

Cases of Misinformation
and
Attempted Suppression

by representatives of the
Canadian Nuclear Industry

Compiled by Gordon Edwards
for the Select Committee on Ontario Hydro Affairs

submitted in evidence on November 5 1979

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Introduction

The Select Committee on Ontario Hydro Affairs, an all-party committee of the Ontario Legislature, conducted fifteen weeks of public hearings on nuclear issues in 1979 and 1980. These hearings were precipitated by the partial meltdown of a nuclear power reactor at the Three Mile Island plant (TMI), in Harrisburg, Pennsylvania, in March 1979. The Committee issued three reports in 1980, following the conclusion of these hearings.

The hearings added significantly to the evidence previously compiled by the Ontario Royal Commission on Electric Power Planning (RCEPP), whose findings had already been published in a September 1978 Report entitled “A Race Against Time: Interim Report on Nuclear Power in Ontario” (See <https://archive.org/details/interimreponuclear00onta>).

The RCEPP had invited me, Gordon Edwards, to testify and to cross-examine nuclear experts on a daily basis for three months. My work and my testimony were favourably quoted in the 1978 RCEPP Report. (See <https://www.youtube.com/watch?v=kpCJz4wKp4Y>).

During its subsequent set of hearings after the TMI accident in 1979, the Select Committee invited me to testify on five separate occasions. On one such occasion I stated that the nuclear industry in Canada had often provided misleading information to decision makers and the public, and had also worked to actively suppress legitimate expressions of concern that are not supportive of the industry.

Not surprisingly, I was challenged to document my claims – and that challenge gave rise to the following dossier that I prepared and filed as an Exhibit during the Committee hearings. It consists of seven documented episodes, each briefly described and supported with accompanying documents (21 such documents in all). Other episodes of a similar nature, many of them more alarming, cannot so easily be documented.

The materials are structured so that the reader can focus on just one episode at a time.

Gordon Edwards, CCNR President - Montreal, July 2019

Table of Contents

| | |
|---|-----|
| Introduction (2019) | ii |
| Table of Contents | iii |
| Cases of Misinformation and Attempted Suppression (Cover Letter to Select Committee) | 1 |
| I. The National Film Board Episode | 3 |
| Doc. 1 Letter: Energy Minister Gillespie to the Secretary of State Roberts | 4 |
| Doc. 2 Letter: Electrical & Electronic Manufacturers' Association to Secretary of State | 6 |
| Doc. 3 Letter: Ontario Hydro to Chairman of the National Film Board of Canada | 7 |
| Doc. 4 Letter: Atomic Energy of Canada Limited to Chairman of the National Film Board | 8 |
| Doc. 5 Letter: Chairman of the National Film Board to Secretary of State | 10 |
| Doc. 6 Letter: National Film Board to Atomic Energy of Canada Limited' | 12 |
| II. The Ottawa Doctor Episode | 13 |
| Doc. 7a Letter: Ottawa Doctor to the Federal Minister of Health and Welfare | 14 |
| Doc. 7b Letter: Chairman, Atomic Energy Control Board, to Ottawa Doctor | 16 |
| Doc. 7c Letter: Chairman, Atomic Energy Control Board, to College of Physicians & Surgeons | 17 |
| III. The New Brunswick Teacher Episode | 18 |
| Doc. 8 Letter: P.R. Man, Atomic Energy of Canada Limited, to New Brunswick Teacher | 19 |
| IV. The British Columbia Medical Association Episode | 20 |
| Doc. 9 Telegrams: Atomic Energy of Canada Ltd. to B.C. Medical Association & Response | 21 |
| Doc.10 Letter: Holdren, University of California, to Atomic Energy Control Board + Attachment | 23 |
| Doc.11 Letter: Gordon Edwards, CCNR President, to Atomic Energy Control Board | 27 |
| Doc.12 Letter: Chairman, Atomic Energy Control Board, to Friends of the Earth | 30 |
| Doc.13 Excerpts from a 232-page Critique of AECB's "Inhaber Report" | 31 |
| V. The Prince Edward Island Legislature Episode | 36 |
| Doc.14 Testimony: Atomic Energy of Canada Limited to Prince Edward Island Legislature | 38 |
| Doc.15 Letter: G. Edwards, CCNR President, to Minister of Energy, Mines & Resources | 40 |
| Doc.16a Letter: P. Dyne, Ministry of Energy, Mines and Resource, to Member of Parliament | 45 |
| Doc.16b G. Edwards of CCNR to P. Dyne of EMR | 46 |
| Doc.16c Letter: P. Dyne of EMR to G. Edwards of CCNR | 49 |
| Doc.16d Letter: G. Edwards of CCNR to P. Dyne of EMR | 51 |
| VI. The Science Forum Episode | 53 |
| Doc.17 Article: "Nuclear Gadfly" by N Dreskin, in the Sept-Oct 1977 issue of Science Forum | 54 |
| Doc.18a Published letter by G. Edwards in January-February 1978 issue of Science Forum | 59 |
| Doc.18b Published letter by J.A.L.. Robertson in January-February issue of Science Forum | 62 |
| Doc.19 Unpublished letter by G. Edwards to the editor of Science Forum magazine | 64 |
| VII. The Amory Lovins Broadsheet Episode | 68 |
| Doc.20 Letter: Chairman of Atomic Energy of Canada Ltd. to Amory Lovins + Broadsheet | 69 |
| Doc.21 Letter: Amory Lovins to Chairman of Atomic Energy of Canada Limited | 71 |

Memorandum

To : Members of the Select Committee on Ontario Hydro Affairs
From: Gordon Edwards
Date: November 5, 1979
Re: Cases of Misinformation and Attempted Suppression by
Canadian Nuclear Institutions and Representatives.

1. Substantiation of Allegations

I have identified more than 20 episodes, each very well documented, dealing with official cases of misinformation and attempted suppression on the part of representatives of the Canadian nuclear industry. Since Mr. Williams of your Committee suggested on September 26 that I substantiate my allegations concerning such misconduct, I have undertaken to provide some documentation to accompany this memorandum.

For ease of understanding, each piece of documentation is preceded with a brief description of the associated episode. Further documentation and testimony is available if the committee wishes to pursue any of these episodes further, or if the Committee wishes to hear of additional episodes of this kind.

2. Is the Nuclear Industry Immune from this Requirement?

I hope that Mr. Williams and the Committee members will, in good conscience, request similarly detailed proof from representatives of the nuclear industry so that their allegations of safety are also substantiated with solid, unequivocal evidence that goes beyond mere engineering hubris and seat-of-the-pants judgment.

It seems to me that the industry has failed to produce any evidence of a sufficiently compelling character to refute the judgment of Norman Rasmussen that the CANDU reactor meltdown potential is approximately equal to that for light water reactors.

After listening to 15 days of detailed cross-examination on safety matters, spread over ten months, Dr. Arthur Porter and his fellow commissioners concluded that the accident probabilities and meltdown scenarios described by the nuclear critics (myself and Ralph Torrie) were "more realistic" than those described by industry spokesmen, including AECB representatives. If the industry spokesmen can prove their claims of safety by anything more than unsubstantiated opinions, already rejected by the Porter Commission, let them do so.

I have challenged Ontario Hydro to prove its contention that a molten CANDU core will not melt through the concrete floor of a CANDU reactor building. It seems to me that, as a test of Mr. William Morison's soundness of judgment on such important matters, he should be required to offer proof of his contention. For my part, I believe that his contention is irresponsible nonsense designed to allay the fears of people, but having the unfortunate effect of misleading decision-makers into thinking that meltdown accidents are not suitable matters for political representatives of the people to be concerned about.

I find it alarming that all those scientists who have ever studied meltdowns in detail have concluded that melt-through is unavoidable once the core has collapsed, while Mr. Morison,* without a scrap of evidence, maintains the opposite. Is this the level of assurance which we in Canada demand from our nuclear experts?

3. Let's Not Obscure the Important Issues

The nuclear debate in Canada must not become clouded by cat-fights or dog-fights between individuals. The issues are far too important to be obscured behind a smokescreen of recriminations or to be drowned out by a barrage of charges and counter-charges. However, when large government-funded institutions use their considerable power to intimidate individuals or mislead people, that is a public issue in its own right which is far too important to ignore. The individuals involved are not as significant, politically speaking, as the attitudinal environment which permits such misinformation and attempts at repression to take place.

As the Porter Report has indicated, it is only through listening to the nuclear debate that people will be able to understand the nuclear issues. And let there be no mistake: those issues are as important as any that Canadians have ever had to face, affecting as they do not only the economy (jobs, inflation, cash flow, capital availability, and security of energy supply), but also the future of all life on earth (encompassing the gradual poisoning of our air and waterways by ever more insidious pollutants, the virtual certainty of catastrophic accidents leaving a centuries-long legacy of suffering and death, and the reckless acceleration of the risk of nuclear warfare by our callous peddling of nuclear materials to brutally repressive and dictatorial military regimes in various parts of the world.)

As the Porter Report emphasized, balanced information is essential if responsible decision-making in the nuclear field is to take place. This will not be possible unless government provides funds and opportunities so that all sides of the nuclear debate may be heard by the citizens of Ontario and Canada. It is certainly not proper, in a democracy, to allow legitimate voices of dissent to be stifled because of the perceived interests of a powerful industrial concern. If the Canadian nuclear industry cannot survive honesty and openness, if it cannot survive informed criticism, then we had best disengage from the enterprise with all deliberate speed. Our civil liberties, fragile as they are, are too precious to sign away for the sake of a single industry.

Herewith, the first instalment of Seven Episodes, complete with 20 supporting documents. (Document #16 will be forwarded in due course.)

- I. The National Film Board Episode
- II. The Ottawa Doctor Episode
- III. The New Brunswick Teacher Episode
- IV. The B.C. Medical Association Episode
- V. The P.E.I. Legislature Episode
- VI. The Science Forum Episode
- VII. The Amory Lovins Broadsheet Episode

More to come! - Gordon Edwards

* [William Morison of AECL became chief nuclear engineer for Ontario Hydro; he headed up the design teams for both the Pickering (8 reactors) and Bruce (8 reactors) nuclear power plants.]

I. The National Film Board Episode

When the N.F.B. issued a controversial film entitled “No Act of God”, dramatizing the major issues that have impelled the nuclear debate worldwide, the Canadian nuclear industry was quick to try to suppress the film by forcing it out of circulation. Making rash and unsubstantiated accusations of factual errors in the film, the industry even managed to get pressure exerted on the Film Board from the Ministerial level (see the attached correspondence from Alastair Gillespie to John Roberts, labelled Document #1.)

There was a storm of highly emotional letters (samples attached), verging on paranoia, from representatives of the nuclear industry (e.g. “*the work of a small, international, highly organized and dedicated body of activists whose stated goal is to change the technological and economic, and thus the social structures of the Western nations*”, from Document #2, attached). In addition, the Canadian Nuclear Association prepared a blow-by-blow critique of the film, supposedly exposing the film’s factual errors. In response to a request from then Secretary of State John Roberts, the N.F.B. undertook an internal review of the C.N.A. critique. This review failed to confirm the presence of any factual errors in the film, but it did succeed in identifying numerous factual errors in the C.N.A. critique! The N.F.B. ultimately published its own rebuttal of the C.N.A. critique as a small book, and informed the press of the C.N.A.’s thinly disguised attempt at political censorship.

In retrospect, it is clear that Atomic Energy of Canada Limited (AECL), the Canadian Nuclear Association (CNA), and other nuclear-related organizations, over-reacted to a film whose tone they objected to. They subsequently misrepresented their own emotional distress as being due to errors of fact in the film, when in reality there were no errors of fact at all. Their attempts to suppress the film were clumsy, unjustified, and unsuccessful. Most of the industry’s attempts at suppression fall into this general category, but not all.

Documents

1. Letter from Alastair Gillespie to John Roberts, undated.
2. Letter from David Armour of the Electrical and Electronic Manufacturers Association to Secretary of State John Roberts, August 29, 1978 (copies to NFB, Manitoba Hydro, AECL and Ontario Hydro).
3. Letter from John Davies of Ontario Hydro to André Lamy, NFB Commissioner, May 8, 1978.
4. Letter from A. R. Burge, AECL Public Affairs, to André Lamy, April 11, 1978.
5. Letter to John Roberts from André Lamy, November 29, 1978.
6. Letter to Clyde Kennedy, AECL Public Relations, from Carol Legault of the NFB, May 7, 1976.

It will be noted that the first three letters all charge that the film “No Act of God” contains errors of fact, a charge which has never been substantiated. The fourth letter insinuates that the film has errors of fact without being quite that specific, and then demands that the film be suppressed because of a trumped-up quasi-legalistic technicality concerning the use of a few feet of Canadian footage – an objection that is easily refuted in letters 5 and 6.

Other pertinent documentation

“No Act of God”, a critique by the Canadian Nuclear Association (38 pages).
“An Examination of the Critique by the Canadian Nuclear Association of the National Film Board Production ‘No Act of God’”, a National Film Board of Canada Staff Report.

Suggested Witnesses

André Lamy, NFB Commissioner
Peter Katadotis, Executive Director, Challenge for Change Programme, NFB.
Ian Ball, film-maker, “No Act of God”.
Michael Bryans, author of the NFB Review of the Critique by the Canadian Nuclear.

CASES OF MISINFORMATION AND ATTEMPTED SUPPRESSION
Document #1 – The National Film Board Episode

Letter from the Minister of Energy Mines & Resources to the Secretary of State

Energy, Mines & Resources
Minister: Alastair Gillespie

The Honourable John Roberts
Secretary of State
66 Slater Street
Ottawa, Ontario K1A 0M5

Dear Mr. Roberts:

The attached glossy brochure advertises a film [***No Act of God***] attacking the nuclear power program which has been produced by the National Film Board.

The film itself was produced by extracting footage from films made by Atomic Energy of Canada Limited (without their permission) and interspersing this footage with a string of interviews with U.S. opponents of nuclear power. No Canadians are interviewed and the film deals in a rather confused fashion with the supposed dangers of a type of reactor not in use nor even contemplated for use in this country.

Despite protests by Atomic Energy of Canada Limited, Ontario Hydro, the Canadian Nuclear Association and other organizations at the blatantly unbalanced, scare-mongering nature of the film, the film commissioner has remained adamant that the National Film Board will continue to distribute the film. There is no question that the film is specifically designed to stimulate public concern and fear, that it is technically inaccurate and that it provides no material which would enable the public to reach a balanced view of the nuclear situation in Canada. The damage which a film can occasion to public confidence in the nuclear program is immense. Provincial authorities in Ontario are particularly disturbed as that province is heavily dependent on nuclear power for its electricity production. In this connection you will no doubt be receiving a complaint from the Minister of Energy for that province.

I would therefore request that you discuss this matter with Mr. Lamy so that my request that distribution of this film be discontinued can receive careful consideration. I look forward to hearing from you.

With kindest regards,

Alastair

Background: The title of the film is taken from a quotation by Swedish Nobel Laureate in Physics, Dr. Hannes Alfvén, who recites these exact words in the film: *“Fission energy is safe only if a number of critical devices work as they should, if a number of people in key positions follow all their instructions, if there is no sabotage, no hijacking of the transports, if no reactor fuel processing plant or repository anywhere in the world is situated in a region of riots or guerrilla activity, and no revolution or war – even a ‘conventional’ one – takes place in these regions . In short, No Act of God can be permitted.”.*

Hannes Alfen, Bulletin of Atomic Scientists, 1971

View the film *“No Act of God”* by Ian Ball at https://archive.org/details/noactofgod_201702

CASES OF MISINFORMATION AND ATTEMPTED SUPPRESSION
Document #2 – The National Film Board Episode

Letter from the Electrical & Electronic Manufacturers' Association to the Secretary of State

August 29, 1978
Honourable John Roberts
Secretary of State
66 Slater Street
Ottawa, Ontario
K1A 0MS

Dear Sir,

I write with reference to a recent National Film Board production entitled "No Act Of God", which has just been brought to the attention of this Association.

In my strong opinion "No Act Of God" is neither art nor information, but raw, dedicated propaganda. It can best be likened to old-style preaching, which presented hellfire and damnation at great and imaginative lengths in order to frighten the world into "the right way of thinking". These preachers felt no constraints to remain within the confines of fact or reason and had no compunctions about building horrors into several generations of young minds. Their single purpose was to convert, and fear was the most effective means to that end.

The film's narrator, over lurid graphics, relates plutonium to the demonic Pluto of mythology, and tells of the "certainty" of its being stolen by terrorists, and how a small amount is lethal enough to kill every person on Earth. The imagery and hyperbole are aimed at creating a new superstition, an awe and dread of the metal plutonium. The factual error and distortion are not apparent to any but the highly aware and informed viewer. Horror is the message. Faust is brought in, and a "deal with the Devil" described.

A parade of "experts" is interviewed, to add authority to the tale of terror. A physicist talks knowingly about the geological impossibility of nuclear waste disposal. The leader of a major anti-nuclear movement is identified only as a scientist. A lawyer adds his persuasive training.

There is a prediction of a technological "priesthood" being needed to manage the nuclear beast, and of increasing loss of privacy and freedom as an inevitable police state arises to maintain security around a nuclear power technology.

Examples are cited and described in apocalyptic prose and animated graphics of accidents at nuclear sites – ten and twenty years ago, at American locations, and involving technologies completely different from those of this country. American fast-breeder and military incidents are linked by direct association with the CANDU, and the holocausts which "almost happened" are thus held up as a warning to Canadians. The accidents described were in fact minor, adequately handled, and non-lethal. This is not mentioned, but there is much dwelling on "how close we all came". Scare tactics designed to induce a paranoid reflex.

Another example of the same device is the description of a highway accident involving a truck carrying nuclear material. "As luck would have it," the voice-over says, "No lethal radiation escaped—this time". The people responsible for this film know very well that luck had nothing to do with the outcome, because the material was being transported in

CASES OF MISINFORMATION AND ATTEMPTED SUPPRESSION
Document #2 – The National Film Board Episode

canisters designed and rigidly tested to withstand just such an accident without loss of integrity.

The problem is an artificial one, created for tactical purposes by groups opposed to any nuclear development of any description anywhere. Safety is not their concern, but rather leverage with which to delay and halt nuclear technology.

Canada has not so far been the object, to any great extent, of action by the several world-scale anti-nuclear/anti-technology organizations. Their activities are highly visible in other nuclear nations, notably the USA, the UK, France, West Germany and Japan.

But now we have this film which directly reflects the work of a small, international, highly organized and dedicated body of activists whose stated aim is to change the technological and economic, and thence the social structures of the Western nations. Film credits are given to such people as Ian Ball (writer and director) and Rupert Glover (producer and editor) among others. But the tactics, techniques, persuasive devices, arguments and incidents used have all been tested and proven in other parts of the world. In fact one of the scientists (otherwise unidentified re bias) interviewed, Amory Lovins, is the British spokesman for the anti-nuclear group, Friends of Earth Inc., and is probably the world's most renowned strategist and publicist of the "small is beautiful" philosophy.

The reason for this long letter is my dismay at seeing the National Film Board serving the purposes of international activists, and acting as an instrument for radical social change. There is no aspect of this film relevant to the National Film Board's mandate. It does not further the Canadian film-making capability. It does not serve as a training vehicle for Canadian creativity. It does not examine or document the Canadian condition. It does not assist the Canadian identity. It does not serve the Canadian public. It is a fairly skillful propaganda piece, of considerable value to a non-Canadian special-interest group.

I ask that you view this film personally and carefully, and then examine closely just how the NFB was manoeuvred to sanction its production. I suggest that public funds have been alarmingly misused in this instance, and that it is your duty both to learn how this happened and to take the necessary precautions against a recurrence. I believe you will know how to handle the film's release and distribution once you have seen it.

Yours sincerely,

David E.P. Armour, President
Electrical and Electronic Manufacturers Association of Canada (EEMAC)

Copies to:
Mr. Andre Lamy, Chairman, National Film Board of Canada
Mr. L.A. Bateman, Chairman, Manitoba Hydro
Mr. R. Campbell, Chairman, Atomic Energy of Canada Ltd.
Mr. W. MacOwan, President, Howden Parsons Ltd.
Mr. R.B. Taylor, Chairman, Ontario Hydro
EEMAC Board of Directors

CASES OF MISINFORMATION AND ATTEMPTED SUPPRESSION
Document #3 – The National Film Board Episode

Letter from Ontario Hydro to the Chairman of the National Film Board

May 8, 1978

Ontario Hydro
700 University Avenue,
Toronto, Ontario M5G 1X6

Mr. Andre Lamy
Chairman
National Film Board
150 Kent Street
Ottawa, Ontario

Dear Mr. Lamy:

I note with some concern that the National Film Board is distributing two films “No Act of God” and “Nuclear Power: Matter of Choice” both with a strong anti-nuclear bias.

I am aware of course that the National Film Board has also produced and distributed films which have a pro-nuclear bias, although I believe these were produced by the Board to meet the specific needs of Atomic Energy of Canada or other departments of the federal government. It does not appear that this is the case in regard to the two films mentioned.

I am curious, therefore, to know what specific needs the two films are designed to meet. If their objective is to contribute to the wider understanding of nuclear power development by Canadians, then they fall far short of it because of the substantial errors of fact in each film and the prejudicial treatment of the subject matter.

One might well ask if it is in the national interest (as required by the National Film Act of 1950) for the Board to produce or distribute films of such questionable merit in Ontario. This is a province which has had a nuclear power program in place for over 15 years and which, in 1977, depended for about 25 percent of its electrical energy supply on nuclear power stations. The alternative to nuclear power in Ontario is greater dependence on imported fossil fuels and higher cost electricity.

In its efforts to present the disadvantages of nuclear power, it appears that the Board has overlooked the legitimate choice of one of the major provinces of Canada to use nuclear power as one source of electrical energy.

As a result, a disservice is being done to the people of Ontario who have relied on nuclear power for more than 50 reactor years of safe, reliable operation to help meet an important and growing part of its electrical energy requirements.

Sincerely,

John Davies
Nuclear Communications
Ontario Hydro

Letter from Atomic Energy of Canada Ltd. to the Chairman of the National Film Board

Atomic Energy of Canada Limited

Head Office

Ottawa, Canada K1A 0S4

(613) 237-3270

April 11th, 1978

Mr. Andre Lamy
Government Film Commissioner and Chairman
National Film Board
150 Kent Street
Ottawa, Ontario

Dear Mr. Lamy:

No Act of God

I have just had an opportunity to view for the first time the National Film Board production, "No Act of God". I am extremely disturbed by this film on two counts. One is that the National Film Board of Canada should embark on an enterprise with such dubious scientific validity and such obvious bias against a technical program development which has the support of the Federal Government of Canada.

The film itself displays a good deal of confused thinking over the nuclear business and it depends for its ammunition on a small coterie of dedicated anti-nuclear zealots, none of whom are Canadians or with the possible exception of Amory Lovins, have any knowledge whatsoever of the nuclear energy development situation in Canada. Nevertheless, the viewer might well assume that since the National Film Board produced the film, it has some relevance to the Canadian situation. He certainly would be alarmed by the opinions, prognostications and suppositions which make up the film.

My second point is a more serious one. The film uses footage extracted from at least three films made for Atomic Energy of Canada Limited either by Crawley Films or the National Film Board of Canada itself. The footage from the National Film Board's productions are from "On the Critical Path" and "On-Power Refuelling". Both of these films were totally financed by AECL. The Crawley film from which footage was used is "This Nuclear Age" on which the National Film Board acted as our agent in a contract dated August 22nd, 1973, with Crawley Films. The film was totally financed by AECL and, as in the case of all previous productions for AECL, copyright was vested in the National Film Board and the original and outs are retained by NFB.

CASES OF MISINFORMATION AND ATTEMPTED SUPPRESSION
Document #4 – The National Film Board Episode

No permission was sought or granted to the National Film Board to make use of our footage and the manner in which the footage has been used is both misleading and reprehensible. Let me give you an example: The film opens with a shot of Pickering taken from our film, "This Nuclear Age". The voice over describes the station thus, "Reactors produce plutonium – plutonium produces lung cancer". This to describe a station acknowledged to be the most successful in the world and one which has operated since 1971 without harm to the public and indeed has kept any radioactive releases below one percent of that level permitted by the "health" authorities. Later footage of the Pickering control room is misrepresented as being the control room of an early U.S. fast reactor which was involved in an accident (in which, incidentally, nobody was hurt although you wouldn't know it from this film).

This cavalier use of valuable film footage which I have regarded as being held in trust by your agency on our behalf disturbs me greatly. I request that the film be withdrawn immediately from circulation, that all AECL-financed footage be removed from it, that an explanation be provided as to how this unfortunate incident could be allowed to take place and that assurance be given that all footage taken by the National Film Board or by private companies under contract for films on our behalf be protected in some way so that such misuse will not occur in the future.

I await your response and trust that you will give this serious matter your early attention.

Yours truly,

A.R. Burge
Director, Public Affairs

ARB/jw
cc: W. Hewittson

CASES OF MISINFORMATION AND ATTEMPTED SUPPRESSION
Document #5 – The National Film Board Episode

Letter from the Chairman of the National Film Board to the Secretary of State

National Film Board of Canada
Government Film Commissioner

Office national du film du Canada
Commissaire du gouvernement à la cinématographique

P.O. Box 6100
Montreal – H3C 3H5
November 20, 1978

The Honourable John Roberts,
Secretary of State
Hull, Quebec

Dear Mr. Roberts:

This is in response to Alastair Gillespie's letter to you concerning the Film Board's production of the film *No Act of God*.

First, the question of the use of out-takes from previously sponsored Atomic Energy of Canada films. It is the NFB's policy, and always has been, to request permission from any Government department or agency to use an excerpt from a film commissioned by them. However, in the best interests of the Canadian taxpayer it has also been our policy to put the "outs" from these films in our Stock Shot Library for the use of anyone taking into account the rights available on each production, unless of course the sponsoring department specifically asks that the use of their footage be restricted.

We have gone over the contracts with AECL in connection with *NO ACT OF GOD* very carefully and AECL placed no restrictions on the use of the 'outs' from the film they sponsored. As a matter of fact we took the precaution of writing to Mr. Clyde Kennedy of AECL's public relations office asking permission to use some 'outs' from a previous film we had done for them entitled *ON POWER REFUELLING*. I enclose a copy of this letter for your information. Since we have no record of any reply from AECL to this letter, we assumed there was no problem in using these shots, even though legally we had a perfect right to do so. The shots in question were used in a context that was totally innocuous and amounted to only a few seconds of the finished film. However, we have since placed a restriction on all stock footage from AECL sponsored films, and they will not be used in the future without written permission.

As you are no doubt aware, we have had many letters questioning the technical accuracy of the facts that are presented in this film. Despite our requests for examples of these inaccuracies, none as yet has been pointed out to us.

There is both historical precedent and sound legal basis for the production of such films as *NO ACT OF GOD*. The film contains statements by international experts in the field of nuclear

CASES OF MISINFORMATION AND ATTEMPTED SUPPRESSION
Document #5 – The National Film Board Episode

energy and it is well within the N.F.B.'s mandate to produce films, the purpose of which is to stimulate debate of crucial issues and options that concern Canada and the larger community. We feel we have done this in the films we have made connected with the issue of nuclear energy in Canada.

There is on the one hand the film NO ACT OF GOD. But, our film-catalogue also contains two films sponsored by the Atomic Energy Commission of Canada entitled POWER FROM THE ATOM and THIS NUCLEAR AGE, both of which very eloquently advance the case for nuclear energy, especially the virtues of the CANDU system. Also contained in our catalogue is the film ATOMIC JUGGERNAUT which movingly documents the procession of a Canadian-manufactured calandria through India to its proposed site. These films have been criticized by anti-nuclear proponents in voices not dissimilar to those who criticize NO ACT OF GOD. Their inclusion in our catalogue is nevertheless staunchly defended.

In conclusion, I feel that the Film Board would not be truly doing its job if we failed to present to the people of Canada different points of view on vital issues that affect their lives.

Yours sincerely,

André Lamy

Encl.

c.c. Dinah Hayle, S. État-
Ian McLaren
Peter Katadotis
Reta Kilpatrick
Jim Domville

CASES OF MISINFORMATION AND ATTEMPTED SUPPRESSION
Document #6 – The National Film Board Episode

Letter from National Film Board to Atomic Energy of Canada Limited

150 Kent Street
Ottawa, Ontario
K1A 0M9

May 7, 1976

Mr. Clyde Kennedy
Public Relations Office
Atomic Energy of Canada Ltd
Ottawa, Ontario

Re: ON POWER REFUELING (SHORT VERSION)

Dear Clyde:

I have received a request from Ian Ball of the National Film Board in Montreal. He would like permission from A.E.C.L. to use the following shots in the Environment Studio's film on nuclear power:

- a) Shots of reactor control panel
- b) Shots of fuel rods

The footage is 80' to 135', measured from zero at picture start on Academy leader.

These brief scenes are fairly standard interiors and will serve to give viewers a short look at some of the day to day operations of a nuclear power plant.

Could you please advise me as soon as possible whether we can grant them this request.

Sincerely yours,

Carole Legault,
Sponsored Programme Officer

CL/dd

II. The Ottawa Doctor Episode

When an Ottawa doctor became concerned about a local radiation hazard in his subdivision, involving a quantity of low-level radioactive wastes dumped on a vacant lot, covered with a plastic sheet, and weighted down with rubber tires, he began to make inquiries. The sheet was torn, and radioactive dust was blowing through streets of the subdivision in which he lived. He found that the Atomic Energy Control Board (AECB) had given permission for the radioactive waste to be deposited there in the first place, and yet had failed to police it or monitor it in any adequate way.

He wrote an angry letter to Mr. Marc Lalonde, then Minister of Health and Welfare, urging that something be done about the hazard and condemning the AECB for allowing the situation to exist. Mr. Lalonde forwarded a copy of this letter to Dr. Al Prince, then President of the AECB, who wrote a very threatening letter to the Ottawa doctor, harshly denouncing the impropriety of the doctor's action, and informing the poor doctor that he (Dr. Prince) was reporting the incident to the Ontario College of Physicians and Surgeons for possible disciplinary action for the alleged unprofessional conduct on the part of the doctor!

Document

7. Correspondence package:

- a) Letter to Marc Lalonde from Ottawa Doctor, April 4, 1977.
- b) Letter to Ottawa Doctor by Dr. A. T. Prince, April 15, 1977.
- c) Letter to Ontario College of Physicians & Surgeons by Dr. A. T. Prince (AECB), April 15, 1977.

This correspondence has already been filed as an exhibit with the Committee.

CASES OF MISINFORMATION AND ATTEMPTED SUPPRESSION
Document #7(a) – The Ottawa Doctor Episode

Letter from Ottawa Doctor to the Minister of National Health and Welfare

April 4, 1977

Hon. Marc Lalonde
Minister, National Health and Welfare,
Confederation Building,
Ottawa, Ontario

Dear Mr. Lalonde:

I must bring to your attention a very urgent situation which eventually could result in unnecessary illness and death due to indifference, negligence and incompetence on the part of the Atomic Energy Control Board.

The matter concerns 3,000 tons of Radioactive Waste which was surreptitiously dumped on National Research Council property on Queensdale Avenue in Gloucester Township, in July and October, 1976, a scant few yards from local homes.

Some of the local residents learned the real nature of this material at the end of October, 1976, and it first came to light in the Ottawa press on November 12, 1976. There was a public meeting chaired by Mrs. Jean Piggott on December 15, 1976, and considerable publicity since that time, but nothing has been done to remove this health hazard.

I feel that the public meeting on December 15, 1976 was nothing more than a meaningless AECB public relations exercise to appease the fears of the "locals".

In October 1976 there was a period of windy weather, during which time the radioactive dust blew about the whole area. Flimsy plastic sheeting held down by old tires was placed over the slag pile during the Winter, but since the snow melted, the sheeting has torn several times exposing the dust to the winds again.

Today and yesterday have been unusually windy. There are large areas of the slag pile exposed and blowing about. Area parents have been afraid to allow their children outside to play. Schoolchildren wait for their buses about a hundred yards from the slag pile, inhaling and ingesting this dust containing carcinogenic radioactive material, including arsenic, lead and other contaminants.

The tears in the sheeting are not repaired. The tire weights are simply shifted around and soon slide down the sides again.

Despite numerous reassurances from the AECB that the radioactivity of the slag pile is of a low level and not a health hazard, nothing is mentioned of the dangers of inhaling and ingesting the carcinogenic radioactive dust. On the June Calwood television show about this slag pile, taped on December 16th, and broadcast on December 30th, 1976, Professor Douglas Andrew of the University of Toronto strongly emphasized this danger.

I feel this situation represents a severe and extremely urgent health hazard, especially to the area children. I suggest very strongly that this be considered an emergency situation, that this

CASES OF MISINFORMATION AND ATTEMPTED SUPPRESSION
Document #7(a) – The Ottawa Doctor Episode

slag pile be removed immediately, and that the entire area be checked thoroughly for radioactive and other contamination.

On March 15, 1977, I contacted the local office of the Ontario Department of Environment and suggested they test the melting snow for radioactivity, lead, arsenic and other contaminants. This run-off leads directly into Sawmill Creek, then into the Rideau and Ottawa rivers. The contiguous land is sandy and very porous and some of the residents still use wells for their water supply. The decision to dump the waste on this particular site is a good example of the incompetence of the AECB. I will not elaborate on the details at this time.

The federal MP for this area, Mrs. Jean Piggott had made sincere attempts to have the situation corrected, but has been unsuccessful so far. In my opinion, the Provincial MLA who has since been involved, appears interested only in furthering her own personal political ambitions. The Township of Gloucester has appeared auspiciously passive and silent.

It has been suggested that I contact the Minister in charge of the AECB but I know he has already been made aware of the situation months ago and nothing has been done. I have lost all faith and trust in the AECB and no longer can believe what they say. An increasing number of Canadians, including myself, have come to believe that the AECB stalls, covers up and actually lies to the public regarding the health hazards related to its responsibilities.

The public has been assured that the slag pile will be removed in May. I am extremely skeptical about this, but even if true, I feel this is not good enough. The children cannot be allowed to inhale and ingest this poison for another day, let alone another month.

I also suggest that an extensive program be set up by your department to test and follow up the local residents, especially the children, for the rest of their lives to determine the possible harmful effects of the inhalation and ingestion of this contaminated dust.

As a physician, I again emphasize that this should be considered an emergency situation, far more urgent than the cyclamate or saccharine threat, and that the slag pile be removed immediately!! I also suggest that a non-government qualified observer be present to monitor and report on its removal and ultimate disposal.

Some of the residents are so concerned that they are considering instituting a class action lawsuit against the responsible authorities, but I fear that this will be too slow-moving.

Please attend to this matter as soon as possible.

Yours sincerely,

***** M.D.

cc. Dr. A. B. Morrison
Mr. George Clarke, Ont. Min. of Environment
Mrs. Jean Piggott
Reeve R. W. MacQuarrie
Dr. D. Suzuki, Toronto

Prof. D. Andrews, U of Toronto
June Calwood, Toronto
Prof. R. Warnock, U of Ottawa
Dr. Gordon Kaplan, U of Ottawa
Academy of Medicine, Ottawa

CASES OF MISINFORMATION AND ATTEMPTED SUPPRESSION
Document #7(b) – The Ottawa Doctor Episode

Letter from the President of the Atomic Energy Control Board to the Ottawa Doctor

Atomic Energy Control Board
Office of the President

Commission de contrôle de l'énergie nucléaire
Bureau du Président

April 15, 1977

Dear Dr. **** * :

I have had an opportunity to read a copy of your letter of April 4, 1977 to the Honourable Marc Lalonde concerning the low-level radioactive slag and earth temporarily stored at the Queensdale Avenue property of the National Research Council.

While recognizing your right to criticize the actions of government agencies, I consider your accusations of "indifference, negligence and incompetence on the part of the Atomic Energy Control Board" which you also state "actually lies to the public" to be most improper and unjustified. I also consider that, by giving wide distribution to your letter and these accusations, you have acted in an extremely unprofessional manner, particularly as you have made no effort to discuss your concerns with me or with Senior Board staff.

I regret that under these circumstances, I have no choice but to bring this matter to the attention of the Ontario College of Physicians and Surgeons for consideration of any necessary action. I am enclosing a copy of my letter to the College for your information.

Yours sincerely,

A. T. Prince, President,
Atomic Energy Control Board.

CASES OF MISINFORMATION AND ATTEMPTED SUPPRESSION
Document #7(c) – The Ottawa Doctor Episode

Letter from the President of the AECB to the Ontario College of Physicians and Surgeons

Atomic Energy Control Board
Office of the President

Commission de contrôle de l'énergie nucléaire
Bureau du Président

April 15, 1977

Dr. D. M. Aitken, Registrar,
College of Physicians and Surgeons of Ontario,
Toronto, Ontario.

Dear Dr. Aitken :

I am writing on a matter to which I attach very great importance because of the serious implications it has not only for the Board but for all government and other organizations which are the subject of unjustified and scurrilous allegations by a person whose professional standing prompts the public to accept as factual such statements.

On April 4, 1977, **** ***, M.D., wrote to the Honourable Marc Lalonde alleging that "due to indifference, negligence and incompetence on the part of the Atomic Energy Control Board" a situation was being allowed to continue which could eventually result in unnecessary illness and death. A copy of Dr. **** ***'s letter which has been widely distributed and a photostat of an Ottawa Journal, front-page article of April 9, 1977, on this matter are enclosed for your consideration. Also enclosed is a copy of an Information Bulletin issued by the Board at a public meeting last December, and of subsequent newspaper articles which are in marked contrast to Dr. **** ***'s allegation to the effect that "nothing has been done to remove" the material in question from the Queensdale Avenue property of the National Research Council.

I believe Dr. **** ***'s action in this matter to be quite improper and request that it be brought to the attention of the College of Physicians and Surgeons. Please advise me if I can be of any assistance to the College in its deliberations over the propriety of the action that Dr. **** *** has taken.

I have advised Dr. **** *** of this action and I am enclosing a copy of my letter to him for your information.

Yours sincerely,

A. T. Prince, President,
Atomic Energy Control Board.

III. The New Brunswick Teacher Episode

When an Atomic Energy of Canada Limited (AECL) Public Relations man went to visit a school classroom in New Brunswick, he was shocked and embarrassed by the penetrating questions that the school children asked about such things as nuclear wastes and nuclear weapons.

Upon his return to Ottawa, the PR man wrote a threatening letter to the teacher, urging him to desist from communicating such unpleasant information to school children, and warning the teacher that he (the AECL man) would try to have him disciplined or even removed from his post unless he mended his ways. According to the teacher, both he and his wife were so frightened they could scarcely sleep for several nights.

Document

8. Letter from Dr. Kim Krenz (AECL) to "Carl", dated May 31, 1976.

CASES OF MISINFORMATION AND ATTEMPTED SUPPRESSION
Document #8 – The New Brunswick Teacher Episode

Letter from Kim Krenz of AECL to New Brunswick Grade School Teacher

(This hand-written letter has been transcribed for ease of reading – G. Edwards)

31 May, 1976

Dear Carl:

I said I would write to you about the situation at Macdonald Consolidated. I am glad that Kate and I had a chance to meet with Ruth and you in Saint John, because I had some very hard things to say to you, which I did not trust myself to say that evening; and after meeting with you and talking with you I feel that maybe I was being a little too hard.

I think that you and Ruth are so devoted to your anti-nuclear cause that you are blinded to what you are doing to the children at that school. What you are doing is despicable – there is no other word for it; and the only attenuating [sic] circumstance I can find is that you are blinded. I hope this letter will do something to bring you to your senses.

Neither of you has any right to impose your personal bias on young children. You are not employed to provide political instruction and children at that age are not ready for political instruction. What you are doing is to destroy any sense of security which the children may have, by implanting in them a lack of faith in the judgment of their elders. I was horrified by the anxiety and mistrust that I found among little girls and boys in Grade 4.

You will no doubt say – I can just hear you saying – “Well, what business do you have coming to this school with your story?” My answer is, I was invited to come, and my invitation was cleared through the Board and with Peter Hartt. If you feel this visit was arranged behind your back, you will have to complain to Peter Hartt. If I were in his place, I would recommend your removal from the staff.

I am going to report on this visit in a formal letter to the Minister of Education – on my own stationery, of course – as a private Canadian citizen.

Very sincerely,

Kim Krenz

For more on Kim Krenz, see the Amory Lovins Episode and the Prince Edward Island Legislature Episode.

IV. The British Columbia Medical Association Episode

AECL was very upset when the British Columbia Medical Association (BCMA) passed a resolution saying that it was *“irresponsible in the extreme for the Government of Canada to allow the further development of uranium mining and reactor construction until a safe, proven, permanent disposal technology is developed for the wastes that have already been produced.”* AECL was even more upset when the BCMA brought this same resolution to the Canadian Medical Association (CMA) for their approval. AECL asked for an opportunity to brief the CMA Council of Community Health on the subject of nuclear wastes. Dr. Robert Woollard of the BCMA was invited to attend the presentation at CMA headquarters in Ottawa, and Dr. Woollard in turn asked me to accompany him to the briefing session.

When the day of the meeting arrived, strenuous efforts were made to have me barred from attending the meeting at all. However, Dr. Woollard patiently explained that he had invited me along and saw no harm in my attendance, and so, after an animated discussion, I was finally allowed to attend – on condition that I remain absolutely silent during the meeting.

The AECL presentation was strongly based on bar graphs taken from AECB’s Inhaber Report, purporting to show that nuclear power is safer than other energy sources, including solar heating for homes. This report has been discredited as both incompetent and misleading. However, AECL had got into the habit of embracing any technical-looking report that serves its promotional purposes; just as AECL had earlier touted the Executive Summary of the US Nuclear Regulatory Commission’s Rasmussen Report on Reactor Safety (which has since been repudiated by the US NRC), so it uncritically adopted the Inhaber Report as “proof” that nuclear power is acceptably safe, and used it to influence the judgments of others – such as the CMA.

On a later occasion, AECL asked to meet with the BCMA Board to discuss nuclear wastes with them. At that time, a telegram was sent to Mr. Rigby, Executive Director of the BCMA, in which my character is called into question in a rather sleazy way. This is but one of many instances in which AECL representatives have attacked my veracity and my integrity before professional bodies without ever substantiating their charges. The individuals involved are usually too cowardly to put their slanderous words in print, but this time somebody slipped up.

Documents

9. Telegram from J. Boulton (AECL) to Dr. Norman Rigby, Executive Director of the BCMA, dated November 7, 1978, and Dr. Rigny’s reply. These two telegrams have already been filed as an exhibit with the Committee.
10. Letter to Dr. A. Prince (AECB) from Dr. John Holdren of the University of California at Berkeley regarding the Inhaber Report, dated February 5, 1975, plus attachments.
11. Letter to Jon Jennekens (AECB) from G. Edwards, regarding the Inhaber Report, dated March 6, 1979.
12. Letter from Jon Jennekens (AECB) to Dr. David Brooks of Friends of the Earth (FOE) regarding the Inhaber Report, dated March 30, 1979.
13. Excerpts from “Risk of Renewable Energy Sources – A Critique of the Inhaber Report”, by John Holdren et al., June 1979 (232 pages).

Suggested Witnesses

Dr. Robert Woollard, Dr. David Bates, or other members of the BCMA Executive Committee.
Dr. John Holdren, Professor, Energy and Resources Program, U. of California at Berkeley.
Dr. David Brooks, Friends of the Earth, Ottawa.

CASES OF MISINFORMATION AND ATTEMPTED SUPPRESSION
Document #9 – The British Columbia Medical Association Episode

Telegrams: Atomic Energy of Canada Ltd to British Columbia Medical Association & reply
Telegram to Dr. Norman F Rigby, Executive Director, B.C. Medical Association, November 7, 1978

WITH REFERENCE TO LETTER OF JAMES E. GILMORE OF 1978 OCTOBER 25. I AM EXTREMELY DISAPPOINTED THAT THE OFFICERS OF THE B.C. MEDICAL ASSOCIATION HAVE SUGGESTED THAT WE MEET WITH THE ASSOCIATION'S ENVIRONMENTAL HEALTH COMMITTEE ONLY. IT WAS MY UNDERSTANDING AFTER OUR MEETING OF AUGUST 21 THAT WE WOULD MAKE A PRESENTATION TO THE ASSOCIATION'S BOARD OF DIRECTORS TO WHICH DR. WOOLLARD'S COMMITTEE WOULD BE INVITED TO ATTEND. I BELIEVE THAT IT IS EXTREMELY IMPORTANT THAT THE BOARD OF DIRECTORS AS WELL AS DR. WOOLLARD'S COMMITTEE SHOULD BE EXPOSED TO THE INFORMATION SO THAT THEY CAN FORM A BACKGROUND ON WHICH TO JUDGE THEIR FUTURE COURSE OF STUDY AND ACTION. I SAY THIS BECAUSE THE BCMA IS BEING REPRESENTED AS TAKING A STAND ON THE NUCLEAR ISSUE WHICH IS, IN MANY RESPECTS, CONTRARY TO THE EXPRESSED OPINIONS OF A WIDE BODY OF MEDICAL EXPERTISE NOT ONLY IN CANADA BUT AROUND THE WORLD INCLUDING THOSE OF THE AMERICAN MEDICAL ASSOCIATION. FOLLOWING OUR PRESENTATION TO THE CANADIAN MEDICAL ASSOCIATION'S COUNCIL ON COMMUNITY HEALTH, IT WOULD APPEAR THAT DR. WOOLLARD IS BEING INFLUENCED BY ONE OF CANADA'S OUTSPOKEN OPPONENTS OF NUCLEAR POWER AND ONE WHO HAS PUBLICLY ACKNOWLEDGED THAT HE IS NOT PARTICULARLY INTERESTED IN FACTS AND THAT THE INFORMATION DISSEMINATED BY HIS ORGANIZATION SHOULD BE REGARDED, FOR THE MOST PART, PROPAGANDA. I WOULD HOPE THAT THE BOARD OF DIRECTORS WOULD RECONSIDER THIS MATTER AND THAT AT LEAST A SIGNIFICANT NUMBER OF ITS MEMBERS INCLUDING YOURSELF AND YOUR PRESIDENT WOULD BE ABLE TO ATTEND ANY MEETING. IF THE BOARD WISHES WE WOULD BE QUITE HAPPY TO CHANGE THE DATE OF OUR PRESENTATION TO MAKE IT MORE CONVENIENT FOR ITS MEMBERS TO ATTEND. I LOOK FORWARD TO YOUR RESPONSE.

SIGNED, J BOULTON, ATOMIC ENERGY OF CANADA LIMITED, PINAWA MANITOBA

Cable sent to Dr. J. Boulton, Atomic Energy of Canada Limited, Pinawa Manitoba

IN REPLYING TO YOURS OF NOV. 7, 1978, THIS IS TO CONFIRM INFORMATION CONTAINED IN MR. GILMORE'S LETTER OF OCT. 25. BCMA FUNCTIONS ON A COMMITTEE SYSTEM, AND APPROPRIATE CHANNEL FOR YOU TO TAKE IS THROUGH ENVIRONMENTAL HEALTH COMMITTEE, OF WHICH DR. ROBERT WOOLLARD IS CHAIRMAN. I CAN ASSURE YOU THAT DR. WOOLLARD WILL AFFORD YOU A FAIR HEARING. I CAN ALSO ASSURE YOU THAT DR. WOOLLARD HAS AN OPEN MIND ON THE SUBJECT OF URANIUM AND NUCLEAR POWER, DESPITE YOUR FEELINGS THAT HE IS BEING INFLUENCED BY A PERSON YOU DESCRIBE AS AN OPPONENT OF NUCLEAR POWER. DR. WOOLLARD WILL BE REPORTING TO THE BOARD OF BCMA WHO WILL DECIDE POLICY.

SIGNED, F. Norman Rigby, M.B., Executive Director, BC Medical Association

ADDENDUM (1984)

Atomic Energy of Canada Limited (AECL) continued to put pressure on the executives of the BC Medical Association, asking them to disavow the BCMA publication, "The Health Dangers of Uranium Mining and Jurisdictional Questions", co-authored by Dr. Robert Woollard in 1980. (See Conclusions & excerpts from the BCMA report at : www.ccnr.org/bcma.html.) Responding to this attempt at suppression, the BCMA President issued a statement in 1984:

AN OPEN LETTER FROM THE PRESIDENT OF THE

British Columbia Medical Association

13 January 1984

TO WHOM IT MAY CONCERN:

As there appears to be some confusion among representatives of industry and government with respect to the British Columbia Medical Association's efforts as a major participant in the British Columbia Royal Commission of Inquiry, Health and Environmental Protection, on Uranium Mining, we wish to make the following comments:

1. Dr Eric R Young and Dr Robert F Woollard participated as interveners at the Inquiry as representatives of this Association.
2. Dr Young is presently the chairman of the environmental health committee of the BCMA and Dr Woollard is past-chairman.
3. During the Inquiry the BCMA was privileged to present statements of evidence of internationally-recognized authorities on various aspects of this issue.
4. The report entitled "The Health Dangers of Uranium Mining and Jurisdictional Questions" authored by Drs. Young and Woollard is the summary argument of the BCMA presented in 1980 to the Royal Commission in response to its call for final arguments from participants in the inquiry. As such it has been supported by the BCMA Executive and Board of Directors.
5. This report has had significant peer review and there has been ample opportunity for public comment.
6. The substance of the report is reflective of BCMA policies in the area of environmental health as established over several years by consideration and debate at the general assembly and Board of Directors and, as confirmation of this, the BCMA holds copyright on both printings of this BCMA publication.

Extensive feedback has confirmed the report's value as an aid in promoting public participation in this important area of environmental health and has vindicated the medical association's expressed interest to raise the level of debate on this issue.

Yours sincerely,
G D McPherson, MD,
BCMA President

Background:

Based on a 1978 report detailing radioactive and chemical pollution of the 55-mile Serpent River System from uranium mill tailings in the Elliot Lake region, & a well-documented excess of radiation-induced lung cancer among uranium miners, the BCMA joined with others to bring about a BC Royal Commission of Inquiry on uranium mining that Drs. Woollard & Young were asked to monitor; they wrote a 470-page report that was, in the end, very critical of the industry.

CASES OF MISINFORMATION AND ATTEMPTED SUPPRESSION
Document #10 – The British Columbia Medical Association Episode

Letter from Professor John Holdren to Atomic Energy Control Board re the Inhaber Report

Note: Atomic Energy of Canada Limited used the Inhaber Report to try to persuade the Canadian Medical Association (CMA) that nuclear power is among the safest of all energy sources – so as to urge the CMA not to endorse a resolution by the BCMA opposing the spread of uranium mining and nuclear power.

University of California, Berkeley,
Energy and Resources Program

February 5, 1979

Dr. A. T. Prince, President,
Atomic Energy Control Board of Canada
Ottawa, Ontario

Dear Dr. Prince:

I recently took the time to examine in some detail the conclusions and calculations in AECB Report 1119, "The Risk of Energy Production", by Dr. Herbert Inhaber (March 1978). Since environmental effects of energy is my own area of professional specialization, and since a report I co-authored accounted for some 30 of Dr. Inhaber's 163 citations, you will understand why I took some interest in his work.

I am sorry to tell you that AECB-1119 is so shockingly incompetent and inaccurate as to be a serious embarrassment to the Atomic Energy Control Board. In every section I have examined in detail (I have had neither the time nor the stomach to analyze them all), I have found not only misreadings and misrepresentations of the literature cited (including my own work), but also double-counting, arbitrary upward "correction" factors, and glaring calculational errors of the most elementary sort – for example, transpositions of units, confusion of energy with power, and arithmetic mistakes. Despite Inhaber's assertions to the contrary, moreover, there are also gross inconsistencies in his treatment of renewable and nonrenewable sources.

Let me offer two examples you can easily check for yourself:

(1) Inhaber's figures for wind energy's material requirements (and hence labor requirements and occupational health effects) are entirely an artefact of an especially remarkable combination of errors: he either made or propagated from his source (some Congressional testimony) an obvious pounds-to-tons transposition, an error of a factor of 2000; then he made a countervailing error of a factor of 20, by confusing requirement per megawatt-year with requirements per average megawatt in a system with an assumed lifetime of 20 years. (For the detailed demonstration that Inhaber made the errors stated here, see the attachment to this letter.) The net error of a factor of 100 pervades all his findings about wind, and is entirely responsible for his widely circulated conclusion that wind is among the most dangerous of energy sources.

CASES OF MISINFORMATION AND ATTEMPTED SUPPRESSION
Document #10 – The British Columbia Medical Association Episode

(2) Inhaber's biomass figures are uniformly inflated by a factor of 8.33 (on top of various other mistakes), because he multiplied by that factor (1/0.12) to "correct" for a presumed 12 percent efficiency of conversion of chemical energy to mechanical work delivered to the wheels of methanol-burning vehicles (p. J-2). (This after proclaiming early in his paper: "However we are not concerned here with end uses, but energy production. As a result, all units of energy produced are deemed equivalent." p. 2) He does not account for inefficiencies of end-use devices when normalizing the effects of the conventional energy sources he considers. (If electricity is used in incandescent lights, a corresponding "correction" would be to multiply effects per electrical megawatt-year by $1/0.05 = 20$ to give effects per megawatt-year of light.)

These and many other errors and inconsistencies in the treatment of conventional and nonconventional technologies render Inhaber's figures unusable either as absolute values or as measures of relative hazards. The materials intensity of some approaches to harnessing renewables, and the associated impacts on occupational and public health, are problems worthy of serious study, but it must be done with a modicum of objectivity, by someone who knows a thousand-fold error when he sees one.

It is dismayed that the Atomic Energy Control Board chose to distribute Inhaber's report widely without having it reviewed by some technically literate individual. I am equally appalled that summaries and segments of the work have been published by ordinarily responsible journals, again evidently without the benefit of a competent review. It is a sad commentary on the state of reasoned analysis that so many people have proven eager to accept and propagate Inhaber's conclusions on no other basis than that those "findings" match their own predispositions to believe renewable energy sources unattractive.

I of course am writing to all the journals I know to have published Inhaber's conclusions or to have reviewed them favourably. I expect that other critical reviews now underway and reaching conclusions substantially the same as mine will also soon be appearing in print. If your Board does not publicly repudiate the Inhaber report, I suspect your credibility as a technical body will be greatly damaged. I respectfully suggest you subject the report to a (belated) careful internal review, and draw your own conclusions.

Sincerely,

John P. Holdren, Ph.D.,
Professor in Energy and Resources,
University of California (Berkeley).

cc. Dr. Herbert Inhaber

See the attachment: "How Inhaber Bungled the Materials Requirements of Wind Energy"

Attachment

How Inhaber Bungled the Materials Requirements of Wind Energy

Inhaber outlines his calculations for wind in Appendix H of AECB-1119. He writes (p. H-1, para. 4):

“One estimate states that the production of 250 megawatt-hours of electrical energy requires 400 short tons of steel, 10 of copper, and 60 of fiberglass and plastics (99). Note that this is not rated capacity, but the total energy produced.”

Reference 99 is to the record of some hearings before the US Senate Committee on Small Business in May 1975. I have not unearthed the material (Inhaber obscures the trail by failing to list either the title of the hearings, or the serial number of the document, or the name of the witness). But it is obvious that either the witness misspoke, or was mistranscribed, or that Inhaber himself miscopied tons for pounds.

To see this, consider a windmill of 4 MWe rated capacity – a unit size analyzed elsewhere in the literature as an economical choice for large-scale power generation. [1, 2] If the average capacity factor is 0.34 and the lifetime 20 years (inhaber’s figures), such a windmill would deliver

$$4 \text{ MWe} \times 8760 \text{ hr/yr} \times 0.34 \times 20 \text{ yr} = 238,000 \text{ MWh.}$$

Inhaber would have us believe its steel content would be

$$238,000 \times (400 \text{ short tons}) / (250 \text{ MWh}) = 381,000 \text{ tons,}$$

equal to a fleet of more than a thousand Boeing 747s!

The numbers in the literature for the weight of steel in such a windmill are 340,000 to 825,000 pounds. [1, 2] The US Federal Energy Administration’s numbers for a system of windmills ranging from 5 kilowatts to 3 megawatts rated capacity translate to 700 pounds per 250 MWh of electrical energy (assuming 20 year lifetime), versus Inhaber’s 400 tons per 250 MWh. [3] Clearly, then, Inhaber has either produced or propagated a pounds-to-tons mistake.

Inhaber’s text immediately following the sentences quoted above reads as follows:

“Translating this to the usual base of 1000 megawatt0years net output, this is 12.6 million metric tons of steel, 0.32 million of copper, and 1.9 million of fiberglass and plastics. These are large quantities, but not unreasonable in the light of the requirements of other nonconventional systems. Results are for windmills alone are shown in Table H-1.”

Aside from the obvious typo in the last sentence, the problem here is that, while the numbers in Table H-1 are the same as those stated in the text, the table is labelled “Materials Required for 1000 Megawatt Average Output Wind System.” Are the numbers actually per 1000 megawatt-years or per 1000 megawatts average output? Arithmetic shows it is the former:

$$\frac{400 \text{ short tons}}{250 \text{ MWh}} \times \frac{8760 \text{ hr}}{1 \text{ yr}} \times \frac{0.907 \text{ metric ton}}{1 \text{ short ton}} \times \frac{12,700 \text{ metric tons}}{1 \text{ MW-y}} = \frac{12,700,000 \text{ metric tons}}{1000 \text{ MW}}$$

(The table shows the 12.7×10^6 figure rather than the 12.6×10^6 in the text.)

CASES OF MISINFORMATION AND ATTEMPTED SUPPRESSION
Document #10 – The British Columbia Medical Association Episode

But Inhaber erroneously treats the numbers in Table H-1 thereafter as if they were per 1000 average megawatts, making an error of a factor of 20 that partly cancels the 2000-fold error made earlier in mistaking pounds for tons. (The factor is 20 because 1 megawatt average output translates to 20 megawatt-years in a system with a 20 year lifetime, as assumed by Inhaber.)

He writes on the next page (p. H-2, para. 2):

“Translating this to the usual base of 1000 megawatt0years net output, this is 12.6 million metric tons of steel, 0.32 million of copper, and 1.9 million of fiberglass and plastics. These are large quantities, but not unreasonable in the light of the requirements of other nonconventional systems. Results are for windmills alone are shown in Table H-1.”

Sure enough, the number for steel in Inhaber’s Table H-2, “Material Acquisition and Construction Risk of Windpower (per megawatt-year net electrical output)”, is 635 metric tons, obtained by dividing 12.7×10^6 by 20,000 . He should only have divided by 1000, of course, because the numbers in the mislabelled Table H-1 are really requirements per 1000 megawatt-years. The net error, which propagates through the remainder of Inhaber’s wind calculations, is a factor of 100 – a factor of 2000 from the pounds-to-tons error divided by a factor of 20 from the megawatt versus megawatt-year confusion.

Similarly astonishing instances of sloppiness and confusion are found throughout Inhaber’s report. It is by far the most incompetent technical document I have ever known to have been distributed by grown-ups.

Notes.

1. Lockheed Aircraft Corporation, Wind Mission Analysis for ERDA, draft report LR-27611, 1976, summarized in J. Sathaya et al., **Analysis of the California Energy Industry**, Report LBL-5928, Lawrence Berkeley Laboratory of the University of California, January 1977.
2. Bechtel Corporation, **The Energy Supply Planning Model**, San Francisco, August 1975.
3. Federal Energy Administration, **Project Independence Blueprint Task Force Report: Solar Energy**, US Government Printing Office, Washington DC, 1974.

CASES OF MISINFORMATION AND ATTEMPTED SUPPRESSION
Document #11 – The British Columbia Medical Association Episode

Letter from Gordon Edwards to Atomic Energy Control Board re the Inhaber Report

Note: Atomic Energy of Canada Limited used the Inhaber Report to try to persuade the Canadian Medical Association (CMA) that nuclear power is among the safest of all energy sources so as to urge the CMA not to endorse a resolution by the BCMA opposing the spread of uranium mining and nuclear power.

30 March, 1979

Mr. Jon Jennekens, President,
Atomic Energy Control Board,
Ottawa, Ontario

Dear Jon:

Congratulations on your new position as President of the AECB. I hope that the Board will, under your leadership, maintain an independent stance from the nuclear industry and respond to the needs of the broad spectrum of Canadian citizens, reflecting an equally broad spectrum of views on the subject of nuclear power.

As you know, the US Nuclear Regulatory Commission (NRC) recently withdrew much of its support from the Rasmussen Report on Reactor Safety (WASH-1400), saying that it *“does not regard as reliable the Reactor Safety Study’s numerical estimate of the overall risk of a nuclear accident The Commission withdraws any explicit or implicit past endorsement of the Executive Summary [which] has lent itself to misuse in the discussion of reactor risks.”*

[US NRC Press Release]

The NRC action was prompted by the findings of a special independent review committee, the Lewis Committee, which found (among other things) that:

- *“The statistical analysis in WASH-1400 leaves much to be desired. It suffers from a spectrum of problems, ranging from lack of data on which to base input distributions to the invention and use of wrong statistical methods. Even when the analysis is done correctly, it is often presented in so murky a way as to be very hard to decipher.*
- *“For a report of this magnitude, confidence in the correctness of the results can only come from a systematic and deep peer review process. The peer review process of WASH-1400 was defective in many ways and the review was inadequate.*
- *“Lack of scrutability is a major failing of the report, impairing both its usefulness and the quality of possible peer review*
- *“There have been instances in which WASH-1400 has been misused as a vehicle to judge the acceptability of reactor risks. In other cases it may have been used prematurely as an estimate of the absolute risk of reactor accidents without full realization of the wide band of uncertainties involved. Such use should be discouraged.”*

Both the nuclear industry and the associated regulatory bodies are in danger of losing credibility through the overly zealous use of studies which are preliminary in nature and demonstrably unreliable in important aspects. It is in recognition of this fact that the US NRC has cautioned that

CASES OF MISINFORMATION AND ATTEMPTED SUPPRESSION
Document #11 – The British Columbia Medical Association Episode

the Rasmussen study should not be used uncritically in public discussions relating to the relative risks of reactor accidents.

In the interests of preserving the Board's reputation for independence, which is still fragile, I would urge the Board to issue a similar cautionary statement about the Inhaber Report (AECB-1119). Representatives of the Canadian nuclear industry are currently using the Inhaber Report as if it were an authoritative study of the relative risks of various modes of energy production, in an attempt to influence various bodies who are trying to formulate a policy on the proper role of nuclear power. Among such bodies are the Canadian Medical Association and the Select Committee on Ontario Hydro Affairs. In effect, these industry representatives are invoking the authority of the AECB to argue that nuclear power is proven to be one of the safest means of producing energy – much safer even than solar space heating for homes.

While no doubt well-intentioned, the Inhaber Report is seriously flawed in many respects. It is certainly subject to all of the above-quoted criticisms of the Rasmussen Report: improper methodology, inadequate data, lack of scrutability, inadequate peer review, and outright misuse as a vehicle to assess nuclear risks. Although I have not had time to do more than a cursory analysis, the following points deserve mention:

- 1) Approximately 85% of the risks associated with solar-generated electricity are associated with the coal back-up system which is assumed necessary to make solar electricity economical, yet this point is not made sufficiently clear in the presentation of the results;
- 2) The materials required for wind-generating systems are over-estimated by several orders of magnitude, with a corresponding inaccuracy in the associated risk estimates;
- 3) The only estimates for risk associated with nuclear accidents are those derived from the Rasmussen Report, which are highly suspect and should not be used as a basis for deciding matters of public policy according to the US NRC;
- 4) The most obvious dose commitments to radiation for members of the public from the current nuclear power programme is due to the excess radon gas emitted by the millions of tons of uranium tailings now in existence. According to a study done in 1973 by the US Environmental Protection Agency (EPA), the future public health burden in the USA from the tailings associated with one gigawatt-year of nuclear-generated electricity is more than 300 deaths during the first half-life of the tailings, assuming zero population growth for reasons of conservatism. Yet this aspect of public risk is totally ignored by Inhaber, in violation of his stated principle that "we should evaluate risk from the entire energy cycle, not merely the end the public sees." (AECB-1119, p. 2)
- 5) A good deal of recent epidemiological evidence indicates that the cancer risk from low levels of radiation may be one or two orders of magnitude greater than that assumed by Inhaber, as outlined by Dr. David Bates in his recent address at the Mont-Ste-Marie Nuclear Conference. This would significantly affect both occupational and public risks associated with nuclear power.

It is not my purpose to give a critique of the Inhaber Report, but merely to indicate some of the areas which even a cursory reading reveal as lacking in analytic rigour. My purpose is to request:

CASES OF MISINFORMATION AND ATTEMPTED SUPPRESSION
Document #11 – The British Columbia Medical Association Episode

- 1) that the Board promptly commission an independent review of the Inhaber Report (akin to the Lewis Committee) to ascertain the strengths and limitations of the study;
- 2) that the Board issue an unequivocal public statement cautioning against the uncritical use of the Inhaber Report in discussions of public policy relating to the relative risks of nuclear and non-nuclear energy systems.

I am sure that the Board can only benefit by adopting a thoroughly responsible attitude toward the uses to which its publications are being put, and towards the verification and testing of the statements contained in such documents.

Yours very truly, Gordon Edwards.

cc. Honourable Alastair Gillespie, Minister of Energy, Mines and Resources
Donald McDonald, Select Committee on Ontario Hydro Affairs
Dr. John Bennett, Canadian Medical Association
Dr. David Bates, British Columbia Medical Association
Dr. Arthur Porter, Chairman, Royal Commission on Electric Power Planning

CASES OF MISINFORMATION AND ATTEMPTED SUPPRESSION
Document #12 – The British Columbia Medical Association Episode

Letter from the Atomic Energy Control Board to David Brooks re the Inhaber Report

Note: Atomic Energy of Canada Limited used the Inhaber Report to try to persuade the Canadian Medical Association (CMA) that nuclear power is among the safest of all energy sources so as to urge the CMA not to endorse a resolution by the BCMA opposing the spread of uranium mining and nuclear power.

David Brooks was the first Director of the Renewable Energy Branch of the Canadian Ministry of Energy, Mines and Resources; after his retirement he became the President of Friends of the Earth Canada.

Atomic Energy Control Board
Office of the President

Commission de contrôle de l'énergie nucléaire
Bureau du président

30 March, 1979

Mr. David Brooks,
[Friends of the Earth]
Ottawa Ontario.

Dear David:

I refer to our brief discussion on March 16 and to your subsequent letter concerning AECB-1119 "Risk of Energy Production".

In your letter you set out very succinctly the conclusions which I believe should be drawn from AECB-1119:

- 1) comparative risk analysis is a legitimate and feasible method of comparing energy alternatives, and
- 2) there is no risk-free source of energy.

With regard to the relative rankings of energy sources as they appear in AECB-1119, I would caution anyone attempting to use them as a primary determinant in any decision-making process. Recognizing that individual rankings may change as a result of the use of differing assumptions, data and methodology, the essential value of comparative risk analysis is your second conclusion. Many people seem to believe that certain energy systems are either risk-free or that the level of risk is quite low. Comparative risk analysis of entire energy cycles provides a means of quantitatively estimating actual risks.

Finally, should you find this reply to your questions helpful in understanding the Board's position vis-à-vis AECB-1119, please do not hesitate to quote me.

Yours sincerely, Jon H. Jennekens, AECB President.

EXCERPTS FROM “A CRITIQUE OF THE INHABER REPORT” BY J. HOLDREN ET AL. (1990)

Introductory Remarks by Gordon Edwards:

The health risks of nuclear power in comparison with other energy sources is an important public policy consideration. The Inhaber Report (commissioned and distributed by the Atomic Energy Control Board as AECB-1119) claimed to address this very question. The Energy Group at the University of California, Berkeley, was so outraged at the incompetence of the Inhaber Report that they published a 232-page detailed rebuttal. Under normal conditions this response might have been considered excessive. However, the Inhaber Report received very wide publicity in many highly respected publications. The editors of those publications assumed that the Atomic Energy Control Board (AECB), being a Canadian government agency, would surely not allow an incompetent or biased piece of work to be printed as an official government document. The purpose of this rebuttal (called by its authors a “critique”) is not only to correct errors in Inhaber’s Report, but to call attention to the degradation of science that results from allowing such self-serving and bogus works of propaganda to masquerade as legitimate scientific inquiry.

After the publication of this rebuttal, the Atomic Energy Control Board withdrew the Inhaber Report from circulation. However, they never issued a statement repudiating the document or its conclusions. Apparently AECB is willing to allow any misunderstandings or misinformation occasioned by the publication of the Inhaber Report to remain uncorrected.

Gordon Edwards.

**RISK OF RENEWABLE ENERGY SOURCES:
A CRITIQUE OF THE INHABER REPORT**

By John F. Holdren
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June 1979

PREFACE

This report was originally scheduled for publication in April 1979. It was delayed to permit expanded coverage of points, both technical and historical, whose importance became clearer to us from the responses to abbreviated versions of our critique (in the form of draft letters to Science magazine) circulated to colleagues in March and April.

In our draft letter to Science, we indicated that the task of elucidating and documenting all the errors in the Inhaber Report (AECB-1119) “would require a small book”. Now that we have written one – a document somewhat longer than the subject of its critique – we know we were too optimistic: there are many additional errors we could not take the time or space to elucidate here. We hope, nevertheless, that the reader with the patience to wade through it all will both find our critique sufficient and agree with us that it was necessary.

The very long first chapter, entitled “Overview”, summarizes all the important points, is self-contained, and will probably be enough for most readers. Chapters 2 through 10 provide additional detail on a technology-by-technology basis.

By JH, KA, PG, IM, GM, KS, at Berkeley and Honolulu, June 1979.

This work was supported in part by the US Department of Energy under Contract Number W-7405-ENG-48.

ABSTRACT

Herbert Inhaber’s Report, ***Risk of Energy Production*** (Atomic Energy Control Board, AECB-1119, Ottawa, Canada, 1978) has been described by its author and its sponsors as a pioneering, comprehensive, consistent, and unbiased comparison of the health hazards of conventional and unconventional energy technologies. None of these descriptions is accurate. We show here that the report’s approach is not original, that its coverage is not complete, that its calculations are not consistent, and that it is biased against unconventional energy technologies and in favour of nuclear power.

The report’s widely circulated and potentially influential conclusion is that the health hazards of deriving energy from wood, wind, and sunlight, are comparable to those of using coal and oil and much greater than those of using nuclear power. This conclusion is in no sense derived from the actual characteristics of the technologies involved. It is based entirely on mistakes of all varieties: conceptual confusions, inappropriate selection of systems and data, misreadings and misrepresentations of literature, improper calculational procedures, and untenable assumptions and contentions. The nature of these mistakes is more than occasionally obscured by a layer of typographical and arithmetic mistakes.

When the effects of the most important and easily corrected errors are removed, the Inhaber Report’s conclusions change drastically. The estimated health hazards of all the unconventional technologies considered fall by 6 to 50 times; the estimated public health hazards of wind, photovoltaics, solar-thermal-electric plants, and biomass (the unconventional technologies judged most dangerous in the Report) fall by 9 to 900 times; and the upper-limit estimate of the public health hazard of nuclear power increases by almost 50 times. These changes turn the Report’s ranking virtually upside down. Based on the ranking criterion used by Inhaber – the upper limits of combined occupational and public risks – nuclear power becomes third from worst (superior only to coal and oil), and the unconventional renewables rank as superior to nuclear power and far superior to coal and oil.

CASES OF MISINFORMATION AND ATTEMPTED SUPPRESSION
Document #13 – The British Columbia Medical Association Episode

Inhaber’s errors and the consequences of correcting them are described here in documented detail. Also discussed are the circumstances – including the role of the author, the sponsors, and the knowledgeable technical community – that permitted such an error-riddled Report to gain widespread credibility. We have given the matter such detailed attention for two reasons: first, the Inhaber Report’s erroneous conclusions bear directly on issues at the heart of current national and international energy dilemmas, and could easily cause or be used to justify poor policy choices; second, the widespread notice that Inhaber’s claims have drawn to the topic of comparative environmental assessment provides a good opportunity to call attention to the pitfalls as well as the potential of this important field.

TABLE OF CONTENTS

| | |
|--|-----|
| ABSTRACT | i |
| PREFACE | iii |
| CHAPTER 1: OVERVIEW | 1 |
| I. Introduction | 1 |
| II. Inhaber’s approach in context | 4 |
| III. A catalog of mistakes | 8 |
| A. Inconsistencies | 9 |
| B. Conceptual confusions | 11 |
| 1. Equivalence of energy forms | 11 |
| 2. Storage, backup and electricity-system integration | 15 |
| 3. Aggregating occupational and public risk | 22 |
| 4. Comparisons at the margin | 27 |
| C. Inappropriate selection of systems and data | 29 |
| 1. Poor choices of technologies | 29 |
| 2. Massive materials, poor performance | 31 |
| 3. Category mistakes | 34 |
| The concrete-cement confusion | 34 |
| Hard coal versus soft coal | 35 |
| Fabricated metal products | 36 |
| The ubiquitous roofers | 37 |
| Accidental deaths: synthetic statistics | 38 |
| D. Misreadings and misrepresentations | 40 |
| E. Improper calculational procedures | 42 |
| F. Untenable assumptions and contentions | 46 |
| G. Typographical errors, internal discrepancies, and arithmetic mistakes | 49 |
| 1. Some assorted examples | 50 |
| 2. The ethanol mix-up | 52 |
| 3. The “materials handling factor” | 55 |
| IV. AECB-1119’s results | 59 |
| A. Evolution of AECB-1119’s results | 60 |
| B. Effects of errors on AECB-119’s conclusions | 65 |
| V. The propagation of misinformation: history and implications | 69 |
| A. In the beginning was the Executive Summary | 70 |
| B. Early circulation and response | 72 |
| C. The AECB’s review process | 75 |
| D. The spreading controversy | 77 |
| E. The <i>Science</i> article and sequelae | 83 |
| F. Reactions of the Atomic Energy Control Board | 89 |

CASES OF MISINFORMATION AND ATTEMPTED SUPPRESSION
Document #13 – The British Columbia Medical Association Episode

| | |
|---|-----|
| G. What has been learned? | 91 |
| CHAPTER 2: FOSSIL-FUELED ELECTRICITY GENERATION | |
| I. Introduction | 96 |
| II. The coal-electric system | 97 |
| A. Appendix A’s discussion of what was done | 97 |
| B. AECB-1119’s table of coal risks | 100 |
| C. Summary for coal | 108 |
| III. Oil | 110 |
| A. Appendix B’s discussion of what was done | 110 |
| B. Summary for oil | 112 |
| IV. Natural gas | 113 |
| A. Labor and materials | 113 |
| B. Summary for natural gas | 115 |
| CHAPTER 3: NUCLEAR POWER | 117 |
| I. Introduction | 117 |
| II. Creation of facilities | 118 |
| III. Waste management and accidents | 120 |
| IV. Summary | 126 |
| CHAPTER 4: HYDROELECTRICITY | 128 |
| I. Introduction | 128 |
| II. Materials acquisition | 128 |
| III. Construction | 130 |
| IV. Operation and maintenance | 131 |
| V. Energy back-up and energy storage | 131 |
| VI. Transportation | 132 |
| VII. Dam failures | 132 |
| VIII. Summary | 133 |
| CHAPTER 5: SOLAR-THERMAL-ELECTRIC SYSTEMS | 134 |
| I. Introduction | 134 |
| II. Materials acquisition | 135 |
| III. Construction | 138 |
| IV. Emissions | 139 |
| V. Operation and maintenance | 140 |
| VI. Energy back-up | 141 |
| VII. Energy storage | 142 |
| VIII. Transportation | 145 |
| IX. Other considerations | 146 |
| X. Summary | 147 |
| CHAPTER 6: PHOTOVOLTAICS | 149 |
| I. Introduction | 149 |
| II. Materials acquisition | 150 |
| III. Construction | 153 |
| IV. Emissions | 154 |
| V. Operation and maintenance | 155 |
| VI. Energy back-up | 156 |
| VII. Energy storage | 156 |
| VIII. Transportation | 157 |
| IX. Other considerations | 158 |
| X. Summary | 159 |

CASES OF MISINFORMATION AND ATTEMPTED SUPPRESSION
Document #13 – The British Columbia Medical Association Episode

| | |
|--|-----|
| CHAPTER 7: WIND | 162 |
| I. Introduction | 162 |
| II. Materials | 163 |
| A. The initial error | 163 |
| B. The wandering load factor | 168 |
| C. The “correction” | 168 |
| D. Reasonable specifications for wind machines | 170 |
| III. Construction | 172 |
| IV. Operation and maintenance | 173 |
| V. Storage and back-up | 174 |
| VI. Summary | 175 |
| CHAPTER 8: OCEAN THERMAL ENERGY CONVERSION | 178 |
| I. Introduction | 178 |
| II. Materials acquisition | 178 |
| III. Construction | 182 |
| IV. Emissions | 185 |
| V. Operation and maintenance | 186 |
| VI. Energy back-up and energy storage | 188 |
| VII. Transportation | 188 |
| VIII. Summary | 189 |
| CHAPTER 9: SOLAR SPACE HEATING | 191 |
| I. Introduction | 191 |
| II. Materials acquisition | 193 |
| III. Construction | 198 |
| IV. Emissions | 200 |
| V. Operation and maintenance | 200 |
| VI. Energy back-up and energy storage | 202 |
| VII. Transportation | 202 |
| VIII. Other considerations | 203 |
| IX. Summary | 203 |
| CHAPTER 10: METHANOL | 206 |
| I. Introduction | 206 |
| II. Materials acquisition and construction | 206 |
| III. Emissions | 213 |
| IV. Operation and maintenance | 213 |
| V. Energy back-up and energy storage | 218 |
| VI. Transportation | 218 |
| VII. Appendix J’s summary | 219 |
| VIII. Summary | 219 |
| REFERENCES | 222 |
| ABOUT THE AUTHORS | 231 |

The full text of the 232-page critique can be downloaded at <https://tinyurl.com/y36qqeqk>

V. The Prince Edward Legislature Episode

In July of 1976, the Prince Edward Island (PEI) Legislature hosted a series of public briefings on energy which were broadcast, live, throughout the Maritimes. At one of these briefing sessions, Ian McKay, an official representative from Atomic Energy of Canada Limited (AECL), gave out the following astonishing pieces of misinformation:

1. He suggested very strongly that exposure to low-level ionizing radiation is not only harmless, but positively beneficial.
2. He scoffed at the suggestion that plutonium is an extraordinarily toxic substance.
3. He not only stated, but emphasized, that it is impossible to make atomic bombs from the plutonium that is produced in CANDU reactors.

For the purposes of this memorandum, I wish to concentrate on the third of these claims. In passing, however, I will say a few words about the other two claims.

The Committee has already heard ample testimony to show that the first claim is not only without scientific foundation, but it also seriously misrepresents the great weight of scientific evidence that every exposure to ionizing radiation is potentially harmful.

The Committee has not yet heard expert evidence on the toxicity of plutonium but I assure you that Mr. McKay's testimony on this subject is extremely misleading. I enclose a survey article on plutonium toxicity by Dr. John Edsel, Professor Emeritus of Biochemistry at Harvard University, to illustrate the considerable body of evidence which shows that plutonium is indeed one of the most toxic substances known to humankind. I further recommend that the Committee summon Dr. Karl Morgan to testify on the subject of plutonium toxicity. Dr. Morgan was one of the key expert witnesses at the trial of Karen Silkwood's employers, the Kerr-McGee plutonium processing facility in Cimarron, Ohio. Dr. Morgan has enjoyed an enviable reputation in the field of Health Physics for a long time.

For the purposes of this memorandum, however, I would like to call particular attention to Mr. McKay's third claim, that reactor-grade plutonium cannot be used for bombs, which has been refuted by every official body that has ever looked at the subject. At the Porter Commission, vol. 135, p. 17211, Dr. Ara Mooradian of AECL testified as follows: "There is no doubt that reactor-grade plutonium can be used to make weapons."

About a year after Mr. McKay's testimony at the PEI Legislature, during an outdoor public meeting held in Ottawa in association with the "Walk for Life" Disarmament Initiative, witnessed by many observers including the Rev. Peter Hamel of the Anglican Church of Canada, two AECL spokesmen (one of them was Kim Krenz) admitted that the information given to the PEI Legislature by Mr. McKay on the [un]suitability of reactor-grade plutonium for bombs was erroneous and misleading. Those spokesmen undertook before witnesses to have a retraction or correction sent to the PEI Legislature to set the record straight. However, such corrective action on AECL's part has never been taken.

Lest it be thought that these matters were never brought to the attention of the proper authorities, I include in my documentation a letter which I wrote to Alastair Gillespie on October 27, 1976, detailing these and other instances of misleading statements by AECL representatives in a five-page appendix attached to the letter.

Documents

14. Excerpts from the Transcript of Mr. McKay's testimony to the PEI Legislature.
15. Letter to Alistair Gillespie from G. Edwards, dated October 27, 1976, with appendix and attachments.
Correspondence with Peter Dyne on reactor-grade plutonium. (1979)
(Before joining Energy Mines & Resources (EMR), Peter was in charge of AECL's nuclear waste program.)
- 16 (a). Letter from Peter Dyne to Frank Maine MP, February 12, 1979.
- 16 (b). Letter from G. Edwards to Peter Dyne, March 2, 1979.
- 16 (c). Letter from Peter Dyne to G. Edwards, March 26, 1979.
- 16 (d). Letter from G. Edwards to Peter Dyne, April 16, 1979.

Suggested Witnesses

- Rev. Peter Hamel, Anglican Church House, Jarvis Street, Toronto.
Andrew Wells, Director of the Institute of Man and Resources, Charlottetown, PEI.
(Mr. Wells, who was then Executive Assistant to PEI Premier Campbell, was the man who organized the PEI "Energy Days" and supplied me with the transcript.)
Dr. Karl Morgan on the subject of plutonium toxicity.
Dr. Ted Taylor on the subject of [nuclear] bombs from reactor-grade plutonium.

Excerpts from the testimony given by Ian MacKay (AECL) in the PEI Legislative Chamber

On March 10, 1976, Ian MacKay of AECL said to the PEI Legislature in Charlottetown:

“What is nuclear power? Well, it’s just a method of generating electricity using uranium as fuel instead of oil. It has practically no technology in common with nuclear bombs. This, of course, is undramatic, and any possible relationship with bombs is much more news than claiming no relationship, so you can’t blame the press for reporting on that sort of thing

“Now the used fuel contains plutonium, which is about a quarter of one percent of the used fuel, and this is potentially useful in the future. Right now it is not useful. It is not useful for making bombs – I would like to emphasize that. It is about two-thirds the kind of plutonium that is useful for bombs, and the other third is impurities which are very difficult to separate out – other isotopes of plutonium.

“Plutonium is about nine times more toxic than caffeine. In other words if you substituted the amount of caffeine in your coffee with one-ninth the amount of plutonium, you would have the same net result, which is nothing.

“If you imagine the amount of radiation, ambient radiation, radiation here in this room if you like – imagine that as being represented as a scale one foot long. One foot of radiation is everywhere. The average number of X-rays that people in this country would have, would add about another eight inches to the total amount of radiation that the average person gets; some people get more. If you have abdominal trouble and get several X-rays, then you are adding a lot of radiation. Doctors do not now use X-rays indiscriminately.

“The days when you could go into, I think Moore and McLeod along here, and put your feet on an X-ray machine and see whether your shoes fitted, well that could have been theoretically harmful, and those machines are illegal now From Hiroshima and Nagasaki, the effects of the two atomic bombs that have been dropped on people, if you assume radiation equivalent to what I have been talking about, but measuring $\frac{3}{8}$ of a mile on this one foot scale, this has killed about half of the people that it hit; and radiation equivalent to $\frac{7}{8}$ of a mile (4500 or something times ambient) has always been lethal as far as they could find.

“So you try to extrapolate what is safe from the tremendous amount of radiation from a nuclear bomb down to something very little To be safe, the International Committee on Radiological Protection (ICRP) I think its name is, which has no direct interest in nuclear power, either promoting it or not, and meets in Geneva or Vienna periodically, has assumed from the amount of radiation which we know from nuclear bombs in Hiroshima will kill half population, you can extrapolate down to saying that half that radiation will kill a quarter of the amount of people, a tenth of the radiation will kill a tenth of the number of people irradiated to that extent, and a millionth of that amount of radiation will kill one out of every two million that receive that amount of radiation. Well, this is arbitrary but it seems safe. And it says that we should not add anything to the ambient radiation that we can avoid doing, which is what we are trying to do.

“However, I just want to say, man has adapted to his present environment over centuries, thousands of years [sic], so that almost every naturally occurring element or radiation or compound or what have you is beneficial to man, or least harmful to man, in about the concentration in which it occurs. In other words, if there were no sunlight you would get no crops, no potatoes, and so that would be fatal. In Australia, where the sun is very strong and people expose themselves to it unnecessarily, but not unattractively, there are many cases of skin cancer, which is relatively easily cured; one doctor in Australia told me that he figured that 40 percent of the cases he saw in his office were skin cancer. So you can have too much sun. But the average amount of sun that the world gets is about right.

“Too much oxygen is fatal – it causes lung congestion; too little oxygen, of course, is also fatal quite quickly. We spend a lot of money and in the past have used up a lot of gasoline because our cars are designed to reduce the amount of oxides of nitrogen emitted in the exhaust, because the amount emitted in San Francisco and Los Angeles is above the desirable amount. But most of the oxides of nitrogen in Canada, I believe, are created by lightning storms and occur naturally; this is one of the main natural ways of fixing nitrogen back into the soil. So there’s an optimum amount of oxides of nitrogen; too much is fatal. You can have too little. I wouldn’t say it’s fatal, but it would affect the ecology. Potassium is radioactive. There’s a certain percentage in our bodies. If you have too much of it it is fatal. If you don’t have enough of it you go crazy – it affects your brain. No salt causes damage to various items, but too much salt is, I believe, an old Chinese way of committing suicide, neater than cutting open your last dinner.

“Now whether this assumption – the straight line extrapolation that if a lot of radiation is harmful, a little is less, and practically nothing more than nothing is the least harmful – whether that is true or not, in the concentrations that affect us, could be determined by biological experiments. But it would take experiments, one US scientist figured out, on about eight billion mice spread over quite a lot of years, , many generations of mice, and then you would only know that it did or did not affect mice, and you would have to relate mice to men. Now that’s all I’m going to say about radiation, and if anyone wants to know much more they can easily stump me on that subject.”

CASES OF MISINFORMATION AND ATTEMPTED SUPPRESSION
Document #15 – The Prince Edward Island Legislature Episode

Letter from the Canadian Coalition for Nuclear Responsible to the Minister of EM&R

October 27, 1976

Hon. Alastair Gillespie,
Minister of Energy, Mines and Resources,
Ottawa, Ontario.

Dear Mr. Gillespie:

After discussing the matter with Mr. Ian Connerty and other members of the Canadian Coalition for Nuclear Responsibility (CCNR), I am writing to inform you of our views concerning "the best way to provide the Canadian public with accurate information on the appropriate role of nuclear energy in meeting our long-term energy requirements."

1. First of all, I am delighted to learn of your recent decision to give a high priority to renewable energy sources within the Department of Energy, Mines and Resources. I hope that this decision will be coupled with a substantial effort to implement existing solar, wind and biomass technologies wherever practicable, not only to stimulate public interest in renewables, but also to gauge the potential impact of such technologies in the near future. There are many independent researchers throughout the country who would be very happy to investigate the problems of implementation on a systematic basis, with just a little official help and encouragement (e.g. removing institutional barriers and offering some positive incentives). In addition, EMR can provide leadership, coordination and coherency to the widespread initiatives in the field of renewable energy which are already being undertaken in many parts of Canada – by pooling information from all these diverse sources, identifying the more successful approaches, making the findings known to all those involved on a regular basis, offering expert assistance and advice in matters of construction and design, and providing grants to foster basic research into technical problems of central importance, such as energy storage schemes. Such an outreaching program would, I believe, be an extremely valuable complement to any on-going in-house research at EMR dealing with renewable energy sources.
2. It seems clear that any effective measures to educate the Canadian public on matters of energy policy must be well-coordinated and well-financed. This is particularly so in the case of nuclear energy. Already the Canadian Nuclear Association (CAN), Atomic Energy of Canada Limited (AECL), and various provincial utilities have spent large sums of money attempting to communicate their views on the desirability of nuclear power to the public. Despite this public relations effort, about forty percent of the Canadian adult population does not even realize that nuclear energy is being used to generate electricity, according to the public survey done earlier this year by the Institute for Behavioural Research. There is an obvious need for an educational program which will reach out into the community with a clear and unequivocal description of the advantages and disadvantages of various energy strategies. However, unless a considerable financial commitment is made to ensure the success of such a program, it will be little more than an exercise in tokenism.

CASES OF MISINFORMATION AND ATTEMPTED SUPPRESSION
Document #15 – The Prince Edward Island Legislature Episode

3. Energy Information Offices in major cities would be a good beginning, provided that funds are made available to prepare and distribute appropriate materials dealing with the entire spectrum of energy alternatives – including renewable technologies and the potential for more efficient energy use. It is very difficult for people to form a balanced opinion on the desirability of any particular energy option, such as nuclear, without having some basic information concerning the feasibility and the potential impact of other choices. However, we do not feel that such information centres will have much influence unless they are also animation centres. We cannot wait for the public to seek us out; we must reach out into the community and draw people in. Audio-visual materials such as films, slide shows, panel discussions, and other public meetings would play a very useful role in this connection, since they are particularly effective in communicating fundamental concepts, introducing points of view, stimulating individual interest, generating group discussion, and attracting an audience. Once people's interest and curiosity are aroused, printed materials would constitute the best medium for the presentation of more detailed factual information, which can be perused in private and at leisure.
4. The educational system is another obvious target for any program which intends to serve an educational function. AECL already recognizes the importance of this, and they are taking steps to reach young people by sending speakers into the schools and by arranging for the special distribution of nuclear films in schools through the Offices of the National Film Board. This public relations effort should be balanced with comparable initiatives to educate schoolchildren and teachers about the potential drawbacks of nuclear power and the range of alternatives which are available now or which may become available in the near future. People have right to know what choices exist and what advantages and disadvantages accrue to these various choices. One-sided information, either for or against a specific technology, is not particularly useful. We need to strike a balance,
5. As Mr. Connerty has indicated to you, the CCNR is willing to participate in a committee, which will set its own terms of reference, and which will include representatives from EMR and the nuclear industry, for the purpose of trying to reach some agreement on appropriate methods for communicating unbiased factual information to the Canadian public on the subject of nuclear power. The chief obstacle to this kind of cooperation on our part seems to be a very negative attitude on the part of many people within the nuclear industry, who are unwilling to recognize the legitimacy of points of view which run counter to their own. Nevertheless, there are other points of view, and people have a right to hear them. If the critics of nuclear power communicate factual information which is different in content and in tone from that emanating from AECL and the CNA, it is hardly surprising. The nuclear industry concentrates on the advantages of nuclear power if everything works as planned; the critics concentrate on the disadvantages of nuclear power if things do not work as planned. The nuclear industry portrays nuclear power as absolutely necessary in order to maintain our standard of living; the critics point out alternative directions which may be preferable in many ways. Each group tends to select facts which will support their own particular point of

view. For example, most industry publications intended for lay consumption either ignore or dismiss the problem of waste management and the long-term biological effects of radiation. By adopting such a tone in their publications, the industry is systematically misleading the public into thinking that these problems are either completely solved, or that the possible damage is inconsequential. This is not done deliberately, I am sure, and it undoubtedly reflects the optimism of people in the industry that these difficulties can be satisfactorily dealt with. However, the critics have a right to raise questions based on the premise that the industry people may be mistaken in their assumption that such an unprecedented degree of perfection will be accomplished at some future date within a large industry that will eventually span the country from coast to coast. Both sides must be willing to recognize the legitimacy of presenting information to the public which has an important bearing on one point of view or the other. In cases of controversy, the nature of the disagreement should be adequately and accurately presented, without any pretence that a consensus opinion has been arrived at. "Unbiased information" is useless if it ignores controversies, which are often the springboards of political action.

6. In the same vein, if we are to cooperate and work together, there is no benefit to be wrung from impugning the motives or the honesty of any individual or group engaged in such a cooperative effort. I understand from Mr. Connerty that complaints have come to you concerning so-called misleading statements that have appeared in CCNR literature. It is certainly easy for people to be misled by poorly worded statements, and it sometimes happens, even in government publications, that factual errors appear in print. Such misleading statements and errors deserve to be pointed out and deserve to be corrected, but there is little to be gained by questioning the sincerity of the individuals making such statements. In this spirit, I am appending a list of examples of misleading statements which have been made by AECL spokesmen in the last year. These examples are all a matter of public record. I call them to your attention, not for the purpose of justifying any inaccuracies which the CCNR may be accused of, which should and will be corrected, but to point out the existence of a double standard. If AECL says something misleading it is considered to be an honest mistake; if CCNR is accused of saying something misleading, it is taken to be a mark of insincerity or irresponsibility. By all means, let us try to avoid or correct mistakes, but let us also try hard not to slander each other's intentions.
7. The foregoing comments do not touch on the most important aspect of all, which is the availability of information. For example, there are many important documents relating to the safe operation of nuclear power plants which are not available to us, such as the Safety Reports for the various reactors. If we are denied access to such documents, it will be very difficult for us to deal with specific problem areas without relying heavily on studies done in other countries. In a report prepared last December by the Argonne National Laboratory [USA], for example, several questions were raised about CANDU safety ("A Brief Survey of Considerations Involved in Introducing CANDU Reactors into the United States"). One of these had to do with the disconcerting fact that the vent valve for the Vacuum Building has

never been tested at full scale – and if the vent valve fails to work, then the Vacuum Building itself does not work. I have since learned from a reliable source that the vent valve at Pickering has been inoperative on several occasions, and that Pickering has operated for weeks at a time without the benefit of this particular safety device. Because of the unavailability of safety-related documents, we have been unable to substantiate this [allegation] with printed evidence. The question in my mind is this: If we agree to cooperate with industry people, will we have the benefit of a better information base which is not dictated by the logic of censorship? If the answer to this question is “no”, then the value of the cooperation will be seriously jeopardized. If the CANDU system is really substantially safer than other reactor types, we would be glad to see the evidence; but until we see all of the evidence, there will remain lingering suspicions that important points have been left out of the picture. Similar considerations arise in connection with waste management, reprocessing spent fuel, and transportation of radioactive wastes. Information must be made more easily available if accuracy is the goal.

8. This leads directly into the question of resources. The nuclear industry enjoys a very large operating budget, yet they do make mistakes and they do occasionally mislead people. The CCNR has an extraordinarily small operating budget, and yet we have had quite a good track record in communicating accurate information. Mr. Kim Krenz, a senior public relations officer with AECL, attended a five-hour briefing session for MPs which was held on July 22 in Ottawa, and was apparently unable to find any examples of misleading statements on our part. Considering our limited resources, I think that this is a good indication that we are performing a valuable public service which is respected by numerous MPs from all four parties. We will improve our performance still further, when we are able to pay a few salaries and maintain our own documentation centre. Since you have expressed a concern for the accuracy of any nuclear information that is presented to the public, we have decided to ask for your help, as per the attached proposal (see para. #9 below). Any assistance which you can provide will be greatly appreciated.
9. In summary, we suggest:
 - (i) an outreaching program to investigate the implementation of already existing renewable energy technologies, as a complement to more future-oriented research and development in-house at EMR;
 - (ii) a substantial financial commitment to undertake an effective public educational program dealing with the pros and cons of nuclear power within the context of alternative energy strategies;
 - (iii) the establishment of Energy Information Offices in major cities, to generate and to focus community interest on energy matters, and to provide information to the community in a variety of formats;
 - (iv) an information program aimed at the schools, with the object of presenting a balanced view of the advantages and disadvantages of different energy choices;

CASES OF MISINFORMATION AND ATTEMPTED SUPPRESSION
Document #15 – The Prince Edward Island Legislature Episode

- (v) the establishment of a committee involving members of the CCNR, EMR, and the nuclear industry, to try to reach some workable agreement on how to present accurate information on nuclear power to the Canadian public;
- (vi) the adoption by the committee of a conscious policy of mutual respect with regard to motivations and intentions, coupled with a rigorous respect for the accuracy of any and all statements which are made;
- (vii) complete information relating to the safety and the economic of the CANDU system to be made available to the members of the committee;
- (viii) financial assistance to be made available to the CCNR in order to pay three salaries and to maintain a documentation centre, so that the scope and the accuracy of information provided by the CCNR may be improved.

These suggestions are not intended to supersede our call for a public inquiry, which we believe would be the most effective way to educate Canadians as to the hazards and the benefits of nuclear power, since it would introduce the crucial element of public accountability which goes beyond the more limited concept of public relations. (See “Time to Stop and Think” at www.ccnr.org/Stop_and_Think.html .)

Thank you for your willingness to deal with these vexing questions.

Yours very truly,
Gordon Edwards.

As promised, here are some misleading statements by AECL spokesmen made last year:

** On October 4, 1976, Dr. Archie Aiken (AECL Vice President) told the Ottawa Branch of the University Women’s Club that radioactive waste disposal is not a technical problem but only a public relations problem. This comment was tape-recorded and was quoted in the Ottawa Press the following day. It is untrue: see www.ccnr.org/Findings_HLW.html*

** Colin A. Mawson (AECL) wrote in a letter published in the Bulletin of the Atomic Scientists (March 1976) : “In Canada we do not have a high-level waste problem....”*

** On March 9, 1976, Dr. Aiken told an audience at the Unitarian Church in Ottawa that the plutonium from a CANDU power reactor could not be used to make nuclear bombs. This is untrue: see www.ccnr.org/Findings_plute.html .*

** The same opinion was expressed even more emphatically by Ian MacKay of AECL, addressing the Prince Edward Island Legislature on March 30, 1976. He said that nuclear power “has practically no technology in common with nuclear bombs.... Any possible relationship with bombs is much more news than claiming no relationship, so you can’t blame the press for reporting on that sort of thing.... Now the used fuel contains plutonium ... and this is potentially useful in the future. Right now it is not useful. It is not useful for making bombs. I would like to emphasize that.” See www.ccnr.org/Peaceful_Atom.html .*

** In its written submission to the Nanaimo Chamber of Commerce, AECL stated in print, without qualification, that “at low levels, radiation is harmless – that is, physiologically tolerable.” This is in contradiction to the linear model espoused by all regulatory bodies.*

** Ian MacKay to the PEI Legislature: “Plutonium is about nine times as toxic as caffeine. In other words, if you substituted the amount of caffeine in your coffee with one-ninth the amount of plutonium, you would have the same net result, which is nothing,”*

CASES OF MISINFORMATION AND ATTEMPTED SUPPRESSION
Document #16(a) – The Prince Edward Island Legislature Episode

Letter from Peter Dyne (EMR) to a Member of Parliament

February 12, 1979

Mr. Frank Maine, M.P.,
Ottawa K1A 0X2

Dear Frank:

I am assuming that you wanted comments on the matter of making bombs from 'power reactor' plutonium rather than on the material on nuclear safety.

When we talked some four or five years ago on this, I think I told you that, from what I had learnt, it would be difficult to make a reliable high yield weapon from power reactor plutonium because of the nuclear properties of Pu-240 [plutonium-240]. I am sure I didn't say that a device could not be made at all, and I am sure you didn't say that either (from what I remember from Hansard). The point is that a clandestine bomb-maker (who can never test his device and who is working under constraints of time and money) would not want to use reactor material as he could not be sure that it would work.

There is no doubt that this difficulty with Pu-240 is real. At one stage during the Manhattan project the scientists had doubts that even a 'bomb grade' plutonium with low Pu-240 content [and very high plutonium-239 content] could be detonated effectively. I also know that the US AEC [Atomic Energy Commission] was fussy about irradiation level of plutonium they used in 'professionally' made bombs and would not use material with even 1/5th the irradiation of CANDU fuel. (The specified irradiation for 'bomb grade' plutonium was about 1/10th that of CANDU fuel.)

Notwithstanding all this, it now appears that these difficulties are not insuperable, at least for people with experience in the [nuclear] weapons business who know the tricks of the trade. However, what is 'not insuperable' for the experts is, I would still say, going to be "difficult" for the novice, clandestine operator. The new information doesn't convince me that it is easy to put a [nuclear] bomb together under circumstances when it can never be tested. As a consequence, I still cannot put much credence in the idea of the clandestine operator using [plutonium extracted from] spent reactor fuel.

This argument is however somewhat beside the point. One has to agree with the generality of Gordon's contention that the use of nuclear reactors and the diffusion of nuclear technology must always make it marginally easier for people to make [nuclear] bombs. That is true no matter what the fine print on bomb technology may be. It seems somewhat pointless to argue how "easy" is "not insuperable!"

Blackburn [of the Atomic Energy Control Board (AECB)] can probably fill you in with other technical details; he must know much more than I do about this. Feel free to pass this letter to Gordon Edwards if you so wish.

As to the rest of the material in Edwards' letter to Blackburn, I am pleased to know that he and the AECB are talking to one another. The sooner these arguments are brought out into the open the better.

Yours sincerely, P.J. Dyne, Director, Office of Energy Research and Development, EMR Canada.

CASES OF MISINFORMATION AND ATTEMPTED SUPPRESSION
Document #16(b) – The Prince Edward Island Legislature Episode

First Letter from the Canadian Coalition for Nuclear Responsibility to Peter Dyne (EMR)

March 2nd, 1979

Mr. P. J. Dyne, Director,
Office of Energy Research and Development
Department of Energy, Mines and Resources,
580 Booth Street
Ottawa K1A 0E4

Dear Peter:

I have received a copy of your recent letter (dated February 12th, 1979) addressed to Frank Maine, M.P., dealing with the suitability of using reactor grade plutonium for [nuclear] bombs.

Since neither you nor anyone else in AECL has tried to make a [nuclear] bomb, I presume that your information comes from sources outside the country. In view of the seriousness of the proliferation question, I feel that it is important for you to identify your sources of information. How do you know that you have not been misinformed?

In both the UK and the USA, top-level sources have indicated that the general implication of your letter (not to put “too much credence” in the idea of a clandestine bomb-maker using reactor grade plutonium) is a dangerous and unwarranted myth.

For example, Victor Gilinsky, one of the five Commissioners of the US Nuclear Regulatory Commission, publicly stated in 1976:

“There is an old notion, recently revived in certain quarters, that so-called ‘reactor-grade’ plutonium is not suitable to the manufacture of nuclear weapons. The floating of this idea is perhaps a natural move by those who want to exclude plutonium from strict controls. A recent statement on nuclear exports by the Atomic Industrial Forum [states that] . . . ‘power reactors are not a practical or economic vehicle for producing weapons-grade plutonium The use of reactor grade plutonium of high irradiation levels for weapons purposes presents formidable technical challenges.’

“The obvious intention here is to create the impression there is nothing to fear from separated plutonium from commercial power plants. This is not true. To begin with, the alternative to readily available commercial plutonium is plutonium from military production reactors; it is difficult to see what would be more ‘revealing of intention’ than the construction of such single-purpose plants.

“More importantly, so far as reactor-grade plutonium is concerned, the fact is that it is possible to use this material for nuclear warheads at all levels of technical sophistication. In other words, countries less advanced than the major industrial powers but nevertheless possessing nuclear power programs can make very respectable [nuclear] weapons. And, I might add, these are the very countries whose names turn up in every discussion of nuclear proliferation.

“Of course, when reactor grade plutonium is used, there may be a penalty in performance that is considerable or insignificant, depending on the weapon design. But whatever we might once have thought, we now know that even simple designs, albeit with some uncertainty in yield, can serve as effective, highly powerful weapons – reliably in the kiloton range

CASES OF MISINFORMATION AND ATTEMPTED SUPPRESSION
Document #16(b) – The Prince Edward Island Legislature Episode

“It is vitally important to serious attempts to stop further proliferation that any genuine confusion or misapprehension abroad about whether effective nuclear weapons can be manufactured with plutonium from power reactors be cleared up promptly. Such misapprehensions do exist; I encountered them myself a few weeks ago in meetings with high officials in Europe. This is bad enough, but it is deeply disturbing to encounter irresponsible encouragement of such notions at home.”

*“Plutonium, Proliferation and Policy”
speech given at MIT, November 1st, 1976.*

Further insight is provided by Professor Wohlstetter of the University of Chicago, author of a special study on proliferation for the US Arms Control and Disarmament Agency, entitled “Moving Toward Life in a Nuclear Armed Crowd?” (1977). In the winter 1976-77 issue of Foreign Policy magazine, he writes:

“The nuclear energy bureaucracy have been cheerfully arguing . . . that power reactor plutonium cannot be used as an explosive, or if so used, it would be ineffective, with generally low yields and highly variable ones

“It is surprising that the faith in the denaturing of plutonium, however plausible initially, could have survived for more than three decades. Since this belief implicitly or explicitly rationalizes so much carelessness, it is important, before putting it to rest, to offer some current examples In the United States, the President of the Atomic Industrial Forum says that if nuclear reactors are ‘run on an economic fuel cycle – that is, long irradiation times – the plutonium produced is readily used on;ly for making explosives which are hardly military weapons.’

“But all of this is quite misleading Immediately after the Trinity test [the first bomb using plutonium as primary nuclear explosive], and before the use of Fat Man at Nagasaki, Oppenheimer wrote ‘*The possibility that the first combat plutonium Fat Man will give a less than optimal performance is about 12 percent. There is about a 6 percent chance that the energy release will be under 5000 tons [of TNT equivalent], and about a 2 percent chance that it will be under 1000 tons. It should not be much less than 1000 tons unless there is an actual malfunctioning of some of the components*’

“Indeed General Groves . . . anticipated an increase in the fraction of plutonium-240 in later weapons. He wrote: ‘*There is a definite possibility . . . that the blast will be smaller due to detonation in advance of the optimum time. But in any event, the explosion should be on the order of thousands of tons.*’

“The essential point to be made is that even if a device like our first plutonium weapon were detonated as prematurely as possible . . . its yield would still be in the kiloton range All that a higher fraction of plutonium-240 . . . could do is increase the probability of obtaining a yield smaller than the optimal, but still as large or larger than that already enormously destructive minimum.

“The lowest yield of such a weapon can by no stretch of the imagination be called ‘weak’ The lethal area would still be nearly a square mile The uncertainties of surviving ground attack, of penetrating air defense, and of delivering weapons on target are cumulatively larger than the uncertainties of the yield of a bomb made with power reactor plutonium.”

“Spreading the Bomb Without Quite Breaking the Rules”
Foreign Policy, no. 25, pp.156-163

Among other references which have come to my attention, I might mention the Flowers Report from Britain (September 1976) which concludes that the construction of a crude nuclear weapon from reactor grade plutonium by an illicit group is a credible threat. “*We are not convinced that the Government has fully appreciated the implications of this possibility.*” (Flowers Report, p. 202). As you know, Sir Brian Flowers spent his early days in the military [nuclear] programme and has some first-hand knowledge of bomb designs. I would also mention the US Ford/Mitre Report, which concluded that the CANDU reactor is particularly dangerous from a proliferation point of view because of the continuous on-line refuelling which makes it very much easier to divert material in violation of safeguards agreements.

I would suggest the following corrections to some of the statements made in your letter:

- (1) It would **not** be difficult to make a reliable high-yield weapon from power reactor plutonium, but it **would** be difficult to assure optimal yield with any degree of certainty.
- (2) A clandestine bomb-maker **could** be sure that his bomb would work, barring mechanical failure (which does not depend on the grade of plutonium used)
- (3) Diffusion of nuclear technology must always make it **significantly** easier for people to make [nuclear] bombs.

As the Ford/Mitre Report concluded, “*The following measures would have **major** [not minor] non-proliferation significance:*

- *A clear decision to defer plutonium reprocessing and recycle . . .*
- *Reduced priority for nuclear power in energy research and planning, in a framework giving equal weight to coal in the short term and alternative replenishable energy sources over the longer term.*
- *Avoidance of promotion of nuclear power both at home and abroad.*

I respect your judgment, Peter, and I would be very happy to receive any information which you might have indicating that my concerns with regard to reactor grade plutonium are not well founded. So far I have seen none.

I hope this finds you well, and I look forward to meeting you again before too long.

Yours very truly,
Gordon Edwards.

cc. Frank Main, MP; Bob Blackburn, AECB.

CASES OF MISINFORMATION AND ATTEMPTED SUPPRESSION
Document #16(c) – The Prince Edward Island Legislature Episode

Letter from Peter Dyne (EMR) to the Canadian Coalition for Nuclear Responsibility

March 26, 1979

Dr. Gordon Edwards,
Canadian Coalition for Nuclear Responsibility,

Dear Gordon:

The easiest way to respond to your letter is to answer the last paragraph first. I don't as far as I know, know anything that you don't. Knowing your contacts, you are likely to know more than I do! As far as I can see, I accept the technical points made in the sources you quote. Where we differ is on the use of words – How “easy” is “not insuperable”, how “reliable and how high a yield” one would get from a “less reliable, lower yield” configuration and how “significant” is “marginal”.

Gilinsky is making exactly the same point I am making when he says “Of course, when reactor grade plutonium is used, there may be a penalty in performance which is considerable or significant, depending on the weapon design.” (Wohlstetter says essentially the same thing after you penetrate the rhetoric and polemic). The clandestine [bomb] builder in country ‘X’ is, by hypothesis, not a sophisticated weapons expert. He won't know, and can never know, whether he has an efficient design or not. These “less reliable, lower yield weapons” could indeed be effective and powerful. That is, I think, your point, one which I don't contest. I am only reiterating the agreed matter, that reactor grade material gives less reliable, lower yield weapons.

This brings me to the essential difference between us (which we can never resolve), namely to motivation of “El Supremo” in Lower Slobovia who wants to make a bomb (I should emphasize that that is the case I am addressing). I cannot imagine anybody wanting a bomb to use it; the retribution would clearly be far worse than the advantage. The only motivation is as for use as a threat or as a counter threat. This was Russia's motive vis-à-vis USA, was China's motivation vis-à-vis Russia, India's motivation vis-à-vis China, Israel's motive vis-à-vis Russia (and Egypt). (I am assuming here that the Israelis have a device, I have no special knowledge.) The threat must, however, be credible to El Supremo and the people he wants to threaten. The device cannot be tested but everybody (including those being threatened) has to be certain that it will work and work well. Working within those parameters I, if asked or required to do the job, knowing the uncertainties, would not choose to use reactor grade plutonium. For that reason I, as I said, cannot put much credence in the idea of the clandestine bomb maker choosing to use reactor [grade] plutonium on the basis of the evidence you cite.

As to the difference between “marginally” and “significantly”, I am again reacting to a personal prejudice. Having worked in an environment where fissile material was around, I see no great difficulty in obtaining such material (by, for instance, using a graphite reactor to make bomb grade plutonium. I can't see why anybody would bother with reactor grade material anyway.) Having a reactor makes only a secondary difference to the ease of making bombs which, from all I have read, (all in the open literature) sounds distinctly tricky. I am not overwhelmed by US weapons experts saying the job is easy; that's like Heifitz saying it's easy to play a Mozart violin concerto!

CASES OF MISINFORMATION AND ATTEMPTED SUPPRESSION
Document #16(c) – The Prince Edward Island Legislature Episode

Having said all that, I feel that this whole discussion is beside the point. Some time ago, Amory [Lovins] and I discussed this general idea. I felt that we two understood each other relatively well, even if we didn't agree precisely on emphasis. Both of us agreed, (and I am sure you do, too) that by far the greatest threat to mankind is a nuclear war. My major concern is with the major powers and their existing stockpiles. Lower Slobovia, having one or two bombs, makes only a marginal difference to the total, insane instability of the whole situation. Amory agreed and I think you will too. We can only argue once more about the word "marginal".

It's a truism that destroying weapons doesn't prevent war. We must look at the causes of war. I was chilled to hear the US Assistant Secretary of State for Foreign Affairs say in reply to a point-blank question at a Senate hearing, that the US would, if necessary, go to war to protect its mid-east oil supplies. It is forced to do this because it is so absolutely dependent on imported oil. This dependence arises in some part because so much of their electricity comes from oil-fired generating stations. And where does that take us?

With best personal regards,

Yours sincerely,

P. J. Dyne, Director,
Office of Energy Research and Development,
Energy, Mines and Resources Canada

cc. Frank Maine MP
Bob Blackburn AECL

CASES OF MISINFORMATION AND ATTEMPTED SUPPRESSION
Document #16(d) – The Prince Edward Island Legislature Episode

Second Letter from the Canadian Coalition for Nuclear Responsibility to Peter Dyne (EMR)

April 16, 1979

P. J. Dyne, Director
Office of Energy Research and Development,
Energy, Mines and Resources Canada,
Ottawa Ontario

Dear Peter:

Thank you for your letter of March 26. I am glad that you accept the technical points made in the sources which I quoted. Both Gilinski and Wohlstetter make the point that the minimal possible yield of a nuclear implosion device made with reactor grade plutonium is already enormously destructive, so that the use of phrases such as “less reliable, lower yield weapons” in this connection is enormously misleading to the average politician (c.f. Ross Campbell’s obvious confusion on this score).

Your letter makes it perfectly clear that your lack of “credence in the idea of a clandestine bomb-maker choosing to use reactor grade plutonium” is based solely on your own political and psychological theories as to what might motivate an individual or a nation to construct nuclear weapons. You are, of course, entitled to your own opinions on such matters; but to use such questionable judgments as the basis for reassuring politicians that reactor grade plutonium is not a very serious risk to world peace strikes me as an extraordinarily dangerous thing to do. Politicians may mistakenly conclude that your opinion is based on insuperable technical problems associated with reactor grade plutonium rather than armchair philosophizing about the possible motivation of “El Supremo” in Lower Slobovia.

What disturbs me even more is your evident lack of concern over the obvious fact that the CANDU reactor is almost impossible to safeguard against illegal diversion of spent fuel, and that the CANDU reactor can easily be adapted to produce a steady stream of weapons grade plutonium. For these two reasons, the CANDU reactor is the most dangerous power reactor in the world in terms of its proliferation implications.

As you know, an American LWR [Light Water Reactor] cannot be refuelled without shutting the reactor down. This makes an inspector’s job much easier. As long as the inspector is there whenever the reactor is shut down, he can supervise the refuelling operation and convince himself that no spent fuel is unaccounted for. However, in a CANDU reactor, refuelling takes place continuously, thanks to “on-line refuelling”. Unless the inspector is present 24 hours a day, 365 days a year, he can never be sure that spent fuel has not been diverted. Moreover, just a few channels out of the hundreds of channels that make up the core of a CANDU reactor could be used to produce lightly irradiated fuel with a high percentage of plutonium-239, ideal for use in nuclear weapons.

In view of these considerations, Peter, do you not think that a scientist has a moral obligation to warn our politicians of the dangers inherent in marketing CANDU reactors to militaristic and unstable regimes? Personally, I cannot understand why anybody would want to minimize these dangers or to run the risk of lulling our leaders into what may be a very false sense of security. As Sir Brian Flowers wrote:

CASES OF MISINFORMATION AND ATTEMPTED SUPPRESSION
Document #16(d) – The Prince Edward Island Legislature Episode

“ . . . the spread of nuclear power will inevitably facilitate the spread of the ability to make nuclear weapons, and, we fear, the construction of these weapons. In reality, total agreement on a comprehensive international control system for the products of civilian nuclear power that are relevant to the construction of nuclear weapons would be possible only in a climate of general disarmament, and the prospects for this are receding rather than improving We see no reason to trust in the stability of any nation of any political persuasion for centuries ahead. The proliferation problem is very serious and it will not go away by refusing to acknowledge it.” (UK Royal Commission, Nuclear Power and the Environment, p.76)

“It is entirely credible that plutonium in the requisite amounts could be made into a crude but very effective weapon that would be transportable in a small vehicle. The threat to explode such a weapon unless certain conditions were met would constitute nuclear blackmail, and would present any government with an appalling dilemma. We are by no means convinced that the British government has realized the full implications of this issue.” (p.126)

“Knowledge of plutonium and the ability to use it for nefarious purposes will inevitably be disseminated as nuclear power spreads. There is no lack of demonstration in the world at present of the audacity, determination and ruthlessness of terrorist organizations. Unless we are prepared to assume that terrorism is no more than a transient phenomenon, or that terrorist groups would shrink from using the immense threat of plutonium to achieve their ends, then the future risk of such action exists and must be considered.” (p.193)

“ . . . For this reason we think it remarkable that none of the official documents we have seen during our study convey any unease on this score. The management and safeguarding of plutonium are regarded as just another problem arising from nuclear development, and as one which can certainly be solved given suitable control arrangements. Nowhere is there any suggestion of apprehension about the possible long-term dangers to the fabric and freedom of our society. Our consideration of these matters, however, has led us to the view that we should not rely for energy supply on a process that produces such a hazardous substance as plutonium unless there is no reasonable alternative.” (p. 193)

I would be happy to receive a response to these points from you. For my own part, I have difficulty in understanding why so many scientists who have been associated with Canada’s nuclear power program do not seem to perceive any sense of personal responsibility to warn the government of Canada and the people of Canada of these unavoidable problems.

Sincerely,

Gordon Edwards.

cc. Frank Maine MP
Bob Blackburn AECB

VI. The Science Forum Episode

In September of 1978, Science Forum magazine published an article entitled “Nuclear Gadfly”, written by Mr. Nathan Dreskin, dealing with my personal involvement in the Canadian anti-nuclear movement. A complete paragraph was inserted in the body of the text of the article, without the knowledge or permission of the author, containing the following remarks:

“Ray Burge, director of public affairs at AECL, comments, ‘That is typical of Edwards’ fabrications . . . just another example of his megalomania’.”

Since these are clearly defamatory statements, both uncalled-for and unsupported by fact, I naturally thought of suing Mr. Burge and the editor of Science Forum. However, I was informed by lawyers that such charges are difficult to prosecute in Canada and could result in a kind of “Pyrrhic Victory”. I therefore contented myself with writing a letter to the editor defending my veracity with hard evidence. This letter was published along with another personal attack on my veracity, accuracy and integrity written by Mr. Robertson of AECL!

Among other things, Mr. Robertson states that “*he [Edwards] authorized the distribution of an inflammatory and misleading pamphlet*” and that “*admissions of wrong or misleading statements by Edwards are documented*” in AECL-6200. Unused to such low tactics of character assassination, I complained to the editor of Science Forum, that, since my reputation was under attack, I should at least be entitled to equal treatment – if my letters were to be shown to AECL before publication, surely AECL’s letters (at least those which refer specifically to me) should be shown to me before publication.

My rebuttal to Archie Robertson’s letter was never published. It was rejected first of all because it was too long. I then reduced it to 1/3 the size, as requested by the editor, and re-submitted it. However, it never appeared in print. Thus Mr. Robertson’s allegations about my lack of veracity and credibility were allowed to go unchallenged in print.

Document

17. Nuclear Gadfly” by Nathan Dreskin, Science Forum, September-October, 1978.
18. Letters to the editor, (a) Gordon Edwards and (b) Archie Robertson, Science Forum, January-February 1979.
19. Unpublished letter to the editor of Science Forum by Gordon Edwards, dated January 29 1979.

Suggested Witnesses

Nathan Dreskin, author of the “Nuclear Gadfly” article.
David Spurgeon, editor of Science Forum.

Article on Gordon Edwards published in the September-October 1977 issue of Science Forum

NUCLEAR GADFLY

The Canadian Coalition for Nuclear Responsibility has enraged the nuclear establishment with its irreverent tactics

Nathan Dreskin, Science Forum

I picked up Gordon Edwards, national chairman of the Canadian Coalition for Nuclear Responsibility and apostle of the nuclear pause, at the bus station in downtown Ottawa on a recent afternoon. Loaded with three bags, casually dressed from loafers to open-necked shirt, he was en route from Montreal to Renfrew to address a meeting. He'd agreed to stop off for an interview. We went to my house where he opted for cold apple juice while we talked.

He's a slim, boyish-looking 38, a professor of mathematics at Vanier College in Montreal and adjunct professor of science and human affairs at Concordia University. I'd read his CV – gold medallist at the University of Toronto, eight scholarships and fellowships, masters degrees in mathematics and English literature (Chicago), Ph.D. in mathematics (Queen's). Lecture experience ranged from Shakespeare to symmetric algebras, and publications from John Donne's poetry to "Nuclear Waste – What, Me Worry?" (a critique of the Hare Report prepared for the House of Commons Standing Committee on National Resources and Public Works.

MATHEMATICIAN TO ACTIVIST

He traces his involvement back to 1970 when he became a [founding] member of an environmental movement called Survival. [See www.ccnr.org/survival.html] As editor of the North American edition of Survival magazine he found the experience "*an eye-opener. Up until then I was one of those back seat drivers our society is full of – doesn't take responsibility, passes the buck and says 'don't blame me, I only work here'.*"

He ran numerous articles by scientist defectors from the American nuclear industry, and that did it. "*I had assumed, like most people, that nuclear power was safe, clean, cheap, and all good things to all mankind.*"

He entered the nuclear energy public lists for the first time early in 1973 while a post-doctoral fellow working on the economics of ocean fisheries at the University of British Columbia. It took the form of a challenge via a 4000 word open letter [See www.ccnr.org/open_letter.html] The ensuing debate in the Vancouver planetarium drew a large crowd and was televised locally.

"Three days later I was ordered out of the physics building. That was the strength of their feeling." (To this day he entertains a theory about academic freedom that you can be as screwball as you like, just so long as you're not effective.)

In 1974, Pierre Berton invited Edwards, then teaching at Vanier College, to an hour-long debate on the nuclear question with Dr. Edward Teller, of atom bomb fame. "By the technique they had of registering votes," said Edwards, "I won handily." [See <https://www.youtube.com/watch?v=RZy10obDkoo&feature=youtu.be>] He says it matter-of-factly, not boastfully. As a result he received phone calls from Halifax to Vancouver, and invitations to lecture poured in.

"Reporters phoned me as the only one to talk about the subject. Others feared for their reputation. Not that I had any great reputation, but I was scientifically educated, had good credentials, and was willing to speak out."

He remembers first broaching the idea of a Canadian Coalition for Nuclear Responsibility during a panel on nuclear power in Winnipeg in the spring of 1975. "*I said that what we really need is a nation-wide hook-up of citizens' groups concerned about Canada's policy on nuclear matters, and that nothing less would do. People were unable to penetrate the bureaucratic red tape to make their voices heard.*"

CASES OF MISINFORMATION AND ATTEMPTED SUPPRESSION
Document #17 – The Science Forum Episode

On his return to Montreal he found *“the same thought running through many minds and we had a meeting of about 20 people. We decided to call it by its present name and to develop a dignified approach, asking only for what is extremely reasonable – a public enquiry into nuclear energy.”* [See www.ccnr.org/Stop_and_Think.html]

He names three people as the core of that group: Dr. Fred Knelman (who later wrote ***Nuclear Energy: The Unforgiving Technology***), himself, and Dorothy [Goldin] Rosenberg, an activist in the Voice of Women and various protest movements, whom he called *“a most remarkable woman with a great knack of linking up problems with the best people to solve them, a kind of human switchboard.”* [According to Ian Connerty, CCNR national coordinator, who recently quit the CCNR, Rosenberg has in fact performed his title function *“being in charge of the troops while I served as Ottawa information source.”*]

About the birth of CCNR, Edwards continued: *“Although many in the organizing group were ant-nuclear like myself, we decided CCNR would try and avoid that label. We recognized that a great many people in this country were very concerned about nuclear power but were not necessarily anti-nuclear. They felt that the decision to go ahead with it or not deserved the widest possible discussion. It was far too important to be left to a few individuals in AECL or even in the Cabinet.”*

COALITION BORN TO INFORM AND DEBATE

And so, in June 1975, a form letter went out from 2010 MacKay Street in Montreal to a list of environmental citizens' groups (obtained from Environment Canada) inviting them to join CCNR. It stated that *“complete public accountability on the subject of nuclear energy, accompanied by a full disclosure of pertinent information, will be the primary political objective of our proposed coalition.”*

It also stated that the coalition would function on two levels. First as a clearinghouse for the exchange of information. Second, *“We would like to spark a vigorous national debate on nuclear issues by calling for a moratorium similar to that declared in Sweden in 1973. We know of no other way to make nuclear policy a public issue and to force the nuclear establishment into a position of public accountability.”*

As Edwards puts it, sometimes certain ideas are just ripe. There already existed the Maritime Coalition, and the Montreal group was *“just a couple of steps ahead in terms of calling for a national one.”* He names as supporters of the idea, Susan Holtz of Halifax, active in the Quakers and in the Dalhousie University ecology action centre; Roy Johnstone, a Winnipeg high school teacher; Herman Boerma in Saskatchewan; Peter Prebble in Alberta [correction: Saskatoon, not Alberta]; and, out in B.C., *“a small active group feeding off the energy of Lille d'Easum, also of VOW [Voice of Women]. Some think of VOW as an old ladies' club but I wish we had more like them.”*

“Nothing has really been made public about the Canadian Coalition for Nuclear Responsibility as an organization. How is it funded? Never any public accountability. It takes different positions at different times, appearing under different names. It's frustrating trying to deal with it. Dr. Gordon Edwards, the national chairman, admitted to the Porter Commission on Electric Power Development that their brief could not be considered to be either information or public relations by their own definition, but should be regarded as propaganda, albeit in a non-pejorative sense.”

*Ray Burge, public relations director,
Atomic Energy of Canada Limited.*

According to a recent CCNR newsletter last winter, the organization has over 200 member-groups representing all provinces, and a mailing list of some 3000 individuals. It's a long while between newsletters, it says, because it costs a lot of money (it was a Xeroxed 14-pager), With that wind-up came the pitch: *“If every one of you made a donation of ten dollars, CCNR would have \$30,000 ! Think of what that kind of money can buy when put into the hands of dedicated volunteers.”*

Almost wistfully, it noted that AECL spent \$700,000 last year in public relations alone, not including salaries of technical people visiting classrooms and giving public talks to promote nuclear energy. *“So you see, all you people out there are already supporting the pro-nuclear case with your tax dollars. Complain to your elected representatives. Voluntary contributions will held redress the balance!”*

CCNR would seem, indeed, to be long on dedication, embarrassingly short on cash. (Edwards was apologetic about billing me \$12 for the batch of CCNR materials he sent me, the billing being a scratched note: *“waste brief, \$4; non-nuclear future, \$2; Xerox, \$4; postage \$1.85; let's call it \$12.”*)

CASES OF MISINFORMATION AND ATTEMPTED SUPPRESSION
Document #17 – The Science Forum Episode

CCNR has no office, no overhead, pays no salaries. The MacKay Street address is a mail drop at Concordia. “We operate out of our homes,” Edwards explains. Expenses arise from publications, acquiring documentation, xeroxing, keeping in touch with the membership by newsletter and long-distance phone calls. And then there’s travel expenses to all those meetings. *“Most of this is out of our own pockets, sometimes paid for by sponsoring groups.”*

The United Church of Canada paid his travel expenses to B.C. in December to speak to a public meeting on uranium mining proposals. *“Since I’m not teaching this year, I get an honorarium for these appearances, unless it’s a group that can’t afford it, like in a high school.”*

Edwards took a year off without pay to give full time to the CCNR. He’s earned money for his interventions at the Porter Commission on electric power planning, as a consultant to the United Steelworker’s of America to prepare a brief on uranium tailings in the Elliot Lake area, from work for the Cluff Lake Board of Inquiry [into uranium mining in Saskatchewan], the National Film Board, the CBC, and Corpus Publishers.

Some of these earnings have gone into CCNR activities, he says. He didn’t say how much. He says that a lot of people contribute as well. *“We live strictly by donations. They come from all over the country – \$10, \$25, sometimes \$100, but almost never more than \$100.”* He emphasizes the self support. Connerty told me that the first year of operations cost about \$1800, most of which came from Edwards’ speaking engagements. No core funding has been received although some was sought.

At one point, Connerty said, the CCNR asked the OCNR (the Ontario group) and other groups for an affiliation fee to help with central operation expenses, but they had their own money problems. *“We funded out of our own pockets,”* Connerty stated, *“from speaking fees and the odd honorarium.”*

I asked Gordon Edwards how his CCNR activities were affecting his home life. He spoke of his wife Karen, and his sons David, 12; Peter, 10; and Andrew, 6. *“It’s not been easy,”* he admits. *“It certainly strains things. We’ve got ambitions like everybody else. But I never thought it would be easy, and speaking personally I would be only too happy if the coalition were organized to be self-supporting and self-funding, but it isn’t – and there’s no reason not to keep doing it. We’re engaged in something like putting out a fire and you don’t stop because nobody’s paying you an hourly wage to carry the buckets. I think the coalition has done a very good job of supporting itself, just as Survival did before it.”*

He sees the Coalition as an umbrella group. *“Its structure is extremely interesting because according to all the rules of organizations it doesn’t exist. We’re very, very flexible and very, very decentralized. And that’s the way we like it. There’s a widespread feeling within the coalition that we’re saddled with certain technologies inappropriate to our survival – like nuclear power. I’m not speaking for the entire coalition here, but many of us believe that nuclear energy epitomizes it because it’s the only technology that produces utterly unusable waste. In a natural living system there is no such thing as a waste product – one species’ waste is another species’ food. The nuclear reactor is the ultimate extension of the throwaway society, leaving behind it unparalleled problems. A technology to be avoided, not embraced.”*

“The CCNR serves a useful purpose in encouraging public discussion about nuclear energy. But such an organization tends to be polarized, finding every anti-nuclear argument and using worst-case analysis, the worst possible scenario, stressing the disastrous consequences and ignoring the high improbability. The result is that there is left stressed in the public mind one aspect without the other. They also tend to repeat stale American statement, accepting them uncritically today.”

Professor R. W. Morrison, Physics Department, Carleton University

The words flow on without a pause to search out a better one, or to change a phrase. Always matter-of-factly and even when the statements are selectively emotive, passion doesn’t come through, nor evangelism. Only sweet, if implacable, reason. The mathematician juggling words instead of numbers? The voice encompasses a short range in pitch and volume, but always well outside the danger zone of boredom. He looks you in the eye when he talks – and it’s hard not to believe.

“Our society has to restructure its organization so as to be more responsive to human needs,” he’s of saying. *“For this reason, we in CCNR have no desire to imitate the bureaucratic structure. We don’t believe in top-down management, in having a small group of powerful people at the top giving orders down the line, telling people what to do, how to vote or act.”*

CASES OF MISINFORMATION AND ATTEMPTED SUPPRESSION
Document #17 – The Science Forum Episode

He returns to the principle of local autonomy and mutual cooperation. *“That’s why the coalition has been so successful. Groups found that in joining they’ve not surrendered one jot of autonomy. They can establish their own policies, be as radical or conservative as they want.”*

There’s no mandatory clearing of programs with himself, he states, but he claims it’s done most of the time anyway. *“The member groups appreciate the coalition, its advantages, good name, credibility. So they don’t want to do something that might damage it, which would reflect on the whole framework. We treat member groups as responsible individuals.”*

But the desperate need for funding and a small permanent staff has driven CCNR to take a conventional step: incorporation as a non-profit organization. At least the paperwork is in the mill. *“The name has been approved and everything.”* Everything includes a number of sponsors whose names are hoped to be helpful for fund raising – Maurice Strong, Ken Dryden, General E. L. M. Burns, Pierre Dansereau, Ursula Franklin, Archdeacon Scott of the Anglican Church of Canada, Rabbi Gunter Plaut, and others. *“They won’t have any duties. The board of directors is the Citizens’ Council which represents every province and acts as liaison with the member groups. These are the people who get the specialized, more detailed information from Montreal and we depend on them to spread the word. We make it very plain to our member groups what we stand for.”*

EGG ON THEIR FACES

As to CCNR achievements to date, Edwards picks out a claim to have stopped reprocessing [i.e. extracting plutonium from irradiated nuclear fuel] for several years. [See www.ccnr.org/AECL_plute.html] He says that there was a secret briefing session in Ottawa on February, 1977 when AECL met with senior civil servants and stressed the need for such a plant to be committed that year. [See www.ccnr.org/AECL_plute_seminar.html]

“We blew it out in the open and they ended up with egg on their faces. The information they were communicating was simultaneously being withheld from the Porter commission [Ontario Royal Commission on Electric Power Planning] in Toronto. It came as quite a shock to Dr. Porter when he discovered that these plans were that far advanced, because he had been reassured that reprocessing was in the distant future, some 20 years hence.” (Ray Burge, director of public affairs at AECL, comments: *“That is typical of Edwards’ fabrications. The meeting was not a secret meeting, but one held to give civil servants a briefing. The document was published shortly after the meeting and was filed by Porter – and in fact it was Exhibit 85 in the hearing. I believe that in the Porter hearings, Dr. Porter said when he asked for these documents Edwards said were secret, that he received three of them. More to the point is that AECL **never** put up to the government a proposal for reprocessing. So for him to say that he stopped reprocessing in this country is just another example of his megalomania.”*)

“CCNR representation on the committee? We’re interested in information, not emotion. But neither did we invite AECL representation. We want to avoid an emotional mud-slinging impasse.”

*Dr. James Harrison, co-chairman
federal government nuclear information and
co-author of the Hare Report on the
Management of Canada’s Nuclear Wastes*

[See CCNR critiques of the Hare Report at www.ccnr.org/me_worry.html and www.ccnr.org/me_worry_update.html]

But the CCNR’s greatest accomplishment, in Edwards’ opinion, is that “it has given people hope that they are not helpless little cogs in a great big political machine, that they are not going to be chewed to bits if they try and say something. That’s been our main goal. And it’s been uphill slogging all the way.”

He exudes optimism about the future of CCNR, seeing only one major obstacle: the federal government’s *“stubbornness about that national enquiry. If [Pierre Elliot] Trudeau had a brain in his head he would know that nuclear energy is an issue not only in Canada but elsewhere. An enquiry has been endorsed by Joe Clark, Ed Broadbent, four provincial premiers, two former army generals, and the Liberal party itself.”*

What kind of renewable energy drives Gordon Edwards?

I had spoken to Ian Connerty earlier, within a few days of his quitting CCNR as national coordinator because he’s had enough – *“you can go so long on a treadmill”* – and he differed with Edwards on future policy. He took his time to reflect on my question about what motivated Edwards.

CASES OF MISINFORMATION AND ATTEMPTED SUPPRESSION
Document #17 – The Science Forum Episode

“He’s a mathematician first and foremost. Tough minded. A man who goes in his own direction. I’d say he was imbued with a missionary zeal [because] I have no other explanation what makes him work 20 hours a day, the way he does. He’s at it ceaselessly, hopping buses and planes, going to endless meetings, always on the move. He’s generally acknowledged to be the best Canadian resource person on the nuclear issue and I think he is. An excellent writer and a diligent researcher. He’s done a good job.”

“The public shows a strong tendency at times to ignore expert scientific opinion and accept the views of non-experts. There’s a real danger, a real risk of being dominated and misled by a vocal minority that can get the public ear in controversial scientific areas. The public then tends to disbelieve the scientific authorities who are usually right, or at least closer to the truth. It forces the experts to do their homework when dealing with public opinion in such matters, and that’s good.”

*Dr. Omond Solandt former chairman,
Science Council of Canada*

So now I asked Edwards himself if he felt like a missionary in his work with CCNR.

He replied, “I think that’s a silly way to describe it. It smacks of fanaticism which is the furthest thing from what I am. I’d rather enjoy life than be caught up with some obsessive activity. Nothing I’d like better than to have this issue resolved so that I can go back to living a fairly simple life. But I honestly don’t believe my children are going to have a world to live in unless nuclear power is stopped. If we can’t stop it, then what the hell can we stop? We might as well cash in our chips.

“No, it’s not a missionary sort of thing at all. I don’t try to convert people. I’m trying to get them interested in the subject, read the reports pro and con, but don’t just sit there on your hands and say glory me, I can’t do anything about it.

“Missionary zeal smacks of self-denial and while I haven’t had as much money as I might have had, it’s been an extremely rewarding experience, rekindling the hope in my heart for our ability as a society to get things done. The coalition is a living example of how people can cooperate and work together outside a structured setting.”

Then came the surprising statement, after an uncharacteristic lengthy pause: “Actually the public enquiry is becoming less important because you might say we’ve been conducting it right across the land. By appearing in every community in which something is happening, we’ve carried the debate to the people. The CCNR has done it, not the government, and we’ve been paying for it out of our own pockets.”

It was getting late and he had to catch his bus for Renfrew. No time for supper. I drove him to the station and he just had time to retrieve a heavy carton on handout material from a locker, rush to feed it into the belly of the bus, then leap aboard, arms loaded with the three bags.

Despite his protestations to the contrary, the very picture of a man obsessed with a mission.

Postscript (2019)

After this interview, I arrived in Renfrew where I gave a well-attended public talk in the Renfrew high school. AECL had been invited by the organizers to send a speaker to allow for a more balanced presentation, but AECL declined to send one. Nevertheless, after my talk, Mr. Archie Robertson of AECL stood up from the audience and declared loudly that my talk was riddled with errors and inaccuracies, and that he had been noting these down on a piece of paper – which he held aloft. I invited Mr. Robertson to read aloud that list of errors, but he replied that the list was much too long to make that possible. Whereupon I said, “Well Archie, why not just read out one or two of the juiciest examples of erroneous statements of mine for the benefit of the audience?” Mr. Robertson went quite red in the face and sat down without further comment.

*Later, following publication of the above article, Mr. Dreskin informed me that the five sentences of parenthetical comments attributed to Mr. Ray Burge (on page 4) had been inserted directly into the text of his article by Mr. David Spurgeon, the editor of **Science Forum** magazine, without Dreskin’s knowledge or permission. Since these comments include some errors and defamatory statements I wrote a letter to the editor that was published in a subsequent issue (Document 18(a)) along with a response letter from Mr. Archie Robertson of AECL [Document 18(b)]. Mr. Robertson’s letter included additional errors and more defamatory remarks. The editor however refused to publish a further letter of mine [Document 19] designed to set the record straight. - GE*

Published Letter from Gordon Edwards to the editor, Science Forum, January-February 1978

Sir: I would like to correct a few errors that appeared in the article “Nuclear Gadfly” (SF 63, September-October 1978). Let me begin with the only error that has major political implications. That is the sanctimonious statement by Ray Burge, director of public relations of Atomic Energy of Canada Limited, who stated on page 32 that “*AECL has **never** put up to the government a proposal for reprocessing.*”

One of the problems that has plagued AECL is that its public relations and managerial staff don’t seem to know what is going on inside their own organization – either technically or financially. Mr. Burge’s statement is one of the most recent examples. He goes so far as to say that there has been **no** delay of reprocessing plans in Canada, and that such a notion is one of my “fabrications”, reflecting my “megalomania”. The record proves otherwise.

On February 28, 1977, eight top officials from AECL spent an entire day in Ottawa briefing senior civil servants on the details of what they called their “Proposed Canadian Fuel Cycle Centre”. Ross Campbell, then Chairman of AECL, opened the meeting by saying: “*We would not have asked you to set aside a whole day if we had not considered the subject matter – the proposed Canadian fuel cycle program and the associated question of waste management – to be both important for Canada’s energy future, and urgent . . . The separation and use of plutonium (i.e. reprocessing) would be a long-range job requiring careful planning and research . . . We are already late in starting to be able to bring this new energy source on stream in the critical last decade of this century, when real shortages of energy will appear.*”

Later in the seminar, Mr. Hatcher of AECL explained further. “*The objective of the program is to develop and demonstrate in Canada the technology for the recycle of fissionable materials in CANDU reactors and for the disposal of radioactive waste from the nuclear fuel cycle . . . We must learn how to reprocess fuels to recover the valuable materials, plutonium, uranium-233, and thorium . . . We have shown the design of this [pilot reprocessing plant] starting this year [1977] and operational by 1981 . . . Its first priority would be to test the reprocessing of thorium . . . This is an extremely tight schedule and the timing is critical . . . We need a start this year on a pilot plant for reprocessing . . . AECL believes that our major long term program should be development and demonstration of fuel recycle and disposal of radioactive waste. Given a start this year [1977] and the availability of world technology through agreements with other countries, we believe that it is possible to complete this by the end of the century. Any delays in committing the first phase of the program will lead to similar delays in completion.*”

Still later in the day, Mr. Mayman of AECL re-emphasized the urgency with which the proposal was being made. “*If I had time to show you more detailed schedules, you would see that they are virtually incompressible. A delay in starting an activity results in a similar delay at the end of the line . . . The development of the Fuel Cycle Centre, on the schedule we have set for ourselves (beginning in 1977) is a very demanding target. Timely government approvals are crucial. Funding requirements are significant.*”

Just how significant the funding requirements might be was indicated by John Foster, then president of AECL, in his concluding remarks: “*The main capital item, a demonstration fuel cycle plant, might cost up to \$500 million. An operating staff of 900 people for 10 years would*

cost about \$500 million. The total cost of the program is therefore probably between \$1.5 and \$2 billion.” It is puzzling to observe how the nuclear power industry, which claims to be economically competitive with other energy sources, is still unable to pay for its own basic research and development costs without massive billion-dollar transfusions from the Canadian taxpayer. Most industries do not have such ready access to the public coffers!

On April 29, 1977, Ross Campbell circulated the text of the AECL seminar to all the participants, with the following directive attached: *“In view of the incomplete state of the Government’s consideration of this program, I would ask you to retain the enclosure for your personal use until such time as there is an announcement by the Federal and Ontario governments concerning the scope of the program they are prepared to support.”* On May 25, 1977, the Toronto Star spilled the beans, using a copy of the text of the seminar that was leaked to them from a member of the Canadian Coalition for Nuclear Responsibility. Only then, on May 26, after the information had been made public, was a copy of the same text filed with the Porter Commission as “Exhibit 85”. (The 113-page text is available from CCNR, at www.ccnr.org/aecl.html .)

The story does not end there. On June 5, 1978, a joint announcement was finally made by Reuben Baetz, Energy Minister for Ontario, and Alastair Gillespie, [federal] Minister of Energy, Mines and Resources. The announcement, long awaited by Mr. Campbell of AECL, indicated that an agreement had been reached between the two levels of government to embark on an ambitious research and development program related to the management of Canada’s nuclear wastes. The announced program will include the construction of a central interim storage facility for spent nuclear fuel as well as a facility for the immobilization and storage of nuclear wastes. The schedule for these two projects, both of which had been discussed in detail in the February 1977 AECL seminar as part of the “proposed Canadian fuel cycle Centre,” is essentially the same as that outlined at the Ottawa briefing more than a year before the announcement was made. The only notable difference is the absence of a reprocessing facility in the June announcement.

There can be no doubt, however, that reprocessing is what AECL really wants to get into. The joint federal-provincial announcement is a major step in that direction, since it provides for the necessary infrastructure: a fleet of 70-tonne shipping flasks, a central storage facility, and an immobilization and waste repository unit.

As John Foster pointed out in his concluding remarks at the Ottawa seminar, “I have not said much about the waste disposal aspect. This is not because it is not important – it is extremely important, but it is a part of the total program . . . Admittedly a positive decision with respect to the back end of the fuel cycle, today, takes a certain amount of guts because authorities all over the world are proceeding with understandable caution in the face of the bad name undeservedly attached to plutonium. But plutonium is an extremely useful material and we will be dealing in it.”

Perhaps Mr. Burge will undertake to explain how these matters can be seen as “fabrications” of mine.

The other errors in the article are simple errors of fact, and one error of interpretation. Peter Prebble is from Saskatchewan, not Alberta. Maurice Strong has resigned as a sponsor of the CCNR since he has decided to run as a Liberal candidate in the next election. And, I

never intended to imply that the CCNR brief to the Porter Commission was propaganda, although that interpretation could be squeezed out of a particularly nasty cross-examination by Archie Robertson of AECL. Perhaps the best suggestion I could make is for people to read our brief and form their own opinion of its usefulness in providing information.

The full-page colour advertisement (**not** propaganda, surely!) on the back page of the September-October issue of Science Forum, which says “You can count on CANDU”, epitomizes the vast discrepancy between the lavishly-funded crown corporation and the struggling citizens’ groups who try, out of their own meagre resources, to bring important matters to public attention – matters which the crown corporation would prefer to deal with behind closed doors.

Gordon Edwards, Chairman,
Canadian Coalition for Nuclear Responsibility,
Montreal.

Published reply from Archie Robertson (AECL) to the editor, Science Forum, Jan-Feb 1978

AECL Replies: Please allow me to place before your readers some facts relating to Dr. Gordon Edwards' claims. In doing so I will rely heavily on the proceedings of Ontario's Royal Commission on Electric Power Planning (RCEPP), for which the documentation is publicly available.

In his present letter [*Document 18(a), which was printed in **Science Forum** just above Dr. Robertson's letter in the same issue*], as in his appearances before the commission, Edwards fails to distinguish between commercial fuel reprocessing and the research, development and demonstration (RD&D) program that would allow government to make an informed decision on whether to introduce commercial reprocessing early next century. It is the RD&D program, not commercial reprocessing, that AECL has been advocating: this was made clear at the RCEPP hearings (transcripts vol. 135, pages 17252-17254 and vol. 135, 17274-17275).

Edwards claims in "Nuclear Gadfly", which appeared in the September-October '78 issue of Science Forum, that Dr. Arthur Porter, Chairman of the RCEPP, was shocked to discover AECL's proposal for this RD&D program from reading the proceedings of a "secret briefing session in Ottawa in February, 1977" for senior civil servants.

[See the proceedings of the AECL seminar at www.ccnr.org/aecl_plute_seminar.html]

The fact is that this proposal was described in AECL's brief to the RCEPP (Exhibit No, 158) and Edwards cross-examined me on it before Dr. Porter.

As one of the speakers at the "secret session" I recall an audience of over fifty in a downtown Ottawa hotel, with no screening of participants on arrival. This is the sort of interaction with other agencies and departments that is essential before any proposal can be put to government. I challenge Edwards to point to any other Canadian RD&D program that has been laid out in such detail or so openly. Partly as a result of reactions at that meeting, some critical and some supportive, the proposal evolved into the joint program on nuclear waste management announced by the Federal and Ontario Ministers of Energy, 5 June 1978.

Edwards was present when I referred (vol. 185 p.28192) to an address by the Honourable Alastair Gillespie, Minister of Energy, Mines and Resources, who stated: "*I should comment here that knowledge of these on-going discussions, coupled with preliminary site selection planning and AECL's presentations concerning advanced [i.e. plutonium-based] fuel cycles have led people to assert that that a positive decision on fuel reprocessing has been made. I wish to state categorically that this is **not** the case. No plans for reprocessing have been approved nor will such proposals be considered in the near future . . . AECL has been conducting laboratory research to determine how this energy might be recaptured. This type of research will continue so that the government will be in a position to assess the various options available to us at a later date and in the light of energy conditions and other factors at that time.*"

The same RD&D program was also openly described by AECL at the Madoc town meeting of 16 March 1977, attended by Edwards. Indeed, it was at that meeting that he authorized distribution of an inflammatory and misleading pamphlet which he subsequently declined to defend under cross-examination before the RCEPP (vol. 189, pp. 29206-29212).

This inability to defend his charges is not unique. Again under cross-examination before the RCEPP he was forced to admit that he was wrong in saying that the Bruce Safety Report was not in the public domain (vol. 189, pp. 29172-29173).

After the debate-stage hearings were closed, i.e. when the claims could not be challenged before the RCEPP, he wrote to the chairman charging that important documents relating to reactor safety were being withheld by AECL and others. Dr. Porter subsequently issued a statement ending: *“I wish to stress that this Commission has never suggested that Ontario’s [nuclear] stations are unsafe, nor that information has been ‘withheld’ from us.”*

Other admissions of wrong or misleading statements by Edwards are documented in AECL’s final argument to the RCEPP [authored solely by Archie Robertson] (published in English as AECL-6200 and in French as report AECL-6200F) These related to uranium resources and reactor safety among other subjects.

The RCEPP, by endorsing an expanding nuclear program in its 1978 September Report, **A Race Against Time**, has rejected Edwards’ principal demand, a nuclear moratorium.

J. A. L. Robertson,
Atomic Energy of Canada Limited.

Unpublished Letter by Gordon Edwards to the editor, Science Forum, January 29, 1979:

Sir: It is sad to see an official spokesman for Atomic Energy of Canada Limited (AECL) stoop to nit-picking arguments with an “ad hominem” flavour instead of dealing with the substantive policy issues surrounding nuclear power development in Canada. I refer to Mr. J. A. L. Robertson’s letter in the January-February issue of Science Forum. [Document 18b]

Let me take his points one at a time.

1. Commercial versus Non-Commercial Reprocessing

Mr. Robertson says the proposed AECL-Ontario Hydro reprocessing plant is not intended to be a commercial facility. From a public policy point of view, there is little difference between commercial and non-commercial reprocessing of spent nuclear fuel to extract plutonium. The health risks, the environmental impacts, the security problems, and the nature of the high-level; radioactive liquid wastes produced are exactly the same in either case.

The proposed AECL-Ontario Hydro pilot reprocessing plant would be almost identical in size to the largest commercial reprocessing plant ever to operate in North America – namely, the Nuclear Fuel Services Plant at West Valley, NY, just thirty miles from Buffalo. The record of the West Valley plant is really quite appalling: radioactive effluents to the environment thousands of times larger than were projected before the plant was built; radiation exposures to workers far in excess of the maximum permissible limits; decontamination problems which will cost hundreds of millions of dollars and many years of concerted efforts to solve; and large quantities of liquid wastes which no one presently knows how to dispose of. The “commercial” nature of the West Valley operation had no bearing whatsoever on any of these problems.

In three different countries, top-level policy studies have concluded that reprocessing of any kind should be indefinitely postponed, whether it is a “commercial” operation or a large research-oriented demonstration plant that is under construction. Let me quote from them for the record.

First, the Ontario Royal Commission on Electric Power Planning (RCEPP) :

“Spent fuel reprocessing and advanced fuel cycles should not be part of Ontario’s system planning to the year 2000 . . . From health, environmental, and safety points of view, we believe that the existing CANDU fuel cycle is much preferable to an advanced fuel cycle which would necessitate reprocessing and the management of high-level liquid wastes.” (pp. xii & 89-90)

Second, the US Ford/Mitre Report:

“We believe that the reprocessing of spent fuel, even on a demonstration basis, should be deferred as a matter of national policy, until it is clearly necessary on a national scale.” (p. 321)

Third, the UK Royal Commission on Environmental Pollution:

“We should not rely for energy supply on a process that produces such a hazardous substance as plutonium unless there is no reasonable alternative . . . A major commitment to fission power and a plutonium economy should be postponed as long as possible.” (p. 204)

Speaking of the proposed AECL-Ontario Hydro reprocessing plant at the February 28, 1977, Ottawa seminar, John Foster, then President of AECL, said that the facility would “*eventually . . . be expanded to a commercial scale.*” On the same occasion, Stan Hatcher of AECL said: “*The demonstration phase starts in 1990, and at least ten years’ experience should be accumulated towards a commercial license application by the end of the century.*”

A large commercial-scale reprocessing plant costing hundreds of millions of dollars is not quite the same thing as the “laboratory research” described by Mr. Alastair Gillespie and quoted by Mr. Robertson. Let us not quibble over words, Mr. Robertson, lest us deal with the issues!

2. AECL’s Openness

As Mr. Robertson says, it is no secret that AECL has been openly interested in reprocessing technology and advanced fuel cycles for many years. However, it has always been publicly asserted by AECL spokesmen that such developments are not a matter of immediate concern for Canada, because no significant developments in reprocessing would take place for at least a few decades.

What was so surprising about the Ottawa seminar was the urgency with which a large commercial-scale demonstration reprocessing plant was being promoted by AECL, on such a tight and demanding schedule (beginning in 1977). These specific plans, with this ambitious timetable, was never made known to the Royal Commission on Electric Power Planning until May 26, 1977 – after the same plans had made headlines in the Toronto Star.

Even today, AECL representatives are visiting many communities in Northern Ontario (such as Atikokan, with a serious unemployment problem pending), to stimulate interest in locating a nuclear waste disposal facility. Yet those same representatives systematically avoid mentioning the very real possibility that any community which accepts a waste repository now may end up with a reprocessing plant on their doorstep later. However, this is exactly what will happen if the AECL-Ontario Hydro plans are eventually approved by the governments.

I never said that AECL’s plan for reprocessing had been approved; I only said that the Canadian people have a right to know that such plans are being made. By the time the plans have been approved, bitter experience indicates that it will be far too late for the public to do anything about them. To my way of thinking, openness must extend beyond the public announcement of a fair accompli! People should know what is being planned for them!

3. Misleading Information

The “inflammatory” pamphlet which was distributed at Madoc two years ago (mentioned by Mr. Robertson) was neither authored by me nor authorized by me. Although it does employ emotive language, I believe that the pamphlet in question is more informative, more correct, and less misleading than many statements made by AECL spokesmen to decision-making bodies in Canada.

For example, perhaps Mr. Robertson would care to comment on the “correctness” of a statement made last year by Mr. Ross Campbell of AECL to the House of Commons Standing

Committee on National Resources and Public Works, that “*effective, highly reliable nuclear weapons cannot be made from reactor grade plutonium.*” There is incontrovertible evidence that Mr. Campbell has been misinformed on this subject. In fact, the USA has already exploded an “effective, highly reliable” bomb made from reactor grade plutonium! [See www.ccnr.org/plute_bomb.html and www.ccnr.org/plute.html]

I certainly do not want to accuse Mr. Campbell or AECL of deliberate dishonesty, but I do wonder why no official retraction has been sent to the House of Commons Committee so that the record can be set straight on this very important matter of public policy. Such misinformation is certainly very relevant to any rational assessment of the security risks inherent in reprocessing – or in the foreign sales of CANDU reactors, for that matter.

I have long ago seen to it that the pamphlet that was circulated at Madoc two years ago will not be reprinted or recirculated, even though it was and is a defensible and honest expression of concern. I hope that Mr. Robertson will reciprocate by seeing to it that technically misleading statements by AECL spokesmen will not continue to go uncorrected.

4. Secret Safety Documents

The availability of nuclear safety documents is a bizarre subject indeed.

When I wrote that the Bruce Safety Report was not in the public domain, it was only after several unsuccessful efforts had been made to obtain access to it. The “BRS Notes” [Bruce Reactor Safety Notes], which is a large body of documentation giving all the detailed arguments for the various assertions which are made in the Bruce Safety Report, is still not available for public perusal. The Safety Report has been made available, but not the Notes. In other words, we can now read the reassuring conclusions which are allowed to be printed in the official Safety Report, but not the controversial assumptions and calculations on which those conclusions are actually based. How strange!

In May of 1978, after the Nuclear Hearings of the Royal Commission had been completed, five sensitive safety documents were leaked to me from an anonymous source. I forwarded them to Dr. Porter [the Chairman of the Royal Commission], who referred to them as “new and compelling evidence” about CANDU safety. Among other things, these documents indicated:

- that a critical safety system known as the Emergency Core Cooling System (ECCS) is unable to function as it was originally designed to function, thereby contradicting important safety assurances which had been given in the official Safety Reports for Pickering, Douglas Point, and the NPD [Nuclear Power Demonstration] reactor;
- that it may not be possible to design an emergency cooling system for CANDU reactors that will provide the same margin of safety that was assumed (and officially stated to exist) just a few years ago;
- that emergency limits of radiation exposure for members of the public may have to be raised by a factor of four (from 25 rems to 100 rems);
- that if it proves uneconomic for the operators or designers of a CANDU nuclear power plant to meet the new 100-rem limit, it may be necessary to allow the emergency radiation exposure limits for members of the general public to be increased by an additional factor of ten (from 100 rem to 1000 rem)!!

None of these facts were made known to the Royal Commission on Electric Power Planning (RCEPP) during the Nuclear Hearings.

I recently had an experience with an “available” safety document that was worthy of Franz Kafka. Having been informed by telephone that the controversial “Pickering Loss-of-Coolant-Accident Report” had finally been made publicly available by Ontario Hydro (after eighteen months of wrangling), I asked that a copy be sent to me here in Montreal. Instead, Ontario Hydro sent a man to Montreal by plane, who took a taxi from Dorval Airport to Vanier College, where I was teaching a class, with the document in his briefcase. He gave me about two hours to look at the document, but would not allow me to photocopy a single page, a single table, or a single chart, and then flew off again, taking the document with him!

5. AECL Summary Argument

I join with Mr. Robertson in urging people to read the AECL Summary Argument (AECL-6200) to the Porter Commission (RCEPP), which was authored by Mr. Robertson. However, I also urge people to consult *A Race Against Time: An Interim Report on Nuclear Power in Ontario* – the 1978 Report of the RCEPP – which adopts not one of the major points raised in the AECL Summary Argument.

6. RCEPP’s “Rejection” of a Nuclear Moratorium?

How Mr. Robertson can conclude that the RCEPP Report “A Race Against Time” is a pro-nuclear report which rejects the idea of a moratorium, I cannot fathom. In the chapter dealing with the Status of the Nuclear Industry in Canada, the concluding sentence reads: *“It is therefore difficult to avoid the conclusion that the nuclear option, far from guaranteeing energy self-reliance for Ontario, at best promises uncertainty.”*

Mr. Robertson claims that the RCEPP Report endorses “*an expanding nuclear program*” . Nothing could be further from the truth. The Royal Commission Report recommended a sharp cutback in the projected number of nuclear power stations for Ontario. It also concluded that, if “suitable progress” in nuclear waste disposal [for irradiated nuclear fuel] has not been made by 1985, “*a moratorium on additional nuclear power stations would be justified.*” With regard to lower-levels of radioactive pollution, the Report concluded that “*the future of the nuclear program should be assessed in light of . . . progress in uranium mill tailings containment technology.*”

The Royal Commission (RCEPP) has unequivocally concluded that reprocessing should not be undertaken in this century. It has even gone so far as to contradict the June policy announcement made by the Ontario and Federal Energy Ministers, Baetz and Gillespie, calling for a centralized interim storage facility for used nuclear fuel, by asserting that such a facility should not be built: “*We believe that a central facility would presuppose the reprocessing of spent fuel; it would also involve more transportation and social and environmental problems.*”

Mr. Robertson is also wrong in thinking that a nuclear moratorium is “*Edwards’ principle demand*”. Our principle request at CCNR has always been for a national public inquiry “*to acquaint the people of Canada with the hazards and benefits of nuclear power developments.*”

Yours very truly, Gordon Edwards.

VII. The Amory Lovins Broadsheet Episode

Dr. Kim Krenz, the same AECL public relations officer that was involved in the New Brunswick Teacher episode, the Yin Yang episode, and the Prince Edward Island Legislature episode, was fond of mocking the views of people who advocate a reduction in energy demand through increased energy efficiency.

In 1976, even while deploring the “despicable” behaviour of a New Brunswick teacher who had the audacity to teach his pupils about nuclear weapons and nuclear waste, Dr. Krenz was distributing a highly offensive broadsheet which grossly misrepresents Amory Lovins’ point of view, in an especially grotesque manner. The broadsheet, along with the associated correspondence, is enclosed.

On behalf of the Canadian Coalition for Nuclear Responsibility, I categorically deny the claim in Ross Campbell’s letter that “*Dr. Krenz has in fact bent over backwards to achieve common ground with some of the members and component groups of the Canadian Coalition for Nuclear Responsibility. He is himself an environmentalist and shares many of their views.*” Every bit of evidence that has come to my attention indicates that Dr. Krenz has alienated, frightened, insulted or verbally abused most of the CCNR people with whom he came in contact, and that he is antagonistic to almost all of our views in the CCNR.

Documents

20. Letter from Ross Campbell (AECL) to Amory Lovins, dated December 16, 1976, with Broadsheet.
21. Letter from Amory Lovins to Ross Campbell, dated December 6, 1976

Suggested Witness:

Amory Lovins.

Letter from AECL Chairman Ross Campbell to Amory Lovins – with Broadsheet

Atomic Energy of Canada Limited

L'Énergie Atomique du Canada Limitée

December 16,, 1976

Mr. Amory Lovins,
London, England

Dear Amory:

Thank you for your letter of 6 December, drawing to my attention a broadsheet you had been told was being distributed by an AECL public relations officer and to which you took strong exception. I have looked into the matter, have confirmed that your information was correct and have instructed, and been assured, that there will be no further distribution of the broadsheet by AECL employees and that immediate action is to be taken to have all copies destroyed. Nor will any more be printed.

That having been attended to, may I say I am sorry you found this item so offensive. There was no intention of implying that you advocated a return to the conditions portrayed in the photograph; I am told, and I believe, it was put together merely to offer a tongue-in-cheek answer to the question. Certainly, the question should not have been taken out of context but this was not done for the purpose of misrepresenting your views.

Dr. Krenz is a scientist who has also had some years' experience as a teacher. He is, I know, well schooled in the practice of careful assembly and dissemination of accurate information. In the case in question he let his sense of humour get the better of him but that is not his normal way of doing things. Dr. Krenz in fact has bent over backwards in an attempt to achieve common ground with some of the members and component groups of the Canadian Coalition for Nuclear Responsibility. He is himself an environmentalist and he shares many of their views. The one real exception is nuclear power and there, unfortunately, he finds an abyss that cannot be bridged.

One closing note: I am told the broadsheet was given very limited distribution.

Yours sincerely,

Ross Campbell
[Chairman of the Board, AECL]

CASES OF MISINFORMATION AND ATTEMPTED SUPPRESSION
Document #20 – The Amory Lovins Broadsheet Episode

“The author believes that without prohibitive cost or disruption, and with considerable advantages, the total level of US energy consumption could . . . be reduced by a factor of at least two over the ensuing two or three decades What would the United States look like with a material standard vaguely similar to that of 1910 . . . ?”

Amory B. Lovins

World Energy Strategies
Bulletin of Atomic Scientists, June 1974



THE WAY IT WAS

This turn-of-the-century mother never had to worry about getting a shock from the electric toaster or having her hair caught in the mixer. But it's not hard to see why there were twice as many home accidents then as now. We've come a long way.

Reproduced by permission of the Editors, Family Safety, US National Safety Council

6 December, 1975

Mr. Ross Campbell,
Atomic Energy of Canada Ltd.,
Ottawa, Ontario.

Dear Mr. Campbell:

You may remember me from Dick Gardner's meeting in Rensselaerville. We discussed there, among other things, the potential role of AECL in promoting responsible public discussion of nuclear and energy issues, and my feeling that in several instances AECL had damaged its interests by using PR representatives of low quality. A recent incident requires me now to return to this unhappy theme.

I have lately received in Canada a copy of a broadsheet, bearing no publisher's or printer's name, showing a photograph of a primitive, Dickensian coal-stove kitchen, vintage about 1900. Above it is the following quotation:

"The author believes that without prohibitive cost or disruption, and with considerable advantages, the total level of US energy conversion could . . . be reduced by a factor of at least two over the ensuing two or three decades What would the United States look like with a material standard vaguely similar to that of 1910 . . . ?

Amory B. Lovins

World Energy Strategies
Bull. Atomic Scientists, June 1974

The photograph is obviously intended to answer this question, and hence to imply that I believe a return to the dismaying conditions portrayed is desirable. A second quotation, noting our material progress since 1910, rams the point home.

Unfortunately for this thesis, the full quotation from which the above selection is abstracted, so reversing its meaning, deals not with curtailment of activity but with increased end-use efficiency. In proper context, the full quotation reads thus:

"Doing More With Less

"Though little is known of the social and physical role of energy in various societies, we know enough to be confident that energy conversion in most rich countries is several times their actual need. We must act now, to put this knowledge into practice by stages – trimming the energy fat (typically 30-40 percent of present levels) that can be trimmed without changing lifestyles substantially, while we decide on longer-term changes in direction.

"Merely allowing energy growth, rather than slowly swinging it slightly negative, seldom buys the time needed for technical innovations on the required scale. In the USA, a politically acceptable strategy could be devised and implemented within two years for an orderly reduction of any residual growth rate by perhaps half a percentage point per year to a negative 1-2 percent per year.

“The author believes that without prohibitive cost or disruption, and with considerable advantages, the total level of US energy conversion could then be reduced by a factor of at least two over the ensuing two or three decades. It is unlikely that anyone who has seriously studied the scope for energy conservation and for redeployment of economic activity in the USA will quarrel with this conclusion.

“Similar, though perhaps less drastic, economies are undoubtedly possible throughout the industrialized world, and are often necessary on other grounds (e.g. food supply). No world or national energy strategy can succeed without close attention to such measures. As Malcolm MacEwen remarks, a man who cannot fill his bathtub because the water keeps running out does not need a bigger water heater; he needs a plug.

“It may be argued that a civilization in, say, Denmark, using only half as much electricity as now is inconceivable; but one existed in the mid-1960s when the Danes were at least half as civilized as now. What would the life-styles of the mid-1960s look like now with more efficient use and more equitable distribution?

“What would the USA look like with a material standard vaguely similar to that of 1910, but much better distributed and applied more efficiently to more useful ends, and with such important but energy-cheap amenities as modern medicine and telecommunications? Such questions must be asked and answered now.”

The text then continues along similar lines – e.g.:

“... there is a danger that people may be persuaded by energy vendors that a three-day [work] week in Britain, going without hot water in Stockholm, etc., is a foretaste of life in a rationally planned low-energy economy, rather than of life in an increasingly vulnerable high-energy economy.”

Thus the two- or three-fold reduction in primary energy use referred to would arise from at least a two- or three-fold increase in end-use energy efficiency, not from a reduction in living standards. No doubt you are already aware from our conversations and from my October 1976 paper in **Foreign Affairs** that I consider the technical evidence bearing on the feasibility of such efficiency increases to be persuasive. See for example Ross and Williams in the November **Bulletin of Atomic Scientists** and the January 1977 **Technology Review**, or Schipper and Lichtenberg in the 3 December 1975 **Science**.

What has all this to do with you? Simply that the broadsheet in question was being distributed by your PR man Kim Krenz. It is misleading out-of-context quotation of the most deplorable and disreputable kind, and I am sure you will agree it has no place in AECL's armory. I shall be glad to receive your assurance that the broadsheet will no longer be distributed by AECL employees, that any existing stocks have been destroyed, and that the publisher (whoever that may be) has been notified that AECL considers the broadsheet misleading and unsuitable for distribution.

Permit me to suggest also that this incident suggests (as does another, more serious incident that has come to my notice in confidence) that Mr. Krenz has faulty judgment, and that for the sake of AECL's reputation it might be wise to ensure that his other materials and statements are as accurate and responsible as you would wish.

CASES OF MISINFORMATION AND ATTEMPTED SUPPRESSION
Document #21 – The Amory Lovins Broadsheet Episode

I found our Rensselaerville discussions, and a talk Peter Dyne had me give at Whiteshell some months ago, useful in expanding my knowledge of CANDU and in exposing my energy ideas to technical criticism. I hope next year to be able to take up several people's informal suggestion that I make a similar visit to Chalk River.

Cordially,
Amory B. Lovins.

P.S. In view of your statement at Rensselaerville that [nuclear] explosives cannot be made from reactor grade Pu [plutonium], you may be interested in NRC Commissioner Gilinski's statement in an MIT speech on 1 November 1976 (NRC S-14-76):

“More importantly, so far as reactor-grade plutonium is concerned, the fact is that it is possible to use this material for nuclear warheads at all levels of technical sophistication. In other words, countries less advanced than the major industrialized powers but nevertheless possessing nuclear power programs can make very respectable weapons. And, I might add, these are the very countries whose names turn up in every discussion of proliferation.

“Of course, when reactor grade plutonium is used there may be a penalty in performance that is considerable or insignificant, depending on the weapon design. But whatever we might once have thought, we now know that even simple designs, albeit with some uncertainties in yield, can serve as effective, highly powerful weapons – reliably in the kiloton range.”
