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Tuesday, March 30, 2010

Chair

Mr. Leon Benoit

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● (0905)

[*English*]

The Vice-Chair (Mr. Alan Tonks (York South—Weston, Lib.)): Good morning, members of the committee.

To our invited guests, good morning, and thank you for being here.

Pursuant to Standing Order 108(2), we are involved in the study of the status of the NRU reactor and the supply of medical isotopes.

Members of the committee have been spared the presence of the chair. He is on the road, and I will be filling in for him. I didn't mean that we'd been spared the presence. We will all miss him tremendously, and I'll certainly let him know that when he returns.

We'd like to welcome, as an individual, Mr. Peter Goodhand. Welcome, Mr. Goodhand. Thank you for being here.

And we have, from Covidien, Stephen Littlejohn, vice-president, communications, pharmaceuticals division. Welcome.

As well, we have Philippe Hébert, director of sales and marketing, pharmaceuticals division, Tyco Healthcare Canada.

I recognize some who have made deputations before committee, but I will give an explanation. We allow eight to ten minutes. We invite you to make your presentations during that time. Then we begin with a seven-minute round of questions and answers from the members. We'll try to expedite that. The second round, if that's possible, is usually five minutes.

Without any further ado, Mr. Goodhand, would you like to lead off?

Mr. Peter Goodhand (As an Individual): I don't have a formal presentation. I certainly won't use the time allotted.

I am here as an individual, but obviously as the person who chaired the expert committee on the medium- to long-term supply situation. In that context, we did look at the current situation, only to the extent that it informed the long-term picture.

I also, in my day job, as you can probably guess from the daffodil, am the CEO of the Canadian Cancer Society. I try to keep those two roles distinct and separate through the chairing of the panel, so I am here today as an individual. I'll give you any insights I can from the work of the panel as it may relate to the questions around the NRU. It wasn't our particular focus, because we were very much in the 15-to-20-year timeframe, looking to the future. And to the extent that through my work at the Canadian Cancer Society we're informed about the situation affecting patients today, I'll be able to share that with you as well.

That really is all I have to say as an opening statement.

The Vice-Chair (Mr. Alan Tonks): Fine. Thank you, Mr. Goodhand. We appreciate that.

Perhaps we'll just go on with Mr. Littlejohn, if you'd like to lead off, or with Mr. Hébert.

Mr. Stephen Littlejohn (Vice-President, Communications, Pharmaceuticals Division, Covidien): Actually Mr. Hébert will start for us.

The Vice-Chair (Mr. Alan Tonks): All right, by all means, go ahead.

[*Translation*]

Mr. Philippe Hébert (Director, Sales and Marketing, Pharmaceuticals Division, Tyco Healthcare Group Canada, Covidien): Hello, my name is Philippe Hébert and I am the director of sales and marketing, in the pharmaceuticals division of Covidien Canada. I would like to thank the committee for its invitation.

Covidien is a health products company with a worldwide presence. The company supplies technetium-99m generators all over the world. In Canada we employ about 500 people in all fields of healthcare and medical products.

In Europe we have a molybdenum extraction facility in the town of Petten, which extracts molybdenum from reactors in Europe. We also have an operations centre there to produce technetium-99m generators. The other centre that supplies Canada and North America is the fabrication centre in Maryland Heights, in the St. Louis, Missouri, area. All clients in Canada are served from that centre.

Covidien traces its roots in this field to the Mallinckrodt company, established over 160 years ago, with headquarters in the St. Louis area. We have continued this heritage. In Canada for the past three years, we have made considerable investments in order to play a more active role in supplying and distributing medical isotopes in the Canadian market.

As you probably already know, there are only two manufacturers of technetium-99m generators in North America. We are one of them. For the past three years our purpose has been to offer Canadian centres a more diversified supply that reduces the risks of supply chain breakdowns that have unfortunately been affecting the medical field. We have had considerable success in becoming an alternate source of supply in the Canada's western and Atlantic provinces. That is why, if you look at the centres in these regions, you will see that the impact of the Chalk River reactor repair process is very limited. That is because of our ability to prove technetium-99m and molybdenum from alternative sources.

I would like to explain briefly how we have been operating since the repairs to the Chalk River reactor began. As a global organization, Covidien has concentrated on supplying its customers. We have contracts with our customers. These contracts are usually for the long term, of at least one year. Our goal is always to ensure that our clients have the best possible supply. Since the repairs to the Chalk River reactor began, we have also established a process to inform the market when additional production is available. We have made a special effort to supply Canada with additional production of technetium-99m generators that can be offered to centres that are not our usual customers here. Such additional production can vary from week to week, but some weeks we have been able to offer 600 curies. To give you an idea of scale, 600 curies is probably one third of the Canadian market's needs. Some weeks, much less is available; other weeks, it is just enough to satisfy our Canadian customers' needs.

Since the beginning, we have made a very determined effort to inform the market of this availability. We have published a calendar that informs the Canadian centres about what supplies we expect to have available two or three months in advance. I will stop here and turn it over to my colleague, Mr. Stephen Littlejohn.

● (0910)

[*English*]

Mr. Stephen Littlejohn: Thank you, Philippe.

My name is Steve Littlejohn. I'm with Covidien, a global healthcare products company. I'm a vice-president at Covidien's pharmaceuticals segment, which is based in St. Louis, Missouri. I also co-chair our global task force that is helping to manage the challenging medical isotope crisis worldwide.

More than 35 million nuclear medicine procedures are performed worldwide each year. Approximately two million of these are performed in Canada using single photon emission computed tomography technology. While many people are unfamiliar with medical isotopes, they or a family member have probably benefited from this technology.

The technetium-99m that comes from molybdenum-99 is a vital medical isotope. It is used in over 80% of all nuclear medicine SPECT diagnostic and functional studies of organs and anatomical systems. The information from these studies is used by many medical specialists, including, among others, radiologists, nephrologists, oncologists, and cardiologists, to better diagnose and treat patients.

Throughout the molybdenum-99 shortage that began with the unexpected and now lengthy shutdown of the NRU reactor in Chalk River, Ontario, now combined with the planned shutdown of the High Flux Reactor in the Netherlands, we have had two primary goals.

Our top priority is maximizing patient access, as fairly as possible on a global level, to critical diagnostic procedures that depend on technetium-99m.

Second, transparent and frequent communications are crucial in our collaboration with the nuclear medicine community to help them plan as efficiently as possible to provide maximum access for those patients most critically in need of this vital isotope. We have also established a special web page to provide easier access to current information on the situation, which can be reached at www.covidien.com/mo99supply.

We believe that we have been successful in meeting both objectives, but a continued strong effort is still necessary over the next few months.

Covidien firmly believes in the value of a diverse supply of molybdenum-99. Long-standing supply arrangements with each of the major medical isotope reactors continue to be highly beneficial, as they have been throughout the shortage. The global molybdenum-99 supply chain is heavily interdependent and can be very fragile. There are many steps between the reactor and the patient. Any one of them may prove hazardous if all does not go as planned.

I'll depart from my remarks briefly right now to explicate that. Let's say that we start with a reactor. We'll talk about the Maria reactor in Poland. They'll do the irradiation cycle. That might take six or seven days. This reactor is about 30 kilometres east of Warsaw. When the irradiation is complete, the targets are put in special containers—a target is about the size of a ruler—and for about 22 hours they're trucked across Poland and Germany to our facility in Petten in the Netherlands. The processing period may take about 16 hours. Then the product is moved to a technetium generator facility in Petten or Europe or Africa. Also, molybdenum is shipped by air to our facility in Maryland Heights. It takes about 12 hours to get it across and into St. Louis. There's a six- or seven-hour production cycle, and then it's in the air again to patients.

If you calculate all of that, from the point at which it leaves Warsaw, Poland, to the time it reaches a patient in Canada, it is a matter of hours. You can add it up, but it's a very short time. It's very complex. Everything has to work right at each stage along the way. And as you know, and as you've heard many times, it can't be stored. It's all real time, and it's all a batch process.

Obviously, having two primary reactors down simultaneously is an extreme example of a break in the supply chain. In preparation for this possibility, Covidien took additional precautionary actions.

Since last May, Covidien has taken a host of measures to lead the industry in addressing the supply issues affecting the availability of medical isotopes. Some were designed for immediate impact. As I just mentioned, Covidien and the Institute of Atomic Energy in Poland, or IAE POLATOM, announced an agreement last month that will provide an additional resource for this critical medical isotope. The agreement adds IAE POLATOM's Maria research reactor to the global supply chain for molybdenum-99. More than a million additional patients are expected to benefit from this additional supply in just the first six months.

● (0915)

If you do the math, if you have roughly 30 million procedures in the world that use technetium and you multiply the one million to two million for annual.... At two million, you're getting close to 10%. That is not a lot in the grand context, but when you look at the millions of patients being helped that otherwise wouldn't be helped, and having a supply when there wouldn't otherwise be a supply, it makes a difference. I do want to note too that it brings the first new reactor into the worldwide supply chain in more than a decade to help meet the demands of medical isotopes in this time of critical shortage.

What I'm about to say is really important, and I want to really emphasize it. We work closely with Health Canada and the U.S. Food and Drug Administration, or FDA. Those two agencies worked together and collaborated in an extraordinary, admirable kind of way to ensure that approval came. But I want to make very clear that this was not a shortcut approval; this is what I call expeditious rigour—with the emphasis on the rigour.

We had people on both sides of the border in the regulatory agencies willing to work on weekends, willing to take pieces of material and process them. It was an extraordinary effort by the regulatory community all the way around to do two very important things: get molybdenum into the supply chain and into technetium generators for patients, but at the same time ensure safety. You've got to have both at the same time when you're working in this. So that was really extraordinary, and we're very grateful for that.

However, as I mentioned before, adding Maria will not completely replace the molybdenum 99 supply lost to the NRU or HFR shutdowns. As I said, it can only address about 10% of world demand. So our efforts towards maximizing the molybdenum supply arrangements with all viable sources continue.

We actively supported additional production cycles and an increase in the number of targets at Belgium's BR2 reactor during the shutdown of HFR, and we continue to increase the production of the potential alternative: clinically appropriate medical isotopes such as thallium TI 201.

The combined use of molybdenum 99 from the remaining online reactors—Maria, BR2, OSIRIS in France, and Safari in South Africa—improves the outlook for the coming months. But we estimate intermittent ability to fully meet existing customer orders, with some periods of more serious shortages for technetium generators. This variability will be due to already scheduled brief maintenance shutdowns of the remaining molybdenum supply, including Maria.

Just to give you a better sense of that, referring to our calendars that we issue periodically.... We have one that will be issued as soon as we can get it translated into French into the Canadian market, rightfully. But just to highlight that, May is going to be a particularly difficult month. It could be difficult across the world. But at the same time, there are a number of dates in May that will be better, or at least not as bad, primarily because of the Maria reactor. The bright spots are May 9, 10, 20, 21, 28, and 29.

So we would hope with our communications that we can help physicians and other clinicians schedule appropriately to avoid the bad shortages and maybe be able to do it when there's a little bit extra available.

But we're not looking at just the short term, we're also looking at the long term. In January of 2009 Covidien formed a partnership with Babcock & Wilcox Technical Services Group, or B&W. We're collaborating to develop solution-based reactor technology for medical isotope production. This will combine our expertise in radiopharmaceutical production and processing, and global regulatory approvals, with B&W's patented liquid phase nuclear technology, and will utilize low-enriched uranium or LEU. The current target for completion of that would be the middle to latter part of 2014.

We've also expressed support for the Dutch government's efforts to develop the new Pallas reactor in the Netherlands. In addition, the Missouri University Research Reactor, or MURR, is also prominent in efforts to become a U.S.-based source of molybdenum 99 using LEU. Covidien is evaluating MURR as an optional supplier.

● (0920)

We also support the American Medical Isotopes Production Act in the U.S. Congress. The act promotes U.S. production of molybdenum 99 for medical isotopes manufacturing while also phasing out the export of highly enriched uranium for medical isotope production.

The Vice-Chair (Mr. Alan Tonks): Could I ask you to come to a conclusion so we can get into the question period?

Mr. Stephen Littlejohn: I will, and I see that folks are reading through the comments, so I will stop. All I will say is that all these initiatives, including the efforts in the United States, will benefit Canada, and I will yield to the chair.

The Vice-Chair (Mr. Alan Tonks): Thank you very much, Mr. Littlejohn, Mr. Hébert, and Mr. Goodhand.

We'll go to our round of questioning and ask Mr. Regan if he would lead off, please.

Hon. Geoff Regan (Halifax West, Lib.): Thank you very much, Mr. Chairman, and thanks to the witnesses for being with us today. I know we all appreciate it.

Let me start with Mr. Littlejohn. We'll start with the last, so to speak, but the last shall be first, as they say. It's interesting, because you talk about the various sources of molybdenum-99, and one of the discussions we've been having is about what will be the future of medical isotopes and what kind of facility will be creating them in the future. What's your view on that? We've heard about various technologies. Is it your view that we require reactors for this, or ten years from now are we going to be getting medical isotopes from elsewhere instead?

Mr. Stephen Littlejohn: I'll answer that in several fashions. First, I'll say that I'm not an engineer, and I'll admit that immediately. I have high respect for the engineers. What I am told in regard to the various new technological alternatives, might they be cyclotrons or accelerators or PET technology, is that while they can make and deliver molybdenum-99—as I'm sure you've heard in other sessions of the committee—the principal issue around those is commercial viability and quantities. Also, there's the investment that would be required, and if not investment in a major big reactor in one big investment, you would have substantial investments at different hospitals, so you'd have to look at a change in the paradigm of investment into those technologies. But obviously folks are working on them, and those issues could very well be solved. I can't predict one way or the other on that.

However, that said, most predictions are that technetium-99m will clearly be around. The quantity might still be 30 million procedures, or it might be a little bit less or might be a little bit more going forward because of its unique and attractive combination of economics and clinical efficacy. In terms of the future, we look at it as short, medium, and long term. Short term we just discussed. Medium term, there are reactors in the world that are a little bit younger than the ones we have right now. For example, the reactor Maria was completely refurbished in the mid-nineties. There are some others that haven't really come on. There's a lot of discussion and we're looking at it.

Long term, there's a lot of discussion. I talked about the United States; in Europe there's talk in Belgium and there's talk in the Netherlands. I would say there's a lot of thinking going on. The EU has been putting a lot of work into thinking about this. Bottom line, I think the model of a global, interdependent supply chain is one that will be more sustainable in the future, rather than what you might call tied exclusive arrangements.

● (0925)

Hon. Geoff Regan: In view of the problems with that supply chain right now, how is Canada perceived in the world in view of the problems with the NRU and the challenges in repairing it? Considering that the Americans and the Europeans and others are looking at improving or increasing their own ability to create isotopes, where does Canada fit into the supply puzzle going forward?

Mr. Stephen Littlejohn: I think I'll start with the end of your questions on moving forward in terms of the supply puzzle. In our approach we work very hard to spread the moly equitably and fairly across the world so we can serve the maximum number of patients. Obviously, the presence of facilities on the continent reduces the time period of decay, thus meaning more quantity, as you can imagine, so that's a plus going forward.

I do think you're going to have a lot of initial international efforts, and because of the nature of this technology, it's better to have a number of routes being pursued at this time, so when the time comes patients can get the technetium that they need.

In terms of Canada, I can't speak for the how the world looks at it, but everything I've seen about the nature of the repairs that need to be done or are being done at NRU reminds me of when you're out in space and you've got to fix something, and you've got to create it right then and there, and it's incredibly intricate. They brought Apollo 13 home, so I think they'll bring the NRU home.

Hon. Geoff Regan: We need Tom Hanks, right?

Mr. Stephen Littlejohn: But the point is that the reactors are all old. I don't think it's anything unique to Canada or unique to HFR or unique to BR2. They're all old. This is just what happens. So you have to have admiration for the folks trying to fix them.

Hon. Geoff Regan: Okay, thank you.

Let me turn to Mr. Goodhand.

The expert panel obviously favours a multi-use option in terms of isotope production, to replace the NRU. I think your report calls on government to “expeditiously engage in the replacement of the NRU”. Last week we heard from Dr. Eric Turcotte, from the University of Sherbrooke, who expressed disappointment that we've seen delays and response from the minister to the expert panel review. . Do you share his concern?

Mr. Peter Goodhand: I certainly look forward to a reply. I believe there is one coming, hopefully, in the not too distant future. It's four months since the report was filed. My primary concern will be to get a good, comprehensive response to it. I think when we said “expeditiously”, particularly as it relates to a new multi-purpose reactor, it's that seven to ten years' lag time from the decision to the implementation.

So we're actually looking over a long timeline. We need to make the decision, yes or no, within the next twelve months, and I prefer it not to be at the end of that twelve-month period.

Hon. Geoff Regan: You've led into my next question by talking about the lag time, because one of those concerns that you expressed was the issue, I think, of a gap, of not having a gap between the permanent shutdown of the NRU, whether that's in 2016 or later, and the start-up of a new replacement research reactor.

The Vice-Chair (Mr. Alan Tonks): This will be the last question.

Hon. Geoff Regan: Okay.

The report indicated that the timeline to first production for the new technology would be 2015-2020, in that range, at an estimated cost of $500 million for a new multi-purpose reactor. What start date is that timeline based on? And would delaying a decision automatically mean a rise in that $500-million figure?

Mr. Peter Goodhand: The range that we put on both the start time and the cost really comes back to the broader policy issues of what other elements of nuclear research and nuclear industry Canada wants to be involved in. The more functions you layer into the multi-purpose reactor, the higher the cost, the longer the build. If you took a relatively straightforward one that's used in another country, it would be a shorter timeframe and towards the lower end of the cost.

The Vice-Chair (Mr. Alan Tonks): Okay, thank you, Mr. Goodhand.

Thank you, Mr. Regan.

Madame Brunelle, the next seven-minute round.

[*Translation*]

Ms. Paule Brunelle (Trois-Rivières, BQ): Hello, gentlemen, and thank you for coming.

I am primarily worried about the supply of isotopes for patients. One witness, Dr. Eric Turcotte, told us last week that with the Dutch reactor closing for repairs, we will have a 60% shortage of isotopes. I keep thinking of that; I am worried and I want to get some answers.

Covidien talks about more diversified supply. One of the recommendations from the expert panel was to adopt a supply strategy based on technological diversification. I would ask this question to all the witnesses. Are we talking about the same thing when we talk about more diversified supply? Are you talking about looking in other places? The expert panel talked about technological diversification, different approaches, investment in research and development, and other ways of producing isotopes.

● (0930)

[*English*]

Mr. Stephen Littlejohn: There are two diversities about which we're speaking. I think you have the diversity of the PET, cyclotrons, accelerators, and other methods of getting moly-99. As I said earlier, many of them have shown they can make it. The question is whether it's economical and commercial-scale, in terms of size. That is not to say avoid going there. I think, for the sake of patients, you have to look at all avenues there.

The other diversity we're speaking of is recognizing that technetium-99m will be with us for a while, and I have to defer to the doctor as to how the clinical community views its balance of supply, cost, and efficacy. I'll defer to them on that. In that respect, it's a matter of securing diverse supply from reactors, then understanding that the reactors use a processing facility. There's a distinction. On your first set of reactors, they irradiate the targets, and then you have a processing facility that dissolves the targets and extracts the 6% of moly-99 that's in the targets. There are a few processing facilities. We have one. IRE, in Belgium, has one. MDS Nordion has one. NTP, in South Africa.... And then when the time comes and ANSTO, Australia, comes on line, there'll be one there. So that's a critical component there.

So it's having that diversity apply. It's also really important to understand that in the reactors, when they irradiate, it's a batch process. When NRU and HFR were down they had more batch processes end to end, and this operated for 200 to 250 days a year.

What we're facing right now is the other reactors don't operate as often, so what you're trying to do is match the reactor schedules such that you can have some across the board, and then at certain points you have a little more. This is why, if you look from week to week, it's a saw-tooth kind of pattern. It depends which reactors are operating.

Mr. Peter Goodhand: I would echo those comments. There are definitely two levels of diversity.

We also talked about—and I think you mentioned it—the issues of interchangeability. On part of the problem today, you heard that the target that gets irradiated looks like a ruler, but in a different place it looks like a pencil. You can't make the ruler go through the slot, so it's a matter of the interchangeability of those targets. If they all looked the same or there was flexibility, targets irradiated in different reactors could be processed in different processing facilities. If they're unique to that piece of technology within the reactor model, they're not interchangeable.

Then there's a second level of diversity, which means looking at things like cyclotrons.

There is the opportunity to have redundancy within a facility. If they feel there's a critical point, rather than having just one processing line you could have two processing lines so that one could be maintained and the other operated.

So there is redundancy in that straight chain and interchange-ability between the chains. That will be particularly important in North America. Because of the shipping times, it's better to have a regional solution where there is a great deal of interchangeability, and perhaps secondarily, the ability to switch from Europe to Africa, North America, and Asia, but certainly within a regional geography.

As we think about long-term solutions it will be incredibly important that U.S. and Canada collaborate, not just in supply agreements, but in technology design and complementarity.

[*Translation*]

Ms. Paule Brunelle: The issue of collaboration is another thing that worries me, since you are working together. Mr. Littlejohn, you say there is international coordination to secure the supply, which is logical. I imagine you do that as a business person, since you need to be sure of your supply. Furthermore, the expert panel says we must collaborate with other countries. Is there a formal structure for such collaboration or is it based on personal negotiations with your business contacts? Would it be necessary to have another structure on top, in order to ensure that this collaboration takes place?

We know that it will be quite some time before Canada can produce isotopes. Will Canada still have a market share? I don't know. Will we finally be able to ensure that patients get their supplies? We know, as you know even better than I do, that production is regularly interrupted.

That is how I see the question. Are things working well on the international level, where the expert panel recommends that there be more collaboration? Could there be a better way of doing it?

● (0935)

[*English*]

Mr. Stephen Littlejohn: The answer to your question is that both exist. On an international level, the OECD high-level working group—I think Canada is represented by Serge Dupont on that panel—met in December and meets again in June. It brings together representatives from nation states around the world to discuss and focus on these issues.

In last December's meeting it established a number of task forces. In fact, we're working on one on iodine-131, and there are other task forces. At the same time, there are very robust efforts going on. I would highly recommend some connecting with the European Union. They recently did a massive report on everything you ever wanted to know about medical isotopes. They put out this preliminary report in October. It's a great resource. They're having another meeting of nation-states in May in Luxembourg.

On the piece with the companies, we see that diversity of supply and interchangeability—that's an excellent point—are important to us as a business. We're driving that, so there's an alignment of interest there. But I do think that more frequent international communication will be a good thing here.

The Vice-Chair (Mr. Alan Tonks): Thank you, Madame Brunelle.

Thank you, Mr. Littlejohn. We'll note that research paper, Mr. Littlejohn. If you can make that available, I think the committee would like to have access to it.

Mr. Cullen.

Mr. Nathan Cullen (Skeena—Bulkley Valley, NDP): Thank you, Chair.

Thank you to our witnesses this morning.

Mr. Goodhand, just to locate this again for committee members, remind us who is implicated by the shortages that are going on right now. I'm not sure which hat you'll be wearing when you answer this question.

Mr. Peter Goodhand: First of all, if Mr. Littlejohn was saying that I'm the doctor here, I'm not. You would have received a better answer to that question from Dr. Turcotte last week.

When you say “locate” in terms of who's impacted, do you mean at the patient level?

Mr. Nathan Cullen: Yes.

Mr. Peter Goodhand: Going back to the lessons learned through December 2007 and the ad hoc group brought together to advise the Minister of Health, I think the work that's been done over the last year has been a remarkable testament of the commitment and dedication of the medical community and the broader health care community, the supply community, and the various levels of government.

From the point of view of the Canadian Cancer Society and cancer patients, we're probably the last to be impacted, because of the urgency and importance of the cancer patient tests. I'm hearing that last week was a really tough week, and you've heard that May is going to be tough. There are very clear triage mechanisms in place, and there will be other patients in other disease states more immediately impacted by a switch to a different isotope.

For those who can only be effectively diagnosed with TC99, there has been tremendous flexibility shown by the triage system, the nuclear medicine specialists, and scheduling clerks. We even hear stories of parking lot attendants staying late to make sure the patients have access after hours. So there is tremendous commitment, dedication, and flexibility being shown by the medical profession and the health care community at all levels.

My concern, and what we have heard through testimony to our committee, is that it's not sustainable.

Mr. Nathan Cullen: That was more my question. You used the word “triage”, and that's often been associated with what's been happening in Canada and other places over the last while, that we're making do. Triage is something one associates with a war zone or a disaster area, that you simply do what you can with what you have, but it's not ideal and you can't keep doing it forever.

● (0940)

Mr. Peter Goodhand: Right.

Mr. Nathan Cullen: That is the concern I have. We hope to hear from the minister on that, especially as there was a report put together by the best experts and submitted four months ago on an issue that is obviously urgent—certainly for the people you represent through the Cancer Society and the other patients with other diseases who are affected by this.

I'll get to a question, and it might be for both of you. Is there any advantage to having a domestic supply at all? We seem to be at a bit of a crossroads here. The Prime Minister has suggested that we should get out of the isotope business altogether, that Canada shouldn't be in it. Meanwhile, money is being poured into shoring up the Chalk River reactor, and, potentially, your group suggested building a new research facility. That was your first recommendation, which will cost many hundreds of millions of dollars.

Is there an advantage to Canada having its own supply, or should the free market reign and we just pick up isotopes from wherever they may be around the world, through Mr. Littlejohn's services and others'?

Mr. Peter Goodhand: When we focused on the multi-purpose research reactor, as I said at the beginning, it really talks to the broader policy issues of where Canada's emphasis is from a research point of view, from a commercial development point of view, and from that of job creation. If a major focus remains on nuclear, then it makes absolute sense to have integrated isotope production. It's an area of expertise for us. It would give regional balance in North America—and the reactor base production is the only proven technology we have today.

It's also about the global business model. One of the reasons for the high-level working group and for others is that the source of the molybdenum is government-owned reactors operating on essentially the same business model. Then the private supply chain takes over at different points, but the central piece is typically a government-owned research reactor with a multi-purpose approach.

If that policy question is answered in the affirmative, such that we want to be in this area, it makes absolute sense to use that as a platform for isotope production and the commercial arrangements that follow. If that decision isn't taken, there is still great interest from a Canadian point of view in the research platforms in accelerator technology, both linear accelerators and cyclotrons that could create surge capacity and redundancy to help protect Canadians and North Americans from any shortfall in that global supply chain, particularly given that it's been described as fragile. It is likely to remain fragile until major fixes to several reactors come into place.

Mr. Nathan Cullen: Just to get you right, for competitive advantages, for the research capacity it would give Canada, and for the fragility of the supply chain, which would put Canadian patients at risk, if I follow the logic, if we don't have our own supply, your panel came back with the recommendation that we should build another research facility similar to Chalk River but obviously a bit more modern. I'm assuming your panel also took into account that the Prime Minister essentially did make a bit of a policy statement in saying Canada should be out of the isotope business. Did that not factor into your panel's recommendation? You said it was a policy choice. There's a crossroads here. The Prime Minister seems to have suggested we're going down one of those roads, and it does not involve being in the isotope business.

Mr. Peter Goodhand: We heard the statement, as everyone else did. We looked at this from a patient perspective, from the question of achieving a sustainable supply of technetium 99. You are correct, a global solution is absolutely necessary. It is a global marketplace. Anything that happens has to take place in that global context. It is quite possible that Canadian patients will be supplied without the presence of a domestic producer. But if we want to ask what Canada can do to ensure the best possible sustainable secure supply, one of the things we could do as a country is to follow the recommendations in our report. I think five countries in the world out of 195 are global suppliers, six now with Poland, and there are probably another four or five countries who do domestic supply. So you've got 195 countries being sourced by ten or so. We could choose to be one of those ten or we could choose to be one of the other 185.

● (0945)

The Vice-Chair (Mr. Alan Tonks): I'm going to have to jump in, Mr. Cullen. We're out of time.

We'll go to Mr. Anderson for seven minutes.

Mr. David Anderson (Cypress Hills—Grasslands, CPC): Thank you, Mr. Chair.

I find this fascinating. We had witnesses in last week who were talking about some of these same issues. I want to talk about the future in a minute. But first of all, I'd like to go back to the past. You say there is no standardized design. How did that come about? Was there not vision to see that this is, as you said, a global situation with a global solution?

Mr. Peter Goodhand: Do you want me to go first?

I'll do the layperson first. One of the reasons we recommend that multi-purpose is if you think of this over a 40- or 50-year time span, when those reactors were built nobody had even thought of isotopes. Isotopes came along in the 1970s. So they grew up on an experiential basis in each one of the reactors. I think there is more interchangeability in Europe, and I'll speak to that. There was a U.S. presence in this until the middle or late eighties, which is the last time I think there was reactor-based production in the U.S. But even within Canada, within our research reactors, because the reactor wasn't designed the same way because it didn't have the same primary purpose, when it adopted and started to make isotope production, it did it in different ways at different times.

The other thing is although we're focused on the reactor, the other aspects of this are critically important, and to understand the processing.... That reactor will be used for many purposes. The processing is dedicated to isotope production. So it's often interchangeable at the processing level, not just at the reactor level.

Mr. David Anderson: Why would we assume that in the future it will be standardized if things are being done in completely different ways with different technologies?

Mr. Peter Goodhand: On the reactor-based products and the processing that follows, I hope we'd look to design we'd learned from the lessons of the past. As I said, I think the European experience and the reasons companies like Covidien and Lantheus can interchange is that their European facilities have more flexibility. But I'll let Mr. Littlejohn speak to that.

Mr. David Anderson: How far away are we from standardized technology?

Mr. Stephen Littlejohn: I can't give you a direct answer on standardization of technology, but as I think you pointed out, Doctor, it's the interchangeability into the reactors. You might have the tubular version as well as the flat panel. To some extent that is a function of how you can fit it into the reactor, because the medical isotope production, the setting up of the racks and the thimbles, if you put next to the core, is a function of how you can get in there and next to the core, and that depends on how the reactor is structured.

As mentioned, the other piece is the processing. We're able to do in Europe both the tubular design that BR2 uses and the flat plate that HFR and Maria use. Understand there's another wrinkle in all of this, and that's the conversion to LEU, low-enriched uranium. That's going to be a whole new generation of targets, and you have to think about that both in terms of processing as well as.... Now, the shape doesn't really change all that much, but it's the processing piece. There's an opportunity now. There's an inflection point to think this through.

Mr. David Anderson: Good. I was going to stop you there, because I don't have much time.

That leads into the future. Last week, on Thursday, it seemed as though our witnesses were saying that the level of production from the large reactors would pretty well be consistent with what it is now, but that there would be new technologies developed to test things. The cyclotron, accelerators, and those kinds of things would be bringing on additional capacity. They really seemed to see that the future direction was a shifting to those new technologies.

I'm not hearing that from you today. Are you agreeing with them? They weren't saying that reactors were going away, but that we are on “the cusp of new technology”—I think those were the words they used. I'm wondering about your reaction to that.

Mr. Stephen Littlejohn: I would agree that we're on the cusp of new technology. We still have to cross over into seeing whether it is commercially viable and can give us the quantities, and also whether, if you have changed the investment paradigm, hospitals will invest in it. There are a number of factors there. I'm not going to say it won't happen, and we're not here to say that. For the sake of patients, it's important for all sorts of alternatives to be explored.

I listened to Thursday's discussion on replay. Even with that said, the prediction is that you are still going to need enough technetium for about 30 million procedures, at a roughly flat level going into the future. So while you may not see a lot of growth in tech, you are still going to need it.

● (0950)

Mr. Peter Goodhand: Could I also speak to that?

Every expert we spoke to, every group we reviewed with, established for the foreseeable future—10, 15, 20 years—a firm base of technetium demand. They also saw that there were significant ways that you could use new technology, with advanced spec cameras, to achieve greater utilization, lower patient dosage, and faster processing time. Introducing state-of-the-art cameras into technetium usage as it is today is a use of technology at the front line that is different from introducing PET, which is different again from producing TC-99 in a cyclotron. You have to separate the new imaging modalities, which are coming and will influence and change medical practice in Canada.

It may be that in 20 years' time there will be no demand for technetium as we know it today, but everybody has said that there is a stable market for the next decade or so.

Mr. David Anderson: But the challenge is that in order to make those policy decisions for the future, as you said, it depends on what, for example, a research reactor is aimed towards. If it is aimed towards research, it can be up and running quite a bit earlier than it is if it's going to be this multi-use facility. The cost is a factor there as well.

Mr. Peter Goodhand: I think the intent was always that it would be “all research”, but as to what forms of research, it would be materials testing.

The Vice-Chair (Mr. Alan Tonks): We have about seven minutes. May I suggest that because we started a little late we finish with a two- or three-minute round, or whatever we can squeeze in? Let's say two and a half minutes.

We'll have Mr. Bains, Mr. Allen, and someone from the Bloc.

Hon. Navdeep Bains (Mississauga—Brampton South, Lib.): Thank you very much, Chair.

Mr. Goodhand, you mentioned that we need to start soon and not at the end of the next 12 months. However, when the minister was here two weeks ago he was quite blunt about the fact that there's no new money in Budget 2010 to lay the groundwork for replacement of the NRU.

Are you surprised by this? What are your thoughts on it? You've been very adamant about the fact that sooner is better than later, but obviously the minister's comments are contradicting that.

Mr. Peter Goodhand: I can't speak to the minister's comments.

If it's a question of money to lay the groundwork and how you could interpret that, what we were looking for is the decision to start. We would not suggest that anybody make this kind of multi-million dollar decision without very strong business cases, probably including EOIs and RFPs. I'm not sure how much money is required to lay the groundwork, but if the decision is made, I would have thought that significant work could be started without a major budget impact.

Hon. Navdeep Bains: Mr. Littlejohn, the issue here as we understand it is about the stable supply of isotopes in the short and the long term being critical for our patients. I would like further clarity on this comment—I know it has been asked, but I would like clarity on it.

How does Canada get its fair share? Is it based on price point, customer needs...? With the limited supply that we are dealing with, how does Canada compare with other jurisdictions?

Mr. Stephen Littlejohn: I'll ask my colleague to answer that one.

Mr. Philippe Hébert: The way it's based, all over the world, is that we have customers who have contracts. The supply is allocated first to ensure that we meet our contractual agreement in each country—the U.S., Canada, everywhere. On days when there is more supply produced than we have demand from our base of customers, we will allocate the additional supply based on the market demand.

As an example, from June up until the recent repair of the HFR, within Covidien we would disproportionately allocate more supplies, for the size of the market, in Canada and to some countries in Asia, because they were more affected by the impact of the NRU shutdown.

So it's not based on selling price or cost; it's really based on the market demand and first and foremost on contractual agreements with customers that we have. That's the base of the....

The Vice-Chair (Mr. Alan Tonks): Now we have Mr. Allen.

Mr. Mike Allen (Tobique—Mactaquac, CPC): Thank you, Chair.

In keeping with some of the comments made about a stable market for the next 10 to 15 years for the tech supply, one of the things I noted in your notes, and you spoke about it, was your long-term "game-changing partnership with Babcock & Wilcox" and your collaboration with them. Can you tell me what the timeline is, as part of this game-changing partnership, for the development of that technology, and what the quantity of tech is that you would see coming from that game-changing partnership?

● (0955)

Mr. Stephen Littlejohn: First, it's game-changing because of the technology; second, it integrates the irradiation with the processing; third, it's specifically dedicated to molybdenum, so you don't need to think about the broader research piece. In terms of timing, we're looking at mid- to late 2014, and work is very intense and vigorous on it as we speak.

Mr. Mike Allen: And what percentage...?

Mr. Stephen Littlejohn: Oh, and our agreement is to enable us to meet about 50% of U.S. demand. I can't give you the exact quantities and capacities, but it's my understanding that this will not take up all of what the reactor can produce.

Mr. Mike Allen: In terms of your contracts, what possibility do you see in the Missouri university research reactor that you're also looking at? What potential would that unit have for fulfilling portions of your contract?

Mr. Stephen Littlejohn: It would have a similar production level. In other words, it's not minimal; we anticipate that it would be substantial. We don't have an agreement or contract with them yet—they're not at that stage—but as you can imagine, they're just an hour-and-a-half drive down the road from our Maryland Heights facility, so distance makes it a very attractive piece.

The folks there are working on their timeline. Because we don't have an agreement with them, we really can't speak for them in terms of timelines, but I'm sure that if you wanted to give them a call, they'd be delighted to chat with you. I can give you the name of the contact afterwards, if you like.

Mr. Mike Allen: I would appreciate it.

Thank you, Chair.

The Vice-Chair (Mr. Alan Tonks): We'll go to Monsieur Guimond.

[*Translation*]

Mr. Claude Guimond (Rimouski-Neigette—Témiscouata—Les Basques, BQ): Thank you, Mr. Chair.

My question is for Mr. Goodhand.

Since 9 this morning, we have heard about techniques, technology, markets, and so on, but I would like to know how the situation has changed for the people who need these products. We feel there is great urgency, but I would like to understand more about the needs.

[*English*]

Mr. Peter Goodhand: I'll qualify it by saying I'm not the best person to answer that. The people who are closest to it and in day-to-day contact with patients will be best able to inform you. They include a combination of nuclear medicine specialists and those in other associated specialties, like cardiology. So a cardiologist or a group of cardiologists is well equipped to tell you the impact on their patients of being offered alternatives. There might be no change in the schedule, but they may receive a different product that might give a different thing. But a cardiologist would be best.

Oncologists and the cancer community are well equipped to tell you the impact it has on cancer patients. I checked with colleagues across the country within the Canadian Cancer Society and the cancer agencies. The many steps that have been taken by all people in the supply chain, including the front-line specialists, are minimizing the impact on patients to this point. Some rescheduling is going on, particularly last week. There appear to be a minimum number of cancellations. It is troubling and disturbing for any patient who thinks they're coming for a procedure at this time to have it rescheduled and pushed back. But the information I'm getting through the cancer community is that the steps everybody else is taking are, to the largest extent possible, protecting patients' interests at this point.

The Vice-Chair (Mr. Alan Tonks): Merci, Monsieur Guimond.

We have reached a point where we thank the witnesses for being here. We have another second phase that we're going into.

Mr. Littlejohn, on the EU document you have referred to, Mr. Harris was just raising whether a graphic flow chart would be part of that, or whether it would be part of the research documents that are behind the paper. I wonder if I can leave it with our researcher to discuss that with you and see if we can have complete documentation on the graphic as part of that.

Thank you very much for being here. We appreciated your presence and your testimony.

We'll take a few minutes to change to the next panel. Then we'll commence with the hearing.

Thank you.

● _____ (Pause) _____ ●

● (1000)

The Vice-Chair (Mr. Alan Tonks): We will recommence our meeting now.

On behalf of the committee I'm pleased to welcome Mr. Hugh MacDiarmid, president and chief executive officer from Atomic Energy of Canada Limited, and Mr. William Pilkington, the senior vice-president and chief nuclear officer. Welcome to both of you again.

On the lighter side, from our colleagues' perspective you've been here so many times that we think you're perhaps part of the committee.

Mr. Hugh MacDiarmid (President and Chief Executive Officer, Atomic Energy of Canada Limited): Old friends.

The Vice-Chair (Mr. Alan Tonks): I'm not sure we could take that much knowledge, but in any case we appreciate you being here.

You know the routine, so without any further ado we will go to Mr. MacDiarmid to hear his statement, and to Mr. Pilkington if he wishes to add anything. Then we will have our usual round of questioning.

Mr. MacDiarmid.

[*Translation*]

Mr. Hugh MacDiarmid (President and Chief Executive Officer, Atomic Energy of Canada Limited): Thank you, Mr. Chair.

I would like to introduce Mr. Bill Pilkington, the chief nuclear officer at AECL.

● (1005)

[*English*]

My colleague Bill Pilkington and I appreciate the opportunity to be here.

[*Translation*]

We will also be very pleased to welcome you to our Chalk River facility on April 13.

[*English*]

We very much look forward to hosting you.

I would like to provide members of the committee with a brief update on our most urgent priority at AECL: the safe repair and return to service of the NRU. Bill will then provide more technical detail on the next phase of the repair sequences.

As you know, intense repair operations continue around the clock, involving over 300 highly qualified AECL staff and industry partners.

[*Translation*]

There are 300 of us working around the clock on the repairs.

[*English*]

As of today, the weld repair portion of the outage is 60% complete.

The process has been very painstaking. Our progress has been impeded by the need to overcome technical problems, to inspect, analyze, and understand irradiated metal behavior, and to measure and evaluate stress on the vessel structure. What we are doing has never been done in the history of the nuclear industry. It is probably the most complex, precise, and sophisticated welding operation ever undertaken in a radioactive environment.

The challenges have been daunting, but weld by weld we are getting to our goal of safely repairing the NRU and restarting it. We have successfully completed eight of ten weld repair sites, representing more than half of the repair work. When you do visit Chalk River you will see the nature of the challenges and the solutions our people have devised to meet them.

We have invented and are using many innovative remote tools. These complex tools, equipped with vision systems, have to be compact enough to pass through a very small opening at the top of the reactor, about the size of a baseball that could fit through. They are then fed nine metres down into the large reactor vessel, where they unfold and align with the vessel wall. Welding is controlled by operators with TV screens and joysticks, three storeys above the repaired site.

Through excellent teamwork between our employees and suppliers, and with the best advice from the world's most eminent welding and technical authorities, we are getting the job done.

The two remaining areas of corrosion, the ones presenting the biggest challenges, are now being tackled. The relatively large size of the two remaining repair sites makes them by far the most difficult and complex. For each of these repairs, four distinct phases of work must be completed in sequence, all adding time to the job but absolutely necessary.

In light of this complexity and the accumulated experience from the repair work completed to date, it became evident to us that the schedule needed to be revisited.

AECL, with the advice of industry experts in welding technology and performing outages, has conducted a review of the work schedule. The result is that we now estimate NRU will resume isotope production by the end of July. This new schedule has built in prudent contingency, reflecting the difficulty inherent in these final repairs.

Repairs are expected to be complete for the first of the remaining sites later today. For the final repair site, the first of four incremental phases—weld development—is under way. Regular progress updates will continue to be provided based on the revised schedule.

Mr. Chairman, all of us at AECL feel the pressure every day to get the repairs completed as soon as possible so that medical isotopes from NRU can be used to help patients all over the world. Having said that, we absolutely must get these highly delicate repairs done right. There is no margin for error. We have but one chance to develop and execute the correct repair strategy for each unique repair site in the reactor; otherwise we risk damaging the vessel wall and extending the repair.

Bill will discuss the repair operation in more detail in a moment. He will also outline in more detail the reasons for the revision of our estimated return to service. The extension to the repair schedule is indeed regrettable. We are deeply aware of its implications on isotope supplies for patients.

So let me reiterate. AECL is making every effort to return the NRU to service as quickly and as safely as possible. More resources are being applied to the project, including additional aluminum welding specialists and other technical expertise.

Mr. Chairman, I would now like to turn things over to Bill Pilkington to continue our opening remarks.

The Vice-Chair (Mr. Alan Tonks): Thank you, Mr. MacDiarmid.

Mr. Pilkington.

Mr. William Pilkington (Senior Vice-President and Chief Nuclear Officer, Atomic Energy of Canada Limited): Thank you, Mr. Chairman.

As Hugh MacDiarmid just stated, the NRU repair and return to service is making steady progress in addressing the remaining unique repairs. Now we would like to take this opportunity to provide additional detail on the repairs and highlight how our outage team is successfully managing the repair process.

The final sequence of repairs is the most challenging. The repair areas are the largest, increasing the complexity of achieving a lasting repair while managing the stresses on the vessel. Each of these repair sites requires a unique strategy in repair design. The repair team is now employing a combination of welded plates, vertical and horizontal structural welds for plate attachment, and finally, both vertical and horizontal weld buildup.

We now have completed the repair design for the remaining sites. With this information and the experience gained in the last sequence of repairs, we have revised our outage schedule, which has resulted in the extension announced recently.

To confirm our revised plan we assembled an expert advisory panel earlier this month for a workshop to examine our repair strategy. The group includes Canadian and international experts in specialized welding solutions, reactor technology, and outage management. The panel confirmed that AECL is using the correct repair techniques, that the NRU is indeed repairable, and that our revised schedule is realistic. The panel also agrees that AECL is appropriately balancing the competing priorities of a lasting repair, minimizing the risk of damage to the reactor vessel, and minimizing the outage duration.

The process of preparing to complete the final and largest repair involves four phases, which must be carried out in sequence. These phases are weld development, welder qualification and reliability testing, integration testing, and finally, the repair of the vessel.

Weld development is the longest and most difficult phase to plan and schedule, since a number of weld trials and engineering analyses must be completed to arrive at the optimum solution. For the final repair site this process began in January, and steady progress has been made to date.

Next, the weld machines must be programmed, specific weld procedures must be developed, and the welders qualified to complete them. The repair sequence must be refined to allow the welders to train on the techniques to the point that a quality weld can be made repeatedly. This process is referred to as qualification and reliability testing.

After successful completion of the welder qualification and reliability testing, we proceed to integration testing. This is a full rehearsal of the repair from start to finish. All of the remote tooling to prepare the vessel for welding and to complete the repairs is used in the full height mock-up to confirm that the teams, and the execution of each of the procedures, fit together to deliver the required result. The reason we spend so much time on the rehearsal phase is because once we're in the vessel we need to get it right the first time.

Finally, when all of these phases have been completed flawlessly, the repair team is ready to go to the reactor vessel. The preparation is extensive and time-consuming, but the results speak for themselves. To date every repair site has passed all required non-destructive examination. To minimize the time required on the outage-critical path, we continue to work on a 24-hour-day, seven-day-a-week basis without interruption. Returning the NRU to safe and reliable operation to support medical isotope production remains the focus of the outage team and AECL's primary objective.

Thank you, Mr. Chair.

With your permission, I would like to show some samples of the repair welding. I think they would help to understand the complexity of this job.

● (1010)

The Vice-Chair (Mr. Alan Tonks): If the committee is in agreement with that, that's fine, Mr. Pilkington. They went through security, I take it.

Mr. William Pilkington: With some difficulty.

This weld was actually made in a mock-up. It was made through a 12-centimetre opening some 30 feet away from the actual plate. This sample is made of ethyl material that is the thickness and the curvature of the vessel. This was actually done on November 15, mid-November. This was a test weld.

We went to the vessel and did the first repair on December 12. Through December, we completed a total of five repair sites and they went very well.

We believed the process would continue with the learning and that we would be able to get more efficient at doing these repairs as we progressed through the more difficult sites. That actually was not what occurred.

I don't know if you can see the back of the plate, but we've actually machined these samples to replicate the corrosion in the vessel. From all of the inspection we've done, we have a very accurate model of the corrosion in the vessel, so these plates have been machined to exactly replicate that. You can see this area.

This repair required changing technique because of the stress on the vessel, and this what is taking the additional time. In this case, we've actually had to add structural plates. This is not complete, by the way; this was a sample in process. These plates are actually structural and they're welded in with fillet welds around the plate before we move to weld buildup. I point out that these are nuclear-grade material. The welds and weld procedures are using nuclear-grade material and being done to nuclear standards.

Having put the plates in place on that repair site—and by the way, that is the site that is actually being repaired as we speak; we're actually doing this repair today—in the final repair, we have the plates and then we apply weld buildup below, above, and on both sides to complete the repair process. I would point out that you can probably see, even at a distance, that there is a significant amount of deformation in the sample plate. That is why we had to go to this type of a repair in order to reduce the stress on the vessel. It's the development of this that has taken significant time. On this plate, there are a number of defects. This was plate number 9. In fact, we produced 30 of these samples in order to be prepared to go in the vessel and complete the weld that we're doing today.

Finally, regarding the last site, if you look at the corrosion here, it actually stretches from end to end. This is the largest site. The area that is deeply corroded, with less than a millimetre of vessel wall remaining, is quite large in this area. For this repair—and this is not complete—we have completed the design, and it will involve nine thicker structural plates. Then we'll have to develop specific weld procedures—because these plates are spaced differently than the ones in the last sample—to in fact do the structural welds around the plates. Then we will, in similar fashion, build up below, above, and all the way across in order to cover the area of corrosion.

This is the job that lies ahead, and again, all of this meets nuclear standards. The repair is done by authorized authorities that carry certificates to do this type of repair, and all of the materials are nuclear materials. This will be inspected to meet all of the requirements for the vessel and will be accepted by the regulator when it's done. This will give us a lasting repair.

● (1015)

The Vice-Chair (Mr. Alan Tonks): Thank you, Mr. Pilkington.

I have just one comment. We recently had a puck put into the Hockey Hall of Fame. If there were a nuclear hall of fame, I would suggest that you put those plates in there.

We're very proud of the team that you lead. We hope that you'll extend our appreciation on the infinite amount of skill of AECL and the people being used to repair the NRU. It's an amazing accomplishment. We thank you for that.

Thank you for your testimony.

We'll go to our questioners. Mr. Regan will lead off.

● (1020)

Hon. Geoff Regan: Thank you, Mr. Chair.

Maybe it is the welding hall of fame in this particular case.

I want to thank you both for coming today. Actually, I want to thank you for providing us with, by far, the best explanation and demonstration, really, that we've had to date of the complexity of this process. Up till now we had a vague idea that you had to go down three metres and so forth, and it's very complex and radioactive, so you don't go in there and just weld. I think today you've given us a very clear idea of the complexity of that.

As much as I'd like to ask more questions about the welding and all that, I'm not going to because it isn't where my focus ought to be today.

Last night at a briefing, apparently, finance department officials explained that the budget bill gives cabinet the authority to sell AECL without going through the Investment Canada Act. In other words, there will be no restrictions on foreign ownership and no national security test. Is that your understanding, Mr. MacDiarmid?

Mr. Hugh MacDiarmid: I don't have a detailed understanding, Mr. Regan, but I certainly do understand that the enabling legislation does provide for the government to have the authority to effect the restructuring transaction.

Hon. Geoff Regan: So you're not aware of whether it enables the government to bypass the Investment Canada Act and so forth.

Mr. Hugh MacDiarmid: From my perspective, it's really not a domain that I have spent a lot of time on in this transaction. It has been a process that's been very much led by government officials, with our support, and that's not a matter I've had direct involvement in.

Hon. Geoff Regan: The sense that I have, and I've had letters to this effect from people who follow the industry and so forth, is that after the criticism, sometimes, of the government and AECL by the private sector, and perhaps in this committee, the government decided to accelerate the process and appears bent on a fast and furious fire sale to avoid more embarrassment over its handling of the isotope crisis and of the Ontario sale. That should be a grave concern, it seems to me.

Mr. Hugh MacDiarmid: Without responding directly to those comments, sir, I would simply say that the government has made a clear policy decision. They seem intent on executing it. It is indeed important that if we're going down this path, it be done quickly and efficiently, because we do have a business to conduct and need to keep the business going forward.

Hon. Geoff Regan: How confident are you that the end of July deadline will be reached?

Mr. Hugh MacDiarmid: I'm never confident in any deadline in a transaction, so I think we need to await the outcome of the process. In the meantime, I need to keep the wheels on and keep the business moving forward.

Hon. Geoff Regan: Just to refresh our memory, since the leak was discovered on May 15 of last year, how many times has there been a change of return-to-service-date announcements?

Mr. Hugh MacDiarmid: We issued what I consider, really, the first definitive guidance around the month of August. At that time we had done enough examination to allow us to put a timeframe of the first quarter of 2010. That guidance held for at least six months. As Bill explained, we ended up in the months of January and February, and to this point in March, encountering challenges in the more complex welds that have caused us to extend that guidance now twice. I believe we're now in a mode where we've changed the guidance a third time.

Hon. Geoff Regan: I guess it seemed to me that the various notices with different dates given on the AECL website would have been six times at this point. At any rate, let me move on.

There were media reports last week where the medical community raised concerns. In fact, we heard concerns from Dr. Eric Turcotte, who appeared via teleconference at the committee. There were media reports in which concerns were raised that “the repair might not be successful, and that would definitely be tragic”. I mentioned Dr. Turcotte. He expressed the concern that doctors are very frustrated with the delays and the constantly changing projections. He used the word that it was a farce, in fact, and that nobody takes those projections seriously any more. I'm hoping that's perhaps why you've chosen a longer period now to build in, as you say, some contingency, some cushion.

Do you think this crisis has damaged AECL's reputation? What do you need me to do restore it?

● (1025)

Mr. Hugh MacDiarmid: I would respond to the schedule issue by saying that making predictions is a challenge in an environment where you are dealing with first-of-a-kind technology, and you have now seen the complexity of the challenges we face.

We had adopted a philosophy from the outset that we would base our guidance on the best available evidence and rely on the facts and evidence as we have them, as opposed to speculating. That perhaps put us in a position where we were forced to re-estimate that project schedule on a couple of occasions, more than would be ideal.

At the same time, AECL's management made absolutely the best efforts to be transparent and to provide the best guidance possible. We supported those efforts with external advice from experts in the provision of those estimates, so you have been seeing, in a sense, a reflection of the complexity of the project and the very real requirements to reset the timetable based on the evolution of the weld repairs.

Hon. Geoff Regan: Thank you.

Minister Paradis recently said that getting the NRU back online is the top priority of his government, and he is disappointed with the ongoing delays. That reminds me a bit of what we heard from the previous minister, who expressed disappointment with AECL trying to shift the blame. That was my perception, certainly, of that.

What kind of pressure has the government been exerting on AECL? How often do you communicate with the minister's office? Do they get weekly updates, daily updates, hourly updates? What is the situation?

Mr. Hugh MacDiarmid: First of all, the minister has been very clear that this indeed is the number one priority for AECL from his perspective, and he has given clear guidance that we're to proceed with every resource at our disposal to bring the reactor back into service as quickly as possible, consistent with safety and quality.

We do brief the minister on a weekly basis, and we also have a regular weekly briefing session with senior officials from his office and from Natural Resources Canada through a vehicle we call the project coordination committee. The PCC is perhaps the main senior-level grouping of officials, including Mr. Pilkington and me. It provides the oversight of the project and formulates the communications decisions we make with respect to issuing guidance.

The Vice-Chair (Mr. Alan Tonks): Thank you, Mr. Regan.

Madame Brunelle, go ahead for seven minutes.

[*Translation*]

Ms. Paule Brunelle: Good day, gentlemen. Thank you for coming.

My question is primarily about the very worrisome situation. We know that there will be a shortage of 60% of the isotope supply because of the reactor closing in the Netherlands. Its return to service has been postponed for the sixth time. I understand that you are doing all you can in the circumstances, but I am very worried because doctors and people in the medical field tell us that they are using alternative sources such as thallium, which is an undesirable isotope. As for magnetic resonance, that is difficult. There are no more timeslots available for examinations and the hospitals doing their utmost to run extra hours on evenings and weekends. Doctors tell us that we have to be able to prioritize the necessity for each exam, but it is often a question of life and death. It is really hard.

I would like to quote Eric Turcotte, a medical specialist in nuclear medicine at Sherbrooke, who told us last week, with regard to your announcements about the progress in repairs to the NRU reactor:

> ...honestly, in medical circles, it has almost become a joke to get an AECL report talking about 30%, 35% or 40%. Medically speaking, this is irrelevant. We only want the reactor to become operational again. The repeated postponements that have been announced since January have meant that we no longer take AECL seriously.

Unfortunately, we can see that the confidence of the doctors has been shattered. How can you, in AECL, be sure that the reactor will go back into service this summer?

[*English*]

Mr. Hugh MacDiarmid: I regret that my translation didn't work perfectly for the first half of your comments, but I'll do my best.

Certainly we can understand the needs and concerns of all stakeholders in this matter. As I said, we all understand the implications of the delays. It was certainly our goal, very clearly, to have the NRU back in service before the Petten reactor went down. That was a very strong consideration in our earlier scheduled plan. But we also have to be realistic about what's required to effect the repairs. I think you can see the complexity we're dealing with.

The latest end-of-July guidance was prepared with input and advice from a very qualified panel of experts, and it does include what we consider a prudent contingency. It is my sincere hope that will be the last scheduled guidance revision that we have to make.

We've done our level best to be straightforward, to be transparent, and to base our scheduled forecast on the evidence we have at hand. The changes in this situation have been ones that have compelled us to make the revisions we did.

With respect to restoring confidence, I suspect that confidence will come from us producing isotopes. And from our point of view, we can't wait for July to happen.

● (1030)

[*Translation*]

Ms. Paule Brunelle: Of course, we have a lot of questions, especially since there has been talk of privatizing AECL. We wonder what is going on.

According to the figures I have obtained, the taxpayers of Canada and Quebec have invested $8 billion in AECL over its lifetime. We are not sure how much it is worth at present. But we can see in the budget that $300 million will be invested in AECL to cover its commercial losses.

I wonder whether that is a gift for potential investors. Will the restructuring or privatization of AECL include a future for the lab workers in Chalk River? AECL has a Montreal office where 40 people work; they would like to know what the future holds for them.

[*English*]

Mr. Hugh MacDiarmid: Merci, Madame.

To respond to your comments, to the best of my knowledge the $8-billion figure that you reference is accurate in terms of the accumulated government support in AECL. A very substantial portion of that is for the support of the laboratory, which is by definition a pre-commercial institution. It's not designed to be profitable. It's designed to provide support for pre-commercial research for the nuclear sector. Indeed the amount of funding support provided in Canada could be characterized as modest in comparison to some other nuclear countries, so that price tag does not surprise me.

If we look at the impact of the nuclear sector on the Canadian economy over that period of time, the economic benefits have been many multiples of that investment, through the production of electricity that's been reliable and safe and low cost in Canada, and from reactors we have sold abroad.

The $300 million in funding support being provided for this year is to support a number of activities, some of which are related to the repair of the NRU and the preparation for the relicensing or the licence extension of the NRU. The majority of that amount is earmarked for the unexpected financial requirements associated with the completion of the life-extension projects at Bruce Power and Point Lepreau. I think I've talked before about the other requirements that we have under our contracts: the need to complete those projects safely and with good quality, and to meet our customer expectations in those life-extension projects.

I believe the future of Chalk River Laboratories is a bright one, if we are able to move forward with the plans as they currently are laid out and the laboratory is able to continue with its mission of providing research, development, and innovation support for Canada's nuclear industry. That is vitally important for the future of the CANDU brand worldwide.

With respect to your specific question about the Montreal office, that office will be very heavily occupied for the next while in supporting the life extension of the Gentilly-2 reactor for Hydro-Québec. That project is going to be commencing activity on the work site very quickly.

The Vice-Chair (Mr. Alan Tonks): We're now out of time on that.

We'll have to go to Mr. Cullen now, please.

● (1035)

Mr. Nathan Cullen: Thank you, Mr. Chair, and welcome back, Mr. MacDiarmid.

Mr. Hugh MacDiarmid: Thank you.

Mr. Nathan Cullen: I wish it were in better circumstances.

Is that $8 billion figure in dollars adjusted over time, or is it just total net dollars contributed to AECL over the years?

Mr. Hugh MacDiarmid: To be honest, I wouldn't know whether those have been adjusted or not.

Mr. Nathan Cullen: They're not, so in adjusted dollars we're talking about a $19 billion investment since the early 1950s. The notion that the government would then put the sale of such an asset into a budget, excluded from any sort of consideration of the net benefit for Canada, should be offensive to anyone who ever contributed a dollar to AECL over the last nearly 60 years.

Mr. Regan asked earlier about the various status updates on this repair. I'll take us through a little memory lane here, and these quotes are all directly from your updates, so I'm not putting anything in here. In May 2009 the anticipation was for more than one month, so that pushes us forward to June 2009. At least three months was the update in status report number six, pushing us to September; then a month later, in July, “it is now clear that the NRU will not return to service before late 2009”. That's another adjustment; we're now looking at maybe November or December. Two months after that, in August, you say “the NRU will return to service during Q1 2010”, so that's another adjustment.

Then status report number 34 in December, several months after that, says we're pushing it right to the very end of that quarter, meaning the end of March; in early January we hear it could extend to April, and two weeks after that, status report number 40 says NRU's target return date is confirmed as April.

Then in February, a month later, we learn it will be the end of April; in March, it will be during the second half of May. On March 17, a week later, you say AECL is currently revising, so just a week went by between the update to the public saying it would be May for sure until you were saying to hold on because you were revising. Then the most recent announcement, on March 25, which was update number 48, says “NRU will resume isotope supply by the end of July”.

It's 700% over budget. I fail to see how this doesn't affect the reputation of the organization in its ability to make accurate predictions about its own viability. Today you've informed us that it's 60% finished, yet the most challenging work is still ahead.

I'm deeply concerned. Neither of you is in the health field, nor are many of us, but we understand the impact on Canadians of not having a reliable isotope supply in order to be able to access reliable and safe diagnosis.

The record I just read is not one to be proud of, I would suggest. It's 700% over budget. There have been constant delays, and announcements of further delays. Canadians are feeling the impact and the concern when, as they saw just last week, operations and procedures are cancelled. I don't know how this does anything but hurt the reputation of this organization.

Mr. Hugh MacDiarmid: I do feel compelled to ask you to clarify your statement about being 700% over budget. That's certainly a number that is nowhere near, in my view.

Mr. Nathan Cullen: The budget of AECL, writ large, has been as follows: in 2006 it went up 8%; in 2007 it climbed 105%; in 2008 it climbed a further 263%; and in 2009 it went up 674%.

Mr. Hugh MacDiarmid: This is the government funding in aggregate.

Mr. Nathan Cullen: That's correct. Much of this was allocated in supplementals toward the Chalk River project in order to assist in the repair and cleanup of the situation.

Mr. Hugh MacDiarmid: In the supplementals the Chalk River project was clearly identified, I believe, as having a $72 million cash requirement associated with it. To put it in context, the NRU repair is indeed a significant amount of money, and we take that responsibility seriously, but it's not the totality of the funding requirement for AECL by any stretch.

Your reiteration of the schedule guidance is indeed a painful journey for us. At the same time, as I said, each and every one of those guidances was carefully considered and thought through. It was based upon the evidence we had available.

Again I will point out that the first time we put out a schedule envelope was in August, when we said Q1. Prior to that, we had said at least *x* number of months or at least *y*—

● (1040)

Mr. Nathan Cullen: They were all minimums up until that point, and then you started setting deadlines.

Mr. Hugh MacDiarmid: They were minimums, which reflected a very real uncertainty that has now been borne out. Clearly we're dealing with a very uncertain situation.

Mr. Nathan Cullen: You can understand why Dr. Turcotte expressed no confidence in the organization's ability to predict when these isotopes will be produced again. You can understand that.

Mr. Hugh MacDiarmid: We can only do our best and we can only assure you that we have consulted available expert advice and independent counsel in formulating our external guidance. We also have a commitment to transparency, which inevitably forces us into a situation where we have to deal with the fact that the goalposts will move as the evidence unfolds. That is regrettable, but we could not come up with a better approach to being transparent and consistent in giving you guidance based upon facts and evidence, as opposed to guesswork. So we're condemned to this fate because of the nature of the project.

I can understand that observers would have their confidence shaken by the way this has unfolded. All we can do is to be forthcoming and to come to this committee and do our level best to explain to you the situation, as we are doing today. Obviously, I sincerely hope that the last guidance we need to give to you will, indeed, be at the end of July.

The Vice-Chair (Mr. Alan Tonks): I have to interrupt, Mr. Cullen. We're out of time on that one.

Thank you, Mr. MacDiarmid.

We will go to Ms. Gallant.

Mrs. Cheryl Gallant (Renfrew—Nipissing—Pembroke, CPC): Thank you, Mr. Chairman.

I'll be sharing my time with Mr. Anderson.

Through you, to our witnesses, thank you for coming today and also for the updates that you have been giving to the stakeholders in the surrounding communities. The people in Chalk River, Deep River, Pembroke, and Petawawa feel that the NRU and the work that AECL does is part of their community. They feel some responsibility, not only because of the workers but also because we have family members there who are dependent on cancer diagnosis. That's what I'd like to focus on, as opposed to the cost or the politics of it, but the people. This is why it's such an urgent matter. Even cancer patients who are not impacted by the shortage are still worried about it because of the complexity involved, and it causes extra anxiety for them even though the NRU did develop the cobalt treatments, which patients are receiving in good order.

You mentioned and showed us how the repairs are complex and that there is little margin for error and that a lot of practice welding takes place before you actually weld in the vessel.

Can you tell us what kinds of errors you're guarding against and the consequences of different kinds of errors, and how the proximity to the NRX has been of benefit, if it has? Has this process we are going through, this learning, fixing, delaying process, been helpful to other older reactors going through the same process? Because they do help patients, including Canadian patients.

Mr. William Pilkington: Yes, I'll see if I got the entire question. First of all, you asked about the types of errors that we need to guard against. There are really two concerns in doing the repairs. One is, if we do a repair that results in excessive stress on the vessel wall, there is a mechanical seal that sits about six inches below where we're doing the repairs, and if that seal is disturbed, then it would be very challenging to reseat it on a reactor of this age. So a lot of effort has gone into developing stress models for the vessel and running through different repair scenarios to find the ones that give us the least stress on that lower seal on the vessel. So that's one of the challenges.

The second challenge is that if an error is made in the welding in the vessel, and if the wall is damaged, then we need to back out, and that essentially becomes a new repair site. We would then have to design the repair for the damage that was done. We would have to go through the whole process—the stages of development, qualification, integration, testing—so that could easily add months to the process. So it's critical that we get the job done right the one time we're in the vessel. To say we've done eight out of ten so far, and we're doing the ninth today.... It is going well. We believe we have the right amount of preparation.

On the proximity to the NRX, yes, we've actually used the NRX. It's geometrically quite similar to the NRU in terms of the layout, so we were able to build a mock-up there early and start practice. It's in an environment where, with that part of the NRX, there's no radiation field, so the workers can work at the right height, in a similar environment, but without any radiation present. So that's been very helpful.

Finally, in terms of the benefit, we've developed a lot of first-time tooling for this job. One of the biggest challenges was in fact to be able to design, build, and commission all of the tools required to do this repair. While it may not be directly transferable to other reactors, the remote repair techniques that have been developed here are generically applicable to many, many situations. So that will be a benefit when other companies or reactors come to AECL to help with inspections or repair. The tooling development and the vision systems that have been developed for this will be of great benefit.

● (1045)

Mrs. Cheryl Gallant: Thank you.

The Vice-Chair (Mr. Alan Tonks): Mr. Anderson.

Mr. David Anderson: Thank you, Mr. Chair.

This is a complex piece of machinery to shut down and start up again.

I guess you talked, Mr. MacDiarmid, about a commitment to transparency. I would like to know how confident you are that the goalposts aren't going to be moved again. Are you confident you've found all the problem areas and that we're not going to be back here again later this spring talking about August, September, and October?

Mr. William Pilkington: I'm very confident that the inspections that have been done have shown that, structurally, the NRU is in very good condition and is fit to return to service and operate well through the next licence period. The challenge that we face is starting up a reactor that will be shut down for over a year. That does present problems. Although the systems and equipment are in a lay-up state, we need to get them all going and find any problems that might exist early in the game. To do that, we have a return-to-service program that is actually in progress now, in parallel with the last repairs. We have a total of 35 systems, and we will bring all but seven of those back into service more than a month before the reactor itself can be started up. The idea is to get everything back in service as early as we possibly can, so if there are any challenges, we can get them addressed early before they have an impact on the schedule.

I would also point out that the types of equipment problems that could occur in the start-up are relatively small in impact when compared to the repair we just completed. So we could find that days are required in order to address an issue that comes up during start-up, but we're not talking about weeks and months here. That is why we have put some prudent contingency into the schedule.

Mr. David Anderson: You've talked about the fact that you have 60% of the weld done. How long do you anticipate the other 40% taking?

Mr. William Pilkington: The challenge in the last repair is that we need to go through the rest of the development phase, and then we need to do the qualification and testing. The size of this repair, to weld a single coupon for this repair, will take five days working around the clock. We need to do a number of these coupons in order to prove that we have the process, that it's practised, that we can complete it reliably. Between the development and the qualification and reliability testing phases, it will be essentially a month of work before we're ready to go to the reactor.

The Vice-Chair (Mr. Alan Tonks): Mr. Anderson, I'm going to have to stop you there.

We have another committee that's coming in. I wonder if we could bring this part of the meeting to a close and I will thank our deputants on our behalf.

I was going to try to talk about our meeting on Thursday. At this time we don't have any deputants. It's going to be a business meeting. I thought members might like to talk about that. Otherwise the chair can have another seven minutes of questioning.

Do you want to do that? Okay, then we'll come to a close at 11 o'clock, because the other meeting will be coming in. We'll have two and a half minutes, as we did in the last round.

Is that okay?

Mr. Anderson.

● (1050)

Mr. David Anderson: Then, on Thursday, we're just planning to show up and have an in camera meeting.

The Vice-Chair (Mr. Alan Tonks): That's right.

Are we understood on that?

Good. Then we'll go to Mr. Bains.

Hon. Navdeep Bains: Thank you very much, Chair.

It's good to see you gentlemen again here before the committee.

My question is with respect to the budget bill, which indicates an outright sale of AECL, possibly to foreign investors. What's being sold, what will be left with AECL, and have you been consulted?

Mr. Hugh MacDiarmid: We have been actively involved, working with the investment advisers who have been retained and with officials from the government. The intention, broadly speaking, is that the commercial operations of AECL, which is by and large centred on the Sheridan Park campus in western Mississauga, would be the entity that would be sold. The nuclear laboratory, which is by and large the Chalk River campus and the Whiteshell campus, would remain as a government-owned nuclear science laboratory.

Hon. Navdeep Bains: The other question I have is with respect to the supplementary estimates, which allocated $72 million for the repair of the NRU. The minister told the committee that this was just for 2009-10 and that nothing has been allocated for the new fiscal year.

With their return to service now being pushed back to July, as you've indicated, what are you projecting the repair costs would be for 2010-11, in light of the fact that you've built in more prudency and you're working 24/7, around the clock? Does that cause additional costs, and what are those costs?

Mr. Hugh MacDiarmid: Yes. The budget cycle and the operating cycle don't always match. Indeed, we are dealing with a situation where we have an unexpected or unplanned repair requirement in this upcoming fiscal year. Our current assessment through the end of July is that our monthly impact on cash, which is a combination of the cost of the repairs and forgone net revenues, is approximately $11 million. So we're looking at $44 million.

Hon. Navdeep Bains: So it's $44 million above and beyond the $72 million?

Mr. Hugh MacDiarmid: That's correct.

The Vice-Chair (Mr. Alan Tonks): We're going to have to take our two minutes now with Mr. Harris, and then Mr. Guimond.

Mr. Richard Harris (Cariboo—Prince George, CPC): Thank you, Mr. Chair.

Thank you, gentlemen, for that excellent understanding you've given us about the complexity of the repairs. I understand this is the first time we've ever attempted something like this. The repairs are, as you pointed out, Mr. Pilkington, complex, precise, sophisticated, and have never been done before. It needs highly qualified staff.

I need to establish something really quickly. When was the need for repairs discovered?

Mr. Hugh MacDiarmid: About a year ago, in May.

Mr. William Pilkington: The reactor shut down on May 14, and it was apparent that there was a heavy water leak. The leak was discovered on May 18.

Mr. Richard Harris: Is there anything that could have been done in the previous ten years, anything at all that would have foretold that this was going to happen?

Mr. William Pilkington: Actually, there were a number of inspections done over the preceding period. Unfortunately, the technology of the day, although it was very effective at the higher levels of the reactor vessel wall, was unable to reach the area where the corrosion existed. So the means that were used did not detect it.

Mr. Richard Harris: So the discovery you made a year ago identified that there was a problem and that the problem had to be fixed. It was a first-time, sensitive, complex repair, and every estimate of completion was first-time as well. We think it's going to be this, based on.... I'm trying to put the criticism in a sort of frame, because it appears to me that while there is a fear among people who are being so critical of what's happening—the fear of the shortage, which is, of course, a real fear—there doesn't seem to be an ability for many of those folks to understand the complexity of these repairs and balance them with the criticism. That's disturbing to me, because up to this time I have probably been on that side as well, saying, "Why the hell is it taking so long? Why are there all these delays?" Now, I have to tell you, I understand a lot better.

● (1055)

The Vice-Chair (Mr. Alan Tonks): Mr. Cullen.

Mr. Nathan Cullen: A point of order, Chair.

If the committee can agree—and I've talked with some members—can we send the analysts away for Thursday's meeting, not with a full report but with the outline of potential chapter headings of a report that might be considered? I'm concerned that Thursday we're going to spin our wheels for two hours. I'm wondering if the committee would consider that so we could hit the ground running on Thursday with a very base outline.

The Vice-Chair (Mr. Alan Tonks): Thank you for the point of order.

Could we agree to let the researchers think about that for 20 seconds and let Mr. MacDiarmid have his 20 seconds? Then we'll come back to that point of order. Okay, Mr. Cullen?

Mr. MacDiarmid.

Mr. Hugh MacDiarmid: Thank you, Mr. Chair. I appreciate the question, because there's as much art as science in the predictions. Indeed, it's a balance between the prudence and safety of having a prediction that you know you'll be able to meet and the desire to convey a sense of urgency and to convey to the team that we have to go as fast as we can. We're constantly balancing those variables, and sometimes we have erred on the side of being too aggressive, but it's always been with the best intentions to give the best guidance we can based on the evidence.

The Vice-Chair (Mr. Alan Tonks): Thank you, Mr. MacDiarmid.

Now, Mr. Guimond, I'm afraid we're out of time. Do I have your permission for the committee to now deal with the points of order, in view of the fact that we have a procedural issue with the next committee coming in? Perhaps we'll just note that for the next meeting Mr. Guimond can have twice as much time. Thank you.

Now, on the point of order of Mr. Cullen, do we have a consensus of the committee if research can put that together, and we'll have something to discuss? It will still be in camera, Mr. Cullen.

Mr. Nathan Cullen: Of course.

Mr. David Anderson: I'm not sure that it's fair to ask the analysts to do that ahead of our giving them instructions, because I thought the point of the meeting was for us to come together to try to bring those things to them. I would suggest that the committee members need to come with their suggested direction, rather than expecting that the analysts will provide that.

The Vice-Chair (Mr. Alan Tonks): Let's see if we can find an intersection of the two. If the analysts are looking for direction, they could be prepared to complement the discussion initially with some proposals they could put forward, so that we could have at least a discussion, to begin with, on what the report will deal with.

Is it on the same point of order, Mr. Allen?

Mr. Mike Allen: It's on a different one.

The Vice-Chair (Mr. Alan Tonks): Okay, can we leave that one now, Mr. Cullen? Okay.

Mr. Mike Allen: Last fall, Mr. MacDiarmid and Mr. Pilkington provided us with a critical path schedule, and they went through it with us, on a flow chart. Before our visit on April 13, could they provide an update of that showing where there is slippage and identify what those activities were?

The Vice-Chair (Mr. Alan Tonks): Mr. Pilkington, you've noted that? Okay.

We're looking forward to seeing you at Chalk River next time.

Thank you, members of the committee.

The meeting is adjourned.

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