

Provincial Consultation on Nuclear Emergency Plan (PNERP)

Presentation to Provincial Advisory Council

Canadian Environmental Law Association

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Main messages

- ▶ The Ontario Provincial Nuclear Emergency Plan must protect the public from at least a Fukushima scale accident
- ▶ Planning must be based on empirical evidence including other accidents that have occurred world wide, the source term, the geography of the plant location, population, and robust weather data
- ▶ The PNERP must be based on a precautionary approach
- ▶ Probability arguments are no longer credible arguments to reduce the level of preparedness in the PNERP
- ▶ So long as Ontario remains strongly reliant on nuclear power, nuclear emergency planning should be as protective as, or better, than anywhere else in the world

What does the PNERP need to do

- ▶ Provide a high level of assurance that communities in the vicinity of nuclear power plants, research reactors and other radiological hazards will be well protected in case of the worst accidents
- ▶ Provide a high level of assurance that people can avoid exposures (eg with well resourced and detailed evacuation planning);
- ▶ Reduction of exposures is also important but avoidance should be the primary aim of the PNERP
- ▶ Establish the requirements for infrastructure, resourcing, and provisions for the response of the province and municipalities by and within all communities within 100 km of any nuclear power plant as the case requires e.g. as first responders, hosts, reception or evacuation centres, enablers of evacuation routes, or to support ingestion control and other measures

Call for Public Safety

- ▶ The Call for Public Safety sets out the public's expectations:
 - ▶ Endorsed by 44 organizations
 - ▶ Response capability to at least a Fukushima level accident
 - ▶ Protect vulnerable communities
 - ▶ Protection of and contingency plans for drinking water
 - ▶ Ensure transparency and public participation
 - ▶ Meet or exceed international best practices

Modelling & evidence base

- ▶ Plan for “prompt” releases with containment failure
- ▶ Use a planning basis of severe unmitigated offsite releases
- ▶ Use emissions at least on par with Fukushima
- ▶ Use four to five years of weather data
- ▶ Do not use “sheltering dose reduction factors”
- ▶ Do not credit operator action
- ▶ Model for events like severe seismic beyond design basis; failure to shut down with rapid core destruction & other high consequence scenarios for KI distribution & evacuation

Modelling & evidence base

- ▶ Multi-unit modelling must be conducted as quickly as possible, with public consultation, transparency and input
- ▶ All radioactive hazards must be considered on the NPP sites
- ▶ Transportation hazards must be modelled
- ▶ Downstream and downwind impacts must be modelled
- ▶ Modelling should be conducted for the Ontario communities in the vicinity of US plants

Planning zones

- ▶ Despite the concerns about adequacy of modelling, the information and studies cited indicate that the planning zones should be increased
- ▶ Iodine pre-distribution should occur throughout the secondary zone with rapid access available beyond that to 150 km (Argos study)
- ▶ Ingestion control should be in place for at least 100 km (Argos study)
- ▶ Planning should be based on most sensitive population (infants to age 5)
- ▶ The committee should recommend much more extensive modelling for each of the plants
- ▶ Input from the Ontario public must be given significant weight in deciding on planning zones

Planning zones

- ▶ CELA submits that the available evidence supports extending the secondary zone to 100 km and the primary zone to 20 km
- ▶ CELA submits that KI pre-distribution should extend to 50 km on the available evidence, and it should readily be available in all communities for another 100 km beyond that
- ▶ CELA submits that there would be little additional value to the proposed new “contingency zone” in that the primary zone measures and planning are required in 20 km

Improvisation versus planning

- ▶ Improvisation cannot be the basis for nuclear emergency planning in Ontario even in the proposed “contingency” and secondary zones.
- ▶ Lessons from the Fukushima Daiichi accident show the necessity of considering in detail, in advance, all aspects of the emergency response to a severe offsite nuclear accident and ensuring that the necessary measures could be effectively implemented
- ▶ The unique requirements of radioactive hazard must be detailed in the emergency plan and response measures for each zone

Role of public

- ▶ The advisory committee should strongly recommend that public engagement is required for all non-planning basis decisions in the PNERP
- ▶ The advisory committee should strongly recommend that trust and credibility in the PNERP is an essential ingredient to an effective response in the case of a severe offsite accident
- ▶ Input from the Ontario public must be given significant weight in deciding on the size of accident / planning basis and resultant planning zones

Proposed changes to master plan

- ▶ Chapter 1 revisions:
 - ▶ 1.8.1 (ii) add a bullet
 - ▶ - municipalities with other responsibilities such as KI distribution and ingestion control
 - ▶ Annex A should be modified to include municipalities within 100 km of all nuclear installations, with designated requirements specified for their emergency plan
- ▶ 1.10.1 (f) says:
 - ▶ An appropriate balance should be struck between risk and cost when assessing the level of emergency preparedness required.
 - ▶ It should be revised to say: 1.10.1 (f) The necessary level of preparedness that would aim to avoid exposures to radioactive emissions from severe offsite accidents should be specified in the PNERP.

Further changes

- ▶ 1.10.1 (g) says:
- ▶ Exposure to radiation should be kept as low as reasonably achievable (ALARA) within the context of the risks and costs of such avoidance.
- ▶ This clause should be deleted; it is not appropriate for emergency response and nuclear accident planning; this is a routine nuclear operations principle.
- ▶
- ▶ 1.10.1 (j) says:
- ▶ As far as is practicable, operational measures (especially alerting and notification systems) and protective measures should be devised and implemented to avoid significant radiation exposure.
- ▶ The words "as far as is practicable" should be eliminated.

Further changes

- ▶ 1.11.12 says 1.11.2 The PNERP shall be reviewed at least every four years. Applicable amendments shall be brought forward for LGIC approval, as required.
- ▶ The words "with public input and disclosure of updated modelling" should be inserted after the word "reviewed".
- ▶ End of chapter 1 edits.
- ▶ Chapter 2 edits:
 - ▶ 2.3.3 (a) support Greenpeace's recommended revision to 2.3.3:
 - ▶ “ Although formal risk analysis of nuclear reactor accidents indicates that there is generally an inverse relationship between probability of occurrence of an accident and the severity of its consequences, such is highly uncertain and not confirmed empirically. A precautionary approach, which considers real-world experience, public expectations and international best-practices, should be used when selecting a planning basis.”

Further changes

- ▶ 2.3.3 should also be amended to provide that an INES level 7 offsite accident shall form the basis of planning, rather than the "basic offsite effect".
- ▶
- ▶ Chapter 2 would then be amended accordingly.
- ▶
- ▶ In the alternative, section 2.10 "modification of concepts" shall be defined in terms of planned modifications for severe offsite effects, with required modifications detailed in advance to ensure effective alerting evacuation, KI distribution, decontamination, ingestion control in wider planning zones.

CELA.CA

- ▶ <http://www.cela.ca/test-emergency-planning-around-canadian-nuclear-plants>

The screenshot shows a web browser window displaying the CELA.ca website. The browser's address bar shows the URL www.cela.ca/test-emergency-planning-around-canadian-nuclear-plants. The website header features the CELA logo (a stylized 'G' and 'e' with a sun, and 'L' and 'a' with a house and water drop) and the text "Canadian Environmental Law Association" with the tagline "EQUITY. JUSTICE. HEALTH." Below the logo is a navigation menu with links: HOME, ABOUT CELA, BLOG, E-BULLETIN, FRANÇAIS, LIBRARY, ARCHIVE, and CONTACT US. On the right side of the header, there is a search bar and a subscription form for the monthly e-bulletin. The main content area is titled "Emergency Planning around Canadian Nuclear Plants" and includes a sub-header "Collection of materials related to CELA's research and advocacy on this issue". The text discusses the risks of aging nuclear reactors in the Great Lakes region. A map of the Great Lakes basin is shown, highlighting nuclear reactors: Bruce A & B, Darlington, Pickering A & B, and Point Lepreau. The footer of the browser window shows the Windows taskbar with the search bar, system tray, and taskbar icons.