

Provincial Council of Women of Ontario

Established 1923

Comments on EBR # 013-1560 - July 28th, 2017

Attention: (Office of the Fire Marshal and Emergency Management and
Ministry of Community Safety and Corrections Services)

pnerpconsultation@ontario.ca

DISCUSSION PAPER

PROVINCIAL NUCLEAR EMERGENCY RESPONSE PLAN (PNERP)

PLANNING REVIEW & RECOMMENDATIONS

From Edeltraud Neal, President, Provincial Council of Women of Ontario
1786 McMaster Avenue, Ottawa, ON, K1H 6R8 edeltraud.neal@gmail.com

Prepared by Gracia Janes, PCWO Environment Advisor
gracia.janes@bellnet.ca

Introduction and Recommendations

The Provincial Council of Women of Ontario (PCWO), welcomes this opportunity to comment on the '*Provincial Nuclear Emergency Response Plan (PNERP) Planning Review and Recommendations*' as they relate to our well established policies supporting the development of strong, comprehensive disaster planning and for the phase out of nuclear power.¹

Our brief reflects issues of grave public concern that we, as a long- established non-partisan, non-sectarian, member-funded public interest organization have raised with the Provincial government over the last several years in letters and briefs, and in Provincial and National nuclear proceedings.² We strive to improve the health and wellbeing of women, their families and their communities. Our 14 diverse Federated group members represent many thousands of Ontarians.

In these communications and presentations, PCWO has often warned of the potential for a nuclear disaster, caused by human error, nefarious action, reactor failures, or natural events such as earthquakes. For instance, Pickering nuclear reactors have been of considerable concern, as they are well past their planned lifespan, are situated on an active earthquake fault line³, and are contiguous to an extremely heavily populated area, which the government through its '*Places to Grow Plan*' intends to intensify further.

Concurrently, our worries have been greatly exacerbated by the growing chances of the of an International "*major event*" such as Three Mile Island, (1979) Chernobyl (1986) and Fukushima (2011), an awareness of weaknesses in nuclear plant safety systems and operational culture⁴, and very recently, information that countries such as Switzerland have taken Post-Fukushima warnings very seriously and strengthened disaster plans accordingly.

PCWO concerns are not limited to the disastrous impacts a nuclear accident would have for those living near the Pickering, Darlington or Bruce reactors and further out in the surrounding communities, but also to those near the poorly-protected nuclear reactor at McMaster University in Hamilton⁵; in the Windsor and Essex County area across the Lake from the US Fernie and David-Besse nuclear plants; near the Chalk River 'Near- Surface' Disposal facility for nuclear waste containing significant amounts of plutonium and other alpha –emitting radioactive material; and, in communities such as the Niagara Region along the potential route of transport trucks carrying extremely dangerous high level fissionable liquid nuclear wastes from Chalk River to South Carolina ⁶.

In summary, PCWO is most alarmed that the PNERP fails to admit the huge risks that the plethora of nuclear installations and life-cycle activities, such as waste management, pose to the health, safety, environment and social and economic wellbeing of millions of Ontarians living near the Great Lakes Ontario and Huron and to respond strongly and comprehensively.

PCWO supports the over 40 civic groups and many other experts and individual Ontarians in their view that it is imperative for the Government of Ontario to ensure that the PNERP takes an extra-precautionary approach to disaster planning, which recognizes the potential for a “*worst case, unimaginable*” accident, in this case an INES 7 event, and the necessity for the most rigorous institutional, independent expert and public scrutiny and involvement in provincial nuclear disaster planning. Only in this way can the Government fulfill its mandate to protect the “*public*”.

The following are PCWO recommendations for essential improvements to the PREMP along with our rationale and references.

Overall Recommendations

The PNERP should:

- recognize that the Ontario public has reason to be extremely concerned about nuclear risks, and expects the Province to ensure the development of a Nuclear Emergency Response Plan that covers all possible risks and uses the most stringent application of the “*precautionary*” principle to ensure that international best practices are met, or even exceeded, if possible.
- acknowledge that there could be a Fukushima -scale nuclear accident at any of Ontario’s reactor sites ⁷, and go beyond PNERP’s delayed post-Fukushima addition of “*multi-unit*” and Level 5 “*severe*” accidents, and its ill-founded trust in the “*containment*” of radioactive releases, to, as Canadian Nuclear Safety Commission Chair Mr. Binder termed at the 2013 Pickering life-extension hearing, plan for an “*unimaginable worst case scenario*”. ⁸
- (That is) plan for an INES 7 accident, which will “*require measures to address large-scale and long lived contamination.*” It would involve an “*expansion of the detailed evacuation zone (Primary Zone) to 20km*” and “*ensure capacity to implement emergency plans well beyond this zone to address localized hot spots*”. If a “*secondary Zone is deemed necessary, it should be expanded from 50 to 100 km*” ⁹
- emulate the open, transparent, and thorough Swiss planning and public education process. ¹⁰
- give first responders, local communities and officials accurate information and cease giving out crucial misinformation, such as that found in the Provincial Emergency Measures Handbook for first responders.

- cease relying almost solely on CNSC and the nuclear industry for information and advice, and ensure that independent non- nuclear industry experts are consulted in the planning process, particularly in the choice of selected accident scenarios, e.g. the PNERP “*incident*” reference case.¹¹
- recognise the risks to students, residents of Hamilton, and persons seeking medical treatment at the world renowned Juravinski Hospital and Juravinski Cancer Centre, and include this nuclear facility in its final emergency plan, with more detailed plans and a broader distribution of the K1 pills.
- involve the whole community in extensive, detailed pre-planning, with an emphasis on those knowledgeable about the special needs of residents e.g. the frail and vulnerable, hospitals, such as Hamilton developed after the 1980 Hagersville tire fire. (ibid ref.1)
- include the municipalities of southwestern Ontario which are at risk from nuclear accidents at the US nuclear plants bordering the Great Lakes in its disaster planning.
- recommend the fulfillment of a Provincial Minister of Community Safety promise to study the impact of a severe nuclear accident and release of radionuclides on the Great Lakes drinking water.¹²
- recommend the extension of PNERP’s planning time-frame and that the Ministerial “*review*” of the public and other comments be opened up to an independent review by arms-length experts, practitioners from a variety of disciplines e.g. the medical, social service, environmental science, other ‘*first responders*’ e.g. nurses, fire departments ambulance personnel, and municipal planners.

PCWO Rationale for Recommendations:

Failure to Plan for an International Nuclear Event Scale Level 7 Accident

The underlying flaw in the PNERP is its reliance on outdated, biased and risky nuclear industry data, guidance and recommendations, rather than on independent scientific expertise and public concerns and expectations. PCWO notes, that the public is well aware that in our post-Fukushima era international regulatory bodies are dramatically revising their warnings on what safety plans should be in place, and countries such as Switzerland have taken a very aggressive approach to emergency planning- raising its standard to an International Level 7 event.

In stark contrast, the PNERP echoes the failure of the federal and provincial governments, CNSC and the nuclear industry over many years, to publicly admit there are extremely serious nuclear risks, and to use a “*precautionary*” approach when planning to address the public’s legitimate concerns.

The clearest evidence of this approach is the PNERP recommendation against changes in the outdated 2009 Emergency Measures Plan, and its authors’ reliance on the nuclear industry and its regulator CNSC for expertise and advice. For instance, the PNERP adopts their false rationale that a catastrophic accident is so unlikely to happen, it doesn’t need serious detailed planning, despite the fact that accident sequences leading to Fukushima-scale radioactive releases exist at all Ontario nuclear stations.¹³

This has led to PNERP’s use of Ontario Power Generation’s chosen selected accident plan (SARP) and a very weak planning response for a Level 5 International Nuclear Event Scale (INES) accident. That is, “*detailed planning*” is limited to a constrained Primary Zone of 6kms and “*conceptual*” planning for a 20km Secondary Zone, with the vague option to enlarge the zone if necessary in the event of an accident. This contrasts starkly with Switzerland’s INES 7 Level realistic and very much stronger public–safety - first approach of a 20km detailed planning evacuation zone, with the flexibility to capture a much larger area should evacuation be needed and also to handle local “*hot spots*.” (ibid ref. 9)

The PNERP therefore fails to plan for a worst-case “*most fearful event*,” as mentioned by CNSC Commissioners at the 2013 Pickering life-extension hearing, such as a plane crash or a terrorist action and, the realistic potential of large scale releases from the ageing Pickering and Bruce multi-unit reactors. (ibid ref. 8)

Lack of Trust in CNSC and the Nuclear Industry to Inform the PNERP Accurately

PCWO has a very long involvement in nuclear regulatory processes, and over this time we have found significant informational gaps, inaccuracies and outdated information in the background provided by OPG, Bruce Power and CNSC. For instance, as already noted in our introduction, at the CNSC 2013 Pickering Life Extension hearing, CNSC accepted the evidence of OPG’s scientist that the Pickering area was “*seismically stable*” over that of a multi-year study by Dr. Arsalan Mohajer, despite the fact that the OPG evidence was based on a day-and-a half study by Natural Resources Canada, and a 1937 Finnish academic paper. (ibid ref. 3)

Similarly, at the EAA Joint Panel Review hearings regarding OPGs plans for a deep geological repository near the shores of Lake Huron, OPG and CNSC disputed the warning of the Panel’s advisory scientists that “*previous breaches in the Upper Ordovician rock facies by hot fluids, which they noted have moved through the area possibly along the as yet unmapped deep-rooted faults and fractures.*”¹⁴

PNERP Fails to Plan for Nuclear Accidents Elsewhere in Ontario

***Niagara**

PCWO draws to the attention of the Fire Marshall and the Ministry of Community Safety and Correctional Services, that early in 2017 CNSC approved the transport by truck of very dangerous liquid nuclear waste containing Highly Enriched Uranium (HEU) from Chalk River approximately 1,800 kms to South Carolina over a period of 2-4 years. PCWO has taken an active role to support the Niagara District Council of Women in its efforts to ensure environmental protection of the unique fruit lands, other prime farmlands, community safety and emergency responders. We cannot speak strongly enough about the potential for a sudden, disastrous accident, which is not admitted by CNSC, nor planned for properly by the province through the PNERP.

All safety testing has been theoretical, and premised on a fallacy that liquid nuclear waste is the same as solid. This inaccuracy is carried forward in the instruction manual given to Provincial *'first responders'*, which states proper tests have been carried out to assure the cargo is carried safely, and instructs them to contact CHALK river for direction if there happens to be an accident.¹⁵ However, not only will this dangerous liquid waste go rapidly into the ground and any nearby water, but should there be a fire it would burn at extremely high temperatures and be very difficult to extinguish. As well, first responders would be at considerable risk. Most importantly, these are fissionable liquid materials, and an accident could lead to a nuclear chain reaction .¹⁶ Although attention is currently focused on Niagara, these shipments could be travelling elsewhere in Ontario. Regardless, it is essential that the PNERP be more fully aware; require the Ministry of ensure its safety handbook properly warns first responders of the potential risks to health and safety.

***The Hamilton McMaster University Reactor**

In contrast to the well-publicised Chalk River to South Carolina liquid nuclear waste shipments, and other prominent nuclear reactor dangers elsewhere, the McMaster University reactor is hidden away near the University library, out of public sight and interest. PCWO was unaware of this until recently, when Siegfried Kleinau, the Co-founder and Outreach Director Bruce Peninsula Environment notified the Ministry of Public Safety and the Fire Marshall, that. *"This old pool type reactor is licensed to operate up to 5MW thermal power ...and is right in the center of a huge university in Hamilton Ontario."* ..*"In a 2011 intervention on the Mid-Term Performance Report of the MNR, there was an urgent push to have this facility upgraded to higher standards because of dangerous experiments being undertaken there. It was also urgently recommended that K1 pills should be distributed to the different departments, but all of these recommendations were consequently disregarded."* Given the risks to students, residents of Hamilton, and persons seeking medical treatment at the world renowned Juravinski Hospital and Juravinski Cancer Centre, PCWO requests that the PNERP

include this nuclear facility in its final emergency plan, with more detailed plans and a broader distribution of the K1 pills.

***Windsor and Essex County**

Residents in Windsor and Essex County have asked the province to include their cities in the PNERP as they feel they are at risk from a potential nuclear accident at the nearby US Fermi and David-Besse nuclear stations. PCWO notes that the PNERB defers to US safety standards, but we would presume that Ontario cities, should be protected by Ontario nuclear safety plans and actions, and would recommend that the Province require this to be part of a new and stronger PNERP.

The PNERP should help Protect Ontario's Drinking Water

PCWO has commented to the Provincial Government several times on the lax standard for releases of tritiated water into the Great Lakes from Ontario's nuclear reactors, which, despite the recommendations of the 2008 Ontario Drinking Water Advisory to reduce the release levels to 20 Bq/L,¹⁷ still allows 7,000 BQLs per litre. Even more important, given there are 25 reactors around the Great Lakes, most of them near the end of their life spans, with Ontario determined to keep the Darlington, Bruce plants operational past their planned lifespan, and badly- deteriorating Pickering already operating well past its due retirement date, *there is* certainly a strong likelihood of releases well past this level should there be major accident at any of these plants. This makes it imperative for the Ministry of Community Safety Correctional Services to fulfill an earlier government promise to study the impact of a severe nuclear accident and release of radionuclides on the Great Lakes drinking water. (ibid. ref.12)

Limited Involvement of Public in Emergency Planning

A CNSC Commissioner at the 2013 Pickering life extension hearing worried that there will be a huge amount of confusion and chaos regarding communications in a severe nuclear emergency. ¹⁸ This dire situation will require complex and well thought out pre-emptive planning. We would add to the Commissioner's concerns, that many important questions need to be addressed well ahead of time. For instance, where will people be housed and for how long? How will businesses stand the commercial losses over even the 5 to 9 days or more? What about farmers and farmland? This issue is not just about a 3-9 day temporary move for those in a 6 to 20 km containment area, but one that even within these small areas would be a potential economic catastrophe

We also remember the disastrous Hagersville tire fire of the 80s, with its pollution and dwindling food supplies and other material necessities, due to the current 'just-in-time-delivery' pattern whereby very large storage warehouses have become a thing of the past. An after-the-fact result was the Hamilton emergency plan with subsequent plans to involve the community e.g. the frail and the elderly, children, the physically challenged more closely and pro-actively.

The public has a right, a need and an expectation to be involved in nuclear emergency planning, and as the City of Hamilton discovered when they developed a detailed emergency plan after the Hagersville fire they have a great deal to offer. Subsequently, PCWO enlisted the expertise of a Hamilton Local Council of Women member, a public health nurse, who knew the strengths of the agencies servicing the frail and elderly, children, and others within the community. She had served on Hamilton's Emergency Plan Committee and was well able to help us develop a strong policy to present to the government which emphasised first and foremost, the involvement of the community. (ibid.ref.1)

Conclusion

PCWO supports the over 40 civic groups and many other experts and individual Ontarians in their view that it is imperative for the Government of Ontario to ensure that the PNERP takes an extra-precautionary approach to disaster planning, which recognizes the potential for a "*worst case, unimaginable*" accident, in this case an INES 7 event, and the necessity for the most rigorous institutional, independent expert and public scrutiny and involvement in provincial nuclear disaster planning. Only in this way can the Government fulfill its mandate to protect the "*public*".

Background:

1.Planning after Hamilton/Hagersville 1990Tire Fire: Hagersville Tire Fire: 25 years later | Simcoe Reformerwww.simcoereformer.ca/2015/02/11/tire-fire-disaster-waiting-to-happen Feb 12, 2015 - VILLA NOVA - Ontario learned a hard lesson in 1990 about the consequences of sitting on your hands in the face of looming disaster.

PCWO 2005 Policy : That PCWO urge the Government of Ontario to:a) Initiate regular emergency plan practices in order that they become tested and refine and citizens gain experience and familiarity with the procedures regarding emergencies/emergency Planning and Public Safety b) strengthen Ontario Emergency Planning Act to encourage/enforce emergency planning, audits and practices in community c)Involve providers of home care, the disabled, seniors and other vulnerable groups in disaster planning d) involve women's anti-violence network in disaster planning and in disasters e) investigate and provide safeguards against internet terrorism f) improve emergency training and information for the public.

2. Selected List of Policy Briefs, Hearings, Letters :

- 1998 Seaborne Hearings Deep Geologic Repository Management of High Level
- Nuclear Fuel Waste

- 2007-2008 Intervenors Ontario Energy Board: Ontario Power Authority IPSP 0007; Board designated responsibility life cycle nuclear waste management and refurbishments; Witness Dr. Marvin Resnikoff
- April 26th, 2013 Intervention re: Pickering Nuclear Generating Station Licence Renewal Ontario Power Generation
- October 9th, 2014 Bruce Deep Geologic Repository for Low and Intermediate Level Nuclear Waste
- March 29, 2017 Presentation to the International Joint Commission Tri-Annual Review Radioactive nuclides as a Chemical of Concern

3. 2013 Pickering Hearing . PCWO Brief “We also noted ‘a 1993 article by Dr. Arsalan Mohajer, of the University of Toronto, (who did early seismic work for OPG) which, was written as a result his study of the Rouge Valley and Lake Ontario over several years , and showed that the faults near Pickering, including under Lake Ontario, were active’ (Neotectonic faulting in metropolitan Toronto: Implications for earthquake hazard assessment in Lake Ontario region. GEOLOGY. The Geological Society of America. 1993.)”

“One further 2003 article by Dr. Mohajer and N. Eyles , clearly shows the lack of depth of the studies relied on by CNSC staff the nuclear community . In an article ‘Analysis and reinterpretation of deformation features in the Rouge River Valley, Scarborough, Ontario,’ Dr. Mohajer and N. Eyles note that ‘PNGS (Pickering Nuclear Generating Site) was constructed adjacent to a major population centre (now more than 5 million people) in the late 1960s, largely in ignorance of local and regional geological conditions and well before the plate tectonic paradigm provided a model for basement evolution. The presence and significance of major bedrock lineaments, such as the Central Metasedimentary Belt Boundary Zone (CMBBZ) that passes **directly under PNGS**, together with several other structures that intersect below Pickering, was not then known..... **Today such structures are recognized as being defined by persistent earthquake activity** (Mohajer 1991,1993,1995 Wallach et al 1998) and a magnitude 3.1 earthquake occurred within 3 kms of PNGS on May 24th 2000. Ten smaller magnitude earthquakes have been recorded in the last decade along the structure between Niagara and Pickering by the seismic networks of the Geological survey of Canada and the United States Geological survey. The more recently constructed Perry nuclear plant in the USA was temporarily closed in 1986 by a magnitude 5 temblor along the same CMBBZ structure. **The local community has every right to be concerned about the presence of an aging nuclear reactor in their midst.**’ (emphasis added) **3. (ibid)**

4. Communications and Reports re Safety

a) 1997 Andognini Report and recent personal communication with Frank Greening who worked at Pickering at that time showed significant safety infractions e.g. fires

b) Personal communication with Dr. Gordon Edwards . “*During the refurbishment of the Bruce A nuclear reactors in 2009, over 500 contract workers – not regular employees of Bruce Power – inhaled alpha-emitting dust on the job for several weeks before the authorities detected the hazard. Those alpha-emitting radioactive materials are now lodged inside the worker’s lungs and other internal organs, and will be there for years to come. Long after the job has ended, their bodies will continue to be irradiated from the inside.*”

5. Personal Communication Siegfried Kleinau, Co-founder and Outreach Director Bruce Peninsula Environment Group 2017-07-18 . re McMaster University reactor. *“This old pool type reactor is licensed to operate up to 5MW thermal power ...and is right in the center of a huge university in Hamilton Ontario.” “In a 2011 intervention on the Mid-Term Performance Report of the MNR, there was an urgent push to have this facility upgraded to higher standards because of dangerous experiments being undertaken there. It was also urgently recommended that K1 pills should be distributed to the different departments, but all of these recommendations were consequently disregarded..”*

6. Gordon Edwards presentation at May 26th Public Forum in Niagara

7. Greenpeace Comments on PNERP: Site-Wise Risks and Multi-Unit Accidents Section 1.5 page 13.

8. April 26th 2013 Pickering Life Extension Hearing Selected Commission Comments on “worst-case scenarios “

“MEMBER HARVEY:

That choice that you (staff) or OPG made about the nature of the accident is such that there will never be large-scale releases? I mean, it's the impression that we have and that the public also. (ibid , page 280)

...MEMBER BINDER ...what's your view -- the dilemma we always having here is because it's such a low probability of event, you guys are ignoring it. Everybody is ignoring it. Yet for the citizen, even though it's a low probability event, that's the most fearful event. So you've got to bridge those two conflicting issues. Low, low frequency, but maybe high impact, and you've got to deal with it in all your brochures. That would be my view. ... make sure that all the citizen of this community are aware of what to do with emergency plan. (ibid)”

9. Greenpeace comments on the PNERP Draft Discussion Paper page 6

10. ibid. Section 1.8 Example of Best practices Switzerland page 22

11. Greenpeace comments on the PNERP Draft Discussion Paper Section 1.5 pg 15

12. Minister of Community Safety Madeleine Meilleur to CELA October 21st, 2013

13. Greenpeace comments on the PNERP Draft Discussion Paper July 28, 2017 pg 3

14. PCWO Brief OPG Deep Geologic Nuclear Waste Repository at the Bruce.

15. Ministry of Community Safety & Correctional Services
Information Package to First Responders and Energy Management. March/17.

16. Public Forum in Niagara Slide Presentation Dr. Gordon Edwards. May 26th /17

17. The Ontario Drinking Water Advisory Report : Ontario Drinking Water Standard May 2009 *"Based on these two documents, the Council concluded that an Ontario Drinking Water Quality Standard for tritium of 20 Bq/L, applied as a running annual average, would meet the requirements for an appropriate level of risk and public safety, while remaining practicable and achievable by the nuclear power industry."*

18. Pickering Life Extension Hearing 2013 " PCWO supports the over 40 civic groups and many other experts and individual Ontarians in their view that it is imperative for the Government of Ontario to ensure that the PNERP takes an extra-precautionary approach to disaster planning, which recognizes the potential for a "worst case, unimaginable" accident , in this case an INES 7 event ,and the necessity for the most rigorous institutional, independent expert and public scrutiny and involvement in provincial nuclear disaster planning . Only in this way can the Government fulfill its mandate to protect the "public".

MEMBER MCDILL: So if there's any kind of emergency in the area, it doesn't have to be nuclear, as you say it could be chemical; if there is no power, the communication centre will be struggling to manage on backups, backup power, backup communications. At that point, it's unlikely that your website will be accessible in the community. At that point, this is when the community will need the most to be able to communicate with you. And many of us in Ontario have gone through a number of things like the grid failure, a number of summers ago when cell towers couldn't accommodate the load from the community trying - - just families trying to reach each other and I was one of those. All the traffic lights went on four-way red flash, which has a methodology if people follow it to get through. ..."