

GREENPEACE

January 23, 2007

Ms. Johanne Gélinas
Office of the Commissioner of the Environment and Sustainable Development
Auditor General of Canada
Attention: Petitions
240 Sparks Street
Ottawa, Ontario K1A 0G6
E-mail: petitions@oag-bvg.gc.ca

Dear Ms. Gélinas,

Re: Petition pursuant to Section 22 of the Auditor General Act, regarding the Nuclear Liability Act

Please accept this petition regarding federal regulation and oversight of the nuclear industry in Canada. This petition follows up on petitions filed previously by Siegfried K. Kleinau of Citizens for Renewable Energy.

Greenpeace was motivated to file this petition for three reasons: First, the failure of Natural Resources Canada to present amendments to the Nuclear Liability Act by December 2005 as promised in its 2005 response to Mr. Kleinau's petitions.¹ Second, information acquired through Access to Information showing that Natural Resources has avoided amending the Nuclear Liability Act in a timely fashion due to the concern that it would provoke public debate and scrutiny. Third, the federal government's failure to adequately protect Canadians and the environment from the threat of a catastrophic accident caused by an aerial terrorist attack at any of Canada's nuclear power stations.

By this petition, Greenpeace Canada seeks to: 1) gain clarity on the federal government's timeline and process for consulting and revising the Nuclear Liability Act; 2) acquire information on the federal government's subsidy of Canadian nuclear industry since September because of the 'terrorism premium'; 3) challenge the federal government's position (supported by regulatory agency, the Canadian Nuclear Safety Commission) that Chernobyl type accidents are of such low-probability that they deserve to be excluded from the review of Nuclear Liability Act and federal environmental assessments; and 4) request that the federal government and its agency include the impacts of terrorist attacks at Canadian nuclear stations in environmental assessments.

Greenpeace Canada's high-level concerns are the following:

- The federal government's ongoing delay in tabling changes to the Nuclear Liability Act, most likely due to fear of public scrutiny of the federal government pro-nuclear policies.
- The federal government's failure to evaluate the environmental and human health consequences of a Chernobyl-scale accident at Canada's nuclear power stations.
- The government's unsatisfactory response to the threat of an aerial attack at Canadian nuclear stations after September 11th. Specifically, ensuring that current nuclear stations are robust enough to withstand a terrorist attack from the air.

¹ Please see: Petition 60A, March 27, 2003 and 60B December 1, 2003.

- The regulatory double-standard the Canadian Nuclear Safety Commission (CNSC) has established between old and new nuclear reactors in regard to their ability to withstand an aerial terrorist attack.
- The refusal of the CNSC to include an evaluation of the environment impacts of a terrorist attack at Canadian nuclear stations in environmental assessments.

This petition is directed to the Ministry of Natural Resources, Environment Canada, Transport Canada and the Ministry of Finance. While this petition is directed to the petitionable Ministries, Greenpeace Canada would like to request that it be directed at the Canadian Nuclear Safety Commission (CNSC) and the Canadian Environmental Assessment Agency.

Background – The Nuclear Liability Act

The Nuclear Liability Act was proclaimed in 1976 and limits a nuclear station operator's liability for an accident to \$75 million. Canada's cap on liability for nuclear operators is the lowest in the world.

Spurred by two petitions from Mr. Kleinau, the Commissioner of the Environment and Sustainable Development presented her annual report on September 29 2005 recommending that "Natural Resources Canada should begin the preparatory work on the revisions to the Nuclear Liability Act and submit policy proposals to the Minister by the end of 2005 in order to advance the commitment to bring forward revisions to the Act."

Natural Resources Canada responded that it was "...undertaking significant policy work to ensure that the revisions required to the Nuclear Liability Act are addressed. Natural Resources Canada commits to completing its work on developing policy proposals for revisions to the Act by the end of 2005. The timeframe for bringing forward any revisions will be established by the Government once the policy work is completed.

1. Nuclear Liability Act Renewal – Who's Driving the Process?

Greenpeace Canada is concerned that the review and revisions to the Nuclear Liability Act are being driven by the desires of the nuclear industry and Natural Resources Canada to avoid public scrutiny and debate of the accident risk from Canada's nuclear stations.

Indeed, it is clear from internal government correspondence that Natural Resources Canada decided to avoid consultation with non-industry stakeholders because of the public attention it would attract and the assumption that the government was already aware of the concerns of actors outside of the nuclear industry.

A 2004 Natural Resources Canada briefing stated that the review of the Nuclear Liability Act has involved "extensive consultation with the nuclear industry" but:

Consultation with non-industry organizations is an issue. Municipalities, environmental groups, and the general public have not been consulted. Despite this, we have a good view of their concerns from positions they have taken in the past, including litigation on the constitutionality of the legislation from the early 1990's involving the City of Toronto, Energy Probe, and an anti-nuclear activist. Consultations with non-industry groups would attract a fair amount of attention. Not consulting with these groups will draw criticism from them, particularly given our consultations with the industry and the Prime Minister's emphasis on engaging the public on policy initiatives.²

² Briefing note, "Nuclear Liability Act (NLA) Review," Natural Resources Canada, June 2004.

Meanwhile, internal correspondence regarding the review of the Nuclear Liability Act from 2004 shows that despite long-time public demands for revisions to the Act, the nuclear industry was advising the government against renewing the Act. An internal memo states that “Industry, while supporting our proposals, is not supportive of bringing revised legislation forward at this time. We understand that they have spoken to the Minister’s office in this regard.”³

Greenpeace notes, however, that in 2002 the federal government rushed through the passage Bill C-4, an Act to amend the Nuclear Safety and Control Act, in order meet the Bruce Power’s need to indemnify investors in its facilities.⁴

According to ‘Legislative Initiatives Document’ acquired through Access to Information Natural Resources Canada had consulted the provinces of New Brunswick, Ontario and Quebec on the draft *Nuclear Liability and Compensation Act* in May 2005 and consultations with the nuclear industry would be completed by September 2005. The document also describes the potential reaction of Parliament to the revised Act, stating that “[d]ue to the entrenched and long standing positions of a number of parties, passage in the House of Commons will be difficult. To ensure passage, a broad debate on the role of the nuclear industry in Canada may be required.”⁵

Thus, despite having prepared draft revisions to the Nuclear Liability Act, Natural Resources Canada has failed to meet the commitment it made in response to the Environment Commissioner’s report to present changes to the Nuclear Liability Act by December 2005.¹

Given the government’s prompt legislative action (Bill C-4) to address the business needs of Bruce Power and internal government correspondence indicating the government’s desire to avoid the negative public attention of publicly debating the Nuclear Liability Act, Greenpeace Canada can only conclude that Natural Resources Canada’s handling of the review and revision of the Nuclear Liability Act has prioritized the interests of nuclear industry over the public interest.

2. The Terrorist Threat to Nuclear Stations²

Greenpeace Canada is concerned that the federal government has failed to adequately protect Canadians from the risk of an aerial attack at one of Canada’s nuclear stations. Furthermore, Greenpeace Canada is concerned that the federal government is protecting the nuclear industry from the increased cost of post-September-11th insurance premiums, rather than communicating transparently with Canadians about the threat of terrorist attacks at Canadian nuclear stations.

2.1 Federal Subsidization of “Terrorist Risk Coverage”

Internal Natural Resources Canada documents indicate that after the terrorist attacks September 11th, the federal government assumed the increased insurance costs of “terrorist risk coverage” for the nuclear industry.

Briefing notes to the Minister of Natural Resources show that in 2004 the federal government paid \$ 132,525 for the terrorist coverage premium for four nuclear station operators (presumably, Ontario Power Generation, Bruce Power, Hydro-Quebec and New Brunswick Power). In 2005, the federal government paid \$152,472 in terrorist coverage premium for the four nuclear operators.⁶

³ Tom Wallace (Director General Electricity Resources Branch) to Howard Brown (Assistant Deputy Minister, Energy Policy Sector), “Nuclear Liability Act Review,” September 15, 2004.

⁴ Proceedings of the Standing Senate Committee on Energy, the Environment and Natural Resources, Issue 7 – Evidence, February 6, 2003.

⁵ Legislative Initiatives Document – Nuclear Liability and Compensation Act, Natural Resources Canada, June 2005.

⁶ Briefing Note to the Minister of Natural Resources, “Impact on Nuclear Operators of Proposed Premiums for Terrorist Risk Coverage under the Nuclear Liability Act for the 2005 policy year,” February 11, 2005.

According to a ministerial briefing the federal government was shouldering 80% of the terrorist risk coverage in 2005 while the private insurance coverage was as a first step covering 20%.

The briefing describes the intent of this arrangement was to:

Provide a positive step in return of private insurance solutions to the terrorist risk, effectively reducing federal involvement in the terrorist insurance market; protect operators from the high premium increases associated with the 100 percent industry solution; avoid adverse effects of high premium increases on nuclear power competitiveness in a deregulated electricity market; and maintain the presence of Canadian insurance companies in the nuclear pool that, in turn, permits greater Canadian control over the nuclear pool, afford somewhat better protection from the vagaries of international insurance capacity and facilitates the administration of the nuclear liability regime.⁷

Greenpeace Canada disagrees with the federal government objective to “avoid adverse effects of high premium increases on nuclear power competitiveness in a deregulated electricity market.” It is noteworthy that another internal Natural Resources Canada document admits that Canada is “the only country where no private insurance was available for terrorist-related nuclear third-party damage and where the Government was reinsuring the entire risk.”⁸

2.2 Ability of Nuclear Facilities to Withstand a Terrorist Attack

As noted, Greenpeace Canada is concerned that the federal government has acted to protect the nuclear industry from increased insurance costs of “terrorist risk coverage” while failing to protect Canadians and the health and environmental impacts of an attack at Canada’s ageing nuclear facilities. Specifically, the federal government has failed to ensure that Canada’s ageing nuclear stations are able to withstand the impact of an aerial terrorist attack and prevent Chernobyl-scale contamination.

Greenpeace Canada is concerned that the federal government’s nuclear regulatory agency, the Canadian Nuclear Safety Commission (CNSC), has approved the life-extension of ageing nuclear stations while misleading the public regarding the ability of ageing reactors to withstand a terrorist attack.

In 2006, the CNSC gave the approval for the life-extension of two nuclear stations – Hydro-Quebec’s Gentilly-2 reactor and New Brunswick Power’s Point Lepreau nuclear station, which are both a Candu 6 design. During public hearings on the future of the Gentilly-2 reactor in November 2006, members raised their concerns regarding Gentilly-2’s ability to withstand the impact of a terrorist attack from the air. The CNSC dismissed requests by members of the public to retrofit the reactor to withstand any potential terrorist attack from the air.⁹

A recent Toronto Star article noted, however, that members of the nuclear industry are frustrated because the CNSC is refusing to licence the construction of a new Candu-6 reactor without significant design changes. That is, the current Candu 6 design would not meet international standards established after September 11th requiring reactors to be robust enough to withstand a terrorist attack. The article quotes the most recent addition of the Canadian Nuclear Society’s journal on the topic: “There have been few details, but interpretation of many knowledgeable of the IAEA

⁷ Memorandum to the Minister of Natural Resources, Title withheld, December 15 2004, acquired through Access to Information.

⁸ Memorandum to the Minister of Natural Resources, “Government of Canada premium for terrorist risk coverage under the *Nuclear Liability Act* (NLA)” February 11, 2005.

⁹ Compte rendu des délibérations, y compris les motifs de décision relativement à Demande de renouvellement du permis d’exploitation de la centrale nucléaire de Gentilly-2 16 août 2006 et 7 novembre 2006

and other international standards is that (AECL's) current Candu 6 reactors would not pass a strict application of those rules."¹⁰

Greenpeace Canada is concerned that the CNSC has established a terrorism double-standard, requiring new nuclear stations to withstand aircraft impacts but not requiring nuclear operators to upgrade existing facilities when they apply for life-extension.

It must be noted that the CNSC claims that it requires nuclear operators proposing the life-extension of nuclear reactors to upgrade stations to 'modern standards.' It defines these 'modern standards' as: "The set of high-level objectives and requirements for the siting, design, construction, commissioning, operation and decommissioning of a nuclear power plant if it were to be built at the time of the initiation of the life extension project."¹¹

Given the admission by the CNSC and the nuclear industry that older reactors would be unable to withstand a terrorist attack, Greenpeace Canada feels that the CNSC has misled the public regarding the capacity of older stations to withstand terrorist attacks. What's more, the CNSC has avoided applying its policy of requiring safety upgrades at the time of life-extension as if the nuclear station "were to be built at the time of the initiation of the life extension project."

Indeed, according to the CNSC's draft guide *Requirements for Design of Nuclear Power Plants* the design of any nuclear power plant:

...shall be such that it is sufficiently robust against malevolent acts. Any other on-side facility with potential for release of large amount of radioactive material (e.g., new and spent fuel storage areas) or energy (e.g., combustible materials storage areas) shall also be subjected to this requirement.¹²

Greenpeace Canada is concerned that the CNSC has not applied this standard to the life-extension of the Point Lepreau Nuclear Station, Gentilly-2 and the Bruce A Nuclear Station. The CNSC has also begun the process for approving the life-extension of the Pickering B nuclear station, which, only 30 km from Toronto, is closer than any other nuclear station in the world to a major population centre.

2.3 Nuclear Terrorism and the Canadian Environmental Assessment Act

Greenpeace Canada is concerned that the potential environmental and human health impacts of a terrorist attack at Canadian nuclear stations are being excluded from environmental assessments carried out by the CNSC.

The CNSC has chosen to exclude the impacts of terrorism from the environmental assessments on the life-extension of nuclear plants in Canada because "Acts of terrorism and sabotage are not specifically required to be included in environmental assessments under the CEAA."¹³ Furthermore, CNSC staff argue that "...security issues are being appropriately managed by the ongoing regulatory process and further, they do not warrant special consideration in the environmental assessment."¹⁴

¹⁰ Tyler Hamilton, "Could reactors withstand blast?" *Toronto Star*, January 19, 2007.

¹¹ T. E. Schaubel Director Pickering Regulatory Program Division (CNSC) to Mr. D. Patrick McNeil Senior Vice President New Generation Development, (OPG), "Pickering NGS-B Refurbishment Project – CNSC Position on Code Effective Date and, Project Milestones, and Process to Address Emerging Issues" December 15, 2006, pg 6.

¹² *Pre-Consultation Draft – Issued for Trial Use and Comments until December 31, 2005 – Requirements for Design of Nuclear Power Plants*, CNSC, March 2005.

¹³ CMD 07-H2, Comments from Stakeholders, *supra*, pg 12

¹⁴ CMD 07-H2, Comments from Stakeholders, *supra*, pg 12

As noted, Greenpeace Canada does not feel that Canada's nuclear facilities are sufficiently robust to withstand the impacts of a September 11th type terrorist attack and prevent radioactive contamination on the scale of the Chernobyl accident. As well, given that the "terrorist risk coverage" charges after September 11th increased enough that the federal government choose to cover the cost to prevent the "adverse effects of high premium increases on nuclear power competitiveness," Greenpeace Canada believes that the potential of a terrorist attack is sufficiently high for its environmental impacts to be assessed under the Canadian Environmental Assessment Act.

It is noteworthy that the United States of America's Ninth Circuit Court of Appeals ruled in June 2006 that Nuclear Regulatory Commission (NRC) must address terrorism in the environmental impact statement regarding the establishment of dry cask storage at Diablo Canyon nuclear station before it issues a license for the facility.¹⁵

Greenpeace Canada agrees with the ruling of the Ninth Circuit Court of Appeals. Given the hazard of terrorism, it is incumbent on the CNSC and the federal government to require an evaluation of the impacts of terrorism in environmental assessments of nuclear facilities along with proposals to mitigate the risk and impacts.

3. The Exclusion of Chernobyl-scale Accidents from the Review of the Nuclear Liability Act

Greenpeace Canada is deeply disturbed by internal-government documents that state that the environmental and human health impacts of a Chernobyl-scale have been excluded from the federal government's review of the Nuclear Liability Act.

In May 2005, the office of the Ministry of Natural Resources briefed the Liberal Caucus on the need to revise the Nuclear Liability Act and "the anticipated reaction by external stakeholders, including environmental groups."¹⁶ The talking points for the briefing state that the proposed revisions to the Nuclear Liability Act would "...respond well to foreseeable risks – not a Chernobyl type risk, because that is not credible to the to the Canadian situation..."¹⁷

This position is based on the long-time position of the Canadian Nuclear Safety Commission (CNSC) that a nuclear accident including a loss of containment is of such low probability that it should not be included in the review of plausible environmental impacts of any nuclear power project.

For instance, in the Environmental Assessment Screening Report for the restart of the Pickering A nuclear station prepared by the CNSC in 2000 stated that: "Unless the containment envelope is breached, there can be no major environmental impacts even for a severe accident."¹⁸ The corollary of this statement is that failure of the containment during a serious accident will cause major environmental impacts.

Greenpeace Canada disputes the position of the CNSC and Natural Resources Canada that nuclear accidents involving loss of containment are of such low-probability that their consequences should be dismissed. Greenpeace Canada believes that there are far too many uncertainties regarding the risk of a catastrophic accident involving the loss of containment for the CNSC to exclude such accidents from its environmental assessment.

3.1 Vulnerabilities of Nuclear Stations – Containment and the Control Room

It must be noted that even the nuclear industry has admitted the unreliability of containment systems. In the 1970s the United States Atomic Energy Commission (AEC) was aware that containment systems were prone to failure. When an AEC staff member recommended that containment design be banned, the AEC's director of technical

¹⁵ Press Release, US SUPREME COURT RULES IN FAVOR OF MOTHERS FOR PEACE, January 16, 2007.

¹⁶ Email – Dave McCauley to Jeff Wilson, "Re: Nuclear Liability Act – Caucus Consultations," May 2, 2004

¹⁷ Ibid.

¹⁸ Screening Report on the Proposal to Restart the Pickering A Nuclear Station, pg 7.3-14

review responded that it "could well be end of nuclear power. It would throw into question the continued operation of licensed plants, could make unlicensable the GE and Westinghouse ice condenser plants now in review and would generally create more turmoil than I can think about."¹⁹

In 1986, Harold Denton, a former director of the United States Nuclear Regulatory Commission Office of Nuclear Reactor Regulation, acknowledged that NRC studies showed that General Electric Mark I reactors had "...something like a 90% probability of that containment failing."²⁰ A draft version of the NRC's 1987 Reactor Risk Reference document also acknowledged the inability of containment systems to protect the public and the environment during meltdown, stating "[i]n general, these data indicate that early containment failure cannot be ruled out with high confidence for any of the plants."²¹

The NRC has admitted containment failure is possible across reactor type, stating that "[a]ll five major reactor containment types were found to be subject to failure in such accidents, for which they were not designed."²²

Canada has its own history of containment failures. For example, a nine week long impairment of the Bruce NGS-B containment system existed in 1990 because a control technician incorrectly set the calibration on radioactivity monitors, rely on memory only.²³ Had there been an accident requiring use of containment during this period, the automatic isolation of the system would have been delayed, allowing the release of radioactivity.

During the once-per-decade test of the containment system at Pickering in 1990, seals on the pressure relief duct expansion joints failed at about half the design pressure²⁴ The pressure relief duct is the ½ kilometer long elevated concrete tunnel on the south side of the reactors, linking each reactor to the vacuum building. It was estimated that the Pickering nuclear station containment system had been inadequate for the previous 7 ½ years due to the degradation of expansion joint seals.²⁵

Another area of vulnerability at the Pickering nuclear station is the control building, which houses the safety controls for the station. This building is not protected with a protective structure as the reactor buildings are.

An American study of aircraft hazards to nuclear stations concluded 19 years before September 11th that "[t]he control building is the only single building which, if hit, could lead to core melt."²⁶ CNSC staff have made similar acknowledgements. When asked during CNSC hearings in November 2006 regarding the Gentilly-2 nuclear station, CNSC security expert Colin Moses admitted that an aerial attack on the control room would "Évidement, avec un tel événement, il y aurait certain conséquences assez majeurs aux centrales. C'est quand même un événement assez sévère."²⁷ Roughly translated: "Obviously, such an event would have fairly serious consequences to the station. In any case, it is a fairly severe event."

Greenpeace believes that there are far too many uncertainties regarding the risk of a catastrophic accident involving the loss of containment for the federal government to exclude such accidents from the scope of the review of the Nuclear Liability Act.

¹⁹ U.S. Atomic Energy Commission, Memorandum from: Joseph M. Hendrie, to John F. O'Leary, September 25, 1972

²⁰ Brain Jordan, "Denton Urges Industry to Settle Doubts about Mark I Containment," Inside N.R.C., vol. 8 no. 12, June 9, 1986, pp. 1-3

²¹ U.S. Nuclear Regulator Commission, *Reactor Risk Reference Document*, draft, NUREG-1150, February 1987, pg. ES-14

²² U.S. Nuclear Regulatory Commission, *Survey of Light Water Reactor Containment Systems, Dominant Failure Modes, and Mitigation Opportunities*, NUREG/CR-4242, 1988, p. v.

²³ Event Report # 90-57, Bruce B

²⁴ Pickering Event Report #90-55

²⁵ Atomic Energy Control Board Annual Staff Report on PNGS, May 1991.

²⁶ Report from Spring 1982 by the Power Authority of the State of New York and the Consolidated Edison Company of New York, Inc., "Indian Point Probabilistic Safety Study," Section 7.6.2, "Aircraft Hazards Analysis."

²⁷ Transcripts, CNSC hearing on the environmental assessment of Gentilly-2, November 8, 2006.

3.2 Risk Studies

Greenpeace Canada is concerned that the risk and economic studies used by the federal government in its review of the Nuclear Liability are insufficient and underestimate the risk and impact of an accident at nuclear stations in Canada.

For instance, Natural Resources Canada noted in its response to Mr. Kleinau's petition (60B) that it was using a study entitled produced by the CNSC as part of the its review of the Nuclear Liability Act.²⁸ The study's omissions are significant: the study fails to examine a severe nuclear accident involving the loss of containment and it fails to examine the environment and economic impacts of an accident at the Pickering nuclear station, which, just 30 km from downtown Toronto, is closer than any other nuclear station in the world to a major population centre.

The study found that the cost of a nuclear accident at the Gentilly-2 or Darlington nuclear site would range from \$1 million to \$100 million, depending on the weather conditions and size of evacuation. This cost range differs dramatically from a 1992 risk study by Gordon Thompson of the Institute for Resource & Security Studies for the Ontario Environmental Assessment Board, which estimated the cost of a Chernobyl-scale accident at the Darlington nuclear station at \$1 trillion.²⁹

3.3 CNSC Risk Studies

The CNSC claims that it takes a 'risk-based approach' to regulation. Based on the CNSC's assessment of risk it excluded the assessment of severe accidents involving loss of containment from the current environmental assessment guidelines. As noted, based on this assumption Natural Resources Canada has exclude worst-case accidents from its review of the Nuclear Liability Act.

Greenpeace believes that this is an issue of concern because of the CNSC's misapplication of risk assessment and the use of low-quality and incomplete risk assessments.

First, risk is both the probability of an event and its consequences. Despite declarations that the CNSC uses a 'risk based approach' to decision making, the CNSC consistently evaluates solely the 'probabilities' and not the impacts of a large-scale nuclear accident.

It should be noted that the Senate Committee on Energy, the Environment and Natural Resources reviewed the CNSC's oversight of the restart of the Pickering A nuclear station and published a report entitled *Canada's Nuclear Reactors: How Much Safety is Enough?* in 2001 that recommended that the federal government revise and update the Nuclear Liability Act. In response to Mr. Kleinau's petition to the auditor Natural Resources Canada acknowledged "...the merit of the recommendation in the Standing Senate Committee report to increase the mandatory operator held insurance coverage from the current 75 million dollars to an amount in line with international levels."

It should be noted that the Committee heard testimony on the quality of risk studies carried out by the CNSC. The Committee heard that the risk assessments completed approved by the CNSC for the restart of the Pickering A

²⁸ Please see: *Review of the Coverage Limit in the Canadian Nuclear Liability Act*, by International Safety Research and Magellan Engineering for the Canadian Nuclear Safety Commission, September 17, 2003.

²⁹ *Risk Implications of Potential New Nuclear Plants in Ontario Volume 2 – Accident Risk for Nuclear Plants Similar to DNGS A*, prepared by Gordon Thompson of Institute for Resource & Security Studies for the Coalition of Environmental Groups for a Sustainable Energy Future December 1992.

nuclear station were incomplete and that compared to U.S. risk assessments underestimated the potential for severe nuclear accidents and large releases of radiation.³⁰

As a result, the Committee recommended "...that the CNSC require OPG to conduct a full, third-level probabilistic risk assessment of Pickering A."³¹ A third level probabilistic risk assessment considers not only the estimates of the probabilities of an accident but provides an assessment of the offsite consequences of an accident.

The Senate Committee on Energy , the Environment and Natural Resources recommended in 2001 after reviewing the CNSC's oversight of the safety review of Pickering A that:

....substantive discussions such as those related to the safety system upgrades be documented to the extent possible, that those documents be made publicly available and that the public be consulted before final decisions are made.

It is Greenpeace Canada's understanding that the CNSC has ignored Senate Committee recommendations on risk studies and is permitting nuclear operators to carry out lower-level probabilistic risk assessments.

Given the large uncertainties, incompleteness, and lack of transparency in the risk assessments developed by the CNSC, Greenpeace Canada believes that the CNSC has insufficient certainty to reasonably exclude the possibility of a catastrophic accident at the Pickering nuclear station.

1. Nuclear Liability Act Renewal – Who's Driving the Process?

1.1 What reason does Natural Resources Canada have for missing its deadline of December 2005 for presenting amendments to the Nuclear Liability Act as promised in response to previous petitions to the Environment Commissioner?

1.2 What is the current status of the federal government's review of the Nuclear Liability Act?

1.3 Given that the federal government has consulted extensively with the nuclear industry, but avoided consulting with non-industry stakeholders, will the federal government commit to public consultations on revisions to the Nuclear Liability Act?

1.4. Does Natural Resources Canada have a policy or practice of avoiding consultation with the public on nuclear issues because it will attract public attention and debate on the future of nuclear power in Canada?

2. The Terrorist Threat to Nuclear Stations

2.1 Federal Subsidization of "Terrorist Risk Coverage"

2.1.1 Can Natural Resources Canada state how much the federal government has spent on "terrorist risk coverage" since the terrorist attacks of September 11th 2001? Please indicate how has been spent for each nuclear operator per year.

³⁰ G. Thompson, *A Review of the Accident Risk Posed by the Pickering A Nuclear Station: A Report to the Standing Senate Committee on Energy, the Environment and Natural Resources*, August 2000.

³¹ The Standing Committee on Energy, the Environment and Natural Resources, *Canada's Nuclear Reactors: How Much Safety Is Enough?* June 2001, p. 20.

2.1.2 Given that Natural Resources Canada pays the insurance cost for the risks of nuclear terrorism to “avoid adverse effects of high premium increases on nuclear power competitiveness in a deregulated electricity market,” has it studied the cost of such increases on nuclear power’s competitiveness? If so, what were the results of the study?

2.2 Ability of Nuclear Facilities to Withstand a Terrorist Attack

2.2.1 Given that the CNSC states it requires nuclear stations undergoing life-extension to upgrade to ‘modern standards’ and that the draft guide for new nuclear station requires that reactors be “sufficiently robust against malevolent acts,” is Natural Resources Canada aware if the CNSC required New Brunswick Power, Hydro-Quebec and Bruce Power to meet this standard as part of the approvals for the life-extensions for the Point Lepreau, Gentilly-2 and the Bruce A nuclear stations?

2.2.2 Given that the CNSC has started the environmental and safety review for the proposed life-extension for Ontario Power Generation’s (OPG) Pickering B nuclear station, will the CNSC require OPG to upgrade the station to be “sufficiently robust against malevolent acts” as part of any approval of life-extension?

2.3 Nuclear Terrorism and the Canadian Environmental Assessment Act

2.3.1 Has Environment Canada or the Canadian Environmental Assessment Agency considered revising its regulations under the Canadian Environmental Assessment Act to require an assessment of the environmental impacts of a terrorist attack at a large-scale industry infrastructure such as nuclear stations?

2.3.2 Has Environment Canada examined the ruling of United States of America’s Ninth Circuit Court of Appeals requiring the Nuclear Regulatory Commission to include a review of the impacts of a terrorist attack in the environmental assessment for the licensing of a nuclear facility?

2.3.3 Is Environment Canada aware if the Canadian Environmental Assessment Agency has reviewed the ruling of United States of America’s Ninth Circuit Court of Appeals requiring the Nuclear Regulatory Commission to include a review of the impacts of a terrorist attack in the environmental assessment for the licensing of a nuclear facility?

2.3.4 Is Natural Resources Canada aware if the Canadian Nuclear Safety Commission has reviewed the ruling of United States of America’s Ninth Circuit Court of Appeals requiring the Nuclear Regulatory Commission to include a review of the impacts of a terrorist attack in the environmental assessment for the licensing of a nuclear facility?

2.3.5 Has Environment Canada examined the ruling of United States of America’s Ninth Circuit Court of Appeals requiring the Nuclear Regulatory Commission to include a review of the impacts of a terrorist attack in the environmental assessment for the licensing of a nuclear facility?

3. The Exclusion of Chernobyl-scale Accidents from the Review of the Nuclear Liability Act

3.1 Vulnerabilities of Nuclear Stations – Containment and the Control Room

3.1.1 How did Natural Resources Canada come to its position that a Chernobyl-type accident is “not credible to the to the Canadian situation”?

3.1.2 Is Natural Resources Canada aware of when and how the CNSC or its predecessor came to the decision that nuclear accidents involving the loss of containment were of such low-probability that they could be excluded from an environmental review of a nuclear station in Canada? Please indicate what studies the CNSC based its assumptions on.

3.1.3 What is Natural Resources Canada's interpretation of the Precautionary Principle?

3.1.4 How has Natural Resources Canada applied the Precautionary Principle in its review of the Nuclear Liability Act?

3.2.5 Is Natural Resources Canada aware of the Canadian Nuclear Safety Commission's interpretation of the Precautionary Principle? If so, please describe it.

3.2.6 Is Natural Resources Canada aware of how the Canadian Nuclear Safety Commission applies the precautionary principle when assessing the risks and consequences of nuclear accidents at nuclear stations in Canada?

3.2 Risk Studies

3.2.1 Has Natural Resources Canada evaluated the environmental and economic impacts of a catastrophic nuclear accident including the loss of regulation and containment (dual mode failure) at the Pickering nuclear station?

3.2.2 Is Natural Resources Canada aware if the CNSC has evaluated the environmental and economic impacts of a catastrophic nuclear accident including loss of containment at the Pickering nuclear station?

3.2.3 Has Environment Canada evaluated the environmental impacts of a catastrophic nuclear accident including the loss of containment at the Pickering nuclear station?

3.2.4 Has Transport Canada evaluated the impact of a catastrophic nuclear accident at either the Pickering or Darlington nuclear stations on the use of Highway 401 and its associated impact on Canada's exports to the United States? If so, what were the findings?

3.2.5 Has the Ministry of Finance examined the economic costs of a Chernobyl-scale nuclear accident on Canada's economy?

3.3 CNSC Risk Studies

3.3.1 Given that the highest level nuclear accident (level 7) according International Atomic Energy Agency causes "widespread health and environmental effects," is Natural Resources Canada aware if the CNSC has ever analyzed or documented the impacts of such an accident occurring at one of Canada's nuclear power stations?

3.3.2 Is Natural Resources Canada aware if the CNSC has ever carried out a third-level probabilistic risk assessment on a nuclear power station in Canada? If so, for what stations and please describe the results?

3.3.3 Is Natural Resources Canada aware of under what condition the CNSC requires nuclear operators to carry out a third-level probabilistic risk assessment?

3.3.4 Does Natural Resources Canada have a position on the Senate Committee recommendation that the restart of the Pickering A nuclear station should have been subjected to a “third-level probabilistic risk assessment”? Does Natural Resources Canada have a position on when such studies should be applied to nuclear stations in Canada?

3.3.5 Is Natural Resources Canada aware if the CNSC has a position on the Senate Committee recommendation that the restart of the Pickering A nuclear station should have been subjected to a “third-level probabilistic risk assessment”?

3.3.6 Does Natural Resources Canada have a position on the Senate Committee recommendation that “substantive discussions such as those related to the safety system upgrades be documented to the extent possible, that those documents be made publicly available and that the public be consulted before final decisions are made”? If so, please describe?

3.3.7 Is Natural Resources Canada aware if the CNSC has a position on the Senate Committee recommendation that “substantive discussions such as those related to the safety system upgrades be documented to the extent possible, that those documents be made publicly available and that the public be consulted before final decisions are made”? If so, please describe.

CONCLUSION

Thank you for this opportunity to clarify these import policy issues regarding the regulation of nuclear power in Canada. If you have any questions, please do not hesitate to contact me.

Truly

A handwritten signature in black ink, appearing to read "Shawn Patrick Stensil", enclosed within a hand-drawn oval.

Shawn Patrick Stensil
Energy Campaigner, Greenpeace Canada
Suite 605
250 Dundas St. West
Canada
M5T 2Z5