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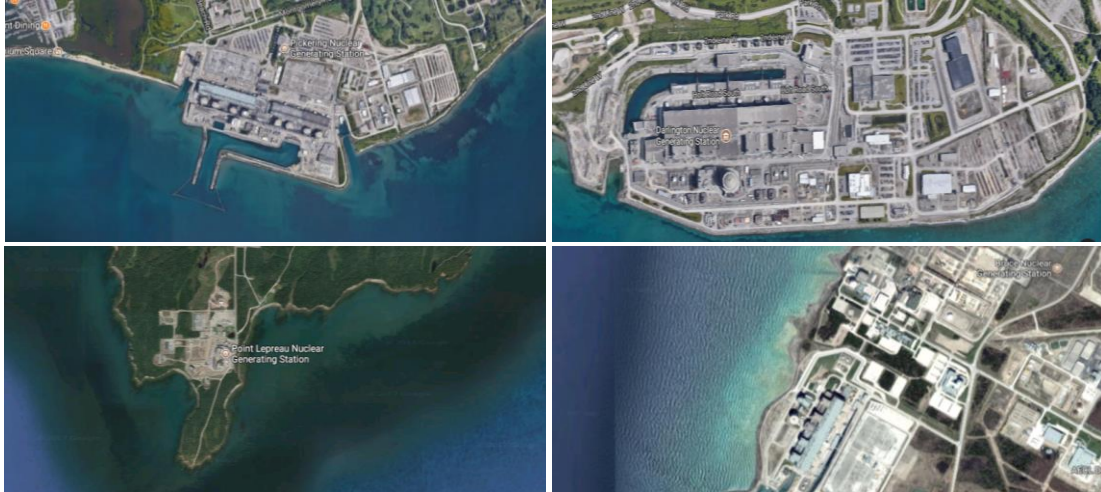


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## **A Review of Canada's Nuclear Emergency Preparedness and Response Plans**

### ***CELA's Comments on the CNSC's Regulatory Oversight Report for Canadian Nuclear Power Plants: 2016***

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## Introduction

CELA is appreciative of this opportunity to provide comments to the Canadian Nuclear Safety Commission (CNSC) in response to their *Regulatory Oversight Report for Canadian Nuclear Power Plants: 2016* (herein, ROR).<sup>1</sup> With the recent trend to longer licence applications by licensees, interim updates and reviews such as this ROR are integral to ensuring compliance and verifying action on previously made CNSC-commitments and guidance.

In this report, CELA assesses the extent of emergency planning inclusions in four of Canada's nuclear stations operating licences - Pickering, Darlington, Bruce and Point Lepreau. CELA intervened at each of these re-licensing hearings and therefore, this report re-examines our offsite nuclear emergency planning and preparedness recommendations to determine which of our requests have been implemented subsequent to our plant-specific interventions. This report serves as a measure of current emergency preparedness and provides a summation of improvements that remain outstanding.

This report aims to provide the CNSC with an over-arching review of all licensees with current operating licences and the responsiveness of their licensing decision, Licence Conditions Handbook or offsite emergency response plan to previously made recommendations on emergency preparedness.

While recognizing that it is the responsibility of the CNSC to ensure oversight and compliance of nuclear power plant operations, CELA submits that this public engagement opportunity and the ability to assess the extent of improvement since CELA's last engagement with each NPP licensee, is useful to the Commission and beneficial to the public at large.

The findings of this report demonstrate that the CNSC requires a mechanism to ensure greater accountability and transparency in how it regulates and oversees emergency planning. The 2016 ROR contains very limited feedback on emergency response and planning. Comments on emergency response in the 2016 ROR appear as boilerplate statements and lack in-depth power plant specific remarks. CELA submits that overall, there is an inadequate level of implementation of emergency response measures and in response, calls on the CNSC to provide greater oversight of offsite emergency planning.

## Scope of Review

CELA has undertaken a detailed examination of the emergency response and preparedness recommendations made at all nuclear licensing meetings and hearings (current to July 2017).

The objectives of this report are to:

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<sup>1</sup> Canadian Nuclear Safety Commission, "*Regulatory Oversight Report for Canadian Nuclear Power Plants: 2016*" (16 June 2017 [2016 ROR]).

1. Review the ROR and examine the extent to which emergency response and preparedness recommendations made by CELA, the CNSC and other intervenors have been incorporated into or utilized in:
  - a. The licensing decision;
  - b. The Licence Conditions Handbook (LCH) of a licensee; or
  - c. The provincial offsite emergency plan or municipal nuclear emergency response plan.
2. Detail and summarize the recommendations which remain outstanding and do not appear in the documents listed above; and
3. Compare the uptake of recommendations by all licensee's in Canada and the extent to which they are or aim to be meeting international best practice.

## Report Structure and Ranking

This report is structured into two chapters, with Chapter 1 providing recommendations to the CNSC regarding its regulatory functions and operations, and Chapter 2 reflecting on CELA's nuclear power plant plant-specific recommendations from prior hearings (see Chapter 2).

In Chapter 2, CELA reviews a powerplant's most current licensing decision, Licence Conditions Handbook (herein, "LCH") and accompanying emergency response plan to identify which of CELA's recommendations have been incorporated. These recommendations are then marked as:

- **Followed** (noted in **green**) - indicates the recommendation has appeared in any or all of the three documents within this report's scope of review
- **Not sufficiently considered** (**orange**) – indicates that there are gaps in the CNSC's analysis or, there is a paucity of information on which to conclude the recommendation was followed or omitted
- **Omitted** (**red**) – indicates that no noted action has been taken on the recommendation

## 1.0 Recommendations to the CNSC as a Regulator and Administrative Tribunal

CELA recognizes that the recommendations made in this chapter are not directly tied to statements made in the 2016 ROR. However, as the 2016 ROR provides an opportunity for the comprehensive review of nuclear power plants, CELA seeks to comment on the operations and procedures of the CNSC.

## 1.1 Public Engagement

CELA submits that the CNSC has not embedded public engagement in its decision-making and approval processes. Meaningful opportunities for public involvement result in more fair and credible processes, and improve the overall quality, acceptability and soundness of decisions.<sup>2</sup> This is reiterated by a recent study from the Nuclear Energy Agency, whose 130 expert study participants unanimously concluded that stakeholder support and involvement are essential to achieving accepted and sustainable decisions.<sup>3</sup>

CELA submits that the CNSC and its members do not consistently act in a way which maintains the tribunal's independence nor the impartiality of its adjudicators. This directly effects the ability of the CNSC to maintain its credibility and the public's trust. By way of example, at the recent re-licensing hearing of Point Lepreau Nuclear Generating Station held in New Brunswick in May 2017, an intervenor stated:

This process is not accessible for the average New Brunswick citizen in any way [and is] as well extremely intimidating to have a quasi-judicial system here where you sit above the people. It would not be possible for people to be able to intervene.

Rather than engaging in a discussion about access to justice, the President of the CNSC replied "what an elitist, snobbish, insulting remark to the whole province of New Brunswick."<sup>4</sup> Another intervenor at the Point Lepreau hearing also stated:

[T]his is my fourth appearance, this is my fourth interaction, and with each interaction my trust and independence or competence of the current CNSC and its capacity to properly safeguard public interests is depleted substantially.<sup>5</sup>

CELA reminds the CNSC that they are tasked with a public interest mandate. Given the widespread declining faith in government agencies and direct feedback to the CNSC from the 'public' they seek to engage, we encourage the Commission to review its professional ethics, conduct in the hearing room and ability of Commission members respect the public interest.

CELA also submits that the Commission should not equate public appearance at a hearing with public support for the CNSC, or its processes. This too was repeated by a number of intervenors at the Point

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<sup>2</sup> *Legal Path to Sustainability*, *supra* note 40 at 6

<sup>3</sup> Nuclear Energy Agency, "Stakeholder Support and Involvement Essential to Future of Nuclear Energy Decision Making" (19 Jan 2017) OECD online: <https://www.oecd-nea.org/news/2017/2017-01.html>

<sup>4</sup> Canadian Nuclear Safety Commission, *Public Hearing Transcript – May 10, 2017*, online: <http://nuclearsafety.gc.ca/eng/the-commission/pdf/Transcript-CommissionHearing-2017-05-11.pdf>, p 113 [**Point Lepreau Transcript Day 3**]

<sup>5</sup> *Point Lepreau Transcript Day 3*, p 28

Lepreau hearing, including Greenpeace Canada who stated, “Greenpeace’s participation in this process should not be considered an endorsement of the CNSC’s hearing process, credibility or independence.”<sup>6</sup> Chief Akagi of the Passamaquoddy First Nation, at the Point Lepreau hearing, also commented on the extent to which his participation in the hearing was misconstrued. He noted that during his last appearance before the Commission, he protested the lack of aboriginal consultation. He was then informed that his participation was considered consultation, and the issue therefore resolved.<sup>7</sup>

## 1.2 Public Availability of Documents

To have an open, truly transparent and public process, the CNSC must ensure opportunities for public involvement commence early enough in the decision-making process so that the decision-maker can respond to the public input received.<sup>8</sup> Unfortunately, intervenors before the CNSC repeatedly note that time delays and difficulty in obtaining documents from the CNSC impinges on their ability to provide value-added comments.

In order to facilitate effective public participation, the CNSC’s hearing process must allow for sufficient time for the request, receipt and study of technical documents. CELA reiterates its request to the Commission that it revise its participant process and require documents to be public.

## 2.0 A Review of Emergency Planning and Preparedness Recommendations

In this chapter, CELA will review the recommendations it made on nuclear emergency planning at each of the re-licensing hearings (Pickering, Darlington, Bruce and Point Lepreau). CELA has reviewed each NPP’s licensing decision and LCH to determine if any prior recommendations have shaped the CNSC’s requirements on emergency preparedness.

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<sup>6</sup> Canadian Nuclear Safety Commission, *Public Hearing Transcript – May 10, 2017*, online: <http://www.suretenucleaire.gc.ca/eng/the-commission/pdf/Transcript-CommissionHearing-2017-05-10.pdf>, p 171 [**Point Lepreau Transcript Day 2**]

<sup>7</sup> Canadian Nuclear Safety Commission, *Public Hearing Transcript – May 10, 2017*, online: <http://nuclearsafety.gc.ca/eng/the-commission/pdf/Transcript-CommissionHearing-2017-05-09.pdf>, p 191 [**Point Lepreau Transcript Day 1**]

<sup>8</sup> OECD, “Stakeholder Involvement in Decision Making: A Short Guide to Issues, Approaches and Resources” (2015) online: <http://www.oecd-nea.org/rwm/pubs/2015/7189-stakeholder-involvement-2015.pdf>, p 18.

## 2.1 Pickering Nuclear Generating Station

### Introduction

In May 2013, CELA intervened during the Pickering NGS hearing (Reference 2013-H-03) where the Ontario Power Generation sought a renewal of its operating licence for five years. CELA made 30 recommendations to the Commission and requested that the CNSC not grant the licence to the OPG, without verifying through testing and assessments, the adequacy of the emergency plans in place for the Pickering NGS (both on and off site) to respond to severe nuclear emergencies.<sup>9</sup>

The CNSC granted the re-licensing of Pickering on August 9, 2013. The 2016 ROR, commenting on the current state of nuclear emergency preparedness and response states the following:

CNSC staff determined that Pickering continued to support and maintain its emergency response organization, and is compliant with regulatory requirements. OPG continued to support offsite emergency management organizations and commitments as well.

CNSC staff continue to monitor this area as part of the compliance program and conclude that Pickering continues to support and maintain a comprehensive nuclear emergency preparedness and response.<sup>10</sup>

In this chapter, CELA will revisit the 30 recommendations made at the Pickering re-licensing hearing and evaluate their confluence with the resulting Pickering licensing decision and Licence Conditions Handbook.

### Planning Basis for Emergency Response: Recommendations 1 - 3

CELA's Recommendation 1 provides a high-level description of the principles, including transparency, accessibility and evidentiary rigour, which should be considered in tandem with the specific emergency response recommendations. In summary, recommendation 1 states:

CELA submits that this licence should not be granted until ... recommendations herein are actually in place and demonstrated to the regulator, with evidence, to be effective. CELA also submits that it is critical that this evidence be 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.

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<sup>9</sup> Canadian Environmental Law Association, *Emergency Planning at the Pickering Nuclear Generating Station* (3 May 2013), online: <http://www.cela.ca/publications/emergency-planning-pickering> [CELA Pickering]

<sup>10</sup> 2016 ROR, p 135



CELA requested in Recommendation 2 that the CNSC require multi-unit, severe accidents to form OPG's planning basis as a requirement for licensing.

The only reference to Recommendation 2 within this report's scope of review (ie. the licensing decision, the LCH, or provincial and municipal emergency response plans) can be found at paras 118-119 of the licensing decision where the CNSC sought information from OPG regarding their response to a multi-unit accident. The decision notes "OPG discussed" its response to this type of accident and explained that there are a "number of back-up systems available on-site and off-site to ensure that OBG can cool the fuel and contain releases for an extended period following an accident."<sup>11</sup>

The level of response provided to **Recommendation 2** does not meet the threshold for emergency response preparedness, presented in **Recommendation 1**, which asked that evidence demonstrated to the CNSC, be made public and understandable to community members.

The explanation provided by the CNSC in its licensing decisions fails to:

- Reference the evidence which allowed the Commission to conclude multi-unit accident planning had been demonstrated;
- Explain the Commission's analysis and upon what basis it reached said conclusion;
- Disseminate information which is publicly accessible and understandable. In this instance, to fully understand how multi-unit accidents are addressed by the CNSC, one would have to revisit the transcripts and more likely, discuss the issue directly with OPG. Neither of these outlets provide accessible or public avenues for baseline nuclear emergency planning information.

**Recommendation 3**, which recommended a post-accident source term estimation requirement as a condition of licensing, was also not referenced in either the licensing decision or LCH. Therefore, this recommendation remains outstanding.

## Emergency Response Measures: Recommendations 4 - 12

CELA has repeatedly called for the CNSC to require licensees to demonstrate that sufficiently detailed emergency planning and preparedness plans are in place to address a Chernobyl or Fukushima-sized accident (see **Recommendation 4**). This section will review the specific emergency preparedness recommendations made by CELA and the accompanying response from the CNSC to illustrate that the breadth of preparedness required by Recommendation 4 has not been fulfilled.

CELA's **Recommendation 5** requested that the Toronto Emergency Planning Officials immediately initiate the Public Alerting System upon receipt of a notification from OPG. This language is expressly

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<sup>11</sup> Canadian Nuclear Safety Commission, "Record of Proceedings – Application to Renew the Power Reactor Operating Licence for the Pickering Nuclear Generating Station" (August 3, 2013), para 119 [**Pickering Decision**]

provided in the Durham Nuclear Emergency Response Plan, 2011 (DNERP) but not the Toronto Nuclear Emergency Response Plan, 2012 (TNERP).<sup>12</sup> CELA reviewed the TNERP and this change has not been made.

CELA's **Recommendation 6** was that the Pickering operating licence be refused pending robust evidence that the alerting systems in the 3km and 10km range were fully functioning. This was not made a licence condition nor addressed in the licensing decision. While the licensing decision notes that OPG will install additional sirens within the 3 and 10 km zones, the CNSC does not follow through and place an onus on the OPG to ensure the sirens are functioning (CELA reminds the Commission that the testing of sirens in the 3km zone demonstrated they did not have sufficient coverage to reach all recipients within the zone). This recommendation remains outstanding.

Building on Recommendation 6, CELA asked in **Recommendation 7** that the window for public alerting be compressed to as short a time frame as possible, preferably less than 30 minutes. The licensing decision notes that in the 3km and 10km zones, OPG sought to meet a 15-minute standard.<sup>13</sup>

To achieve the outcomes promised in response to CELA's Recommendations 6 and 7, CELA requests that the CNSC confirm the obligations agreed to at hearing and noted in the licensing decision:

- The Durham Emergency Management Office has an auto-dialler system in place, functioning and tested<sup>14</sup>
- The 11 additional sirens installed in the 3km zone in 2013 are installed and their functioning and coverage tested<sup>15</sup>

Furthermore, **Recommendation 27** requests that response times required by IAEA Safety Requirements and Guidelines GS-R-2 and GS-G-2.1 be included in the provincial and municipal emergency plans.<sup>16</sup> Also requested within the scope of Recommendation 27 is that the CNSC require a demonstration by the licensee that these response times can be met as a condition to licensing. While the DNERP, TNERP and PNERP state that the public alerting plan will be activated within 15 minutes of an emergency being classified to all people in the contiguous (3km) and primary zone (10km), the LCH and licensing decision are silent on testing and the frequency of testing.

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<sup>12</sup> *Pickering Decision*, para 28

<sup>13</sup> *Pickering Decision*, para 250

<sup>14</sup> *Pickering Decision*, para 250

<sup>15</sup> *Pickering Decision*, para 249

<sup>16</sup> See *CELA Pickering*, p 57: As stated in IAEA GS-G-2.1 Table 12, **1.** Classifying/declaring the emergency, within 15 minutes "from the time at which conditions indicating that emergency conditions exist are detected"; **2.** Notifying local authorities in the Precautionary Action Zone and the Urgent Protective Action Planning Zone, within 15 minutes from the time of declaring the emergency; and **3.** Recommending urgent protective actions for the public on the basis of the emergency classification, within 30 minutes from the time of classifying / declaring the emergency.

Per **Recommendation 8**, CELA requested that the CNSC require OPG, in conjunction with the City of Toronto, to conduct outreach and notify the public as to the availability of KI within the primary 10 km zone (at a minimum). As CELA noted in its submissions, none of the five pharmacies that stocked KI pills were in the City of Toronto. The licensing decision does not discuss including pharmacies in the City of Toronto as those with pre-stocked KI pills and only references that “the tablets are stocked at five local pharmacies.”<sup>17</sup> The LCH also does not respond to this recommendation. While CELA recognizes that those within the 10km zone are now provided with pre-distributed KI, CELA would update this recommendation to request pre-distribution also within the 50 km, secondary zone.

Relatedly, **Recommendation 9** asks whether DNERP’s Annex D (which provides that KI information and a consent letter be sent annually to parents of all the school children in the Primary Zone) applies to residents of Toronto residing in the Primary Zone. CELA sought clarification on this point and neither the licensing decision nor LCH provide a response.

**Recommendation 10** asked the CNSC to require, as a licensing condition, that 100% pre-distribution of KI to residents in the Primary Zone is in place. In its submissions, CELA reminded the CNSC of the 2011 Fukushima Task Force<sup>18</sup> which found Ontario to be the only province which did not pre-distribute KI to residents in the surrounding planning zones.<sup>19</sup> While the Commission addressed Recommendation 10 in part in the licensing decision, CELA requests the CNSC confirm and provide evidence of the “thorough review” which was to be conducted by OPG:

The Commission asked if KI tablet distribution would be addressed in the new CSA Standard. A representative from OPG responded that it would. The Commission recommended that it be considered on a broad scale, beyond the 10-km zone and taking the possibility of pre-distribution into account. **OPG committed to thoroughly review this issue** [emphasis added].

Also in response to Recommendation 10, the LCH further provides that the licensee must, by December 31, 2015, “ensure that ... iodine thyroid blocking agents are pre-distributed, to all residences, businesses and institutions within the primary zone.” While CELA believes this has now been accomplished for all nuclear plants in Ontario, CELA has requested the Commission provide the document or reference to the Commission meeting or decision where this occurred. While a response to this request not yet been received in advance of the deadline for this report’s submission, CELA still requests information be provided.

Sheltering in place is another emergency preparedness measure commented upon by CELA and it was recommended, per **Recommendation 11**, that the OPG’s outreach material contain information about the limits of sheltering in place and instructions to take for rapid and effective evacuation in the event of

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<sup>17</sup> *Pickering Decision*, para 252.

<sup>18</sup> Canadian Nuclear Safety Commission, *CNSC Fukushima Task Force Report* (October 2011) [**Fukushima Task Force**]

<sup>19</sup> *Fukushima Task Force*, p 47

notification. The licensing decision notes that “how to respond in an emergency, including protective actions, such as sheltering” would be included in a new, CSA Standard N1600 nuclear emergency plan.<sup>20</sup> CELA requested an update on this information from OPG’s Direct of Emergency Management on July 10, 2017, but a response has not yet been received.

CELA asked in **Recommendation 12** that the licence not be renewed before Ontario’s *Radiation Health Response Plan* (RHRP) was in place. The CNSC granted Pickering’s operating licence in August 2013, despite the RHRP not being in effect until 2014. The RHRP is now in place, publicly available [online](#), and provides a comprehensive province-wide response to radiological and/or nuclear incidents. Prior to this framework being in place, CELA submits the CNSC did not have the requisite evidence at the time of licensing to ensure the sufficiency of nuclear emergency planning as required under s 24(4) of the *Nuclear Safety Control Act* (NSCA). The CNSC allowed the continued operation of Pickering while Ontario lacked the health planning necessary to respond to a severe offsite nuclear accident. Neither the licensing decision nor LCH proposed interim measures which could have addressed the emergency planning measures now covered by the RHRP.

### Size of Emergency Planning Zones: Recommendations 13 - 14, 22 -23

**Recommendation 13** requested that the 50 km secondary ingestion zone be changed to 100 km, on the premise that in the event of a severe offsite accident, appropriate monitoring of food, agricultural products, milk and water are in place. **Recommendation 14** stated it was incumbent on the CNSC to require the emergency planning zones (primary zone extended to 30km from 10km and the secondary to 100km from 50km) be expanded before proceeding with the licensing of the Pickering NGS.

Similarly, CELA also commented in **Recommendation 22** that the CNSC request the PNERP expand its monitoring provisions to a distance of 100 km from the nuclear generating station. **Recommendation 23** echoed the need for greater control of ingestion pathways and recommended that the DNERP explicitly outline measures for food and water protection. The possible extension of planning zones or ingestion pathways is not discussed in either the LCH or licensing decision.

### Public Awareness and Evacuation: Recommendations 15 - 19

**Recommendation 15** provides that the Durham and Toronto Nuclear Emergency Plans should clearly specify the assistance which is available to members of the public who do not have their own means of transportation, in the event of evacuation in the Primary Zone. The LCH does not impose this as condition of licensing and the licensing decision does not provide any discussion of this topic. Toronto’s emergency plan remains unchanged from the time of the Pickering hearing and the Durham plan only states “Durham Region Transit will support the evacuation operations out of the PZ in concert with

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<sup>20</sup> *Pickering Decision*, para 266

DRPS, for those people without vehicles.”<sup>21</sup> CELA submits this vague statement should be amended to provide clear instructions (or, a link to more detailed guidance) and secondly, the TNERP must be amended to include a similar provision.

This recommendation is further elaborated in **Recommendation 16**, which requests that the OPG communicate to the public in annual outreach and education forums how citizens can make their own evacuation arrangements and disseminate what arrangements are available through the municipality. While this recommendation could have been made an enforceable licensing condition, it does not figure in the LCH. Furthermore, while the licensing decision states that OPG must have a public information program to “inform persons living in the vicinity,”<sup>22</sup> it does not specify whether evacuation and travel arrangements are addressed. Nor, in the licensing decision, does the CNSC analyse how the information presented allows them to conclude that the threshold for an effective public information has been met. Without this type of analysis, there is no measurable benchmark from which to track if this annual, public outreach has occurred.

**Recommendation 17** provides that the CNSC should require the OPG to conduct studies with offsite emergency response, the municipalities and Province to ensure realistic evacuation plans. The licensing decision references an OPG evacuation time study<sup>23</sup> but does not impose a requirement that further studies be completed. While the decision notes that the OPG study relies on projected regional data to 2025, during 2013, amendments to the provincial growth plan could not be foreseen (ie. Durham Region’s designation as a “place to grow” which proposes to increase the population from over 650,000 people to 1.4 million people in Durham region in the next twenty years; and Metrolinx’s plan to install new GO station stops within 10 km of Darlington).<sup>24</sup> CELA submits this recommendation requires continuous update and study to ensure the efficacy of evacuation plans.

CELA also requested in **Recommendation 18** that the OPG conduct a study as to the awareness of residents around the Pickering NGS beyond the primary zone and their likely response in the event that a general emergency is declared. This data should then be corroborated with evacuation time estimates in order to account for shadow evacuees. Neither the LCH nor licensing decision comment on shadow evacuations or the need for study in this regard.

Lastly, CELA recommended in **Recommendation 19** that the CNSC direct the applicant to work with municipalities to consult with surrounding communities on specific plans to aid in family reunification following evacuation from a severe nuclear emergency. This is not addressed in either the LCH nor licensing decision.

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<sup>21</sup> Durham Region, *Durham Region Risk-Specific Plan, Durham Nuclear Emergency Response Plan* (May 2016), p 36 [DNERP]

<sup>22</sup> *Pickering Decision*, para 320

<sup>23</sup> *Pickering Decision*, para 253

<sup>24</sup> Ministry of Municipal Affairs, “Release of the Growth Plan for the Greater Golden Horseshoe, 2017” (18 May 2017), online: [https://placestogrow.ca/index.php?option=com\\_content&task=blogcategory&id=4&Itemid=36](https://placestogrow.ca/index.php?option=com_content&task=blogcategory&id=4&Itemid=36)

## Radiation Contamination and Monitoring: Recommendations 20 - 21

**Recommendation 20** requested that the TNERP be updated to include a description of self-decontaminate. The TNERP stresses that “self-decontamination may be the primary means of decontamination” (see 4.7.1 (b)) but it has not been updated to contain guidance on what it means and how it would be performed. Neither the licensing decision nor LCH respond to this recommendation.

CELA recommended, per **Recommendation 21**, that the CNSC confirm that automatic gamma monitoring was in place at Pickering and require its data be automatically exchanged with the regulator. The LCH and licensing decision is silent on this recommendation. The 2016 ROR, however, notes that gamma monitors found to be non-compliant in 2015 remained uncalibrated upon inspection in 2016 (despite being identified as “fixed”).<sup>25</sup> The CNSC also found that the OPG had not met its own program requirements regarding compensatory action when monitors are inoperative.<sup>26</sup> While the CNSC confirms that the OPG have since returned to regulatory compliance, CELA submits there must be more frequent testing to confirm continued operability. Furthermore, the CNSC in the 2016 ROR does not respond to the ability of the gamma monitors to immediately transfer data, which is a crucial function during emergencies as well as routine operation.

## Worker Safety: Recommendations 24 - 25

CELA requested, per **Recommendation 24**, that the risk of exceeding maximum exposure limits must be discussed with workers in advance of an accident and, methods to review risks and obtain consent be clarified in the DNERP. While the LCH and licensing decision refer to worker safety in the context of conventional health and safety, it does not discuss maximum exposure limits or consent.

Similarly, while dose limits to workers are discussed in the LCH and licensing decision in the context of radiation exposure during the course of operation, it does not establish dose limits for workers during and following nuclear emergencies (per **Recommendation 25**).

## Drills and Testing: Recommendations 26 and 28

As a condition of licensing, CELA requested per **Recommendation 26** that exercises to deal with full scale, severe event or multi-unit accident scenarios be required on an annual basis. CELA also requested that the results of these planned exercises be made public and accompanied by a mechanism allowing feedback from community members to be fed back in to the process.

While the licensing decision notes that OPG “schedules annual drills and exercises to test regional emergency worker centre and reception centres,” the decision is silent on the level of accident served as

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<sup>25</sup> 2016 ROR, p 132

<sup>26</sup> 2016 ROR, p 132

a basis for these exercises and, it also lacks a public involvement component.<sup>27</sup> Regrettably, **Recommendation 26** does not appear as a licence conditioning as requested by CELA.

More broadly, CELA recommended that the licence should not be granted until the adequacy of the emergency plan is verified through testing and assessments (see **Recommendation 28**). Given the foregoing comments and lack of adoption of CELA's specific emergency preparedness and planning recommendations, Recommendation 28 has also not been met. While the CNSC accepted the sufficiency of offsite emergency preparedness, CELA reminds the Commission of a recommendation they made in their decision and requests the Commission to follow up with the named parties in this regard:

The Commission is satisfied that OPG meets requirements for off-site emergency management. The Commission also acknowledges the concerns of intervenors regarding the communication of off-site emergency plans. The Commission recommends that OPG, EMO, DEMO, CNSC staff and the Technical Committee reviewing CSA Standard N1600, consult with the affected communities to **ensure that there is adequate public involvement** in the development of the CSA Standard [emphasis added].<sup>28</sup>

CELA notes that despite the Commission members' encouragement of their staff "to ensure there is adequate public involvement," there was very limited outreach to CELA to review the CSA standard and, this occurred only after it was developed. CELA was not invited to be part of its development.

The licensing decision continues that the offsite emergency plan, in the Commission's opinion, did not appear to be well understood by the public. Therefore, the CNSC requested that EMO, DEMO, OPB and CNSC staff strive to have in place:<sup>29</sup>

- A well-understood emergency plan with timelines and accountabilities
- A plan that is clear and understandable for members of the public

The Commission then directed OPG to draft a publicly-accessible emergency response plan by June 2014, distribute it to all households in Pickering and include the following information:<sup>30</sup>

- Summarize the integrated response of all responsible officials and organizations
- Include information on potassium iodide tablet distribution

CELA reached out to OPG's Director of Emergency Management and Durham Region, as a key stakeholder, and it was confirmed that this emergency information was disseminated in the form of a

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<sup>27</sup> *Pickering Decision*, para 251

<sup>28</sup> *Pickering Decision*, para 270

<sup>29</sup> *Pickering Decision*, para 271

<sup>30</sup> *Pickering Decision*, para 271

'flashlight brochure.'<sup>31</sup> While CELA commends OPG for their outreach, CELA requests that the CNSC require these brochures to be re-circulated, as the only apparent mail-out occurred in 2014. Furthermore, all NPP licensing decisions should contain a provision similar to that in Pickering, requiring the proponent to provide effective public outreach information.

## Additional Emergency Preparedness: Recommendations 29 - 30

Lastly, CELA submitted per **Recommendation 29** that the CNSC impose additional requirements by way of licence conditions to better protect the health, safety and the environment. CELA remains of the position that this recommendation has not be fulfilled and the additional rigour, imposed by way of the CNSC's jurisdiction under the *Nuclear Safety and Control Act*, SC 1997, c 9, has not be pursued.

The recommendations made by the Fukushima Task (see **Recommendation 30**) have likewise, not been fully incorporated by the CNSC; radioactive hazards have not been described in greater detail, and oversight and periodic safety reviews have not increased for both design basis and beyond design basis accidents.

## Conclusion

The Pickering operating licence expires on August 30, 2018 and Part 1 of the relicensing hearing is to commence in the spring of 2018. CELA requests that in advance of this hearing, the Commission direct its staff and the proponent to focus on the issues regarding the adequacy of emergency planning at the Pickering station.

To fully understand the efficacy of existing emergency response, studies and assessments of the elements of emergency preparedness (such as, evacuation estimates, general awareness surveys of KI and its use out to and beyond the secondary zone) must be conducted in advance. It is only *after* these studies have been conducted and the public has been involved that the CNSC has the baseline data to rule on the adequacy of emergency planning.

CELA submits that the hearing should not be a gap-finding mission, but instead, a forum to build on existing practice, implement lessons learned and enforce agreements already made.

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<sup>31</sup> CTV News, "200,000 flashlight booklets sent to people near power plants" (9 May 2014), online: <http://www.ctvnews.ca/canada/200-000-flashlight-booklets-sent-to-people-near-power-plants-1.1815197>



## 2.2 Darlington Nuclear Generating Station

### Introduction

In September 2015, CELA intervened with respect to the emergency planning considerations of the Darlington operating licence extension (Ref 2015-H-04). CELA posed 16 recommendations to the CNSC, noting that emergency planning preparedness and readiness is one of the most fundamental issues to be assessed by the Commission. On the basis of the information reviewed by CELA, we recommended the life extension of Darlington be denied and the licence to operate be restricted to one year.<sup>32</sup>

In its licensing decision dated March 2, 2016, the CNSC renewed the licence.<sup>33</sup> The 2016 ROR, commenting on the current state of nuclear emergency preparedness and response at Darlington provides the following:

CNSC staff determined that Darlington continued to support and maintain its emergency response organization, and is compliant with regulatory requirements. OPG continued to support offsite emergency management organizations and commitments as well.

CNSC staff continue to monitor this area as part of the compliance program and conclude that Darlington continues to support and maintain a comprehensive nuclear emergency preparedness and response.<sup>34</sup>

In this chapter, CELA will revisit the 16 recommendations made at the Darlington re-licensing and life extension hearing and evaluate the extent to which they appear in the licensing decision and LCH.

### Emergency Planning and Preparedness: Recommendations 1 - 3, 14 -15

In its submissions, CELA notes that this was the first Darlington NPP licence application since *REGDOC 2.10.1* came into effect. The proposed LCH required OPG to be compliant with the document by December 3, 2018. CELA was critical of the length of time needed to become compliant and argued per **Recommendation 1** that if the licensee was not already compliant during the application for licensing, Darlington's operating licence should be strictly time-limited to one year.<sup>35</sup>

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<sup>32</sup> Canadian Environmental Law Association, *Submission Re: Thirteen Year Licence to Operate a Site at Darlington Nuclear Generating Station in Clarington, Ontario* (28 September 2015), online: <http://www.cela.ca/publications/emergency-planning-darlington-refurbishment-0> [**CELA Darlington**].

<sup>33</sup> Canadian Nuclear Safety Commission, *Record of Proceeding – Application to Renew the Nuclear Power Reactor Operating Licence for the Darlington Nuclear Generating Station* (2 March 2016) [**Darlington Decision**].

<sup>34</sup> 2016 ROR, p 114

<sup>35</sup> *CELA Darlington*, p 4

Unfortunately, the licensing decision's discussion of CELA's **Recommendation 1** is less about emergency preparedness and more focused on the semantics of the term 'compliant.' It is noted that the CNSC staff believed the term 'non-compliant' was used inaccurately with regards Darlington's fulfillment of *REGDOC-2.10.1*. The CNSC staff posited that instead of being non-compliant with *REGDOC-2.10.1*, the OPG was 'in the process of completing requirements' identified through a gap analysis of its emergency plan (these gaps pertained to KI pill distribution and the provision of information to off-site emergency response authorities).<sup>36</sup>

CELA submits that it would have been more helpful if in response to **Recommendation 1**, the CNSC provided an evidence-based, legal analysis discerning how they, in exercising their authority, sought to ensure the health and safety of persons pursuant to s.24(4) of the *NSCA* and on what basis confirmed the requirements of *REGDOC 2.10.1* to be sufficiently met.

More specifically, in **Recommendation 2**, CELA submitted that prior to considering an application for an operating life extension, the OPG must provide an updated evacuative model. Per **Recommendation 3**, until the Commission could evaluate the ability of the public to be protected through evacuation, the licence should not be granted. CELA submits that neither of these recommendations were fulfilled prior to the licence being granted. As CELA noted in its submission, the OPG had not planned on updating evacuation time estimates until *after* the hearing and therefore, at the time of the hearing, the sufficiency of nuclear emergency planning was deficient.

In response to Recommendations 2 and 3, the CNSC states in its licensing decision that "the Commission noted that evaluating off-site emergency planning in the areas surrounding the Darlington NGS is not a responsibility of the CNSC."<sup>37</sup> As the regulator of nuclear energy in Canada, CELA requests the CNSC explain how this responsibility falls outside of their jurisdiction, provided for in subsections 24(4) and (5) of the *NSCA*. CELA does not accept this as an adequate response to the recommendations put forth in its submission. Furthermore, while recognizing that this information post-dates this licensing decision, CELA reminds the CNSC of the March 2017 Maebashi District Court ruling in Japan which held both the government and operator of the Fukushima nuclear plant responsible for failing to take preventative measures.<sup>38</sup> The judges found that the major risks from the plant were foreseeable by the government but were ignored and not acted upon.<sup>39</sup>

Lastly, CELA submits that on a go-forward basis, the CNSC must rule on the sufficiency of emergency planning at the time of the licensing decision and not, CELA submits, on actions yet to be performed.

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<sup>36</sup> *Darlington Decision*, para 218

<sup>37</sup> *Darlington Decision*, para 225.

<sup>38</sup> 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>

<sup>39</sup> 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/>

Per **Recommendation 14**, CELA requested that the CNSC provide a timeline for installation for the direct data feed from Darlington NGS to the CNSC Emergency Operations Centre. The licensing decision does not respond directly to this request. Instead, the decision states that despite delays and weaknesses in the installation of the direct data feed, there are other modes of communication through which information can be obtained.<sup>40</sup> While CELA accepts there may be other means of relaying information, the CNSC does not respond to the issue at hand and the timeliness of data exchange.<sup>41</sup>

The issue of data sharing is also raised in the 2016 ROR which states, "CNSC staff expect that all licensees will implement data sharing systems with near real-time (i.e. every 15 minutes or fewer) ... by September 2017 and April 2018" for OPG and NB Power, respectively.<sup>42</sup> While CELA supports the requirement for data sharing systems, the implementation of this action is much delayed as it will be three years from the date CELA first made this recommendation until its implementation. CELA requests that at time of completion, CNSC verify the functioning of the systems and a provide progress update.

CELA also notes that while the 2016 ROR provides that the sharing systems will have near real-time data sharing, the DNERP, TNERP and PNERP state that the public alerting plan will be activated within 15 minutes of an emergency being classified to all people in the contiguous (3km). Therefore, CELA asks that the CNSC explain how a possible 15-minute delay resulting from data sharing will effect the ability of public alerts to be activated within a 15 minutes of an emergency being classified.

CELA also recommended that, as recommended by the Independent Evaluation, the CNSC should include Commission members in emergency management exercises. This would increase their familiarity with the relevant plans, processes and players. The first-hand insights gained by the Commission members, CELA recommends in **Recommendation 15**, should then feed in to all licensing decisions' considerations of emergency preparedness. Neither the LCH nor licensing decision provide a response to this recommendation.

## Emergency Planning Zones: Recommendations 4 -5

CELA submitted in **Recommendation 4** that effective evacuation be provided for all potentially affected residents, including those in and beyond the primary and secondary zones. Recommendation 5 asks that the geographic scope of evacuation measures be based on an INES Level 7 accident.

Neither the licensing decision nor LCH contain a discussion of geographic limits and the possible expansion of the primary or secondary zones.

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<sup>40</sup> *Darlington Decision*, para 227

<sup>41</sup> *CELA Darlington*, p 22

<sup>42</sup> *2016 ROR*, p 69

## Potassium Iodide Pre-distribution: Recommendations 6 - 7

As CELA noted in its submission, it applauded the CNSC's passing of *REGDOC 2.10.1* which required the pre-distribution of KI to all residents within the primary emergency response zone. Per **Recommendation 6**, CELA requested that the CNSC direct OPG to pre-distribute KI to residents in the secondary zone as a condition of licensing.

In response to this recommendation, the Commission notes in the licensing decision that while Switzerland pre-distributes KI to residents in the 50 km secondary zone, this "was not common around the world" and is "one of the longest distances for pre-distribution."<sup>43</sup> Unfortunately, the leadership role taken in Switzerland was not emulated by the CNSC and this recommendation remains outstanding. CELA reaffirms its request that in response to international best practice, the CNSC require as a licence condition, the pre-distribution of KI and not just distribution to "residents who want them."<sup>44</sup>

CELA also requests, in **Recommendation 7**, that the CNSC extend the ingestion control zone to 100km. The licensing decision does not address this recommendation and instead provides an overview of the stakeholders in the agriculture sector with whom OPG consults.<sup>45</sup> It is not clear, however, from the licensing decision whether these stakeholders were specifically canvassed for input on the size of the ingestion control zone. While CELA commends the outreach, stakeholders and the public should be consulted on the issue of ingestion zone *size*. CELA reiterates the remaining need to extend the ingestion control zone to 100km as a precautionary measure.

## Population and Growth: Recommendation 8

In **Recommendation 8**, CELA requested that in light of IAEA guidance on siting, the Commission "transparently and explicitly review the present and predicted populations surrounding the Darlington NGS."<sup>46</sup> The licensing decision does not directly reference 'growth' or 'density' and only references population when discussing evacuation modelling (the CNSC explains it used population projections to 2021 to estimate evacuation times).<sup>47</sup> Modelling evacuation, while a critical component of emergency preparedness, does not equate to studying the hazards associated with an offsite emergency and the operation parameters of the plant.<sup>48</sup> CELA reaffirms its position that at the time of the hearing, the CNSC lacked essential information to determine the adequacy of nuclear emergency planning.

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<sup>43</sup> *Darlington Decision*, para 232

<sup>44</sup> *Darlington Decision*, para 233

<sup>45</sup> *Darlington Decision*, para 236

<sup>46</sup> See, IAEA Site Evaluation Safety Standard No. NS-R-3 "Criteria Derived from Considerations of Population and Emergency Planning" (2003), online: [https://nucleus-apps.iaea.org/nss-oui/Content/Index?CollectionId=m\\_60374f76-3a60-4ade-a4ee-a2feb3732891&type=PublishedCollection](https://nucleus-apps.iaea.org/nss-oui/Content/Index?CollectionId=m_60374f76-3a60-4ade-a4ee-a2feb3732891&type=PublishedCollection) [**IAEA Siting**]

<sup>47</sup> *Darlington Decision*, para 225

<sup>48</sup> *IAEA Siting*, 2.7

To this day, the CNSC has not assessed the feasibility of implementing an emergency plan based on a full-scale, multi-unit accident level in the densely populated region of Durham and the GTA.<sup>49</sup> CELA again reminds the Commission of the recently released provincial growth plan, under the Places to Grow Act, which continues to designate Durham Region as a “place to grow” with no recognition of the nuclear hazard, and proposes to increase the population from over 650,000 people to 1.4 million people in Durham region in the next twenty years.<sup>50</sup> Metrolinx also plans to install new GO station stops within 10 km of Darlington. These actions and their accompanying increased density will all occur within the current primary zone.

### Emergency Planning Basis: Recommendations 9 -13

CELA requested in **Recommendation 9** that the CNSC require a planning basis for emergency response plan that would respond to a scenario involving any of:

- An early release of radioactive emissions
- A large source term released to the public
- Widely dispersed radioactive emissions
- Weather patterns moving emissions over highly populated areas around the plant.

In response to this list, the only mention of weather in the licensing decision is in reference to the effects of weather on plant operation (not emergency response).<sup>51</sup> No consideration of weather exists in the LCH.

Regarding an accident involving a large source term release, the licensing decision notes that CNSC staff “multiplied the source term by four” to respond to concerns regarding a potential multiple unit event. However, it appears from the decision that this was done in response to concerns about human health and cancer incidence,<sup>52</sup> and not in consideration of the host of preparedness measures which would be required should the source term be ‘multiplied by four’ during an accident.

Building on this, CELA requested in **Recommendation 10** that the planning basis used for the emergency plan be an accident on the scale of Fukushima. **Recommendation 11** asked the CNSC to require a site-wide evaluation of risks *prior* to considering a life extension of the plant.

The licensing decision does not provide evidence that this type of feedback analysis occurred (i.e. an analysis which beings by increasing the severity of accident the emergency plan, overlaying it with the Darlington emergency response plan and then considering gaps and remaining risks).

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<sup>49</sup> See, *IAEA Siting*, s 2.13A

<sup>50</sup> Ministry of Municipal Affairs, “Release of the Growth Plan for the Greater Golden Horseshoe, 2017” (18 May 2017), online: [https://placestogrow.ca/index.php?option=com\\_content&task=blogcategory&id=4&Itemid=36](https://placestogrow.ca/index.php?option=com_content&task=blogcategory&id=4&Itemid=36)

<sup>51</sup> *Darlington Decision*, para 283

<sup>52</sup> *Darlington Decision*, para 206

At **Recommendation 12**, CELA requested the CNSC not consider the application for life extension until the planning basis had been updated to an INES Level 7 accident. While the CNSC repeatedly asserts its actions are based on 'international guidance' and they are 'leaders of nuclear safety,' the CNSC is yet to upgrade its planning basis to an INES Level 7 equivalent (to note, the Swiss Federal Council announced on June 2<sup>nd</sup> of this year that it would upgrade its reference accident used for emergency planning purposes to an INES Level 7 equivalent<sup>53</sup>). CELA reaffirms Recommendation 12 and reminds the CNSC that the opportunity remains open to them to realign their planning basis to follow the recent action taken by Switzerland.

Lastly, CELA requested that the CNSC consider the inputs received during the review of the provincial, nuclear emergency response plan in the licensing decision. As this public comment is ongoing until July 28, 2017, CELA recognizes that the implementation of this recommendation at the time was not possible. However, CELA would request a response from the CNSC regarding how the input received during the PNERP consultation will be incorporated and considered by the CNSC in line with existing licences.

## Public Comment and Review: Recommendation 16

Lastly, CELA recommended that the Commission, per **Recommendation 16**, require staff and the licensee to conduct detailed and open public consultations of residents not only in Durham Region, but in the City of Toronto, York Region and County of Peterborough. This has not occurred and CELA encourages the CNSC to require proponents to engage in public consultations with all affected municipalities.

## 2.3 Bruce Nuclear Generating Station

### Introduction

In March 2015, CELA intervened in the Bruce Nuclear Generating Stations' life extension and operating licence renewal application. CELA evaluated the status of offsite emergency preparedness around the Bruce nuclear stations and provided 33 recommendations to the CNSC. CELA requested that the CNSC ensure the offsite emergency plans in place could mitigate the offsite impacts of an INES Level 7 accident, prior to granting the Bruce Power A and B facilities life extensions or operating licences.<sup>54</sup>

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<sup>53</sup> Le Conseil fédéral, "Le Conseil fédéral est favorable au durcissement de l'ordonnance sur la protection en cas d'urgence au voisinage des installations nucléaires," (2 Juin 2017), online: <https://www.ensi.ch/fr/2017/06/02/le-conseil-federal-est-favorable-au-durcissement-de-lordonnance-sur-la-protection-en-cas-durgence-au-voisinage-des-installations-nucleaires/>

<sup>54</sup> Canadian Environmental Law Association, *Bruce A and B Reactor Relicensing and the Emergency Management Regulatory System*, (16 March 2015) online: [http://www.cela.ca/sites/cela.ca/files/Hearing\\_2015-H-02-CELA\\_Submissions\\_to\\_CNSC\\_re\\_Bruce\\_Power\\_Relicensing.pdf](http://www.cela.ca/sites/cela.ca/files/Hearing_2015-H-02-CELA_Submissions_to_CNSC_re_Bruce_Power_Relicensing.pdf) [CELA Bruce]

On July 9, 2015, the CNSC granted the life extensions and operating licence renewal to Bruce Power A and B.<sup>55</sup> The 2016 ROR, commenting on the current state of nuclear emergency preparedness and response at the plant noted the following:

CNSC staff determined that Bruce Power continued to support and maintain its emergency response organization, and is compliant with regulatory requirements. Bruce Power also continued to support offsite emergency management organizations and commitments, as demonstrated during Exercise Huron Resolve in October 2016.

CNSC staff determined that Bruce Power has shown adequate response to a nuclear emergency scenario through completion of this exercise. CNSC staff's compliance verification inspection on the exercise identified some non-safety-significant procedural non-compliances in the Emergency Operations Centre (EOC) and a finding with Bruce Power's data sharing system (see section 3.1.2.2).

Bruce Power will develop and implement corrective action plans to address these findings, and discussions between CNSC and Bruce Power staff are underway to address Bruce Power's data sharing system finding.<sup>56</sup>

CNSC staff continue to monitor this area as part of the compliance program and conclude that Bruce Power continues to support and maintain a comprehensive nuclear emergency preparedness and response.<sup>57</sup>

In this chapter, CELA will review the recommendations made during the Bruce re-licensing and life extension hearing and note each recommendation's level of integration with the resulting licensing decision and Licence Condition Handbook.

## Emergency Planning Basis: Recommendations 1 - 2, 12

**Recommendation 1** requests that the CNSC require Bruce Power to demonstrate that the offsite emergency response plan would be sufficient to mitigate the impacts of an INES Level 7 accident. Building on this recommendation, **Recommendation 2** asks that the CNSC urge Ontario to revise its planning basis and emergency plan, accordingly, to account for INES Level 7 accidents.

In the licensing decision, the CNSC notes that "several intervenors expressed concerns that the consequences of an INES 7 event were not adequately addressed."<sup>58</sup> However, the decision continues

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<sup>55</sup> Canadian Nuclear Safety Commission, *Record of Proceedings – Application to Renew the Power Reactor Operating Licences for Bruce A and Bruce B Nuclear Generating Stations* (9 July 2015) [**Bruce Decision**]

<sup>56</sup> 2016 ROR, p 93

<sup>57</sup> 2016 ROR, p 93

<sup>58</sup> *Bruce Decision*, para 254

that an INES scale is an international communication tool “to be used after an incident and not to make regulatory decisions or establish criteria for emergency planning.”<sup>59</sup> While the CNSC argues that the INES scale is a backwards looking measurement tool, the unfortunate disasters of Chernobyl and Fukushima have been classified as INES Level 7 accidents and therefore there is a present benchmark for this categorization level.

CELA submits that instead of dismissing comments regarding upgrading emergency planning to reflect an INES Level 7, it would be clearer if the CNSC deduced, based on classified Level 7 accidents like Fukushima and Chernobyl, what is retroactively required in Ontario to ensure blind spots in emergency response plans were recognized and corrected.

In response to **Recommendation 12**, that proposed the planning basis be amended to account for severe offsite effects, CELA requested that Kincardine and Bruce Power plan in turn for increased numbers of casualties and treatment capacity. This recommendation was not reviewed in the licensing decision.

### Evacuation: Recommendations 3, 8 - 11

CELA requested in **Recommendation 3** that the CNSC require Bruce Power to conduct a study with offsite emergency responders to determine a realistic evacuation plan for the public and communities in the area. Neither the licensing decision nor LCH make any mention of an evacuation route or evacuation plan for the public. While the LCH notes that a “site evacuation is held every 3 years,” no further detail, map or plan is provided. CELA requests an update on the status of this recommendation.

CELA further requested in **Recommendation 8** that the CNSC direct Bruce Power to work with Kincardine to ensure residents were provided with information about evacuation routes. While this recommendation was not articulated by the CNSC in either the licensing decision or LCH, CELA reviewed [www.bepreparedgreybrucehuron.com](http://www.bepreparedgreybrucehuron.com) and the updated 2017 *Be Prepared Grey, Bruce, Huron* guide and commends Bruce Power and the region for providing a user-friendly and helpful website on emergency preparedness.<sup>60</sup>

Per **Recommendations 9** and **10**, CELA requested that the CNSC direct Bruce Power to work with Kincardine to ensure transportation arrangements for students and long-term care residents. Neither the licensing decision nor LCH provide any description of measures to protect community members who may be vulnerable in the event of an emergency.

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<sup>59</sup> *Bruce Decision*, para 254

<sup>60</sup> “Be Prepared Grey Bruce Huron” (2017), online: [http://8833-presscdn-0-31.pagely.netdna-cdn.com/wp-content/uploads/2017/05/170125\\_CommunityEmergencyGuide.pdf](http://8833-presscdn-0-31.pagely.netdna-cdn.com/wp-content/uploads/2017/05/170125_CommunityEmergencyGuide.pdf) [**BePrepared**]



Furthermore, while the Kincardine Emergency Response Plan states “emergency plans of the schools in the Primary Zone will provide for the movement of staff and students” and similarly, “emergency plans of institutions ... should include provisions for the transfer or staff/residents/patients,”<sup>61</sup>

**Recommendation 11** is still not fully enacted.

The Kincardine Emergency Response Plan does not contain a sufficient level of detail to ensure the public *clearly understands* plans in place to assist them in the event of evacuation if they do not have their own transportation. Nor, is it clear on its face that the CNSC has checked to ensure plans, which should be in place, are in place. CELA requests the Kincardine Emergency Response Plan be updated and the CNSC oversee that these plans are communicated to the public.

## Emergency Preparedness Measures: Recommendations 4, 6, 13, 21

In **Recommendation 4**, CELA requested that KI pills be pre-distributed within the 50km zone and to vulnerable communities within 100km. This recommendation was not followed and as noted in the LCH, KI pills must only be pre-stocked within the 50km radius.<sup>62</sup> The licensing decision notes that Bruce Power has made efforts to make KI available to all residents in the secondary zone. Bruce Power further explains that while those in the 50km did not receive tablets, they did receive coupons and information on KI. While CELA recognizes this as a positive step, and much better than Durham Region where there have not even been efforts to advise residents within the secondary zone about KI availability to them, CELA reaffirms its call for KI to be pre-distributed within the 50km as well.

CELA requested in **Recommendation 6** that the CNSC confirm the functioning of the early warning system in the expanded primary zone. This is not discussed in either the LCH or licensing decision and CELA requests that the CNSC request the status of implementation and report on its findings.

CELA reviewed the 2017 *Be Prepared Grey, Bruce, Huron* guide and recognizes it includes some information regarding sheltering in place.<sup>63</sup> While it directs residents to close all doors and windows and turn off furnaces or air conditioning, it does not inform residents, per **Recommendation 13**, of the effectiveness of this measure in preventing harmful exposures depending on the type of dwelling (i.e. the ineffectiveness of typical frame construction for certain exposures).

CELA reaffirms its request in **Recommendation 21** that the CNSC set a firm deadline for Kincardine to complete Appendix N of its emergency response plan, titled “Emergency Procedures.” Upon searching online, CELA was unable to find a revised or drafted Appendix N in the public domain. CELA requests

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<sup>61</sup> Municipality of Kincardine, “Emergency Management,” online: <http://www.kincardine.net/emergency-management.cfm>

<sup>62</sup> Canadian Nuclear Safety Commission, *Bruce Licence Conditions Handbook (Effective February 1, 2017)*, p 73 [Bruce LCH]

<sup>63</sup> *BePrepared*, p 18

that the CNSC, as the regulator and statutory authority overseeing safety, must actively ensure municipal hosts complete emergency planning in a timely and public manor.

### Emergency Zones: Recommendations 5, 7, 14

CELA recommended, per **Recommendation 5**, that the primary zone be extended to 30km. Furthermore, CELA requested in **Recommendation 7** that the secondary zone be expanded to 100km. Per **Recommendation 14**, CELA requested that the Ingestion Control Zone be enlarged to 100km.

The licensing decision provides limited discussion of these recommendations. The decision references a statement by the OFMEM who stated that “at this time, the planning zones were considered appropriate.”<sup>64</sup> The licensing decision does not provide, however, how this information stated by the OFMEM was analyzed by the CNSC and the process by which they accepted this submission as being sufficient for concluding an expansion of the planning zone was not required.

### Public Awareness: Recommendations 15 - 17, 19

Per **Recommendations 15, 16** and **17** CELA requested that the Town of Saugeen Shores post its nuclear emergency response plan and its hosting role pursuant to the PNERP, on its website. CELA has confirmed through a search of Saugeen Shores’ website that this has now occurred.<sup>65</sup>

Relatedly, **Recommendation 19** asked that Bruce Power maintain a website with all relevant emergency response information. While CELA can confirm this exists, it is less clear if, per this recommendation, they have conducted direct public outreach. CELA requested that this be made a licensing condition and this did not occur.

### CNSC Policies and Regulations: Recommendations 22 - 27

CELA requested in **Recommendation 22** that the CNSC amend *REGDOC 2.3.2 and 2.10.1*'s language from “may” to “must” and create affirmative rather than discretionary guidance. This change has not occurred, nor was it discussed in the licensing decision.

Per **Recommendation 23**, CELA recommended that the LCH be expanded to contain specific, emergency preparedness provisions as default licensing requirements. As the CNSC notes in the 2016 ROR, the CNSC staff are in the process of standardizing licence condition handbooks.<sup>66</sup> We encourage the CNSC to reconsider incorporating this recommendation from CELA.

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<sup>64</sup> *Bruce Decision*, para 262

<sup>65</sup> Saugeen Shores, *Emergency Management*, online: <http://www.saugeenshores.ca/en/our-services/emergency-management.asp>

<sup>66</sup> 2016 ROR, p 11

Per **Recommendations 24 and 25**, CELA requested that any private standard, such as CSA Standard N1600 be made readily publicly available. This has not occurred and is a serious issue, as CELA submits the use of CSA Standards inappropriately delegates the setting of regulatory standards to an industry body, not easily accessible by the public. CELA requests that the CNSC cease reliance on CSA standards for any matters relevant to emergency planning and preparedness, and instead conduct all standard setting and guidance within the CNSC's own processes. While CELA was able to obtain a copy of the standard, we are not permitted by the CSA to share it with anyone else. The reliance on CSA Standards creates unacceptable secrecy concerning nuclear emergency preparedness requirements.

CELA also recommended in **Recommendation 26** that the CNSC post its studies in an accessible, user-friendly index on its website. While CELA appreciates the efforts of the CNSC staff to provide documents in a timely manner, this remains an ongoing issue and having to request and await documents creates delay in review and the ease with which members of the public can peruse CNSC studies, standards and decisions.

Per **Recommendation 27**, CELA requested that the CNSC develop a methodology for testing if *REGDOC 2.10.1* was sufficiently met. While this has not occurred, CELA notes that this legal analysis could be developed in the CNSC's jurisprudence. This is repeated critique by CELA of the CNSC's decision making as the licensing decisions severely lack reasoned discussions and analysis that connect the facts presented to the outcome determined.

CELA requested per **Recommendations 28, 29 and 31** that the CNSC conduct its own gap analysis of Bruce Power's emergency management and response scheme. Upon completion of this review, the CNSC could propose conditions. CELA reiterates that the regulator, not the licensee, bears the onus of ensuring that all safety concerns are addressed.

Lastly, CELA recommended per **Recommendation 32** that Bruce Power should enter into a written agreement with the CNSC to subject itself to *FIPPA*. CELA reaffirms this request and notes it does not appear in the licensing decision's discussion.

## 2.4 Point Lepreau Nuclear Generating Station

### Introduction

In May 2017, CELA intervened at the Point Lepreau re-licensing hearing (Reference 2017-H-02) where New Brunswick Power (herein, NB Power) sought a renewal of its operating licence for a period of five years.

CELA made 36 recommendations to the Commission and requested that the CNSC not grant the licence without verifying whether a large radiation release and catastrophic accident served as the planning

basis for the Point Lepreau emergency response plans. CELA submitted that 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 licence renewals.<sup>67</sup>

On June 14, 2017, the CNSC granted the re-licensing of Point Lepreau, noting that “NB Power has appropriate emergency plans in place to protect the health and safety of persons and the environment in the event of a nuclear emergency.”<sup>68</sup>

The 2016 ROR similarly concluded with regards to the state of nuclear emergency preparedness and response at Point Lepreau:

CNSC staff determined that NB Power continued to support and maintain its emergency management organization, and meets regulatory requirements.<sup>69</sup>

As the CNSC has only released a Summary Record of Decision, CELA cannot comment on the incorporation of its 36 recommendations in either the licensing decision or LCH. However, because of testimony shared at the hearing, three outstanding issues remain which require resolution before, CELA submits, the CNSC can fully comment on the sufficiency of Point Lepreau’s off-site emergency preparedness. Each issue is detailed below.

### Emergency Planning Basis: Recommendations 3 - 4

In its submission to the CNSC, CELA’s **Recommendation 3** asked that the planning basis for a potential offsite nuclear accident in New Brunswick be increased (with public input) to account for a catastrophic accident. **Recommendation 4** continued that without robust evidence detailing emergency planning for an accident of this level, the Point Lepreau licence be denied.

During the hearing, CELA requested that the CNSC require NB Power to provide a description of the planning basis to remedy discrepancies in statements made during testimony and definitions contained in NB Power’s document, *IR-78600-02, Technical Planning Basis – Radiation Emergency*.

During the hearing, Derek Mullin of NB Power stated:

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<sup>67</sup> Canadian Environmental Law Association, *Submission to the CNSC: Emergency Planning at the Point Lepreau Nuclear Generating Station* (3 April 2017), online: <http://www.cela.ca/publications/1108submissions-cnsc-pt-lepreau> [**CELA Point Lepreau**]

<sup>68</sup> Canadian Nuclear Safety Commission, *Summary Record of Decision – Application to Renew the Nuclear Power Reactor Operating Licence for Point Lepreau* (14 June 2017) [**Point Lepreau Decision**]

<sup>69</sup> 2016 ROR, p 157

In the original planning technical basis for Point Lepreau for the radiation planning, that included about 40 percent of the reactor core inventory being released to the environment very early in the event. That assumed an early containment failure. That is a significant release. Exactly where that lands on the INES scale I can't really tell you that, but what I will say is that when we are looking at the updated or revising the radiation planning technical basis we are using the outputs of our severe accident analysis directly in that to determine what does the release look like. That's directly from the codes and directly from the outputs. So in some cases it may be greater than 40 percent.<sup>70</sup>

While we agree that NB Power's Technical Planning Basis should be on the public record (as noted in the Summary of Decision), CELA was seeking clarification regarding the planning basis for the offsite emergency response plan.

CELA continues to request confirmation the technical planning basis, per Derek Mullin's comments, includes "40 percent of the reactor core inventory being released to the environment very early in the event."

The existing emergency response plans are not sufficient to mitigate a 40% release of core inventory as this would result in radiation doses first responders cannot operate under and would require evacuations beyond 50 km. Until clarification is provided by NB Power and evidence that they can respond to a 40% release, the CNSC's deliberations on Point Lepreau may be based on erroneous information by the proponent and CELA's Recommendation 3 and 4 remain outstanding.

### **Public Review and Comment: Recommendations 2, 5, and 36**

CELA commends the Commission's encouragement of the need to improve the public availability of the offsite nuclear emergency plans. As CELA noted in Recommendations 2, 5, and 36, all documents before the Commission should be made public and offsite plans required to include regular, public reviews.

As the Point Lepreau LCH is still pending, CELA submits that the CNSC should impose a licensing condition requiring all offsite emergency response plans to be, by default, public. Proponents should not be provided the discretion to decide whether or not to publicly provide offsite, emergency response information. Ultimately, it is the CNSC which must decide whether a licensee has made adequate provision for the 'safety of persons.' Therefore, CELA requests the CNSC include a mandatory public review and comment period in every licence condition handbook to facilitate the preparedness of individuals and communities in and around nuclear power plants.

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<sup>70</sup> *Point Lepreau Transcript Day 2*, p 96

Since the May 2017 Point Lepreau hearing, CELA has remained in contact with the NB EMO to confirm the release date of the public, offsite emergency response plan. As Greg MacCallum of the NB EMO confirmed in an email dated May 29, 2017:

As acknowledged and agreed to at the Licence Hearings on 10 May, this summer NB EMO will be posting the Point Lepreau Nuclear Off-site Emergency Plan in the new CSA Z1600-14 Standard on our web-site for public review and comment.

While CELA commended the NB EMO and its action to host a public review of the plan,<sup>71</sup> the NB EMO has since realigned its position on the opportunity for public comment. As they noted in an email dated June 21, the NB EMO now provides that the plan will be posted, and the public review it appears, omitted:

When the plan revision is completed and reviewed, it will be permanently posted to the NB EMO web-site. The target date for posting the document is end-August 2017.

CELA has sought and continues to seek clarification from the NB EMO regarding this apparent change to the promised public review.

CELA submits that it is critical the CNSC ensure the NB EMO maintains its commitment to hold a public review of its emergency response plan. As Greenpeace Canada, another intervenor at the Point Lepreau hearing noted, there is currently no process for how NB Power or the province of New Brunswick will consult with the public and civil society on the adequacy of their plan.<sup>72</sup>

It is international best practice that the offsite plan be made not only publicly available, but open to public comment. As CELA discussed during the hearing, the New Brunswick offsite plan has not yet benefited from an open and public review and the release of the public plan at the end of August could provide this opportunity.

## Disclosure of the Probabilistic Seismic Hazard Assessment

During the Point Lepreau re-licensing hearing, the CNSC heard from intervenor Chris Rouse of New Clear Free Solutions. He requested that the seismic hazard assessments be made publicly available to facilitate their review by an independent, external expert. While the participant funding had been made available, the expert declined to act on the basis of insufficient information being provided.<sup>73</sup>

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<sup>71</sup> Canadian Environmental Law Association, *Media Release – CELA Commends New Brunswick's Announcement of Summer 2017 review of Point Lepreau's nuclear emergency response plan* (2 June 2017), online: <http://www.cela.ca/review-of-point-lepreau-emergency-plan>

<sup>72</sup> *Point Lepreau Transcript Day 2*, p 194

<sup>73</sup> *Point Lepreau Transcript Day 2*, p 257

CELA reiterates that it is critical that seismic hazard assessments and accompany methodology (which discuss the safety limits and their definition) be publicly disclosed to enable third-party review. Recognizing this barrier to effective public participation, Justice Russell noted in *Greenpeace Canada v Canada (Attorney General)* that “the less specific the information provided about the design features and specific impacts of a project, the more difficult it may be for interested parties to challenge assumption, test the scientific evidence, identify gaps in the analysis, and ensure their interests are fully considered.”<sup>74</sup>

CELA submits that it is unacceptable that the ability of participants to fully partake in the hearing process is nullified by their inability to review technical assessments and documents.

## CONCLUSION

The CNSC has the authority under the *NSCA* to impose terms and conditions in respect of emergency planning and preparedness as a condition of licensing. The findings of this report demonstrate that only 1 recommendation of 79 is known to have been taken up by the Commission (CELA counts the 36 recommendations made at the Point Lepreau to be outstanding pending a full licensing decision).

CELA has identified seventy-eight recommendations that have only been marginally implemented or considered by the CNSC. Most notably, this report has demonstrated that the CNSC's oversight of emergency preparedness and planning – should it exist – is not transparent. In most instances, CELA was unable to trace what action has been made outside of the licensing decision or LCH. It is also unclear what level of awareness and coordination on emergency planning exists between the CNSC, the proponent and provincial authorities.

There is a need for a systematic, well-documented process so that the CNSC can demonstrate how it considers public safety issues in its planning and decisions and how comments from intervenors are tracked, reviewed and implemented. While CELA has repeatedly asked the CNSC to impose terms and conditions in respect of emergency planning and preparedness as a condition of licensing, we now respectfully request the CNSC use its oversight role and ensure measures proposed and actions promised to increase emergency preparedness – either in the hearing or in submissions - are enforced.

The findings of this report demonstrate the CNSC's underwhelming and systemic disregard for emergency planning and readiness. CELA reviewed an array of documents for each powerplant, to ensure any information related to emergency planning would be captured. This report illustrates the minimalist approach pervading key CNSC documents and their discussion of emergency planning.

CELA is also concerned that the CNSC has not adequately assumed an oversight role in respect of offsite emergency planning given that offsite emergency planning is one of the essential elements of a defence

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<sup>74</sup> *Greenpeace Canada v Canada (Attorney General)*, 2014 FC 463, para 249

in depth approach; and, given that the CNSC must not allow operating licences unless it is satisfied that the applicant had made adequate provision for the protection of the environment and the health and safety of persons pursuant to s 24(4) of the *NSCA*.<sup>75</sup>

This review revealed that the emergency response plans for powerplants within Ontario alone are widely divergent, and the level of engagement with the public is proponent-driven. CELA submits that there must be a harmonization of standards such that all members of the public – whether in Maces Bay, Tiverton or Oshawa - enjoy a similar level of emergency response awareness and protection in the event of a major, offsite nuclear accident.

**All of which is respectfully submitted this 17th day of July, 2017:**

CANADIAN ENVIRONMENTAL LAW ASSOCIATION

Per



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Executive Director and Counsel

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<sup>75</sup> *NSCA*, s 24(4)(b)