

BRIEF

to

THE CANADIAN NUCLEAR SAFETY COMMISSION

Regarding: File 1-8-8-290, Draft Regulatory Policy P-290, Managing Radioactive Waste

From

THE NATIONAL COUNCIL OF WOMEN OF CANADA

Prepared by Gracia Janes, Environment Convener August 14, 2003

The National Council of Women of Canada (NCWC), which represents many thousands of Canadians through its 49 affiliated member groups of Local and Provincial Councils of Women, Study groups and Nationally Organized Societies, welcomes the opportunity to comment on Draft Regulatory Policy P-290, Managing Radioactive Waste.

In summary, the National Council of Women of Canada believes that nuclear power in all its life- cycle phases poses significant risks to the health and safety of Canadians and their environment. Long standing NCWC policy , developed over many years since 1955 1. maintains that Canada is far too reliant on nuclear power and should phase its use out as the nuclear plants reach the end of their life cycle. The most recent policy developed, and approved by members in 1997, urged the Government of Canada to:

- “a) reject as unsafe, the AECL “concept” for the burial of high-level nuclear wastes in the Precambrian shield: and,
- b) initiate a public policy debate , with broad public consultation, on the energy future of Canada, with specific focus on the nuclear issue: and
- c) expend research monies on a search for a safe technology to treat nuclear wastes,
- d) bring Canadian radiation exposure standards into conformity with those adopted by the International Commission on Radiological Protection (of 1990), while encouraging the Commission to improve these standards even further to reflect gender and age differences of women and children
- e) do all that is in its power to prevent the expansion of the nuclear industry.”

Our views, as expressed in these policies, were reinforced by the findings of the longstanding Seaborn Environmental Assessment Panel on Nuclear Fuel Waste Management and Disposal Concept. In its final report of February 1998, 2. the Panel noted that **the Government had failed to find a way to safely dispose of nuclear waste that the public could trust**, and had yet to initiate the promised, wide-ranging, public consultation on the future of nuclear power as part of Canada’s long

term energy policy.

The Panel determined, that ***“ as it stands, the AECL concept for deep geological disposal has not been demonstrated to have broad public support. The concept in its current form does not have the required level of acceptance to be adopted as Canada’s approach for managing nuclear fuel wastes.”***^{3.} It went on to recommend that, in its search to ***“ ensure a safe and acceptable long term management of nuclear fuel wastes in Canada”***.. and ***“ to develop an approach for managing nuclear fuel wastes that could achieve broad public support”***^{4.} the Government should, among other things, involve the public in a much more inclusive way, particularly the Aboriginal community, fix the many flaws in the original waste disposal proposal, and quickly establish an Nuclear Fuel Waste Management Agency (NFWMA) ***“at arms length from the utilities with the sole purpose of managing , co-ordinating the full range of activities relating to the long term management of nuclear fuel wastes.”***^{5.}

Unfortunately, the Federal Government ignored these well founded recommendations, and in setting up a Nuclear Waste Management Organization (NWMO) legislated that it be composed of **the most ardent proponents of continued and increasing reliance on nuclear power- the nuclear industry**^{6.} The arms-length NWMO Advisory Committee also has some members with ties to the nuclear industry

Given the significance of the Government’s decision to continue, and perhaps accelerate, Canada’s reliance on nuclear power, in the absence of a safe disposal option or a publicly debated and determined mandate, and knowing that nuclear waste continues to grow in quantity, as does the potential for harm to humans and the environment, **NCWC considers the Canadian Nuclear Safety Commission to be the paramount line of defense in ensuring the health and safety for Canadian citizens.**

That the Commission takes this responsibility seriously is evidenced by its February 27th, 2003 demand that Ontario Power Generation (OPG) provide more complete details of its plan to warn residents within a three kilometre distance of any reactor accident at the Pickering power plant.^{7.} As Pickering is a fast growing , densely populated area, within 35 kilometres of downtown Toronto , this was a significant omission by OPG. Also, on April 10th the Commission rightly challenged the reliability of OPG cost estimates of the dismantling of its nuclear power stations and safely getting rid of the radioactive waste.^{8.}

NCWC notes that the effectiveness of such CNSC actions to protect the public and the environment depends upon a strong regulatory policy.

In this respect, NCWC makes the following comments on Draft Regulatory Policy P-290. Managing Radioactive Waste. **We preface our remarks by some preliminary**

comments regarding the need for strong international standards.

Standards for Radioactive Waste

A key determinant in the ability of the Canadian Safety Commission to use its policy to protect the “**health and safety of persons**” and the “**environment**” is the set of national and international standards it must enforce. **If these are inadequate, the level of protection for the public and the environment suffers accordingly.**

Canada (many years after the fact) adheres to the International Commission on Radiological Protection (ICRP) 1990 radiation safety standards. At the 1996 Seaborne Panel Phase 11 Hearings, noted radiation expert Rosalie Bertell (PhD, GNSH) pointed to flaws in the ICRP standards such as the apparent “**trade-offs of risk, for what the users of radiation consider benefits**”^{9.}, and “**the use of “likely” doses at which these effects occur in the healthy adult, doses which are much too high to prevent harm when applied to children, pregnant women or those suffering from already impaired health.**”¹⁰ She also noted that the members of the International Commission on Radiological Protection (ICRP) who set the standards, determined who should be on the Commission, and that these were users of the technology and not from the health protection and care fields eg. “**physicians trained in occupational or public health, in oncology, pediatrics, epidemiology, toxicology, or any other related field.**”^{11.}

In very strong language, she concluded that “**ICRP uses arbitrary and unscientific methods of deciding on the detriment of concern to the public and the magnitude of the risk of such detriment;**” and “**ICRP accepts no medical surveillance of its recommendations.**”¹²

NCWC notes that in the last several years **significantly more evidence has come to light to support Rosalie Bertell’s view that the International Standards should be updated to better protect the public.** For instance, there has been considerable research done on ‘low dose’ radiation, such as that of the Harwell Studies UK, on Genome Instability and Bystander Effect.

Also, the events at Chernobyl, have allowed for many years of actual observed radiation effects showing the results of chronic exposure to internal radionuclides.^{13.}

According to Dr. Bertell this would appear to be a more accurate way of setting standards for human exposure, than the ICRP “**Physics Model**” of radiation damage which continues to use theoretical estimates based on the “**acute high dose /fast does rate exposures**” of Hiroshima and Nagasaki.^{14.} The “Physics Model” is based on the health effects exhibited by the Standard Man, 20-30 years old and in good health^{15.}, hardly the standard that would properly account for women, seniors, children, and those in poor health.

As well, other countries are using stronger standards. For instance, in the United States, the Environmental Protection Agency, which sets the standards for public and worker exposure to ionizing radiation, recognizes on its web site, that **“long term exposure to radium increases the risk of developing several diseases. Inhaled or ingested radium increases the risk of developing such diseases as lymphoma, bone cancer ... External exposure to radium’s gamma radiation increases the risk of cancer to varying degrees in all tissues and organs.”**¹⁶ For its part, the US Nuclear Regulatory Commission is expected to regulate air and water effluence so as to respect the EPA standards for air and water.¹⁷

There is also a newly formed group - the European Committee for Radiation Risk (EECR) which prepares data for legislators who need to pass regulatory laws, so that they have a scientific alternative to the recommendations of the ICRP.¹⁸ The EECR has recently released a study

The EECR 2003 Recommendations of the European Committee on Radiation risk, The Health Effect of Ionising Radiation Exposure at Low Doses for Radiation Protection Purposes. Regulator’s Edition.¹⁹ Aside from the challenge to, and variations in the ICRP methods of health risk calculations, the study clearly points to such important issues as **the need to take into account the low dose exposures to radiation over a period of time; to include not just deaths, but other causes of ill health and loss of quality of life; and the need for epidemiological studies of exposed populations.**

NCWC cites the foregoing to emphasize the **importance of having very strong, updated safety standards upon which to base the Nuclear Safety Commission’s Draft Regulatory Policy P-290.** A commitment to such standards will make the new policy a more meaningful and effective tool as the Commission works to protect the health and safety of Canadian citizens and the environment. **NCWC urges the Commission to take a leadership role in ensuring strong standards are developed, recognized and used, in Canada and elsewhere.**

With the foregoing in mind, NCWC now makes some further comments related to the Purpose, Scope, Background, and Policy Statement, as outlined in the Draft Regulatory Policy .

Purpose

NCWC commends the Commission for putting the **“ protection of the environment and the health and safety of persons”** first in stating its purpose. This is important to Canadians in their ongoing work with, and exposure to, nuclear waste (eg living in the heavily populated communities in very close proximity to nuclear plants such as Pickering, Darlington, Bruce). It will also be important to future Canadians, over the many thousands of years some of the waste will last.

In light of recent terrorist activities of horrendous magnitude, the continued presence of so many nuclear facilities close to cities, underlines the importance of the maintenance of national security. It also highlights the need to:

- * phase nuclear plants out as they reach the end of their life spans
- * move to alternative sources of energy, less vulnerable to terrorist activities, and
- * ensure the storage and ultimate disposal of nuclear waste is not vulnerable to security threats.

Scope

If it is to be included in the final “regulatory policy”, the description of the “scope” should be less vague. For instance, where it is stated that, “***These principles are relevant to all waste management phases, practices and considerations, including the generation, handling, processing, controlled release, storage, disposal and abandonment of radioactive waste.***”, it would be helpful to give a complete list of same, such as the list eg. import, export, mine, produce etc. in the “**Background**” information.

Again, in committing to ***consult and cooperate with provincial, national and international agencies***, it is unclear what type of agencies these are, or whether public agencies are to be consulted.

NCWC makes the following comments re the bullet points:

- * In its stated intent to “***promote harmonized regulation of radioactive waste in Canada***” the policy gives the appearance that the CNSC has a different set of regulations and standards for different locations and nuclear waste practices in Canada. The CNSC is the regulatory body that will be applying the regulatory policy standards in a consistent way across Canada. The use of the words “***promote harmonized***” should be omitted, and the words “**provide consistent**” substituted.
- * It is important that national standards for radioactive waste be consistent with international standards, but as stated previously, **these must be stronger standards.**
- * It would show more commitment to (strong) measures of control and international obligations to which Canada has agreed with respect to radioactive waste” if the word “***conformity***” was omitted and the word “**adhere**” used

Policy Statement

Overall, the lack of strong language in the draft Policy Statement negates its stated purpose to protect the health and safety of Canadian citizens and the environment.

This is exemplified in the introductory statement, which allows an **exemption to the key Policy principles** through the addition of the words “ ***in the context of the facts and circumstances of each case.***” These words should be removed, as they will surely undermine the “consistent” and strong application of the policy in making regulatory decisions .

Further to this, NCWC notes the following regarding the bullet points:

* ***“The generation of radioactive waste should be minimized to the extent practicable by the implementation of design measures and operating and decommissioning practices.”***

The words “***to the extent practicable***” weaken the policy and should be removed. The statement should be:

“The generation of radioactive waste should be minimized by the implementation of strong safety design measures and operating and decommissioning practices.”

* ***“Radioactive waste should be managed in a manner that is commensurate with its radiological, chemical and biological hazards to the environment and to the health and safety of persons.”***

This statement should be replaced by :

“In the handling of radioactive waste, all possible measures must be taken to protect the health and safety of persons and the environment from its radiological, chemical and biological hazards.

* ***“The anticipated impacts on the environment , and on the health and safety of persons, from the future management of the radioactive waste should not be greater than those that are currently permissible in Canada.”***

Given that the continued production of nuclear waste will be a burden that future generations must deal with, it is strongly recommended that this statement should be replaced by:

“ All measures possible should be taken, so that the health and safety of future generations and their environment will be protected. ”

In relation to NCWC policy, this would certainly mean **phasing out nuclear power**

plants sooner, rather than later; initiating a wide ranging public consultation on the future of nuclear power; investing substantively in finding a way to safely treat nuclear wastes; and, strengthening International nuclear radiation standards.

*** “The establishment of arrangements to fund any measures needed to protect the environment and persons from the radioactive waste, and the implementation of such measures, should not be deferred unduly so as to impose a burden on future generations.”**

The word “**unduly**” should be removed from this statement, as **it is unclear how long this might be**. A better wording would be:

“ The determination and establishment of publically accepted measures, needed to protect the environment and persons from radioactive waste, now and in the future, and the necessary mechanisms to fund same, should commence immediately.”

What is clear, is that **the task is vital and the cost enormous**. The intent of the draft wording appears to support the view by some in the nuclear industry, that we should bury the waste in the Precambrian shield, rather than burden future generations. **It is NCWC’s opinion, that both present and future generations need protection, and that (despite many years and hundreds of millions of dollars invested in exploring this option) burying nuclear waste in the shield has not been proven to be a safe way to protect future or present generations**

*** “The period over which the future impacts of radioactive waste on the environment and the health and safety of persons are assessed should include a period over which the maximum impacts are anticipated.”**

It is unclear why the assessment of future impacts of nuclear waste is taking place. It appears to predict the burial of nuclear waste, as it speaks of “ the period over which the maximum impacts are anticipated.” Nevertheless, **if it is to mean a future period of time, during which nuclear waste is either being stored above ground, awaiting a technically safe way to treat it; with or without a continued use of nuclear power etc., then the statement should read:**

“In estimating the need for protection of persons and the environment in the future, the maximum impacts over the full length of the radioactive by-products should be presumed , and protective measures planned for.”

This statement could also be applied to the burial of wastes, if this should happen.

*** “The trans- border effects on the health and safety of persons and on the environment that could result from the management of radioactive waste in Canada should not be greater than the effect that is experienced in Canada.”**

It would appear in this statement, that the “trans-border effects on health and safety of persons and on the environment” would be **allowed to be negative** for the USA, as long as Canadians experience these **same negative effects**. This statement should read:

“ All means possible shall be taken to prevent trans-border effects on the health and safety of persons and the environment in the USA.”

Finally, with respect to “the policy of the CNSC to consult and cooperate with provincial, national and international agencies for the purposes of:

*** “ promoting harmonized regulations of, and consistent national and international standards for radioactive waste; and**

*** achieving conformity with the measures of control and international obligations to which Canada has agreed concerning radioactive waste.”**

Again it is NCWC’s position that **the national /international standards for radioactive waste need to be updated and strengthened considerably, to reflect the emerging scientific data regarding the dangers of low- dose exposures over a long period of time to the health and well being of Canadians. Such standards should also reflect gender based analysis.**

In developing and promoting these standards, the Commission should encourage the ICRP to consult with such regulatory bodies as the EPA, and with the newly formed EECR. **Should the ICRP not move in this direction, we urge the Commission to find its own way towards much stronger standards, and then promote them internationally.** With this in mind, the first statement should read :

“promoting updated and strong, regulations of, and national and international standards for radioactive waste”

The second statement should read:

“ seeking to strengthen the measures of control and international obligations to which Canada has agreed concerning radioactive waste, through international

treaty negotiations” .

Background:

1. National Council of Women of Canada Nuclear Policies to date:

1955- NCWC requested the Government of Canada to issue an authoritative report on the known and unknown aspects of (the potential effects of radiation upon living organisms)”

1959- concerned that radioactive waste material from a (nuclear) plant could be deposited in streams , or other sources of water, or in underground tanks,..urge continued and intensive efforts for protection ..of Canadian life exposed to this danger.

1974- urged government of Canada to...delay the widespread siting of nuclear plants until there is more thorough and unbiased assessment of their safety design.

1976-requested the International Council of Women (ICW) to ensure that the International Atomic energy agency be empowered to set and enforce international standards for safety and pollution

control devices within nuclear plants

1976- requested the International Council of Women to obtain from the World Health Organization research information and technical advice on the health problems resulting from environmental pollution (including radiation)

1979- urged the Government of Canada- call a moratorium on the development of nuclear power...no new licences be granted for nuclear reactors

1980- urged the Government of Canada to ..increase funding for the development of renewable energy equal to the amount paid for nuclear energy

1986 -in London England, at the Triennial Meeting of the ICW, urged National Councils to underline and urge governments to conform to and respect the regulations concerning safeguards established by the IAEA for building and operating nuclear plants

1986- NCWC noted the “ danger of radiation emission from many sources eg. uranium mining, transportation of ore, nuclear reactors and disposal of nuclear waste”

1997- urged the government of Canada to : a) reject as unsafe, the AECL “concept” for the burial of high-level nuclear wastes in the Precambrian shield; and, b) initiate a public policy debate, with broad public consultation, on the energy future of Canada, with specific focus on the nuclear issue; and c) expend research monies on a search for safe technology to treat nuclear waste d) bring Canadian radiation exposure standards into conformity with those of the International Commission on Radiological Protection (of 1990) while encouraging the Commission to improve these standards even further to reflect gender and age differences of women and children e) do all that is in its power to prevent the expansion of the nuclear industry.

2. Federal Environmental Assessment and Review Process. Nuclear Fuel Waste Management and Disposal Concept. Report of the Nuclear Fuel Waste Management and Disposal concept Environmental Assessment Panel. February 1998.

3. ibid. Executive Summary. pg. 2. Key Panel Conclusions. paragraph 2.

4. ibid. Executive Summary. pg. 2. FUTURE STEPS. paragraph 1.

5. *ibid.* Executive Summary. pg 3. FUTURE STEPS. Key Recommendations. paragraph 1. bltpt.1
6. The Nuclear Fuel Waste Act. June 13, 2002, in effect November 15th 2002. as per announcement of October 25th, 2002. News Release. Natural Resources Canada. “that nuclear utilities form a waste management organization.”
7. Nuclear safety plan ordered. Peter Calami. Toronto Star. February 28, 2003.
8. Nuclear cleanup to cost billions. Peter Calami. Toronto Star. April 11, 2003.
9. page 6, paragraph 6. Nuclear Fuel Waste Management and Disposal Concept Phase 11 Hearings: Toronto, June 27-28, 1996. Presentation on the Health Impact Issues Specific to the Pre-closure Period of Proposed Disposal Facility. Rosalie Bertell PhD, GNCH, International Institute of Concern for Public Health.
10. *ibid.* page 8. paragraph 5.
11. *ibid.* page 5. paragraph 7
12. *ibid.* page 10. Summary
13. personal communication Rosalie Bertell. July 23, 2003.
14. *ibid*
15. Low Dose Ionizing Radiation Exposure. Background for Reich@Binstock LL.P. Civil Action No. SA-01CA0610EP. page 1. paragraph 3.
16. *ibid* page 2.. paragraph 3.
17. *ibid* page 2. paragraph 3.
18. personal communication. Rosalie Bertell. July 23, 2003.
19. web site <http://www.euradcom.org> July 23, 2003. 2003 Recommendations of the ECRR, The Health Effects of Ionizing Radiation Exposure at Low Dose Rates for Radiation protection Purposes: Regulator’s Edition. Edited by Chris Busby with Rosalie Bertell, Inge Schmitz-Feuerhake, Molly Scott Cato and Alexei Yablokov. Published on behalf of the European Committee on Radiation risk, Brussels. by Green audit. 2003 ISBN 1 897761 24 4.