

as we go forward, not just on this licence renewal but on the other ones as well.

From a community point of view, there has been a lot of discussion about the whole issue about the 47 months and whether or not that's too long or not too long. But from a community point of view, it's very important and very helpful to us, not just for me as the head of Deep River's council and community but also for my colleagues at Renfrew County Council to be able to see these individual licences in context to the overall site licence and to know that it is not just specifically one item that is being dealt with. It is being dealt with in the context of the health and safety and wellbeing of our communities for all activities that go on in the operations on the site.

Further to what has been said, both by Commission staff and by AECL, I would support the fact that we would encourage a 47-month licence renewal. The intervening points that they have for public information, I think, are also very important and we would be very interested to see those results as they come forward in their testing.

But again, consolidating all of those licence initiatives is very important to the communities. It helps us to understand it in context. It helps us to

see it in context going forward, rather than isolating one particular operation on the site.

In closing, because most of this stuff is in our brief as well and I know you have other things to talk about today as well, we are very proud to be part and to be the host of AECL's community. As a community member, we chose to come to Deep River from Mississauga. We chose to raise our families there over 25 years ago. I have never once worried about the safety of my children as a mother and as head of council, I don't ever worry about the safety of my community because we are located close to AECL. I think I have stated that in previous submissions to this to the Commission -- but I wanted to make that crystal clear.

There are many places and many industries that you could live beside that have not anywhere close to the oversight or the kinds of rigorous demands that AECL has for providing a safe community. As such, I applaud the efforts of the Commission. I applaud AECL and I applaud Commission staff for making sure that we move forward collectively to make sure that this is done in the best interests of my community, of Renfrew County and of Canada. And as we move forward, the things that we are going to learn in the ways that we are going to process isotopes in the future will probably benefit all of the

world in isotope production.

So I look forward to moving forward collectively on this, and I thank you for the opportunity to identify my community's support.

I would also, before I conclude, like to bring greetings from the warden from the County of Renfrew, Warden Janice Visneskie. They had hoped that they would be able to participate by telephone conference -- both her and Bob Sweet, who is the Mayor of Petawawa. They are previously engaged in a conference that they were registered for, and they asked me today if I would bring their greetings and their support to the Commission's attention in a personal way. Although you do have their written submission, they were wishing that they could have done this by telephone because they had a previous commitment.

So again, thank you for your time and I would be happy to answer any questions that you may have.

THE CHAIRPERSON: Thank you very much and thank you for coming. Questions from my colleagues?

I would like to thank you very much and I just want to say that spending time with you and listening to your submission is very important to us. I mean, obviously, the communities have played a major role for us in looking at the programs of the industries that we

regulate.

And the acceptance, what I tend to call the social licence, is incredibly important to the companies and to us as well. So we would like to thank you very much for taking this time to be with us and we certainly have read the written submissions from your colleagues as well.

Thank you very much.

I would like to now move to the next submission, which is an oral submission by MDS Nordion, CMD 07-H16.4. Mr. Graham Malkoske, Vice-President of Strategic Technology at MDS Nordion, is with us again. Oh, and the President of MDS Nordion, Mr. West.

We would like to thank you for being here today, gentlemen, and the floor is yours, sir, when you are ready.

07-H16.4
Oral presentation by
MDS Nordion

MR. WEST: Good afternoon, Madam Chair, and the Commission.

I am, for the record, Steve West, President of MDS Nordion.

We are pleased to be here today to appear before the Commission to fully support the application by AECL for the renewal of the operating licence for the Dedicated Isotopes Facilities.

I am going to handover now to Mr. Grant Malkoske who will be giving our presentation.

MR. MALKOSKE: For the record, my name is Grant Malkoske, Vice-President, Strategic Technologies with MDS Nordion.

So our intervention is clearly in support of AECL's application for an operating licence for the Dedicated Isotope Facilities, for the period of 47 months.

We think that the importance of these dedicated, Isotope Facilities to the reliable supply of nuclear medicine isotopes for the global healthcare industry is really paramount and we feel a strong obligation to be able to continue to supply these isotopes for patient needs.

It's also -- our intervention is also a recognition of the licensing activities of the Commission, as well as AECL, to ensure both the safe commissioning and the safe in-service operation of these Dedicated Isotope Facilities. They will be the workhorses for the future production of medical isotopes.

And so, as we take a look at the supply

chain today for medical isotopes coming from Canada -- certainly NRU and the Moly Processing Facility continue to be the paramount producers of these medical isotopes internationally.

Some 60 percent of the world's medical isotopes come from Canada. Some 50 percent of the supply into the United States comes from Canada. So on the one hand it truly is a privilege, on the other hand it's a serious obligation to be able to continue supplying these needs for patients.

And as this slide shows, the expectation is that MAPLE and the Dedicated Isotope Facilities will pick up this obligation, hopefully in the near future.

The diagnosis of disease is something that is being used around the world; today, the diagnosis of disease using Moly 99 and Tech 99 is some 80 percent of the medical isotope procedures. And so, monitoring health, expediting treatment, as this slide shows, is something that only comes from these medical isotopes and there are relatively few of these suppliers around the world.

This slide shows some of the applications; you've seen this slide before. I think the point that I'd emphasize here is that the secure, reliable supply of medical isotopes is what we think, an imperative

obligation upon each and every one of us, as we make sure that these patient needs are being met.

Some of the new, exciting opportunities as we go forward in the future is, as we see science advancing health care applications, the whole field of molecular imaging where, based on nuclear technologies, we can look at these imaging technologies to better able us to diagnose the need for different drug tools for patient care.

And molecular imaging is going to speed up this drug discovery, bring on new applications that truly are exciting. And one of the examples we have here, on the bottom of the slide, is a radio labelling of monoclonal antibodies with Iodine-131 which is produced here for treatment of non-Hodgkin’s Lymphoma that product being called Bexar.

Also, there are new, targeted diagnostics and therapies; some for brain cancer, treating neuroblastoma as an example. And so, the bottom left picture shows a pictograph here of a brain tumour being treated. So often the tumour is resected and any residual cancer cells are treated with Iodine-131 or Iodine-125, which could be introduced into the cavity and make sure all the cancer cells are destroyed.

And so these targeted radionucleic

therapies are really exciting opportunities for the future.

This slide is one that has become a hallmark of many of the things that we do.

To make sure that these essential criteria for medical isotope supply continue to be adhered to, as we deliver a product around the world. And so, the continuous product supply, the regulatory requirements, the product quality, the consistency of delivery, all become very important for patients to be able to depend upon this product for meeting their needs.

And of course, it is truly a just in time application from the time of reactor extraction, by the time that is delivered to Ottawa, processed, put on a plane, delivered to Logan Airport in Boston, taken to a radio-pharmaceutical facility, made into a technetium generator, delivered to a clinic, provided to a patient -- as little as 41 hours.

Self-supply logistics certainly are critical; cross-border commerce becomes a fundamental point of importance for us.

You've see this slide -- the dependency on Canada for medical isotopes and I alluded to some of the numbers prior. There are about 60 countries that rely on Canada for its supply of reactor isotopes.

NRU, today, continues to be the workhorse. And it's been very dependable; we certainly have seen a lot of investment by Atomic Energy of Canada to ensure that NRU and the Moly processing facility continue to operate consistently, reliably, within the safety envelope that is prescribed and these isotopes are produced and distributed coming out of the NRU system.

It's interesting to note the strategic value that Canada, Nordion and AECL play to the industry. It's important to have security of supply. Backup arrangements are in place with other producers but nonetheless, there are no other producers around the world that collectively can fill the gap if Canada's supply chain were to go down.

And interestingly, we had a situation just in the last couple of years -- twice -- in the United States where one of the generator manufacturers had to shut down their production line, leaving only one other manufacturer.

And all of the isotopes for the United States, in that case, were supplied from Canada. So, supply -- production and supply was ramped up at NRU, production and supply ramped up at Nordion.

Other worldwide backup arrangements were put in place and distribution was made to other countries

from those other suppliers and we think it's really a testimony to a lot of dedicated effort by many people to ensure that this was done consistently, reliably and safely.

So, certainly we see here how NRU is essential today and the expectation is that the Dedicated Isotope Facilities will assume NRU's supply, performance obligations.

These isotopes, the "big four" as we call them -- Moly-99, Iodine-131, Xenon-133, Iodine-125, these will be the essential products that will come out of this Dedicated Isotope Facility and be distributed around the world.

We are concerned, of course, about progress in bringing the Dedicated Isotope Facility's project to completion. We've listened very intently today to some of the discussions that have gone on around the MAPLE Reactors, the positive power coefficient of reactivity.

We're also interested in seeing the Iodine Facility brought to in-service operation, as well as the NPF and so there is a lot of work to be done. We know that time is important but nonetheless, we expect that the completion of these facilities will be done safely, will be done effectively so that their ongoing in-service operation is not compromised.

So then, in summary, we think that this reliable isotope supply is an essential obligation that we must continue to uphold, both at AECL and at Nordion.

The entire supply chain has to continue to meet patient needs and the focus on this obligation, we think being given in Canada by AECL and by Nordion certainly is important and our customers and patients around the world would agree with that.

So then in summary, we support AECL's application. We're confident of their ability to ensure the safety of the workers and the public, to implement an effective quality management program for commissioning and for operations; to ensure the ongoing safety and reliability of their operations and also to ensure that they continue to meet the regulatory and environmental protection requirements.

We support the application they have made to renew these licenses for the Dedicated Isotope Facilities to October 31st, 2011.

Thank you, Madam Chair and Members of the Commission.

THE CHAIRPERSON: Well, thank you both to Mr. West and Mr. Malkoske for being with us today.

Are there any questions from Commission Members?

Yes, Dr. Barnes.

MEMBER BARNES: Just in your last slide, you mentioned the issue of quality management which I raised. Your words are that you are confident in the AECL's ability to implement an effective quality management program for commissioning and operations.

Do you think that the existing Quality Management Program is satisfactory or needs significant improvement?

MR. MALKOSKE: I don't know if I can comment that it needs significant improvement -- is it on? Yeah.

I don't know if I could comment that it needs significant improvement.

We've listened to some of the results from the 2003 audit, some of the results that were discussed today from the 2007 audit and without having the detailed information available to us, it would seem that there is some work to do, to make sure that the program -- the site program, the AECL corporate programs continue to be robust. Maybe even some adjustments to make sure that they're effective but we're certainly not experts in that area. We would leave that to both AECL and the auditors to determine that.

THE CHAIRPERSON: But I think you would

admit that that is key to your certainty of supply and the quality of supply is going to be the quality management program that they have in place.

MR. MALKOSKE: Yes, I think as we have listened to discussions that have gone on over the last number of years, if we're going to have continuity of supply, dependability of supply, that that is an important factor to demonstrate to our customers that that can be achieved and adhered to.

THE CHAIRPERSON: Further questions from my colleagues?

Yes, all I can say is you probably very succinctly put in your slides the real issue that is before us, period, is the Commission has as you well know because you're a licensee too; this safety -- the overwhelming safety mandate. But the Commission doesn't live in a bubble. It knows that there is clearly some key issues that you have outlined very succinctly in your slides to do with reliance on the NRU and it did go through a very vigorous re-licensing and improvement program. But inevitably, this gap analysis is of great importance to you which you've outlined succinctly.

But from the Commission's point of view it is very much an issue that we are aware of but won't, as you again clearly pointed out, be the issue that drives

the Commission. So I think it's very important to have this succinctly put on paper. So thank you very much.

So thank you very much for coming, gentlemen.

We will now move to the written submissions. We have a written submission from the Town of Petawawa as outlined in CMD 07-H16 -- my apologies. It's the afternoon, I guess.

We are moving now to the next submission which is a written submission from the Fire Department of the Corporation of the Town of Laurentian Hills, CMD 07-H16.5.

07-H16.5
Written submission from the
Fire Department of the
Corporation of the Town of
Laurentian Hills

THE CHAIRPERSON: Are there any questions or comments from Commission Members with regards to this submission?

Thank you very much.

We will now move to the next submission which is a written submission from the Renfrew County

Catholic District School Board, CMD 07-H16.6.

07-H16.6
Written submission from the
Renfrew County Catholic
District School Board

THE CHAIRPERSON: Are there any questions or comments with regards to this submission?

Now, we'll move to the one that I discussed which is CMD 07-H16.7.

07-H16.7
Written submission from the
Town of Petawawa

THE CHAIRPERSON: Are there any questions or comments with regards to this submission?

You see, I could have kept going.

The next submission is a written submission from the City of Pembroke, CMD 07-H16.8.

07-H16.8
Written submission from the
City of Pembroke

THE CHAIRPERSON: Are there any questions or comments with regards to this? No? Thank you very much.

Then we move to the next submission which is a written submission from Mr. J.A.G. Severin, CMD 07-H16.9.

07-H16.9
Written submission from
J.A.G. Severin

THE CHAIRPERSON: Are there any questions or comments with regards to this written submission?

Seeing none, I'll move to the next one which is a written submission from the Pembroke Regional Hospital, CMD 07-H16.10.

07-H16.10
Written submission from the
Pembroke Regional Hospital

THE CHAIRPERSON: Are there any questions or comments with regards to this written submission?

We will now move to the next submission

which is the written submission from Renfrew County District School Board, CMD 07-H16.11.

07-H16.11
Written submission from the
Renfrew County District
School Board

THE CHAIRPERSON: Are there any questions or comments?

The next submission is a written submission from Deep River District United Way, CMD 07-H16.12.

07-H16.12
Written submission from the
Deep River District United Way

THE CHAIRPERSON: Are there any questions or comments with regard to this written submission?

Moving to the next written submission, a written submission from the County of Renfrew, CMD 07-H16.13.

07-H16.13
Written submission from the

County of Renfrew

THE CHAIRPERSON: Are there any questions or comments with regards to this submission?

The next one is the written submission from the United Way/ Centraide of the Upper Ottawa Valley, CMD 07-H16.14.

07-H16.14
Written submission from the
United Way / Centraide of the
Upper Ottawa Valley Inc.

THE CHAIRPERSON: Any questions or comments with regards to this submission?

That brings to the end the matters before the Commission on this area. I suggest -- with respect to this matter I propose that the Commission confer with regards to the information that was considered today and then determine if further information is needed or if the Commission is ready to proceed with a decision, and we will advise accordingly.

Thank you very much, ladies and gentlemen, for joining us today.

The hearing on the application by SRB Technologies will be starting at three o'clock.

Thank you very much.

--- Upon recessing at 2:12 p.m.