

Wednesday, May 17, 2017

Greg MacCallum
Director, Emergency Measures Organization
Justice and Public Safety
Victoria Health Centre, PO Box 6000
Fredericton, NB E3B 5H1
Email: Greg.MacCallum@gnb.ca

Sent via email

Dear Mr. MacCallum:

On Wednesday, May 10, 2017, the Canadian Environmental Law Association (CELA) appeared before the Canadian Nuclear Safety Commission as an intervenor, highlighting outstanding issues on emergency preparedness and planning at the Point Lepreau Nuclear Generating Station. CELA appreciated the dialogue not only with the CNSC regarding our submissions (appended to this letter), but the opportunity to discuss the current Point Lepreau Nuclear Off-site Emergency Plan (“Offsite Plan”) with the NB EMO.

During the hearing, the NB EMO announced that a revised Offsite Plan would be released May 18, 2017, but unfortunately, not made publicly available. With the new plan set to be released tomorrow, CELA asks that we be provided a copy of the revised plan. As discussed during the Point Lepreau relicensing hearing, CELA undertook a formal request for information in order to obtain the existing Offsite Plan. A request for information process is not a process which enhances accessibility or fosters transparent, public engagement and we are greatly concerned that this plan – whose outcomes directly affect the public’s safety – may not be made publicly available.

On May 15, 2017, Ontario announced the public review of its emergency response plan and CELA requests the NB EMO demonstrate a similar commitment to public openness and transparency. It is necessary that emergency response plans contain, from the outset, an opportunity for public review and scrutiny.

CELA again reminds the NB EMO of outstanding concerns we have with the existing Offsite Plan. We hope these omissions and deficiencies are remedied in the new Offsite Plan to be released tomorrow:

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- The currency of the existing plan (p 8)
- The size of the emergency planning zones (p 9)
- The public availability of emergency response information (p 12)
- The consideration of extreme weather events in emergency planning (p 17)
- Emergency response measures, such as public altering (p 23) and sheltering in place (p 29), and
- The total lack of an extended ingestion protection zone as required by international guidance and present in Ontario (the best practice for such a zone is 100km).

In addition to the new Offsite Plan, CELA also seeks a response from the NB EMO regarding the planning basis. As noted in our oral presentation before the CNSC, CELA seeks a written response from NB EMO to clarify the assertions made during oral testimony regarding levels of public safety and the type of accident used to inform emergency planning, which to the best of our knowledge, is not substantiated by written evidence. For the purposes of clarity and public accountability, it is essential this information be released in the briefest delay.

I appreciate your consideration of these outstanding matters and look forward to receiving the updated Offsite Plan. I am happy to answer any questions, which can be directed to kerrie@cela.ca.

Sincerely,



Kerrie Blaise, Counsel
CANADIAN ENVIRONMENTAL LAW ASSOCIATION

cc:

The Honourable Denis Landry
Minister of Justice and Public Safety

Ramzi Jammal
Executive Vice-President and
Chief Regulatory Operations Officer, CNSC

David Coon,
MLA and Leader of the Green Party of New Brunswick

Lois Corbett
Executive Director, Conservation Council of New Brunswick



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Submissions to the CNSC: Emergency Planning at the Point Lepreau Nuclear Generating Station

Submitted by:

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SUMMARY OF RECOMMENDATIONS

RECOMMENDATION NO. 1: CELA submits that all CMDs for any CNSC hearings or meetings should be posted in their entirety on the Commission's website. Not only will this alleviate a burden on CNSC staff to respond to individual requests for documents, it will allow any interested party to access the documents immediately, without delay.

RECOMMENDATION NO. 2: The CNSC must revise its participant process to ensure the timely delivery of documents and require a minimum of 60 days between receipt of all documents and the CMD submission deadline. To facilitate the public review of documents, the CNSC should mandate that all reports and documents referred to in a party's CMD be appended and posted in full, on the CNSC's hearing portal.

RECOMMENDATION NO. 3: CELA submits that the planning basis for a potential offsite nuclear accident in New Brunswick must be increased (with public input) to account for a catastrophic offsite accident. At this time, and until such emergency plans are in place and proven to be effective for a catastrophic accident, CELA submits that the site should not be licensed for continued operation.

RECOMMENDATION NO. 4: CELA recommends to the CNSC that it deny Point Lepreau's operating licence renewal on the basis that a detailed, robust emergency planning basis for catastrophic accidents has not been provided to the public, and furthermore that, to the extent the provincial offsite nuclear emergency plan has been revised, the public has been denied opportunity to provide rigorous review and input.

RECOMMENDATION NO. 5: CELA requests that prior to considering licence renewal, the CNSC require evidence of public consultation and transparency in the changes which have been made to nuclear emergency planning since the Fukushima accident. The Offsite Plan should also be updated to include requirements for transparency, pro-active disclosure and regular public review.

RECOMMENDATION NO. 6: CELA submits that the 4 km PAZ be extended to 5 km, the UPZ extended to 30 km and an explanation as to why the current emergency zones do not follow expert judgment and best practice be provided.

RECOMMENDATION NO. 7: CELA recommends that in view of the experience at Chernobyl and Fukushima, the CNSC should request that the province immediately create a secondary emergency zone to a radial distance of 100 km. This should be done as part of detailed planning for severe accidents so that appropriate monitoring of food, agricultural products, milk, and water is

established and in place in the event of such an accident.

RECOMMENDATION NO. 8: To enhance transparency and accountability, the NB EMO must maintain a website dedicated to nuclear emergency response. It must include documents and data that enable the easy access of information and incorporate a user-centred design.

RECOMMENDATION NO. 9: Because of its responsibilities under the *NCSA*, the CNSC must review and report on the sufficiency of the planning basis, the response plan and the province's readiness for large-scale radiation releases in New Brunswick as part of every licence application.

RECOMMENDATION NO. 10: CELA submits that this licence should not be granted until the offsite emergency response plan is made public. Members of the surrounding communities must be able to understand what is in place, how effective it is, what has changed, and on what basis the regulator is judging the emergency plans to be in place.

RECOMMENDATION NO. 11: CELA recommends that the plan be redrafted using a thematic approach, listing different planning-areas rather than focusing on the tasks of individual agencies/government bodies.

RECOMMENDATION NO. 12: CELA recommends that the Offsite Plan integrate extreme weather events into its emergency response measures. The efficacy of all response actions listed in the Offsite Plan must be considered in light of extreme weather events, which could result in widespread power outages, and inhibit the ability of the public to travel and access essential services. Contingency plans for provincial emergency response and provincial staff responsibilities in carrying out the plan in case of accident at the Point Lepreau nuclear plant must be established to reflect the potential for very severe weather.

RECOMMENDATION NO. 13: CELA submits that this licence should not be granted until a marine-based offsite emergency plan is made public. The CNSC must ensure emergency response at sea allows for an effective response to accidents and demonstrates a high level of preparedness.

RECOMMENDATION NO. 14: As CELA has recommended in similar contexts in the past, the timeframes in the Offsite Plan should be compressed to alert the public in as short a time frame as possible, preferably less than 30 minutes from the onset of an accident. Methods to compress the existing 90 minutes time frame should be considered and tested, and their efficacy should be one of the points of evaluation by the CNSC in the licence.

RECOMMENDATION NO. 15: CELA recommends that NB EMO and the designated municipalities maintain a list of people who would not be reachable through all of the proposed notification

media, and for whom door-to-door notification should therefore be immediately undertaken. Other emergency personnel should be immediately dispatched to evacuate homeless people and others who are not covered by existing notification systems.

RECOMMENDATION NO. 16: CELA recommends that the CNSC refuse an extension of Point Lepreau's operating licence without ensuring, through thorough testing, that the alerting system in the emergency response zone is fully effective.

RECOMMENDATION NO. 17: CELA recommends that the CNSC require NB Power to ensure that stable KI is predistributed to all residents within the proposed secondary emergency zone as a condition of licensing.

RECOMMENDATION NO. 18: CELA recommends that the CNSC require that NB Power, in conjunction with the designated municipalities, conduct outreach and notification to members of the public in the designated municipalities, as to the availability of KI and advice on where KI may be obtained. Members of the public should be provided with basic information on the benefits and risks associated with using KI and the importance of having an at-home supply. They should be made aware that other organs (bone marrow, lungs and other organs) are not protected by KI, and that KI should only be taken at the direction of the Province.

RECOMMENDATION NO. 19: CELA recommends that the CNSC require the NB EMO, in conjunction with regional emergency response officials, include in its outreach material to the public, explanations about the capability of sheltering and its limitations as described in the IAEA Guide GS-G-2.1.

RECOMMENDATION NO. 20: CELA requests that the Provincial Health Nuclear Emergency Plan be made publicly available as it is incorporated by reference in the Offsite Plan. Without reviewing this document, CELA cannot fully comment on the medical treatment of injured and contaminated members of the public in the event of an emergency.

RECOMMENDATION NO. 21: CELA recommends that the Point Lepreau operating licence should not be renewed without the Provincial Health Nuclear Emergency Plan being made publicly available.

RECOMMENDATION NO. 22: CELA recommends that the CNSC require that the public clearly understand what plans are in place to assist them with evacuation from the PAZ if they do not have their own transportation. What those plans are should be clearly specified and widely communicated to the public through outreach and education.

RECOMMENDATION NO. 23: CELA recommends that the CNSC require the Province to update its emergency response plans to contemplate the needs of vulnerable members of the population, analogous to the requirements under Ontario's *Radiation Health Response Plan* evacuation scenarios.

RECOMMENDATION NO. 24: As CELA has recommended in the past, the CNSC should require the designated municipalities and NB Power to communicate to the public in annual outreach and education, the fact that the nuclear emergency response plans expect the public to make their own arrangements in the event of evacuation, and for those who cannot, what is expected to be provided by the municipalities. The appropriateness of this approach should further be discussed with the public in terms of future nuclear emergency planning.

RECOMMENDATION NO. 25: CELA submits that a similar recommendation to the one made by the US General Accounting Office to the US Nuclear Regulatory Commission is relevant in this case: that the CNSC require the applicant to conduct a study as to the awareness of Point Lepreau in people beyond the 20 km zone and their likely response in the event that a general emergency is declared and the EPZ is evacuated.

RECOMMENDATION NO. 26: The CNSC should require the applicant to evaluate the impact of increased evacuation zones at radial distances of 30 and 40 km, on existing numbers of emergency workers required for evacuation management, the capacity of traffic routes and size of evacuation centres, and locations and capacity of Decontamination and Monitoring Units. These findings should be reported to the CNSC.

RECOMMENDATION NO. 27: Because the Offsite Plan is not in the public domain or provided in an alternative format which may be user-friendly to the public, CELA urges the CNSC to require, as a renewal-condition, that NB Power conduct surveys in the community to gauge levels of public knowledge regarding decontamination and report back to the CNSC.

RECOMMENDATION NO. 28: CELA requests that the CNSC ensure that automatic gamma monitoring is in place at Point Lepreau and require the automatic exchange of such data with the regulator as suggested by the IAEA and Fukushima Task Force reports.

RECOMMENDATION NO. 29: CELA recommends that the CNSC require that the Offsite Plan's monitoring provisions and ingestion control zones extend from the existing 80 km ingestion route, to encompass a distance of 100 km from the NGS. Also, the CNSC must require the undertaking of appropriate measures to ensure that monitoring can be done following an accident within that 100 km zone for agricultural produce, foodstuffs, milk and water.

RECOMMENDATION NO. 30: CELA recommends that the Offsite Plan explicitly outline the measures in respect of controlling ingestion food and water, including contingency planning for replacement of drinking water for all residents within 100 km of the Point Lepreau nuclear station that may be required in the case of a severe nuclear emergency of the type outlined by the *International Commission on Radiological Protection*.

RECOMMENDATION NO. 31: Risks of exceeding maximum radiation exposure limits must be discussed with workers in advance of any accident. Methods to review risks and obtain consent to exceed those limits should be explicitly clarified in both the Onsite and Offsite Plans.

RECOMMENDATION NO. 32: CELA recommends that the CNSC require annual conducting of exercises dealing with these types of full scale severe event or multi- unit accident scenarios with conclusive demonstration of their effectiveness as a licence condition for Point Lepreau in this application.

RECOMMENDATION NO. 33: CELA submits that the CNSC should not renew Point Lepreau's operating license beyond the current licence period without verifying "through tests and assessments" the adequacy of the emergency plans in place for the station, both onsite and offsite, to respond to severe nuclear emergencies. CNSC should furthermore require that the Offsite Plan be amended to reflect the capability requirements in the IAEA's GSR Part 7, rather than the out-dated requirements in GS-R-2.

RECOMMENDATION NO. 34: CELA calls on the CNSC to incorporate the provisions of REGDOC-2.10.1 into the Point Lepreau Licence Condition Handbook.

RECOMMENDATION NO. 35: CELA submits that the CNSC has jurisdiction to consider the adequacy of the emergency plans in place at Point Lepreau in deciding whether to renew the operating licence, and/or whether to impose additional requirements by way of licence conditions to better protect health, safety and the environment.

RECOMMENDATION NO. 36: CELA urges the CNSC to further enhance regulatory oversight of emergency planning adequacy at Point Lepreau with detailed public reviews, aimed at increasing the adequacy of emergency plans in response to catastrophic offsite beyond design basis accidents.

LIST OF REQUESTS

CELA requests that prior to considering Point Lepreau's licence renewal, the CNSC require evidence verifying the following:

- The NB Power CMD references the existence of “Severe Accident Management Guidelines”. CELA requests that this document be made available for public scrutiny and review (see page 5).
- To ensure intelligibility, transparency and traceability, CELA submits that the Offsite Plan must be revised to explicitly state what level of accident current measures are designed to address (see page 5).
- The requirements included in REGDOC 2.10.1, are not binding on the licence holder unless they are included as a condition under an approved licence. CELA requests that if the Point Lepreau operating licence is renewed, the whole of REGDOC-2.10.1 be incorporated into the Point Lepreau Licence Condition Handbook (see page 8)
- Among the lessons of the past tragedies is the necessity of public inclusions, consultation and transparency in changes to nuclear emergency planning. CELA requests evidence of any such public consultation in New Brunswick since the Fukushima accident (see page 8).
- The province of New Brunswick states that the offsite plan is reviewed annually. However, there are a number of dates referenced in the document which are not current to 2017. CELA requests that all information in the emergency response plan be updated to reflect currency dates of 2017 (see page 8, 9).
- CELA asks the province to explain the process by which the offsite plan is revised and what schedule is used to guide updates (see page 9).
- CELA submits that it is incumbent of the CNSC to require that the emergency planning zones be expanded before proceeding with the licensing of the Point Lepreau (see page 10).
- CELA requests that the CNSC verify that the population in the vicinity of Point Lepreau, both within the Offsite Plan’s current 20 km range and beyond are engaged, informed, and involved in all aspects of emergency planning in respect of accidents that could occur (see page 10).
- The NB EMO website has a publication titled *72 Hour Emergency Preparedness – Is Your Family Prepared?* Since this document does not deal with nuclear emergencies, CELA strongly recommends an equivalent emergency preparedness document be created and disseminated to the public about nuclear emergency response (see page 13).
- NB Power states in its CMD that comprehensive nuclear safety culture assessments were conducted in 2014 and 2015. CELA was not able to obtain these documents. CELA requests the findings of these assessments be made available for public review (see page 15).

- CELA urges the CNSC to exercise its stringent oversight role as to whether emergency base planning and response has been proven, prior to exercising its discretion to provide a renewed operating licence to Point Lepreau. CELA requests that this assessment be made public (see page 16).
- Given the globally recognized uniqueness and importance of the Bay of Fundy region, CELA requests that the CNSC consider the marine environment within its reading of “protection of the environment” and “safety of persons” per s 24(4) of the NSCA (see page 18 -19).
- CELA requests that the province comment on the level of nuclear emergency awareness among the fisher community (see page 19).
- CELA asks, will all commercial, in-shore and recreational fishers have the capacity (either through fuel or navigational skills) to access ‘safe harbours’ and the marine decontamination centres located in the Port of Saint John and Blacks Harbour? (see page 19).
- CELA asks, are fishers aware of how to test or dispose of their catch, if needed? (see page 19).
- CELA asks if there is any compensation fund available to the fishing community in the event of harm? (see page 19).
- Given the significant roles played by DAAF and the Coast Guard in the protection of human life at sea, CELA requests copies of the documents which outline their role and duties (see page 19).
- CELA submits that the CNSC must also ensure neighbouring jurisdictions’ readiness in the event of an emergency at Point Lepreau. Particularly, the province of Nova Scotia and state of Maine must be sufficiently aware of contingency emergency plans arising from severe accidents at Point Lepreau (see page 20).
- CELA requests the licensee provide information on whether emergency response information has been communicated to Nova Scotia and Maine, and whether KI pills have been distributed (see page 20).
- The Offsite Plan notes that KI has been distributed to residences within 20 kilometres of the Point Lepreau and that there is a combined KI inventory of approximately 55,000. CELA requests information on who maintains the currency of this stock and by what process it is tracked (see page 26).
- The Offsite Plan states that the last KI distribution took place August – September of 2015. The next distribution is to occur before the expiration date on current tablets (August 2021). CELA requests information regarding what interim measures will be used during this six-year time span to ensure all residents have KI in their homes (see page 27).
- REGDOC 2.10.2 requires the licensee to “collaborate with the municipal or regional authorities to develop and maintain public evacuation time estimates based on current census data, and future population growth projections on a per-decade estimation until end

of life of the facility.” CELA requests this provision form part of the Point Lepreau licencing conditions (see page 33).

- CELA notes that the Offsite Site plan in its “Ingestion Pathway Monitoring” section lists a chapter called Countermeasures. Unfortunately, this chapter only contains the words “To be completed later.” CELA requests an update to this chapter be provided (see page 36).
- The Offsite Plan states that those engaged in decontamination operations should wear personal protective equipment and a “dose control program” be undertaken. CELA requests that the licensee or province confirm if a dose control program has been put in place. CELA further submits that if these programs are in existence, they be explicitly referenced and appended in the emergency response plans (see page 37).
- Drills must confirm that communication channels are working properly and emergency locations are fully operational and functional. The CNSC should require the inclusion of members of the surrounding community and public interest organizations in these drills to increase input and confidence in the results (see page 38).
- CELA recommends that the results of drills be made public, along with lessons learned, and improvements recommended as a result of the exercises. Furthermore, the CNSC should require reporting of implementation of those improvements on an annual basis (see page 38).

LIST OF ACRONYMS

BDBR	Beyond design basis release
CMD	Commission Member Document
DAAF	Department of Agriculture, Aquaculture and Fisheries
DBR	Design basis release
IAEA	International Atomic Energy Agency
ICRP	International Commission on Radiological Protection
ITB	Iodine thyroid blocking
NB EMO	New Brunswick Emergency Measures Organization
PNERP	Provincial Nuclear Emergency Response Plan
RHRP	Radiation Health Response Plan

INTRODUCTION

The Canadian Environmental Law Association (CELA) welcomes this opportunity to review the proposed licence renewal of the Point Lepreau Nuclear Generating Station (herein, “Point Lepreau”). Located in rural New Brunswick on the Lepreau Peninsula in the Bay of Fundy, it is uniquely Canada’s only nuclear reactor located on an ocean.

On February 17, 2012, the Canadian Nuclear Safety Commission (CNSC) issued the current Point Lepreau operating licence. With the licence set to expire on June 30, 2017, the New Brunswick Power Corporation (herein, NB Power) has applied for a five-year renewal of its nuclear power reactor operating licence. On December 16, 2016, CELA received participant funding by the CNSC to participate in the Point Lepreau relicensing hearing.

For nearly 50 years, CELA has used legal tools, undertaken ground breaking research and conducted public interest advocacy to increase environmental protection and the safeguarding of communities. CELA works towards protecting human health and the environment by actively engaging in policy planning and seeking justice for those harmed by pollution or poor environmental decision-making. In this context, CELA is focused on examining the sufficiency of nuclear emergency planning as a matter of significant public importance.

In this submission, CELA addresses the issues identified in our Participant Funding Program and responds to the materials provided by the CNSC, NB Power and the Province of New Brunswick. With this submission, CELA aims to:

- Examine the emergency planning provisions relevant to the Application for re-licensing;
- Provide input to the CNSC in respect of the adequacy of said provisions; and,
- Provide recommendations for improvement.

CELA’s review of the proposal to extend the Point Lepreau operating licence for the next five years will focus on whether the CNSC should grant this licence in light of the adequacy of emergency planning at Point Lepreau. Ultimately, CELA submits that the test the CNSC must apply in deciding to renew the licence is whether the emergency response plan’s planning basis is that of a catastrophic-level accident. If the CNSC concludes it is not, the licence should not be renewed.

1.0 CNSC ADJUDICATION – PROCESS AND LIMITATIONS

1.1 Participant Funding Applicants

CELA again reiterates its disappointment¹ regarding the process the CNSC has chosen to undertake in its consideration of input from public participants, particularly Participant Funding Program (PFP) applicants.

On December 16, 2016, CELA was informed of its success at obtaining participant funding. As our review and analysis is directly tied to the Point Lepreau licence, we could not commence any in-depth research until receiving the CMDs from the CNSC Staff² and NB Power.³ These were received later than anticipated on January 18, 2017, because of problems the CNSC was experiencing with their interventions server.⁴

Part 1 of Point Lepreau's relicensing hearing occurred January 26, 2017. During the hearing, a number of documents referenced in NB Power's Commission Member Document (CMD) were discussed with the panel members. Most crucially, was a document referred to in the NB Power and CNSC Staff CMDs, titled the *Province of New Brunswick's Point Lepreau Nuclear Off-Site Emergency Plan* (herein "Offsite Plan").⁵ As this document and others referenced in the CMDs were not included as attachments or appendixes (nor available in the public domain),⁶ CELA sought copies.⁷

In order to obtain the Offsite Plan, CELA was informed by the Province of New Brunswick on February 15, 2017, that it must submit a *Right to Information and Protection of Privacy Act* request. After repeatedly requesting the Province voluntary release the Offsite Plan, and formally filing an

¹ See page 7 of CELA's submission on "*Canadian Nuclear Laboratories' Application to amend and extend the Chalk River Laboratories nuclear research and test establishment licence for a period of 17 months*" (6 March 2016) online: <http://www.cela.ca/sites/cela.ca/files/1065-CELA%20Submission%20on%20CNL%27s%20application%20to%20amend%20and%20extend%20the%20CRL%20licence%20to%202018.pdf> [**Chalk River**].

² CNSC, "*CMD 17-H2 New Brunswick Power Corporation – Point Lepreau Nuclear Generating Station*" (26 Jan 2017) at 69 [**CNSC CMD**].

³ New Brunswick Power, "*CMD 17-H2.1 In the Matter of New Brunswick Corporation – Point Lepreau Nuclear Generating Station*" (22 Dec 2016) [**NB Power CMD**].

⁴ Email correspondence with CNSC dated January 18, 2017.

⁵ See Appendices 1 and 2, *Point Lepreau Nuclear Off-Site Emergency Plan Volume I (Policy)* and *Point Lepreau Nuclear Off-Site Plan Volume II (Procedures)*. The two volumes, both dated 31 March 2016, were issued by the Department of Public Safety [**Offsite Plan**].

⁶ *CNSC CMD*, *supra* note 2 at 69; *NB Power CMD*, *supra* note 3 at 75.

⁷ See Appendix 5, Document Requests.

information request, a paper copy of the Offsite Plan was received March 21, 2017.⁸ It should be noted that prior to receiving the Offsite Plan on March 21, the Province had not been able to inform CELA when or if the Offsite Plan would be disclosed and therefore it was as a pre-emptive and precautionary measure that CELA sought an extension from Commission Secretary, Marc Leblanc. On March 15, 2017, we received a deadline extension to April 3, 2017. While we did eventually receive the plan, it left us a very short time for review.

CELA would not only like to emphasize the extreme delays and difficulty with which the disclosure process operates, but the fact that documents upon which the public hearing on January 26 and accompanying CMDs relied were withheld from the public's purview. Secondly, CELA spent an astounding amount of time seeking documents, following up on document requests and drafting information requests. This was not the best use of CELA's resources and ultimately, not covered in the funds received as a Participant. The process to date has taxed CELA's ability to provide in-depth analysis and draft a value-added intervention which could improve the regulatory review process and contribute to a better protection of the public in the event of a nuclear emergency.

RECOMMENDATION NO. 1: CELA submits that all CMDs for any CNSC hearings or meetings should be posted in their entirety on the Commission's website. Not only will this alleviate a burden on CNSC staff to respond to individual requests for documents, it will allow any interested party to access the documents immediately, without delay.

RECOMMENDATION NO. 2: The CNSC must revise its participant process to ensure the timely delivery of documents and require a minimum of 60 days between receipt of all documents and the CMD submission deadline. To facilitate the public review of documents, the CNSC should mandate that all reports and documents referred to in a party's CMD be appended and posted in full, on the CNSC's hearing portal.

1.2 Transparency

CELA submits that there are significant similarities between the regulatory and industry attitude in Japan pre-Fukushima and the attitude currently in "western" nuclear power operating states, including Canada. One of the significant findings arising from the Fukushima accident, echoed at a recent International Atomic Energy Agency (IAEA) conference on nuclear regulation post Fukushima (hosted in Ottawa by the CNSC), was that a lack of transparency and credible information can severely harm public confidence in the industry and the regulator.

⁸ See Appendix 6, Information Request.

CELA is of the view that the lack of access to documents, which form the basis of emergency planning and response, is an issue of significant public importance. CELA will persist in seeking additional, historic materials to include in our emergency planning document collection. Given all nuclear power plants now operate in a post-Fukushima world, the CNSC and industry proponents must heed lessons and recommendations and opt for a high degree of transparency in both its document dissemination and decision-making.⁹

1.3 Disclaimer

This submission by CELA is not an endorsement of the CNSC's hearing process, its independence as a regulator, or its outcomes. To the contrary, CELA submits there is a need for legislative review of the CNSC in order to address weaknesses in the current legal framework.

2.0 OFFSITE EMERGENCY PLANNING AND PREPAREDNESS AT POINT LEPREAU

There is a necessity for sufficiently detailed emergency planning and preparedness. In the event of a catastrophic accident at the Point Lepreau generating station, widespread health, safety and environmental consequences would be inevitable unless immediate and effective steps were taken for public protection.

In 2012, the National Diet of Japan's Fukushima Nuclear Accident Independent Investigation Commission concluded that the Fukushima Daiichi nuclear power plant accident could not be "regarded as a natural disaster. It was profoundly a manmade-disaster - that could and should have been foreseen and prevented."¹⁰ In March of 2017, the Maebashi District Court in Japan ruled for the first time that both the government and operator of the Fukushima nuclear plant were responsible for failing to take preventative measures.¹¹ The judges found that the major risks from the plant were foreseeable by the government but were ignored and not acted upon.¹²

⁹ See International Atomic Energy Agency, "*The Fukushima Daiichi Accident*" (2015 [**Fukushima Daiichi Accident**]); National Academy of Science, "*Lessons Learned from the Fukushima Nuclear Accident for Improving Safety of US Nuclear Plants*" (2014) [**National Academy of Science**].

¹⁰ The National Diet of Japan, "*The Official Report of the Fukushima Nuclear Accident Independent Investigation Commission*" (2012) online: https://www.nirs.org/wp-content/uploads/fukushima/naiic_report.pdf at 9 [**National Diet of Japan**].

¹¹ Daisuke Kikuchi, "*In first, government and Tepco found liable for Fukushima disaster*" (17 March 2017) The Japan Times online: <http://www.japantimes.co.jp/news/2017/03/17/national/crime-legal/first-government-tepco-found-liable-fukushima-disaster/#.WN3YwogrLIU>.

¹² Shaun Burnie, "*Japan court shocks nuclear industry with liability ruling*" (20 March 2017) Asia Times online: <http://www.atimes.com/article/japan-court-shocks-nuclear-industry-liability-ruling/>.

In response to these findings, CELA reaffirms its position that the CNSC must ensure the sufficiency of the Point Lepreau offsite emergency plan, including a detailed planning basis, to pre-prepare for larger radiation releases, over greater geographical distances than have historically occurred. CELA's use of the terms 'severe' and 'catastrophic' accident throughout this submission shall refer to an accident whose radiation release is on par or greater than that of the Fukushima nuclear station. Therefore, our discussion of the planning basis and the resulting emergency response plan shall be understood from this baseline.

CELA echoes the submission of Greenpeace,¹³ in noting that until an open and public review of the offsite emergency plan has occurred, the CNSC does not have enough information before it to ensure the safety of the public in the event of a major radiation release.

2.1 Planning Basis

Fundamentally, the magnitude of an accident chosen as the design basis for emergency planning determines the consequences and risks which can be averted. For instance, a planning basis which relies on a less severe accident baseline will have wildly divergent planning outcomes than a response plan based on a 'worst case' or catastrophic scenario. The planning basis chosen directly affects the amount of resources and preparation necessary to respond. As found by the US-based, National Research Council of the National Academies, the emergency management plans in Japan at the time of the Fukushima Daiichi accident "were inadequate to deal with the magnitude of the accident."¹⁴

It has come to CELA's attention that the province of New Brunswick "does not have its own planning basis or definition of type of release." Instead, the operator itself, NB Power is responsible for classifying the radiation emergency and the provincial, New Brunswick Emergency Measures Organization (NB EMO) "follows the notification procedure in accordance with the classification."¹⁵ To ensure intelligibility, transparency and traceability, CELA submits that the Offsite Plan must be revised to explicitly state what level of accident current measures are designed to address.

The New Brunswick offsite emergency plan is based on a Design Basis Release (DBR), which is not of a sufficient scale to ensure emergency response preparedness in the event of a severe accident.¹⁶ While the NB Power CMD references the existence of "Severe Accident Management Guidelines,"

¹³ See "17-H2.74 - Presentation by Greenpeace Canada," online: <http://nuclearsafety.gc.ca>.

¹⁴ *National Academy of Science*, *supra* note 9 at 11.

¹⁵ See Appendix 7, Planning Basis Email Correspondence.

¹⁶ *Offsite Plan Vol II*, *supra* note 5 at 227.

NB Power would not provide a copy of it to CELA because it was “for internal use only.”¹⁷ CELA requests that this document be made available for public scrutiny and review.

Basing the capacity of emergency response on a DBR fails to ensure that New Brunswick is prepared to respond to the following during a severe accident:

1. Timely public alerting and direction
2. Prioritization of evacuations
3. Radiation monitoring and, if necessary decontamination
4. Medical assessment, treatment and planning

CELA submits that the acceptance of a less severe accident as an emergency planning basis for emergency planning is a fundamental error in energy policy and is a regulatory oversight. This flawed planning baseline results, in part, from early operating experience when nuclear plants were newer and had fewer “reactor years” of operation, and also based, in part, on questionable probability calculations.

As we have previously stated in our submissions on emergency planning at other Canadian nuclear power plants, the attitude in which lower levels of preparedness have until this point been accepted is reminiscent of a statement made at an IAEA Regulator’s Conference hosted by the CNSC in Ottawa in April 2013. At this conference, Toshimitsu Homma of the Japan Atomic Energy Agency stated to the Panel on Emergency Management that the most important lesson of Fukushima was that, before the accident, “[t]here was an implicit assumption that such a severe accident could not happen and thus insufficient attention was paid to such an accident by authorities.”¹⁸

¹⁷ Email correspondence from NB Power, March 31, 2017.

¹⁸ The Porter Royal Commission on the Electric Power Planning concluding report, titled “Mind-Set Syndrome,” quoted the Presidential Commission on the Three Mile Island accident which occurred in 1979. The TMI Commission noted that “the belief that nuclear power plants are sufficiently safe grew into a conviction.... The Commission is convinced that this attitude must be changed to one that says nuclear power is by its very nature potentially dangerous, and therefore, one must continually question whether the safeguards already in place are sufficient to prevent major accidents.” These statements by the TMI Commission and the Porter Commission were made in 1979 and 1980. The lessons that were supposed to be learned at that time, according to the comments of Mr. Homma of Japan had apparently been forgotten, if they were ever truly internalized. CELA has an ongoing concern that this type of “mind-set syndrome” continues in the Canadian context today, even while at the same time the Fukushima Task Force and its recommendations are proceeding. CELA recommends that the CNSC in its decision on this Application, should explicitly recognize the dangerous nature of the technology and demonstrate to the public by way of its decision that it is taking that danger very seriously, in particular by requiring evidence of detailed and effective planning for severe beyond design basis accidents.

A similar level of complacency is echoed in the Point Lepreau Offsite Plan which states its reactor,

[...] uses a different technology than either of [Three Mile Island or Chernobyl] and the likely nature of any accident at PLGS would be much different. Furthermore, in the case of Chernobyl, the social and political environment was very different. In order to prevent misunderstanding or confusion, at no time should health system communication mention any of these nuclear incidents unless to rebut firmly any connection in the public mind.¹⁹

This is a very worrisome attitude. Among the lessons from Chernobyl, Fukushima, Three Mile Island, and other accidents is that an unfortunate set of circumstances could still lead to an unanticipated severe or catastrophic accident. The opinion expressed in the Offsite Plan is therefore misleading and potentially dangerous in that it rests on a false sense of security and dismisses the lessons which can be learned from prior accidents. It is crucial that the province of New Brunswick and NB Power, in designing the planning basis, identify how large releases of radiation will be recognized in their emergency response planning basis.

Post-Fukushima, it has been recognized that “beyond design basis accidents were not sufficiently considered” and as a recommendation, plants now must be able to “withstand applicable beyond design basis accidents.”²⁰ The US National Academy of Science also recommends that the nuclear industry “give specific attention to improving plant systems in order to enable effective responses to beyond design basis events.”²¹ New Brunswick has not demonstrated that it has changed its plans, emergency preparedness on the ground, or details of planning to meet a beyond design basis accident. We see no evidence that the planning basis has been revised to reflect both Chernobyl and Fukushima-scale accidents.

CELA seeks a response from the province of New Brunswick to explain why such a low source term was accepted as a planning basis for emergency response.²²

RECOMMENDATION NO. 3: CELA submits that the planning basis for a potential offsite nuclear accident in New Brunswick must be increased (with public input) to account for a catastrophic offsite accident. At this time, and until such emergency plans are in place and proven to be effective for a catastrophic accident, CELA submits that the site should not be licensed for continued operation.

¹⁹ *Offsite Plan Vol II, supra* note 5 at 109.

²⁰ *Fukushima Daiichi Accident, supra* note 9 at 61, 6.

²¹ *National Academy of Science, supra* note 9 at 155.

²² See Appendix 3, NB Power “Technical Planning Basis – Radiation Emergency IR – 78600 – 02” (2004).

RECOMMENDATION NO. 4: CELA recommends to the CNSC that it deny Point Lepreau’s operating licence renewal on the basis that a detailed, robust emergency planning basis for catastrophic accidents has not been provided to the public, and furthermore that, to the extent the provincial offsite nuclear emergency plan has been revised, the public has been denied opportunity to provide rigorous review and input.

2.2 Emergency Response Planning

i. Currency of Existing Plan

In February of 2016, REGDOC-2.10.1, *Nuclear Emergency Preparedness and Response*, version 2 was published by the CNSC in response to the CNSC’s Fukushima Action Plan.²³ CELA notes that the requirements included in REGDOC 2.10.1, are not binding on the licence holder unless they are included as a condition under an approved licence. Therefore, CELA requests that if the Point Lepreau operating licence is renewed, the whole of REGDOC-2.10.1 be incorporated into the Point Lepreau Licence Condition Handbook.

New Brunswick has not yet publicly reviewed or upgraded its offsite emergency plan since the Fukushima disaster. A November 16, 2015, article from Global News quoted the CEO of NB Power stating that the nuclear disaster at the Fukushima Daiichi plant was a major teaching point for the industry and “we have done a lot of changes since [then]”.²⁴ It is not evident how changes implemented by NB Power post-Fukushima have been incorporated into the nuclear emergency Offsite Plan. CELA requests that the province provide records noting the review that was undertaken and consequent changes. Furthermore, among the lessons of the past tragedies is the necessity of public inclusions, consultation and transparency in changes to nuclear emergency planning. CELA requests evidence of any such public consultation in New Brunswick since the Fukushima accident occurred.

The province of New Brunswick states that the offsite plan is reviewed annually,²⁵ however, there are a number of dates referenced in the document which are not current to 2017. For instance:

²³ Canadian Nuclear Safety Commission, “Reg. Doc 2.10.1-2 Nuclear Emergency Preparedness and Response, Version 2” online: <http://nuclearsafety.gc.ca/eng/acts-and-regulations/regulatory-documents/published/html/regdoc2-10-1v2/index.cfm> [**REGDOC 2.10.1**].

²⁴ Alexandra Abdelwahab, “Large-scale emergency exercise gets underway for people living near Point Lepreau nuclear plant” (16 Nov 2015) Global News online: <http://globalnews.ca/news/2342326/large-scale-emergency-exercise-gets-underway-for-people-living-near-point-lepreau-nuclear-plant/>

²⁵ *Offsite Plan Vol I*, *supra* note 5 at 13.

- Point Lepreau Generating Station ELG Off-Site Response Plan – Emergency Management Plan is dated “June 21, 2013 (ongoing)”²⁶
- Harbour Authority Contact Information is dated February 2015²⁷
- Schools existing in the immediate area of Point Lepreau is current to September 2014²⁸
- Point Lepreau Warden Map for emergency altering is current to March 2012²⁹

CELA requests that this information in the emergency response plan be updated to reflect currency dates of 2017. CELA also asks the province to explain the process by which the offsite plan is revised and what schedule is used to guide updates.

RECOMMENDATION NO. 5: CELA requests that prior to considering licence renewal, the CNSC require evidence of public consultation and transparency in the changes which have been made to nuclear emergency planning since the Fukushima accident. The Offsite Plan should also be updated to include requirements for transparency, pro-active disclosure and regular public review.

ii. Size of Emergency Planning Zones

The Point Lepreau Generating Station Emergency Response Plan produced by NB Power (herein, “NB Power Response Plan”) and the provincial Offsite Plan list the emergency planning zones as follows:

- Precautionary action zone (PAZ): 4 km
- Urgent protection action zone (UPZ): 12 km
- Longer-term protective action zone (LPZ): greater than 12 km
- Emergency Planning Zone (EPZ): 20 km³⁰

While the NB Power Response Plan is limited in scope to the PAZ and UPZ zones (0 – 12km),³¹ NB Power states it does assist offsite authorities in dealing with the radiation protection aspects of the provinces Offsite Plan.³² CELA requests NB Power and the province provide an explanation regarding these boundary delineations and clarify what preparedness measures each respectively

²⁶ *Ibid* at 56.

²⁷ *Ibid* at 47.

²⁸ *Ibid* at 192.

²⁹ *Ibid* at 188.

³⁰ *Ibid* at 188.

³¹ New Brunswick Power, “Point Lepreau Generating Station: Emergency Response Plan,” SI-01365-EP02 at 9 [**NB Power Emergency Response Plan**], see Appendix 4 – NB Power Emergency Response Plan.

³² *Ibid* at 5.

assumes.

The emergency planning zones delineated for Point Lepreau do not meet the suggested emergency zone sizes set by the IAEA Safety Guide GS-G-2.1. The IAEA recommends:³³

- Precautionary action zone: 3 – 5 km
- Urgent protective action planning zone: 5 – 30 km

The IAEA's suggested 3-5 km precautionary action zone is based on "expert judgement" and is considerate of the public's need to seek shelter, take protective actions and evacuate, in order to avert doses exceeding thresholds for early death.³⁴ Likewise, the IAEA's recommended 5 -30 km urgent protective action planning zone is based on a radial distance within which monitoring and protective actions can be accomplished within a few hours following a radiation release.³⁵

The CNSC's *Fukushima Task Force Report*³⁶ noted that at Day 5 after the onset of the Fukushima accident, authorities extended the evacuation zone to 30 km around the plant. One month later, some residents at even greater distances were moved as a result of discovering higher levels of radiation in those areas.³⁷ Therefore, CELA submits that it is incumbent on the CNSC to require that the emergency planning zones be expanded before proceeding with the licensing of Point Lepreau. It is evident from the experience of Fukushima that evacuation well beyond 20 km would be required in large radiation release scenarios. CELA submits that if emergency planning were undertaken for severe accidents, as recommended by the CNSC Fukushima Task Force report,³⁸ it would be clear that emergency planning zones must extend significantly beyond their current limits.

CELA recommends the establishment of a secondary emergency zone which extends to 100 km.³⁹ Figure 1, below, plots the radial distances of 4, 12, 20, 30, 40, 80 and 100 km from Point Lepreau to illustrate the provinces, states, cities and communities which would benefit from an expanded emergency zone. CELA requests that the CNSC verify that the population in the vicinity of Point Lepreau, both within the Offsite Plan's current 20 km range and beyond are engaged, informed, and

³³ International Atomic Energy Agency, "Arrangements for Preparedness for a Nuclear or Radiological Emergency No. GS-G-2.1" (2007) online: <http://www-pub.iaea.org/MTCD/publications/PDF/Pub1265web.pdf> at p 76 [**IAEA GS-G-2.1**].

³⁴ *Ibid* at 77.

³⁵ *Ibid* at 78.

³⁶ Canadian Nuclear Safety Commission, "CNSC Fukushima Task Force Report, INFO-0824" (October 2011) online http://nuclearsafety.gc.ca/pubs_catalogue/uploads/October-2011-CNSC-Fukushima-Task-Force-Report_e.pdf.

[**Fukushima Task Force**].

³⁷ *Ibid* at p 8.

³⁸ *Ibid* at p 39.

³⁹ *Ibid* at p 47.

involved in all aspects of emergency planning in respect of accidents that could occur at Point Lepreau.

RECOMMENDATION NO. 6: CELA submits that the 4 km PAZ be extended to 5 km, the UPZ extended to 30 km and an explanation as to why the current emergency zones do not follow expert judgment and best practice be provided.

RECOMMENDATION NO. 7: CELA recommends that in view of the experience at Chernobyl and Fukushima, the CNSC should request that the province immediately create a secondary emergency zone to a radial distance of 100 km. This should be done as part of detailed planning for severe accidents so that appropriate monitoring of food, agricultural products, milk, and water is established and in place in the event of such an accident.

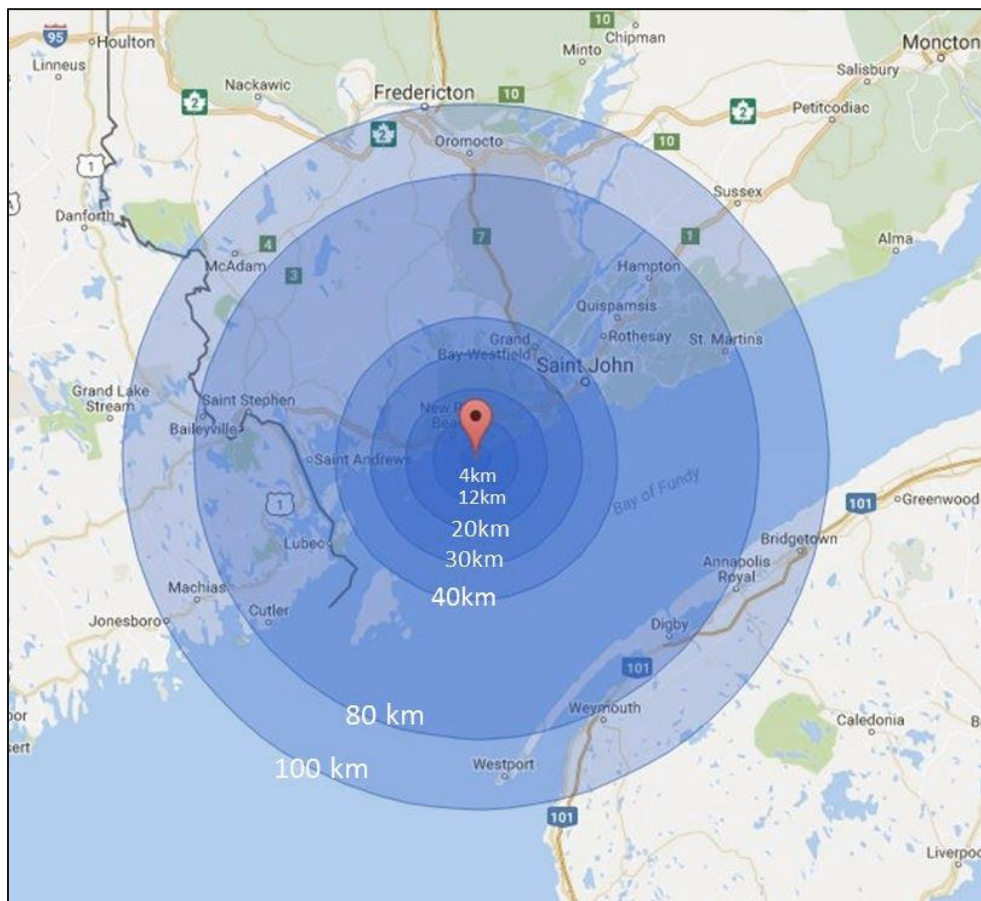


Figure 1: Emergency zones

iii. *Public Availability of Emergency Response Information*

The provincial authority in New Brunswick overseeing nuclear safety is the NB EMO. The NB EMO is responsible for actions to protect the public⁴⁰ and becomes involved when there are emergencies presenting a danger to the general public.⁴¹

It is a matter of significant concern that the NB EMO has not made the province's Offsite Plan⁴² publicly available either in full or in part. Further still, there is a paucity of guidance and literature on the NB EMO website which could provide citizens with knowledge of the province's nuclear emergency response and plans.

CELA has reviewed all links and information posted on the NB EMO website⁴³ and findings, current to April 1, 2017, are presented below.⁴⁴ Our findings are organized by the section headings on the site: (1) Latest, (2) Quick Links and (3) Related Links.

1. Latest Category

This section of the website contains a document titled *New Brunswick Submission to the Canadian Nuclear Safety Commission* and it describes the province's Nuclear Emergency Program. While the document contains helpful information on emergency response, it is not dated so its currency is unknown. It appears to pre-date 2012 as it states at one point, for instance, "the next test is planned for January 2012."⁴⁵ Secondly, the document is not intended as a practical emergency guidebook for citizens and indicates as much, in its opening paragraph where it states "this submission is to the CNSC."⁴⁶

A second document in this section of the website, titled *NB Presentation* is a PowerPoint delivered to the Department of Public Safety in December of 2011. While this presentation is publicly available, its aim is not that of emergency response information dissemination, but the description of the "current state [...] capabilities and readiness for station restart" in 2012.

2. Quick Links and Related Links

⁴⁰ *NB Power Emergency Response Plan*, *supra* note 31 at 5.

⁴¹ *Offsite Plan Vol I*, *supra* note 5 at 8.

⁴² *Ibid.*

⁴³ See Appendix 8, NB EMO Website dated April 1, 2017.

⁴⁵ New Brunswick, "Nuclear Emergency Program" online: <http://www2.gnb.ca/content/dam/gnb/Departments/ps-sp/pdf/emo/Nuclear/NuclearEmergencyProgram.pdf> at 12.

⁴⁶ *Ibid* at 1.

All but one of the Quick Links and Related Links listed on the NB EMO's Nuclear Emergency Program website either redirects to external websites, such as Health Canada or the CNSC, or provincial websites which are not nuclear-response specific.

Upon opening a link titled *Public Warning System*, a document named *Point Lepreau Emergency Notification System: What you need to know* appears.⁴⁷ This one page document informs residents that if they are within a 20 km radius of Point Lepreau, they will receive messages on their telephone alerting them to an emergency test or actual event. This document does not provide information about a response following this notification, should one be received, or an indication of events which could follow, in the event of an emergency message being sent.

3. Other Emergency Preparedness Documents

A search elsewhere on the NB EMO website for public documents pertaining to emergency response returned a publication under the heading *Planning and Preparedness*, titled *72 Hour Emergency Preparedness – Is Your Family Prepared?*⁴⁸ This is a very helpful publication indicating how individuals and families can create their own emergency plan and 72-hour emergency kit. While the guide urges citizens to “know the risks” which may include natural disasters like flood and hurricanes, and sudden events such as train derailments and power outages, the term “nuclear” does not appear in the document. Following this guide's template, CELA strongly recommends an equivalent emergency preparedness document be created and disseminated to the public about nuclear emergency response.

Given the severe lack of nuclear emergency response documents geared to the public on the NB EMO website, it is highly likely that members of the public are ill-informed of:

- How to find accommodation with friends and family in case of evacuation
- What it means to “self-decontaminate”
- When is it most effective to take KI pills
- What transportation options are available if they do not have their own vehicles, and

⁴⁷ New Brunswick EMO, “*The Lepreau Emergency Notification System: What you need to know*” online: <http://www2.gnb.ca/content/dam/gnb/Departments/ps-sp/pdf/emo/Nuclear/TheLepreauEmergencyNotificationSystem-WhatYouNeedToKnow.pdf>.

⁴⁸ New Brunswick EMO, “*72 Hour Emergency Preparedness – Is Your Family Prepared*” (2016) online: <http://www2.gnb.ca/content/dam/gnb/Departments/ps-sp/pdf/emo/2015-NB-EMObooklet-E.pdf>.

- How a family reunification should occur, in the event of evacuation scenarios in which members of a family are evacuated separately (such as from schools and long term care institutions).

RECOMMENDATION NO. 8: To enhance transparency and accountability, the NB EMO must maintain a website dedicated to nuclear emergency response. It must include documents and data that enable the easy access of information and incorporate a user-centred design.

iv. *Federal - Provincial Responsibility for Offsite Emergency Response*

The *Memorandum of Understanding between the Canadian Nuclear Safety Commission and New Brunswick Emergency Measures Organization* outlines that the NB EMO is the provincial body vested with jurisdiction respecting nuclear safety regulation, public safety, and the protection of the environment in the Province of New Brunswick.⁴⁹

By virtue of the province's *Emergency Measures Act*, the NB EMO is the off-site emergency response authority and administers Offsite Plan.⁵⁰ This authority, vested in the province, cannot be delegated to NB Power. As stated in the CNSC's *Nuclear Emergency Response Plan – Master Plan*:

Provincial and territorial governments have the primary responsibility for protecting public health and safety, property, and the environment within their borders. They are also the primary authorities for informing the public about protective actions and offsite conditions.⁵¹

Therefore, despite a licensee's helpful guidance on emergency response and planning in the community – which is the case with NB Power - these guidance documents and public outreach activities are not a stand-in for the responsibilities held by the province.

The New Brunswick *Emergency Measures Act* states that “The Minister [of Justice and Public Safety] shall coordinate emergency measures plans within the Province and may delegate powers vested in him or her by or under this Act” (s2(2)).⁵² The Act defines an emergency measures plan as:

⁴⁹ CNSC, “*Memorandum of Understanding between The Canadian Nuclear Safety Commission and New Brunswick Emergency Measures Organization*” (2011) online: http://nuclearsafety.gc.ca/eng/pdfs/MoU-Agreements/Memorandum_of_Understanding_Between_the_CNSC_and_NB_Emergency_Measures_Organization_NBEMO.pdf.

⁵⁰ *Ibid.*

⁵¹ CNSC, “*Canadian Nuclear Safety Commission Nuclear Emergency Response Plan – Master Plan EDOC 3845178 – v25*” (May 2013).

⁵² *Emergency Measures Act*, 2011 c 147.

[A] plan, program or procedure prepared by the Province or a municipality, as the case may be, that is intended to mitigate the effects of an emergency or disaster and to provide for the safety, health or welfare of the civil population and the protection of property and the environment in the event of such an occurrence

It is the province's jurisdiction to provide for the safety of its citizens. Safety, CELA submits, is protection from harm.⁵³ There is widespread acceptance in the international nuclear community that a "strong nuclear safety culture needs to be adopted universally."⁵⁴ The Government of Japan, prior to the Fukushima accident, had acknowledged the need for a strong safety culture, however, its nuclear regulators were deficient at establishing and maintaining such a culture.⁵⁵ CELA submits this complacency is evident in the province of New Brunswick's approach to planning and response.

In the case of Point Lepreau, NB Power states in its CMD that comprehensive nuclear safety culture assessments were conducted in 2014 and 2015.⁵⁶ CELA was not able to obtain these documents as they were marked as "for internal use only" by NB Power.⁵⁷ CELA requests the findings of these assessments be made available for public review.

With a crucial lack of engagement by the province in ensuring offsite emergency preparedness, CELA reminds the CNSC that it is its responsibility under the *Nuclear Safety Control Act (NSCA)* to assume responsibility for approving the sufficiency of the planning basis and emergency response in New Brunswick.⁵⁸ As important as the role of the province is in developing general emergency plans and specific nuclear emergency plans, they are not the approval authority for the licensing of nuclear power plants. It is untenable that the content and efficacy of those plans be determined entirely by agencies that are not regulated directly by the CNSC such as the NB EMO, despite their important role in the undertaking of the plans.

Furthermore, it is the CNSC and only the CNSC which has the authority to grant a licence under the *NSCA*. While the EMO has a role, they do not have the jurisdiction over plant licensing, and plant licensing considerations cannot stop at the plant boundary. Section 24(4)(b) of the *NSCA* requires the Commission in licensing assure itself that the licensee:

will, in carrying on [the activity for which a license is sought], make adequate provision for the protection of the environment, the health and safety of persons and the maintenance of

⁵³ *National Academy of Science*, *supra* note 9 at 232.

⁵⁴ *Ibid* at 235.

⁵⁵ *Ibid* at 238.

⁵⁶ *NB Power CMD*, *supra* note 3 at 13.

⁵⁷ Email correspondence from NB Power dated March 31, 2017.

⁵⁸ *Nuclear Safety and Control Act*, SC 1997 c 9 [*NSCA*].

national security and measures required to implement international obligations to which Canada has agreed.

REGDOC-2.10.1 *Nuclear Emergency Preparedness and Response*, sets out the emergency preparedness requirements flowing from s.24(4) of the *NSCA* and therefore the CNSC must ensure that, if renewed, the Point Lepreau operating licence meets these guidelines.

If a nuclear power plant is to operate in the province, then all requirements of the national regulator must be met. Where these requirements include specific offsite protection of the public from effects of accidents at those plants, operators must comply and demonstrate a reasonable basis to rely on other actors such as EMO to ensure that the level of protection required by the CNSC is in place.

CELA urges the CNSC to exercise its stringent oversight role and determine whether emergency base planning and response has been proven - prior to exercising its discretion to provide a renewed operating licence to Point Lepreau. This assessment must be made public.

As the Diet of Japan's Commission concluded in its review of the Fukushima aftermath, the nuclear regulators in Japan had not monitored or supervised nuclear safety. Rather, they avoided direct responsibilities and as an organization, lacked transparency.⁵⁹ CELA submits that emergency planning and preparedness has not been sufficiently demonstrated with any adequate amount of detail, in respect of severe accidents that may occur at the Point Lepreau facility, and thus recommends that the CNSC "shed the insular attitude of ignoring national safety standards and transform themselves into a globally trusted entity."⁶⁰

RECOMMENDATION NO. 9: Because of its responsibilities under the *NSCA*, the CNSC must review and report on the sufficiency of the planning basis, the response plan and the province's readiness for large-scale radiation releases in New Brunswick as part of every licence application.

RECOMMENDATION NO. 10: CELA submits that this licence should not be granted until the offsite emergency response plan is made public. Members of the surrounding communities must be able to understand what is in place, how effective it is, what has changed, and on what basis the regulator is judging the emergency plans to be in place.

⁵⁹ *National Diet of Japan*, *supra* note 10 at 20.

⁶⁰ *Ibid.*

v. *Format of Offsite Plan*

CELA finds that the TAB-based approach in the Offsite Plan is unfortunate in that it makes it harder for all involved parties to determine if there are inconsistencies or gaps in the proposed response.

RECOMMENDATION NO. 11: CELA recommends that the plan be redrafted using a thematic approach, listing different planning-areas rather than focusing on the tasks of individual agencies/government bodies.

vi. *Confluence of Nuclear Emergency with Extreme Weather Events*

Following the National Academy of Science's review of the lessons learned from the Fukushima accident and areas for improvement, they found that the:


Implementation of existing nuclear emergency plans was overwhelmed by the extreme natural events that affected large regions, producing widespread disruption of communications, electrical power, and other critical infrastructure.⁶¹

The province's Offsite Plan is silent on how extreme weather events, such as snow or ice storms, will impact the emergency response procedures, their efficacy and operational ability. Ironically, during Part One of the hearing on this very matter, there were wide-spread blackouts and power outages throughout New Brunswick due to severe weather. CELA also reminds the CNSC that on another occasion, February 13, 2017, the province of New Brunswick had to close all government offices as a result of dangerous road and driving conditions caused by snow. This came to CELA's attention after contacting the NB EMO to request the Offsite Plan and being informed that government offices were closed.


The following tweets from the Government of New Brunswick indicate the dire effects the snow and ice had on the functioning of the province:

⁶¹ *National Academy of Science, supra* note 9 at 215.

1. January 26, 2017

Government of NB  @Gov_NB · Jan 26


Update on storm recovery efforts will take place at 2 p.m. TODAY. It will also be broadcast online.



New Brunswick / Nouveau-Brunswick
The official channel of the Government of New Brunswick. La chaîne officielle du gouvernement du Nouveau-Brunswick
youtube.com

2 replies 6 retweets 0 likes


Government of NB Retweeted

 **NB-EMO / OMU-NB** @NBEMO_OMUNB · Jan 26

Warming centres have been established in various regions for residents without power. Check with your respective municipalities for details.


4 retweets 1 like

2. February 13, 2017

Government of NB  @Gov_NB · Feb 13


Please be advised that government offices in the Fredericton area will be closed TODAY February 13, 2017.

1 reply 51 retweets 15 likes

Government of NB  @Gov_NB · Feb 13

Residents are STRONGLY advised to stay off the road for the remainder of the day. Potential for accident is very high.


Government of NB Retweeted

 **NB-EMO / OMU-NB** @NBEMO_OMUNB · Feb 13

Public roads - southern and central NB - restricted to emergency vehicles only. www2.gnb.ca/content/gnb/en...

2 replies 148 retweets 36 likes

Government of NB Retweeted

 **Horizon Health** @HorizonHealthNB · Feb 16

Due to severe weather, some health-care facilities are temporarily closed or are operating with limited services ow.ly/dUMA3093UtD

11 retweets 1 like

RECOMMENDATION NO. 12: CELA recommends that the Offsite Plan integrate extreme weather events into its emergency response measures. The efficacy of all response actions listed in the Offsite Plan must be considered in light of extreme weather events, which could result in widespread power outages, and inhibit the ability of the public to travel and access essential services. Contingency plans for provincial emergency response and provincial staff responsibilities in carrying out the plan in case of accident at the Point Lepreau nuclear plant must be established to reflect the potential for very severe weather.

3.0 OTHER EMERGENCY RESPONSE PLANS

3.1 Marine Response

Point Lepreau, located within 100 metres of the Bay of Fundy, is Canada's only nuclear generating station on an ocean. In recognition of the Bay of Fundy's unique geological formations and ecological significance, it was designated a UNESCO Biosphere Reserve in 2007.⁶²

The marine environment immediately around the plant is described by the CNSC as having over 70 species of fish and many commercially significant species like cod, lobster, scallops and dulse.⁶³ In addition to the marine mammals like whales, porpoises, dolphins and seals that frequent the Bay of Fundy, colonial waterbirds also use the area during seasonal migrations. The Bay of Fundy is home to a number of federally protected species under the *Species at Risk Act*, including the north Atlantic right whale,⁶⁴ blue whale⁶⁵ and fin whale.⁶⁶

Given the globally recognized uniqueness and importance of the Bay of Fundy region, CELA requests that the CNSC consider the marine environment within its reading of "protection of the environment" and "safety of persons" per s 24(4) of the *NSCA*.

The Emergency Response Plan by NB Power does not contain the words, "ocean", "marine",

⁶² United Nations Educational, Scientific and Cultural Organization, "*Biosphere Reserves – Fundy*" (2015) online: <http://www.unesco.org/new/en/natural-sciences/environment/ecological-sciences/biosphere-reserves/europe-north-america/canada/fundy/>

⁶³ *CNSC CMD*, *supra* note 2 at 149.

⁶⁴ Species at Risk Public Registry, "*North Atlantic Right Whale*" (2017) online: http://www.registrelep-sararegistry.gc.ca/species/speciesDetails_e.cfm?sid=780

⁶⁵ Species at Risk Public Registry, "*Blue Whale Pacific*" (2017) online: http://www.registrelep-sararegistry.gc.ca/species/speciesDetails_e.cfm?sid=718

⁶⁶ Species at Risk Public Registry, "*Fin Whale Pacific*" (2017) online: http://www.registrelep-sararegistry.gc.ca/species/speciesDetails_e.cfm?sid=875

“water” or “fish”. Likewise, the provincial Offsite Plan lacks thorough consideration of marine life, the potential impact on fisheries and pollution dispersion by water in the event of a large radiation release. The only considerations of marine response in the Offsite Plan are the following:

- The provincial Department of Agriculture, Aquaculture and Fisheries (DAAF) will “arrange for sampling [of] locally produced ... marine products” (p 30)
- DAAF is to ensure the safety of fishermen at sea and the removal of craft from any threatened harbour (p 33)
- If fishermen or craft are at risk, messages will be sent to the Vessel Traffic Centre and the Canadian Coast Guard will, by radio communication, inform vessels to proceed to a “safe harbour” or “decontamination area” (p 33)
- DAAF will determine the number of ships requiring decontamination and advise the Nuclear Control Group (p 33)
- The Coast Guard will evacuate all vessels from any “endangered area” (p 34)

CELA does not believe these parameters are sufficient to safeguard the marine environment. There are significant oversights in the Offsite Plan as it relates to the protection of the environment and human health in the Bay of Fundy. First, it operates on the assumption that all boats will have radio capabilities (recreational vessels under 20m are not required to have a VHF radio⁶⁷) and secondly, that the Coast Guard has the capacity to alert all fishers and recreational vessels on the water.

CELA requests that the province comment on the level of nuclear emergency awareness among the fisher community and additionally asks, will all commercial, in-shore and recreational fishers have the capacity (either through fuel or navigational skills) to access ‘safe harbours’ and the marine decontamination centres located in the Port of Saint John and Blacks Harbour?⁶⁸ Are fishers aware of how to test or dispose of their catch, if needed? Is there a compensation fund available to the fishing community in the event of harm? Given the significant roles played by DAAF and the Coast Guard in the protection of human life at sea, CELA requests the documents which outline their role and duties. Further, CELA submits the CNSC must review, what appears to be, an ad hoc marine response.

By way of example, the United Kingdom has a National Contingency Plan titled *A Strategic Overview for Responses to Marine Pollution from Shipping and Offshore Installations* that could serve as a template for the province of New Brunswick. While this Plan has been in existence for a number of years, it was amended in response to the recommendations and lessons learned from ocean-based

⁶⁷ Boat Safe, “*Marine Radio Information for Boaters*” online: <http://www.boatsafe.com/nauticalknowhow/radio.htm#who>

⁶⁸ CNSC CMD, *supra* note 2 at 40.

pollution accidents, like the Deep Water Horizon in the Gulf of Mexico.⁶⁹ The purpose of the Plan is to ensure the “timely, measured and effective response to incidents” at sea. It affirms the UK Government’s recognition that “pollution of the coastal environment [is] a serious threat” (s 1.5) and recognizes that a “high level of response preparedness” is required by all parties (s 24.3).

RECOMMENDATION NO. 13: CELA submits that this licence should not be granted until a marine-based offsite emergency plan is made public. The CNSC must ensure emergency response at sea allows for an effective response to accidents and demonstrates a high level of preparedness.

3.2 Emergency Readiness of Adjacent Provinces and States

CELA submits that the CNSC must also ensure neighbouring jurisdictions’ readiness in the event of an emergency at Point Lepreau. Particularly, the province of Nova Scotia and state of Maine must be sufficiently aware of contingency emergency plans arising from severe accidents at Point Lepreau.

CELA requests the licensee provide information on whether emergency response information has been communicated to Nova Scotia and Maine, and whether KI pills have been distributed. In Nova Scotia, the community of Digby is approximately 60 km from Point Lepreau and various communities in Maine are even closer. Many studies recommend active planning, including KI distribution up to at least 100 km and in line with CELA’s Recommendation No. 7, we reiterate our call for the establishment of a secondary emergency zone extended to a radial distance of 100 km.

4.0 PATHWAYS OF EXPOSURE TO RADIATION AND EMERGENCY RESPONSE MEASURES

The appropriateness of emergency planning and preparedness must be judged on its ability to respond to a severe accident scenario. This includes avoiding health and safety consequences to members of the public, in addition to on-site workers and first responders resulting from a variety of exposure pathways. These pathways include general gamma radiation from the plume of radioactive materials airborne or deposited on ground and buildings, inhalation of radioactive substances with subsequent radiation from internally deposited materials, skin deposition from externally deposited radioactive material on skin, hair, and clothes, and ingestion of deposited

⁶⁹ UK Government, “*The National Contingency Plan – A Strategic Overview for Responses to Marine Pollution from Shipping and Offshore Installations*” (Sept 2014) online: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/478676/1501120_NCP.pdf at 3.

radioactive material as contaminated food and water enter the food chain.

In the event of a severe nuclear reactor accident, the doses and exposure pathways stated by the International Commission on Radiological Protection Publication (ICRP) are likely to consist of “an initial, relatively high dose rate, inhalation component from inhalation of short-lived beta/gamma emitters during dispersion of the plume.”⁷⁰ The ICRP also states that:

For a reactor accident, this is likely to be followed by a time period lasting days or weeks when I-131 [a form of radioactive iodine] dominates the exposures, through external irradiation from contamination deposited in the environment and from direct contamination on crops and in milk. In the longer term, external radiation from radioactive isotopes of caesium and ruthenium is likely to become dominant, together with longer term contamination of foodstuff with these radionuclides.⁷¹

Without protective measures taken, the ICRP states that the largest component of projected dose would likely be received from contaminated foods.⁷²

The purpose of emergency planning and preparedness is to implement measures that allow the health and safety consequences of radiation exposure to be avoided. Without any emergency response or protective actions, negative health consequences are likely to result.⁷³

In the following sections, CELA has reviewed material relevant to specific emergency response measures and provides comments in respect of each. These sections are based on the IAEA Standard GS-G-2 which sets out “urgent protective measures and counter measures” to include:⁷⁴

- Isolation of contaminated area
- Prevention of inadvertent ingestion
- Evacuation
- Sheltering
- Respiratory protection and protection of skin and eyes

⁷⁰ See International Commission on Radiological Protection “*Publication 109 - Application of the Commission’s Recommendations for the Protection of People in Emergency Exposure Situations*”, 2008 at 62-63 [**International Commission on Radiological Protection**].

⁷¹ *Ibid* at 61.

⁷² *Ibid*.

⁷³ The potential negative health consequences from ionizing radiation were described in the 1984 Provincial Working Group #8 Report: “*Nuclear radiation is potentially hazardous because it has the ability to ionize, and thus to break-up molecules, some of which may be of biological importance. If very many are broken, there may be, within days or weeks, clinical symptoms which, in the worst cases, may result in death. Below these high doses which may result in early morbidity (illness) or mortality (death), nuclear radiation may so disrupt molecules that latent cancer is induced, with the possibility of overt cancer, and possible resulting death, some decades later.*”

⁷⁴ IAEA GS-G-2.1, *supra* note 33 at 118.

- Decontamination of individuals
- Prophylaxis with stable iodine
- Protection of the food supply and prevention of the consumption of significantly contaminated foodstuffs and water ⁷⁵

4.1 Public Alerting

One of the earliest steps to take in a nuclear or radiological emergency with a potential, or actual, release of radionuclides to the environment is alerting of the public. The provisions of the *IAEA International Safety Guide GS-G-2.1, Arrangements for Preparedness for a Nuclear or Radiological Emergency*, provide the following objectives relevant to alerting:⁷⁶

- Classify/Declare the emergency and notify local authorities – within 15 minutes of the time at which conditions indicating that emergency conditions exist are detected;
- Recommend urgent protection action to the public on the basis of the emergency classification – within 30 minutes of the time at which the emergency is classified/declared;
- Initially warn and inform the public within the precautionary action zone (PAZ) and the urgent protective action planning zone (UPZ) of urgent protective actions required – within less than 1 hour from the time at which initial notification to local authorities was given by the facility

The New Brunswick Offsite Plan does not contain requirements which would ensure that the alerting times stipulated by the IAEA GS-G-2.1 are met. The provincial Offsite Plan states that in the event of a nuclear incident, NB EMO will notify residents within the 20 km Emergency Planning Zone by means of: ⁷⁷

1. **Mass notification system:** this notification system sends out safety messages to residents via phone, text, email or fax.
2. **Point Lepreau Warden Service:** a voluntary organization tasked with alerting the public via vehicle loud speakers to “turn on their radios or TV sets to receive further information or instructions” within the 20 km radial distance of Point Lepreau.⁷⁸

⁷⁵ *Ibid* at para. 4.13.

⁷⁶ *Ibid*.

⁷⁷ *Offsite Plan Vol II, supra* note 5 at 128.

⁷⁸ *Ibid* at 183.

Despite the Offsite Plan stating that the Warden Service will have alerts complete within 45 minutes, in actuality the plan does not allow the IAEA public alerting guidelines to be met.⁷⁹ First, the Offsite Plan does not guarantee that the alerts will be complete within 45 minutes from “the point at which an emergency is classified” but rather “upon receipt of instructions from the Director of EMO.”⁸⁰ Second, the Offsite Plan provides that the Station Shift Supervisor has 30 minutes to make a recommendation for emergency protective action.⁸¹ NB EMO must make orders on implementation of protective measures within 15 minutes of recommendations from the Station. Therefore, there is the potential that alerting will not commence until 45 minutes after the emergency classification and, in actuality, not be completed until 90 minutes after the emergency is classified.⁸²

Furthermore, it does not appear that these calculations have allotted time for warden briefing or contingencies for poor weather and road conditions. Consequently, shorter and clearer time limits should be set for alerting and the chain of communication should be explained in a single, comprehensive alerting chapter in the Offsite Plan.

In contrast to New Brunswick’s Offsite Plan, Ontario’s *Provincial Nuclear Emergency Response Plan, 2009* (PNERP, 2009) requires that the operator notify the offsite authorities within 15 minutes “of the requirement for notification being recognized”.⁸³ Similarly, the Implementing Plan for Chalk River under *PNERP, 2009*, requires that the Towns of Laurentian Hills and Deep River make provisions in their Municipal Plan for a public alerting system which shall ensure that the PAZ population be alerted within 15 minutes of initiation.⁸⁴

As CELA has routinely noted in its previous submissions on nuclear emergency planning, some people will be unable to use certain means of communication because of their location, status, or physical disability. For instance, people who are hearing impaired will not be alerted by the auditory warnings. While some people will not have cellphones, others will have cellphones but not landlines. Also, cellphone service can be lost or obstructed depending upon an individual’s location. Further, like any communication device that requires individuals to be present and able to use them, they also need to be powered up. Any auditory communication will also need to account for

⁷⁹ *Ibid* at 185.

⁸⁰ *Ibid*.

⁸¹ *Ibid* at 17.

⁸² *Ibid*.

⁸³ Ontario, “Provincial Nuclear Emergency Response Plan, 2009” online:

https://www.emergencymanagementontario.ca/english/emcommunity/response_resources/plans/provincial_nuclear_emergency_response_plan.html at 4.1 [*PNERP, 2009*].

⁸⁴ Implementing Plan for Chalk River Laboratories at 3.5.1.

non-English speakers. Homeless people are particularly vulnerable as they do not have ready access to communication devices.

While the provincial Offsite Plan states that the Wardens will drive slowly enough while announcing an emergency over loud speakers to “ensure that any hearing impaired residents have been notified,” it does not explain how this will be accomplished, or whether its efficiency has been thoroughly tested.

The need for robust public alerting requirements cannot be over-stressed. If, during the course of notification and public alerting an unanticipated early release occurs, a considerable amount of population exposure can occur before protective actions have been implemented. There are a number of outstanding questions which must be addressed before the adequacy of the alerting system can be determined:

1. NB EMO states it maintains the emergency public notification contact list and twice yearly updates contact information. How is this accomplished?
2. Are there reports tracking the testing and success of the mass communication ‘Everbridge’ Notification System?
3. At page 142 of the Offsite Plan, it states an “Ops Policy needs to be developed to assist the RCMP in carrying out duties.” What is the status of this action?
4. The Offsite Plan states that the NB EMO is required to “conduct periodic tests of the alerting system.” What is the scheduling frequency or process guiding these drills?⁸⁵

RECOMMENDATION NO. 14: As CELA has recommended in similar contexts in the past, the timeframes in the Offsite Plan should be compressed to alert the public in as short a time frame as possible, preferably less than 30 minutes from the onset of an accident. Methods to compress the existing 90 minutes time frame should be considered and tested, and their efficacy should be one of the points of evaluation by the CNSC in the licence.

⁸⁵ *Offsite Plan Vol II, supra* note 5 at 7.

RECOMMENDATION NO. 15: CELA recommends that NB EMO and the designated municipalities maintain a list of people who would not be reachable through all of the proposed notification media, and for whom door-to-door notification should therefore be immediately undertaken. Other emergency personnel should be immediately dispatched to evacuate homeless people and others who are not covered by existing notification systems.

RECOMMENDATION NO. 16: CELA recommends that the CNSC refuse an extension of Point Lepreau's operating licence without ensuring, through thorough testing, that the alerting system in the emergency response zone is fully effective.

4.2 Potassium Iodide (KI) Distribution

Potassium Iodide (KI) is important because its ingestion helps to block uptake of radioactive iodine in case of a severe accident. Radioactive iodine isotopes are among the earliest radionuclides emitted from a nuclear power plant in case of breach of containment or in controlled venting following an accident. Iodine thyroid blocking (ITB) is the method by which the thyroid gland's ability to absorb radioiodine is prevented or reduced, through the ingestion of KI before or shortly after exposure to radioiodine.⁸⁶

According to Ontario's Ministry of Health and Long Term Care *Potassium Iodide Guidelines* (KI Guidelines), numerous governments and agencies, including the World Health Organization, the U.S. Food and Drug Administration, and Health Canada, short-term administration of KI is considered a low-risk protective measure for populations with normal thyroid function. Most importantly, it can provide protective benefits for those who are vulnerable to thyroid disease such as pregnant and nursing women, newborns and children.⁸⁷

When developing a KI distribution strategy, consideration should be given to the following scenarios for precautionary and protective measures:⁸⁸

- **Delayed Emission:** if an evacuation can be completed before the emission is released, then ITB would not be required.
- **Imminent or Ongoing Emission:** in the event of a severe accident, where emission release is either imminent or ongoing, immediate implementation of protective measures would be

⁸⁶ *Radiation Health Response Plan*, *supra* note 22 at 62.

⁸⁷ Ontario, Emergency Management Branch, Ministry of Health and Long Term Care, "Potassium Iodide (KI) Guidelines," online: http://www.health.gov.on.ca/en/pro/programs/emb/rhrp/docs/ki_guidelines.pdf at 4 [**KI Guidelines**].

⁸⁸ *Ibid* at 6.

required in the PZ including ingesting KI for ITB, in conjunction with evacuation and/or sheltering.

- **Persons Unable to Evacuate:** in such a situation, direction would be given to shelter, and if appropriate, consume an appropriate KI dose every 24 hours for the duration of the exposure until evacuation is possible. The maximum time that sheltering would be implemented is two days.

CELA recommends that ITB should always be accompanied by sheltering or evacuation.⁸⁹ The New Brunswick Offsite Plan concurs with this recommendation, stating that KI should be administered in conjunction with the shelter in place order and if an evacuation is carried out because of a radioactive plume.⁹⁰

The Offsite Plan also notes that KI has been pre-distributed to each residence within 20 kilometres of Point Lepreau and, there is a combined KI inventory of approximately 55,000.⁹¹ CELA requests information on who maintains the currency of this stock and by what process it is tracked.

There are a number of areas regarding KI distribution which must be reviewed prior to considering a renewal of NB Power's licence. For instance:

1. The IAEA recommends that ITB should be implemented if the projected equivalent dose to the thyroid exceeds 50 millisieverts (mSv).⁹² The Offsite Plan states its emergency protective actions are "consistent with international guidance," however, its KI protective action has an intervention level starting at a 100 mSv instead of the IAEA's 50 mSv.⁹³
2. The Offsite Plan is silent on whether KI tablets have been pre-distributed to the following types of institutions within the PAZ in quantities sufficient to cover people who live or work in this zone for the indicated number of days (in parentheses):⁹⁴
 - Schools (one day)
 - Daycares (one day)

⁸⁹ *Ibid* at 12.

⁹⁰ *Offsite Plan Vol II, supra* note 5 at 11.

⁹¹ *Ibid* at 12.

⁹² IAEA, "IAEA Safety Standards, Criteria for Use in Preparedness and Response for a Nuclear or Radiological Emergency, Series No. GSG-2" (Vienna, 2011) online: http://www-pub.iaea.org/MTCD/publications/PDF/Pub1467_web.pdf [IAEA GSG-2].

⁹³ *Offsite Plan Vol II, supra* note 5 at 7.

⁹⁴ *Ibid*.

- Nursing homes and Long-Term Care Homes (three days)
 - Hospitals (three days)
 - Prisons and Detention Centres (three days)
 - Police and Fire Departments, Emergency Medical Services (three days)
3. As the Offsite Plan only extends to the 20km range, it is silent on KI pre-distribution outside this boundary.
 4. The Offsite Plan states that the last KI distribution took place August – September of 2015. The next distribution is to occur before the expiration date on current tablets (August 2021). CELA requests information regarding what interim measures will be used during this six-year time span to ensure all residents have KI in their homes.

RECOMMENDATION NO. 17: CELA recommends that the CNSC require NB Power to ensure that stable KI is predistributed to all residents within the proposed secondary emergency zone as a condition of licensing.

RECOMMENDATION NO. 18: CELA recommends that the CNSC require that NB Power, in conjunction with the designated municipalities, conduct outreach and notification to members of the public in the designated municipalities, as to the availability of KI and advice on where KI may be obtained. Members of the public should be provided with basic information on the benefits and risks associated with using KI and the importance of having an at-home supply. They should be made aware that other organs (bone marrow, lungs and other organs) are not protected by KI, and that KI should only be taken at the direction of the Province.

Lastly, CELA recommends that section 2.3.4 of the Public Preparedness requirements of REGDOC 2.10.1, which requires the following of all licencees, be incorporated into the Licence Condition Handbook:⁹⁵

1. Ensure that a sufficient quantity of iodine thyroid-blocking (ITB) agents is pre-distributed, to all residences, businesses and institutions within the designated plume exposure planning zone, together with instructions on their proper administration,
2. Ensure that a sufficient quantity of ITB agent is pre-stocked and ready for prompt distribution within the designated ingestion control planning zone; this inventory of ITB agents shall be located so that it can be efficiently obtained by, or distributed to, members

⁹⁵ REGDOC 2.10.1, *supra* note 23 at 22.

- of the public when required,
3. Ensure that ITB agents can be obtained by residents of the designated ingestion control planning zone at any time,
 4. Ensure that particular consideration is given to sensitive populations such as children and pregnant women within the designated ingestion control planning zone
 5. Ensure that the pre-distributed and pre-stocked ITB agents are maintained within expiry date,
 6. Ensure that the pre-distribution plans are supported by a robust, ongoing, and cyclical public education program,
 7. Ensure that all residences, businesses and institutions within the designated plume exposure planning zone are provided with public emergency preparedness information detailing how they should prepare for a nuclear emergency and what they should do or expect during a nuclear emergency; this information will reinforce the public education program designed to support the pre-distribution of ITB agents
 8. Ensure that this public emergency preparedness information is readily available to the general public, including online.

4.3 Sheltering in Place

The IAEA Safety Guide GS-G-2.1 describes sheltering in place as an urgent protective measure to consider following a nuclear emergency. The Guide states that sheltering will provide “some protection against all of the major exposure pathways during the early phase of an emergency,” but that the “effectiveness of sheltering varies greatly.”⁹⁶

Variables that impact the effectiveness of sheltering include, the type of release, the type of construction of the building, and the exposure pathway. After a few hours of sheltering, the reductions in doses are no longer evident and after that time, doses may become greater indoors, than those outside. If some of the contaminants are “trapped in the shelter,” once the emission plume passes, the Guide suggests that shelters may then need to be aired out.⁹⁷

The Guide indicates that “typical European and North American homes and their basements ... may not provide adequate protection” and that sheltering in this type of structure should be used if evacuation is impossible or while preparing to evacuate. “Substantial” shelter may be provided inside the halls of “large multi-storey buildings or large masonry structures away from walls or windows” which may provide a tenfold reduction in external and inhalation dose. The Guide states

⁹⁶ IAEA GS-G-2.1, *supra* note 33.

⁹⁷ *Ibid* at Appendix V, V.3.

this type of protection can be used for short periods, for up to a day, subject to monitoring. “Special shelters” are defined as those designed specifically to provide dose reduction “by a factor of more than 100”.⁹⁸

According to Ontario’s *Radiation Health Response Plan* (“RHRP”), sheltering is most effective if a plume emission is of a short duration, specifically less than 24 hours. The effectiveness of sheltering decreases with time for most structures, and it is difficult to keep people sheltered in place for an extended period of time.⁹⁹

The ICRP also states that buildings constructed of wood or metal (as opposed to solidly constructed buildings) “are not generally suitable for use as protective shelters against external radiation, and buildings that cannot be made substantially airtight are not effective in protecting against any exposures.”¹⁰⁰ Accordingly, ICRP also implies that for these types of buildings the main utility is to advise people to “go inside and listen to their radios for further instructions.”¹⁰¹ Health Canada’s *Guidelines for Intervention During a Nuclear Emergency* state that sheltering should only be used for one day and should not extend beyond two days.¹⁰²

As observed in CELA’s previous submissions on nuclear generation station relicensing hearings, given the significant limitations of sheltering, there must be significant planning, attention, and resources given to outreach and education, in order to ensure rapid, timely evacuation. In the time frames required for evacuation, there may nevertheless be significant exposures to the public. It is very important that emergency planning officials and the public understand that, for example, in large early release scenarios, it may not be possible to prevent all exposures to the public because sheltering will not be fully effective and evacuation takes time.

Despite the New Brunswick Offsite Plan recognizing “sheltering in place” as an emergency protective action and temporary measure,¹⁰³ the Offsite Plan does not acknowledge the limitations set out by the IAEA Guide or the ICRP Publications reviewed above. On the contrary, the description implies that sheltering will be effective without any discussion as to the type of building, the need to close doors, dampers and windows and to turn off furnaces and air conditioners. Nor, does it recommend going to a basement or ground floor room with no windows.

⁹⁸ *Ibid* at Table 11, p 97.

⁹⁹ *Radiation Health Response Plan*, *supra* note 22 at 58.

¹⁰⁰ *International Commission on Radiological Protection*, *supra* note 70 at. 65-66.

¹⁰¹ *Ibid*.

¹⁰² *Health Canada’s Guidelines for Intervention During a Nuclear Emergency* (H46-2/03-326E, 2003) at 18.

¹⁰³ *Offsite Plan, Vol II*, *supra* note 5 at 8.

RECOMMENDATION NO. 19: CELA recommends that the CNSC require the NB EMO, in conjunction with regional emergency response officials, include in its outreach material to the public, explanations about the capability of sheltering and its limitations as described in the IAEA Guide GS-G-2.1.

4.4 Medical Treatment and Availability

The IAEA Safety Guide GS-G-2.1 states that there should be a referral hospital outside of the Urgent Protective Zone that can provide “highly specialized treatment for a limited number of exposed and/or contaminated persons.”¹⁰⁴

It is not currently possible for CELA to evaluate or comment upon the level of treatment available to the public in the event of a radiation release. Nor is it possible for CELA to evaluate whether the treatment available in the event of an accident at Point Lepreau is in compliance with IAEA GS-G-2.1 as the provincial health emergency plans are not publicly available.

The Offsite Plan states the following:

The Provincial and Regional all-hazards Health Emergency Management Plans, EOC's (Emergency Operations Centre) as well as the Provincial Health Nuclear Emergency Plan will all be activated upon notification from the NB Emergency Measures Organization of a site area radiation emergency alert or general radiation emergency alert by PLGS.¹⁰⁵

The Provincial Health Nuclear Emergency Plan supplements the all-hazards emergency management plans of its participating organizations by addressing issues specific to a health nuclear emergency at the Point Lepreau Generating Station (PLGS).¹⁰⁶

An extensive search on New Brunswick provincial websites and a broader Google search revealed that, like the province's Offsite Plan, the Provincial Health Nuclear Emergency Plan is not publicly available. By contrast, Ontario's *Radiation Health Response Plan* is publicly available.¹⁰⁷

The Offsite Plan designates the Saint John Regional Hospital (SJRH) as the designated health care facility for Point Lepreau and lists other facilities within the evacuation-affected area which can provide support and advice to SJRH.

¹⁰⁴ IAEA, *GS-G-2.1*, *supra* note 33 at 4.46.

¹⁰⁵ *Offsite Plan Vol II*, *supra* note 5 at 89.

¹⁰⁶ *Ibid.*

¹⁰⁷ *Radiation Health Response Plan*, *supra* note 22.

CELA also has outstanding questions about the emergency plan and whether it provides for sufficient ambulance capacity to transport more than two or three workers; and whether it has contemplated the consequences of taking ambulances out of service after transport due to radioactive contamination. These issues should be explicitly addressed in the planning. These questions cannot be evaluated at present. The lack of public transparency of the Offsite Plan and now additionally, the public health emergency response plan, is a significant deficiency in the Emergency Planning presently in place in New Brunswick. This raises considerable doubts as to the ability of the province to respond adequately to a severe offsite nuclear accident at Point Lepreau.

RECOMMENDATION NO. 20: CELA requests that the Provincial Health Nuclear Emergency Plan be made publicly available as it is incorporated by reference in the Offsite Plan. Without reviewing this document, CELA cannot fully comment on the medical treatment of injured and contaminated members of the public in the event of an emergency.

RECOMMENDATION NO. 21: CELA recommends that the Point Lepreau operating licence should not be renewed without the Provincial Health Nuclear Emergency Plan being made publicly available.

4.5 Evacuation

Evacuation is one of the most immediate actions to be taken in the event of a general emergency at any nuclear generating station. The ICRP indicates that the purpose of evacuation is to provide “rapid, temporary removal of people from an area to avoid or reduce short-term radiation exposure in an emergency exposure situation.”¹⁰⁸ ICRP states that it is “most effective if it can be taken as a precautionary measure before there is any significant release of radioactive material.”¹⁰⁹

Evacuation before emissions have started is the most effective protective measure in the event of a nuclear emergency because it protects the whole body from radionuclides through all exposure pathways.¹¹⁰

The Canadian Guidelines for Intervention during a Nuclear Emergency describe evacuation as having the “potential to avert most or all doses if carried out in the pre-release phase of an accident” and “is effective for reducing exposures in cases where the release is of uncertain size or

¹⁰⁸ *International Commission on Radiological Protection, supra* note 70.

¹⁰⁹ *Ibid* at 66.

¹¹⁰ *Radiation Health Response Plan, supra* note 22 at 58; *KI Guidelines, supra* note 87 at 4.

duration.”¹¹¹ Zones where “the lack of time available in which to make decisions and implement them successfully, may make it necessary to take prompt precautionary actions, even when there is only limited information about the accident. Consequently, evacuation may be initiated in conjunction with preventative sheltering and iodine prophylaxis, even when there is a mere threat of release.”¹¹²

CELA is concerned with the ability of people without cars to evacuate. The U.S. Nuclear Regulatory Commission, in its Criteria for Development of Evacuation Time Estimate Studies, requires explicit calculation of numbers of people who would need to be evacuated. This includes population estimates of:¹¹³

1. **Permanent Residents and Transient Population** – Permanent residents include all people having a residence in the area. The transient population includes tourists, shoppers, employees, etc., who visit but do not reside in the area.
2. **Transit Dependent Permanent Residents** – Permanent residents who do not have access to a vehicle or are dependent upon help from outside the home to evacuate.
3. **Special Facility Residents** – Residents of nursing homes, assisted living centers, and those confined to hospitals, jails, prisons, etc.
4. **Schools** – All private and public educational facilities within the EPZ. Colleges and universities should be assessed on a case-by-case basis, recognizing that college students typically have access to a vehicle.

Transit Dependent Permanent Residents include households with:¹¹⁴

- No vehicles;
- Unsupervised latchkey children;
- One vehicle at work that would not return;
- Residents who have limitations on driving such as the elderly who do not drive at night;
- Specialized transportation needs such as wheelchair vans or ambulances.

¹¹¹ Health Canada, Canadian Guidelines for Intervention During a Nuclear Emergency (2003) online: http://www.hcsc.gc.ca/ewh-semt/alt_formats/hecs-sesc/pdf/pubs/radiation/guide-03/interventions-eng.pdf at 18.

¹¹² *Ibid.*

¹¹³ U.S. Nuclear Regulatory Commission, Criteria for Development of Evacuation Time Estimate Studies, NUREG/CR-7002, 2011, at pg. 11. <http://pbdupws.nrc.gov/docs/ML1130/ML113010515.pdf> [**NUREG/CR-7002**].

¹¹⁴ *Ibid* at 13-14.

The US Criteria also specifies that a summary of (1) the total number of vehicles available to support evacuation of transit dependent residents, as well as (2) people with disabilities and (3) those with access and functional needs not residing in special facilities, be provided.

The New Brunswick Offsite Plan states that Ambulance NB “may be required” to assist with evacuation transport and the Extra-Mural Program will also “assess the needs of their clients” in the evacuation zone and identify those requiring transportation.¹¹⁵ These transportation options are not sufficient in light of the best practices identified above.

REGDOC 2.10.2 requires the licensee to “collaborate with the municipal or regional authorities to develop and maintain public evacuation time estimates based on current census data, and future population growth projections on a per-decade estimation until end of life of the facility” and therefore, CELA requests this provision form part of the Point Lepreau licencing conditions.¹¹⁶

RECOMMENDATION NO. 22: CELA recommends that the CNSC require that the public clearly understand what plans are in place to assist them with evacuation from the PAZ if they do not have their own transportation. What those plans are should be clearly specified and widely communicated to the public through outreach and education.

RECOMMENDATION NO. 23: CELA recommends that the CNSC require the Province to update its emergency response plans to contemplate the needs of vulnerable members of the population, analogous to the requirements under Ontario’s *Radiation Health Response Plan* evacuation scenarios.

RECOMMENDATION NO. 24: As CELA has recommended in the past, the CNSC should require the designated municipalities and NB Power to communicate to the public in annual outreach and education, the fact that the nuclear emergency response plans expect the public to make their own arrangements in the event of evacuation, and for those who cannot, what is expected to be provided by the municipalities. The appropriateness of this approach should further be discussed with the public in terms of future nuclear emergency planning.

¹¹⁵ *Offsite Plan Vol II, supra* note 5 at 91.

¹¹⁶ *REGDOC 2.10.1, supra* note 23 at 11.

4.6 Shadow Evacuations

“Shadow evacuation” refers to the people who voluntarily leave an area following a nuclear incident or accident, beyond those who are asked by the authorities to do so. In the Fukushima accident, for example, there were considerable “shadow evacuation” populations, especially of women and children. In the US, the Nuclear Regulatory Commission requires licensees to include a shadow evacuation of twenty percent of the public to a distance of 15 miles from the Nuclear Power Plant in its traffic estimates and planning.¹¹⁷

Based on the provincial Offsite Plan, it is not apparent that the NB EMO has considered any shadow evacuation scenarios. As the city of Saint John is within 40 km of Point Lepreau, and within the boundary that CELA submits should be included within the emergency protection zone, considerable populations could be expected to ‘shadow evacuate.’

RECOMMENDATION NO. 25: CELA submits that a similar recommendation to the one made by the US General Accounting Office to the US Nuclear Regulatory Commission is relevant in this case: that the CNSC require the applicant to conduct a study as to the awareness of Point Lepreau in people beyond the 20 km zone and their likely response in the event that a general emergency is declared and the EPZ is evacuated.

RECOMMENDATION NO. 26: The CNSC should require the applicant to evaluate the impact of increased evacuation zones at radial distances of 30 and 40 km, on existing numbers of emergency workers required for evacuation management, the capacity of traffic routes and size of evacuation centres, and locations and capacity of Decontamination and Monitoring Units. These findings should be reported to the CNSC.

4.7 Decontamination

IAEA Guide GS-G-2.1 outlines some approaches to radioactive decontamination. Apart from people who have been heavily contaminated, including individuals located on-site, it recommends that changing clothes, showering and washing exposed skin will reduce levels of contamination and prevent further spread of contamination in a nuclear emergency.¹¹⁸

¹¹⁷ NUREG/CR-7002, *supra* note 113.

¹¹⁸ IAEA GS-G-2.1, *supra* note 33 at 2.2.4; *See also International Commission on Radiological Protection, supra* note

The provincial Offsite Plan indicates that in the event of a precautionary evacuation, decontamination centres “may not” be employed. During an evacuation due to hazard, decontamination centres “would” be activated.¹¹⁹

RECOMMENDATION NO. 27: Because the Offsite Plan is not in the public domain or provided in an alternative format which may be user-friendly to the public, CELA urges the CNSC to require, as a renewal-condition, that NB Power conduct surveys in the community to gauge levels of public knowledge regarding decontamination and report back to the CNSC.

4.8 Monitoring

Automatic boundary monitoring was recommended by the CNSC’s Fukushima Task Force.¹²⁰ The availability of this data is extremely important during emergencies as well as during routine operations. As stated by the National Academy of Science, “radiation and security monitoring systems need to be hardened so that they continue to function during severe accidents.”¹²¹

The Offsite Plan notes that “Emergency radiation monitoring will occur within a matter of hours following an accidental release. It does not include follow-up monitoring which may be carried out jointly with external agencies.”¹²² (Emphasis added.)

RECOMMENDATION NO. 28: CELA requests that the CNSC ensure that automatic gamma monitoring is in place at Point Lepreau and require the automatic exchange of such data with the regulator as suggested by the IAEA and Fukushima Task Force reports.

4.9 Control of Agricultural Products

The IAEA Safety Guide GS-G-2.1 provides guidance to offsite officials, outlining how to ensure the public will not eat or drink potentially contaminated food, milk and water in the event of a major release. This Guide notes that radiation induced thyroid cancers following the Chernobyl accident occurred mainly at distances more than 50 km from the plant, and that “the most effective

70 at 66.

¹¹⁹ *Offsite Plan Vol II, supra* note 5 at 104.

¹²⁰ *Fukushima Task Force, supra* note 36 at 38.

¹²¹ *National Academy of Sciences, supra* note 9 at 165.

¹²² *Offsite Plan Vol II, supra* note 5 at 175.

protective action to prevent or reduce these thyroid cancers would have been to restrict the consumption of potentially contaminated food and milk.”¹²³

Likewise, the *International Commission on Radiological Protection* outlines preventative agricultural actions that could reduce or prevent doses from ingestion. This includes:

- Banning consumption of locally grown food
- Covering open wells
- Sheltering animals and animal feed
- Controlling milk and avoiding drinking of milk from animals grazing on potentially contaminated pasture
- Not eating fresh vegetables, fruit or other food that may have been outside during the release
- Monitoring of drinking water particularly in case of run-off; and
- Continuing restrictions until sampling shows return to established limits.¹²⁴

RECOMMENDATION NO. 29: CELA recommends that the CNSC require that the Offsite Plan’s monitoring provisions and ingestion control zones extend from the existing 80 ingestion route, to encompass a distance of 100 km from the NGS. Also, the CNSC must require the undertaking of appropriate measures to ensure that monitoring can be done following an accident within that 100 km zone for agricultural produce, foodstuffs, milk and water.

RECOMMENDATION NO. 30: CELA recommends that the Offsite Plan explicitly outline the measures in respect of controlling ingestion food and water, including contingency planning for replacement of drinking water for all residents within 100 km of the Point Lepreau nuclear station that may be required in the case of a severe nuclear emergency of the type outlined by the *International Commission on Radiological Protection*.

CELA notes that the Offsite Site plan in its “Ingestion Pathway Monitoring” section lists a chapter called Countermeasures. Unfortunately, this chapter only contains the words “To be completed later.” CELA requests an update to this chapter be provided.¹²⁵

¹²³ IAEA GS-G-2.1, *supra* note 33 at V.24.

¹²⁴ *International Commission on Radiological Protection*, *supra* note 70 at 67.

¹²⁵ *Offsite Plan Vol II*, *supra* note 5 at 210.

4.10 Worker Safety

The Offsite Plan defines emergency workers as those who “may be exposed in excess of occupational dose limits while performing actions to mitigate the consequences of an emergency”.¹²⁶ The Offsite Plan states that those engaged in decontamination operations should wear personal protective equipment and a “dose control program” must be undertaken for these workers. This dose control program is to include methods for tracking radiation dose to workers in real time, a dose control plan which keeps doses “as low as reasonably achievable,” and defined dose limits.¹²⁷

CELA requests that the licensee or province confirm if a dose control program has been put in place. Apart from outlining the components of this program, the Offsite Plan is silent on whether one has been designed and implemented. The NB Emergency Response Plan also does not provide any details. Therefore, CELA submits that if these programs are in existence, they be explicitly referenced and appended to the emergency response plans.

The Offsite Plan states that the protection of emergency workers “is the responsibility of the jurisdiction providing resources within the context of the regional plan.”¹²⁸ CELA understands this to be the NB EMO.

RECOMMENDATION NO. 31: Risks of exceeding maximum radiation exposure limits must be discussed with workers in advance of any accident. Methods to review risks and obtain consent to exceed those limits should be explicitly clarified in both the Onsite and Offsite Plans.

4.11 Frequency of Emergency Planning Drills

The Licence Condition Handbook states:

The licensee is required to conduct Emergency Exercises and Drills at least annually in most areas. A “site evacuation” drill is required every three years and non-NBP facilities (such as hospitals and off-site centers) are scheduled by mutual agreement annually. Participation by municipal and provincial emergency response groups is also scheduled by mutual agreement¹²⁹

¹²⁶ *Offsite Plan Vol II, supra* note 5 at 261.

¹²⁷ *Ibid* at 245.

¹²⁸ *Ibid* at 256.

¹²⁹ Point Lepreau - Licence Condition Handbook at 102.

The last full scale drill for Point Lepreau was conducted in 2015. NB Power's CMD titled *NB Power update on the 2015 Intrepid Exercise held at the Point Lepreau Nuclear Generation Station* noted after their review of the exercise that:

- There is an opportunity to align the emergency zones, reducing the possibility of miscommunication and inconsistent prioritization (Slide 10)
- Clarify the roles and responsibility of (1) reception centres and (2) the Technical Advisory Group (Slide 11)
- Plan joint exercises to validate improvements (Slide 12)
- Look for opportunities to “exercise areas not normally exercised” regarding recovery and ingestion pathway (Slide 12)

CELA requests updates on these opportunities for improvement and whether they have been incorporated into the Offsite Plan.

The IAEA's *Integrated Regulatory Review Service – Follow-up Mission to Canada* (November – December 2011) recommended that Canada “conduct full scale emergency exercises on a periodic basis”¹³⁰ and indicated that full scale nuclear emergency planning drills include federal, provincial, municipal and licensee authorities.¹³¹

Drills must confirm that communication channels are working properly and emergency locations are fully operational and functional. Furthermore, the CNSC should require inclusion of members of the surrounding community and public interest organizations in order to increase input into, and confidence in, the results. CELA also recommends that results from drills be made public, along with lessons learned, and improvements recommended as a result of the exercises. The CNSC should require reporting of implementation of those improvements on an annual basis as part of their oversight with respect to offsite emergency planning.

RECOMMENDATION NO. 32: CELA recommends that the CNSC require annual conducting of exercises dealing with these types of full scale severe event or multi- unit accident scenarios with conclusive demonstration of their effectiveness as a licence condition for Point Lepreau in this application.

¹³⁰ IAEA, “*Integrated Regulatory Review Service – Follow-up Mission to Canada*” (2011) online: <http://nuclearsafety.gc.ca/eng/pdfs/irrs/2011-IRRS-Follow-up-Mission-to-Canada-Report-IAEA-NS-IRRS-2011-08-eng.pdf> at 10, 70.

¹³¹ *Ibid*, Recommendation RF8.

5.0 BEST PRACTICE AND REGULATORY OVERSIGHT

CELA urges the CNSC to exercise its role as regulator in respect of emergency planning in response to accident threats at the Point Lepreau station. CELA urges the CNSC to exercise a stringent oversight role as to whether emergency planning and preparedness have been proven, prior to exercising its discretion to renew the Point Lepreau operating licence.

5.1 IAEA Standards for Preparedness and Response

The IAEA Standard, *Preparedness and Response for a Nuclear or Radiological Emergency, Series No. GSR Part 7 (2015) Safety Standards*, sets out expectations and responsibilities of the regulator. It is the CNSC's responsibility as the regulator, to ensure the following:¹³²

- The regulatory body shall require that arrangements for preparedness and response be in place for the on-site area for any practice or source that could necessitate an emergency intervention (s 4.13)
- The regulatory body shall ensure that such emergency arrangements are integrated with those of other response organizations (s 4.14)
- The regulatory body shall ensure that such emergency arrangements provide a reasonable assurance of an effective response, in compliance with these requirements, in the case of a nuclear or radiological emergency (Recommendation 26)
- Complete emergency arrangements shall be in place before the commencement of operation of the facility or commencement of the activity. The regulatory body shall verify compliance with the requirements for such arrangements (s 4.13)
- In fulfilling its statutory obligations, the regulatory body shall establish or adopt regulations and guides to specify the principles, requirements and associated criteria for safety upon which its regulatory judgements, decisions and actions are based. These regulations and guides shall include principles, requirements and associated criteria for emergency preparedness and response for the operating organization (s 4.12)
- The government through the regulatory body shall ensure that operating organizations review appropriately and, as necessary, revise the emergency arrangements (a) prior to any changes in the facility or activity that affect the existing hazard assessment and (b) when new information becomes available that provides insights into the adequacy of the existing arrangements (s 4.26)
- The government shall ensure the coordination of and consistency of national emergency

¹³² IAEA, IAEA Safety Standards, "Preparedness and Response for a Nuclear or Radiological Emergency, Series No. GSR-7," (2015), online: http://www-pub.iaea.org/MTCD/Publications/PDF/P_1708_web.pdf

arrangements with the relevant international emergency arrangements (s 4.4)

CELA notes that the Offsite Plan relies on the IAEA's GS-R-2, which establishes the requirements for preparedness and response for a nuclear or radiological emergency.¹³³ GS-R-2 was, however, replaced by GSR Part 7 in 2015.¹³⁴ In GSR Part 7 the following is said regarding the replacement of GS-R-2:

In 2011, the IAEA Secretariat, relevant international organizations and Member States began the review of IAEA Safety Requirements publication No. GS-R-2 on the basis of lessons identified in exercises and from the response to emergencies since its publication in 2002 (including the response to the accident at the Fukushima Daiichi nuclear power plant in Japan in March 2011), and in due consideration of recommendations of the International Commission on Radiological Protection (ICRP).

As CELA has already submitted, there is little to no evidence of any amendments having been made to the Offsite Plan in light of the Fukushima disaster. The fact that the Offsite Plan has not been updated to reflect the amendments in GSR Part 7, further supports the view that insufficient efforts have been made, not only to update the Offsite Plan, but to incorporate lessons learned from Fukushima. CELA urges the CNSC to ensure that necessary amendments are made to Point Lepreau's emergency response capabilities, including its Offsite Plan, to confirm that the lessons learned are duly reflected.

RECOMMENDATION NO. 33: CELA submits that the CNSC should not renew Point Lepreau's operating license beyond the current licence period without verifying "through tests and assessments" the adequacy of the emergency plans in place for the station, both onsite and offsite, to respond to severe nuclear emergencies. CNSC should furthermore require that the Offsite Plan be amended to reflect the capability requirements in the IAEA's GSR Part 7, rather than the out-dated requirements in GS-R-2.

5.2 Fukushima Task Force 2011

In the Fukushima Task Force's review of Canada's nuclear regulatory framework, it was found that "federal and provincial nuclear emergency planning could be strengthened through establishing a formal, transparent, national-level oversight process for offsite nuclear emergency plans, programs

¹³³ *Offsite Plan Vol II*, *supra* note 5 at 256, provides that "[t]he capability requirements included in this Annex are based on IAEA GS-R-2".

¹³⁴ See GSR Part 7: <http://www-pub.iaea.org/books/iaeabooks/10905/Preparedness-and-Response-for-a-Nuclear-or-Radiological-Emergency>.

and performance, and through scheduling of regularly planned full-scale exercises.”¹³⁵

REGDOC-2.10.1 was implemented in response to the Task Force’s findings to strengthen licensees’ emergency preparedness programs.¹³⁶ Therefore, CELA reminds the CNSC that the sufficiency of nuclear emergency planning must be reviewed before granting a license at new nuclear facilities.¹³⁷ However, because the REGDOC excludes “existing facilities” in its scope of application, the entirety of REGDOC-2.10.1 must be incorporated by reference into the licence or licensing basis.¹³⁸

RECOMMENDATION NO. 34: CELA calls on the CNSC to incorporate the provisions of REGDOC-2.10.1 into the Point Lepreau Licence Condition Handbook.

RECOMMENDATION NO. 35: CELA submits that the CNSC has jurisdiction to consider the adequacy of the emergency plans in place at Point Lepreau in deciding whether to renew the operating licence, and/or whether to impose additional requirements by way of licence conditions to better protect health, safety and the environment.

RECOMMENDATION NO. 36: CELA urges the CNSC to further enhance regulatory oversight of emergency planning adequacy at Point Lepreau with detailed public reviews, aimed at increasing the adequacy of emergency plans in response to catastrophic offsite beyond design basis accidents.

CONCLUSION AND DECISION REQUESTED

The adequacy of emergency planning preparedness and readiness is one of the most fundamental issues to be assessed by the CNSC in deciding the outcome of this application. Based on the issues reviewed herein, CELA submits that the application to renew Point Lepreau’s operating licence should be denied until the recommendations in this submission are implemented to the standards required by REGDOC 2.10.1, current scientific studies, and international standards.

Catastrophic accidents must be considered possible in the event that (1) NB Power’s probabilistic calculations err; (2) there is missing information; (3) defence in-depth and redundancies fail; or (4) a

¹³⁵ *Ibid* at iv, v.

¹³⁶ *REGDOC 2.10.1, supra* note 23.

¹³⁷ *Ibid*, the CNSC “lists and discusses the requirements and guidance that licence applicants and licensees shall implement and consider in the design of their emergency preparedness program.”

¹³⁸ *Ibid* at 2.

combination of unanticipated events lead to large radiation releases.

CELA submits the ultimate test that the CNSC must apply in deciding whether to renew Point Lepreau's operating license is whether an offsite, large radiation release and catastrophic accident currently serves as the planning basis for the Point Lepreau emergency response plans. From CELA's review, this does not appear to be the case, given the emergency scenario outlined in the current Offsite Plan. Should the level of emergency response not match that required for a catastrophic accident, the licence renewal should be denied, or in the alternative, a one year operating licence granted on the condition that such amendments be carried out before any further license renewals.

All of which is respectfully submitted this 3rd day of April, 2017:

CANADIAN ENVIRONMENTAL LAW ASSOCIATION

Per



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