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ATOMIC ENERGY REGULATION
- WHO IS RESPONSIBLE?

by

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Ottawa, Canada

Basis of remarks made to the
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of Canada, New Brunswick Region,
Fredericton, New Brunswick

PRESENTATION

October 18, 1979
Ladies and Gentlemen:

While it sounds very much like a standard opening statement, it really is a pleasure to be here in Fredericton, New Brunswick. The Atomic Energy Control Board staff welcome opportunities like this to meet with interested persons such as yourselves and to speak on aspects of nuclear power plant regulation. Considering that the Maritimes' first nuclear power plant is presently undergoing construction at Point Lepreau, New Brunswick, I suspect that Atomic Energy regulation is of more than passing interest to you.

The specific aspect of nuclear regulation that I have been invited to speak on, contains the rhetorical question — who is responsible? The short answer is, "ultimately the Atomic Energy Control Board". However, this response is not sufficient and leaves much unsaid.

What I hope to do during this short presentation is to explain the basis for nuclear regulatory responsibility and to give you some idea of the ways in which that responsibility is discharged for nuclear-electric power plants. In addition, I plan to touch briefly on the question of public expectation and some of the implications of this.

Before getting to the business of regulation, I think it would be useful to provide some background information on the development of the Canadian nuclear power program in terms of the nuclear-electric power plants, operating and under construction.
The following table indicates the plants, their capacity and location, their status — that is 'operating' or 'under construction' — and the year in which they first achieved the status indicated:

<table>
<thead>
<tr>
<th>Facility</th>
<th>Status</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>NPD Generating Station, 25 MW(e) Rolphton, Ontario</td>
<td>Operating</td>
<td>1962</td>
</tr>
<tr>
<td>Douglas Point Generating Station 200 MW(e) - Tiverton, Ontario</td>
<td>Operating</td>
<td>1966</td>
</tr>
<tr>
<td>Pickering 'A' Generating Station 2000 MW(e) - Pickering, Ontario</td>
<td>Unit #1 - Operating</td>
<td>1971</td>
</tr>
<tr>
<td></td>
<td>Unit #2 - Operating</td>
<td>1971</td>
</tr>
<tr>
<td></td>
<td>Unit #3 - Operating</td>
<td>1972</td>
</tr>
<tr>
<td></td>
<td>Unit #4 - Operating</td>
<td>1974</td>
</tr>
<tr>
<td>Bruce 'A' Generating Station 3000 MW(e) - Tiverton, Ontario</td>
<td>Unit #1 - Operating</td>
<td>1976</td>
</tr>
<tr>
<td></td>
<td>Unit #2 - Operating</td>
<td>1976</td>
</tr>
<tr>
<td></td>
<td>Unit #3 - Operating</td>
<td>1977</td>
</tr>
<tr>
<td></td>
<td>Unit #4 - Operating</td>
<td>1978</td>
</tr>
<tr>
<td>Pickering 'B' Generating Station 2000 MW(e) - Pickering, Ontario</td>
<td>Units #5 to #8 - Construction</td>
<td>1974</td>
</tr>
<tr>
<td>Bruce 'B' Generating Station 3000 MW(e) - Tiverton, Ontario</td>
<td>Units #5 to #8 - Construction</td>
<td>1975</td>
</tr>
<tr>
<td>Darlington Generating Station 3400 MW(e) - Darlington, Ontario</td>
<td>Site approval granted</td>
<td>1978</td>
</tr>
<tr>
<td>Gentilly-1 Generating Station 250 MW(e) - Gentilly, Quebec</td>
<td>Operating</td>
<td>1971</td>
</tr>
<tr>
<td></td>
<td>Presently at zero power</td>
<td></td>
</tr>
<tr>
<td>Gentilly-2 Generating Station 650 MW(e) - Gentilly, Quebec</td>
<td>Construction</td>
<td>1974</td>
</tr>
<tr>
<td>Point Lepreau Generating Station 600 MW(e) - Point Lepreau, N.B.</td>
<td>Construction</td>
<td>1975</td>
</tr>
</tbody>
</table>

(This table is represented in graphic form in the attached annex)
You can see from this that it has really only been during the past 7 years or so that the program has achieved a significant magnitude.

By the way, I should emphasize that these power plants result from the application of an overall technology. If we look closer at this overall technology, we see that besides reactor design and construction it is comprised of a number of other contributing technologies, some of which lead to the establishment or construction of separate and important facilities in their own right. Included in this latter category are: uranium mining and refining, fuel manufacture, heavy water production and waste management. The implementation of each of these contributing technologies is also subject to regulation by the Atomic Energy Control Board.

So much for the general background. Since the theme of this talk is "nuclear regulatory responsibility", it is appropriate, I think, to refer to the key legislation which applies.

The principal statute which applies is the federal Atomic Energy Control Act, and through it the Atomic Energy Control Regulations become operative. The responsibility for administering the Act and Regulations lies with the Atomic Energy Control Board which was established under the Act.

The Atomic Energy Control Act, which became law in 1946, was written in very broad language at a time when the legislators had strongly
in mind military national security. There were no nuclear-electric power plants in existence in 1946, since the technology remained to be proven technically and economically feasible. Although those legislators could not have perceived in detail the socio-economic nature and expectations of a Canada 33 years into the future, and today's critical importance of energy to our society, they recognized that there would be important changes. The broad language in the Act was the deliberate mechanism they provided to enable adjustments in the application of the legislation in a changing Canada.

Even so, in recent years, it has become clear, that despite the large degree of flexibility in the existing Atomic Energy Control Act, and in fact partly because of it, a new Act is required. That is, an Act more visibly tuned to the needs of contemporary society. In fact, draft legislation intended to supersede the existing Act was prepared about two years ago, but it did not pass first tabling. Probably, this draft will undergo some revision before being re-presented to parliament. The proposed legislation possesses some rather significant features which would make it especially relevant to the present time. Just two of these 'features' are mandatory public hearings for certain specified types of nuclear facility (including power plants), and greatly increased public access to information connected with the regulatory process.

The Nuclear Liability Act is another federal statute applicable to nuclear power plants in Canada. This legislation which was proclaimed in 1976 makes mandatory the carrying of liability insurance by the
owner of each nuclear power plant. The Board's role in the context of this Act is to designate those nuclear installations which come within the ambit of the Act and to prescribe the amount of basic insurance which the operator of the installation must maintain. A feature of this legislation you may find interesting, is its assignment of 'absolute liability' to the plant owners. In other words, a party who claims to have suffered some injury or damage to his health or property as the result of the operation of a nuclear power plant is not required to prove negligence on the part of the owner; he must show merely that he has indeed suffered such injury or damage.

A still further federal Act, the Canada Labour Code, Part IV, is also applicable to nuclear power plants in the context of conventional occupational health and safety. This is the case except where the Atomic Energy Control regulations specifically stipulate otherwise. Since the Canada Labour Code was not specifically intended to treat public health and safety, nor radiological health and safety, its detailed implementation for nuclear power plants has been the subject of Atomic Energy Control Board and Labour Canada discussions aimed at defining the specific roles and responsibilities of the two agencies.

With the Atomic Energy Control Act as the primary one, these are the federal statutes that bear directly on nuclear power plants. There are in addition, a considerable number of provincial health, safety-related, and environmental statutes which are applied to these plants. Examples are the provincial Boilers & Pressure Vessel Acts and Environmental Protection Acts. These, and other provincial Acts are usually brought into force by
means of a specific clause inserted in plant licences issued by the Board. Thus, while acknowledging the ultimate regulatory responsibility of the Board, provincial agencies clearly also have responsibility for the effectiveness of the important activities they undertake with respect to nuclear-electric power plants.

The general picture that should be emerging from this brief outline is one in which the overall regulation of nuclear power plants is carried out by the federal Atomic Energy Control Board, but with specific defined regulatory activities being undertaken by the various provincial agencies through collaboration arrangements.

These federal/provincial collaborative regulatory activities are the result of informal agreements between the AECB and the provincial agencies. For some of these activities, the Board has been endeavouring to formalize and document the agreements. I want to make it very clear that it is the Atomic Energy Control Board's wish not only to maintain links with the provinces, but also to strengthen them and make the partnerships more effective.

It is one thing to speak of legislation and to identify the agency or agencies responsible for implementing it. It is quite another to speak of resources, and the manner of implementation and its effectiveness. I have mentioned the primary governing legislation for nuclear power plant regulation — the Atomic Energy Control Act — a number of times already.
I have noted that it is written in broad terms. In point of fact, the Act is very general. Thus, as I have also implied, it has been the responsibility of the Atomic Energy Control Board to determine how the Act should be applied at the detailed level in the interests of health, safety and security. This has been done, and in fact the determination has been an on-going process with the Board endeavouring, within the limit of its resources, to regulate nuclear power plants in a manner which takes account of standards which are set internationally and the practices of other nations, and also in a manner which it perceives to be consistent with the expectation of the Canadian public. I believe that the Board, assisted by its sister provincial jurisdictions, has regulated effectively. However, by saying that, I do not mean that incidents have not occurred, or cannot occur at licensed nuclear power plants. No regulatory process can ever guarantee perfection. Perfection is an elusive quality in every human activity. What is meant is that errors and actual events have in fact had no measurable affect on the health and safety of either the plant operators or the public.

I mentioned just now '..... regulation consistent with the expectation of the Canadian public..' Despite my assertion that regulation has been effective, there are now strong indications that the public wishes to see an increase in regulatory activity. Can more be done in a regulatory sense to provide increased confidence that the health and safety risk is under control? The answer is clearly "yes" but equally clearly more resources, both financial and human, will be necessary. The problem, as with any
regulation related to health and safety, is to achieve a reasonable balance between the risks and the costs.

Looking at resources and referring back to the brief background I gave earlier: when there were 1475 MW(e) installed and under construction in 1971, the total staff of the AECB numbered 29. In 1975, the capacity figure had become 8075 MW(e) with the AECB staffing level set at 67. At the present time, with the program sitting at 11,075 MW(e) operating and under construction, the corresponding Board staff figure is 184.

These increases in the Board staff have been linked to the expanding program but also they have resulted from an increase in regulatory activity with newer plants due to undertaking new activities such as formal quality assurance, and more detailed examination of certain traditional areas of scrutiny.

Now, if it is required that regulatory activities should further increase then, as I have already stated, additional staff and financial resources will have to be provided. Moreover, depending on the extent of the increase, the staff changes required might be substantial. Without any doubt, these general statements on demands for increased regulatory activity and the increased resources that are a consequence of such demands, apply also to the Board's sister agencies in the provinces.
I have been directing my remarks to regulatory responsibility. I want also to make an important point regarding the responsibilities of certain major non-regulatory participants in nuclear power plant projects. The nuclear regulatory process includes an on-going — although unstructured — direct general assessment of the levels of competence, ability and dedication of the key staff members of each of the nuclear utilities and also Canada's major nuclear design consultant. The sense of responsibility and the recognition of the need to preserve health and safety, by these engineers is extremely high. Through the mechanism of quality assurance programs and related activities, the Board and certain provincial agencies are also promoting the adoption of the 'preservation of the nuclear health and safety' ethic through the nuclear manufacturing sector of industry. The conduct of these activities represents an important part of the responsibility of the Board and contributes substantially to the overall nuclear regulatory process.

Let me summarize. A number of federal and provincial agencies participate in the regulation of nuclear-electric power plants. While each participant is important, the special role of the provincial agencies is particularly significant. Not only is the involvement of these agencies a matter of practical necessity: it makes good sense considering the technical expertise to be found among their staff together with the mutual interest in health and safety the agencies share with the Board. So I say again, it is the Atomic Energy Control Board which is ultimately responsible for the regulation
of nuclear-electric power plants. However, because of the collaborative federal/provincial arrangements, the detailed implementational responsibility for nuclear regulation is shared between these levels of government. The Board firmly believes in this approach to regulation and we shall continue working towards its formalization and further improvement.
"Subject to the terms and conditions of the licence, all laws of general application from time to time in force in the Province of [Province Name] are applicable to and in respect of the facility and must be complied with except to the extent that such laws conflict with any federal statutes or any order rule or regulation made thereunder".