

In view of all these investigations and studies, our board agreed that the proposed factor of safety is acceptable. Our board was impressed with the accuracy and the reliability of the people who did it, and we granted a permit. That is where we are today.

Mr. AIKEN: Dr. Mackenzie, I am a little vague on the question of the safety factors, but could you tell me if I understand it correctly? Where there are some unknown factors or where there are some possible weak spots in such an undertaking, do you require perhaps a higher safety factor to cover such possible unknowns? Is that what it boils down to? If you do not have a complete inspection of every component of the reactor, you really need a higher safety factor.

Dr. MACKENZIE: To get the same degree of protection. If you were absolutely certain of everything, if you were certain of the loads and the strength, a factor of 1.1 would be no risk at all. Of course, you never get that.

Mr. STEARNS: I would like to get back to this point. It appeared from what Dr. Mackenzie and Mr. Drysdale said a while ago that there was no independent body that settled the safety factor. However, on page 850 of the minutes I asked Dr. Gray whether his pressure vessels were insured or not. He said they were. Later on it turned out that they were insured by the Boiler Inspection Company of Canada. The Boiler Inspection Company would not insure the vessels, I do not think, unless they were reasonably certain that they are not going to pay a large sum of money in damages because of the failure of any particular vessel. From what Mr. Drysdale and Dr. Mackenzie said, it looked as though there was no independent examination of the risks.

Mr. DRYSDALE: What examination would this organization make?

Mr. STEARNS: If it were the Boiler Inspection Company of Canada, they would not accept the risk unless it had been proven to them that there was little likelihood of an accident occurring.

Mr. BEST: That is likely, Mr. Stearns, but it is still an assumption.

Mr. STEARNS: I wanted to clear that point.

The only other question I wanted to ask Dr. Mackenzie was on this concrete housing that surrounds your reactor. What pressures have you determined will be sustained without failure?

Dr. MACKENZIE: I could not answer that offhand. It is very thick, and by the time you get this expanded into a large volume, the pressure would not be very large. I do not happen to have the figures with me. This has been going on for three or four years.

Mr. STEARNS: I am referring to the safety of your workmen standing outside.

Dr. MACKENZIE: They are standing way out.

Mr. BEST: I was particularly interested in the discussion of the safety factor and the component parts of the safety factor, and how you should look at them with more accuracy. There are several parts of this submission which I would like to review. I believe, sir, with respect, that this comment of yours that a factor of ten might be more dangerous than a factor of two is a rather unwise statement. I could conceive that this might happen occasionally, but this possibility is very remote.

Dr. MACKENZIE: I was illustrating the point that this factor of safety was not a risk.

Mr. BEST: It is a variable thing and dependent on variables itself, but it would be a very remote chance that a factor of ten would be less safe than a factor of two.