



CMD 26-H7.E – CNSC Staff Undertaking

Update on Potassium Iodide (KI) Distribution

Classification	Unclassified
Type of CMD	Undertaking
CMD Number	26-H7.E
Reference CMD(s)	26-H7
Public meeting date	06 October 2026 – 09 October 2026
Summary	Providing additional information requested by the Commission during the October 6-9, 2026 hearing regarding potassium iodide distribution in the vicinity of the Pickering Nuclear Generating Station.
Actions required	There are no actions requested of the Commission. This update is for information only.



MEMORANDUM

NOTE DE SERVICE

To Candace Salmon
A Commission Registrar / Registraire de la
Commission

CMD# 26-H7.E
UNRESTRICTED

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Subject: Undertaking - Potassium Iodide (KI) Distribution

Background/Issue

At the October 6-9, 2026, public hearing, the Commission requested an update on potassium iodide (KI) pill distribution near the Pickering Nuclear Generating Station (NGS) including:

- A description of the KI distribution criteria in the International Commission on Radiological Protection (ICRP) and World Health Organization (WHO) documents
- Images of the relevant Emergency Planning Zones (EPZs) where KI is distributed, and
- Information on how Indigenous Nations and Communities are engaged with regarding the use of KI

DISCUSSION

International Agency Guidance on KI Distribution

The World Health Organization document *Iodine Thyroid Blocking* (1) guidance states that iodide thyroid blocking is an **urgent-phase protective action** (hours to one day after an emergency). For the early phase (days to weeks), the most effective method to reduce thyroid dose—particularly for children—is restricting the consumption of contaminated food, drinking water, and fresh milk.

WHO further notes that when household pre-distribution is not feasible, KI may be **strategically stored** at locations such as schools, hospitals, pharmacies, and emergency services facilities, provided appropriate stock control practices are in place.

The ICRP Publication 146 *Radiological Protection of People and the Environment in the Event of a Large Nuclear Accident* (2) states emergency preparedness plans should address the details of planning, appropriate for the range of scenarios foreseen, keeping in mind the necessary



flexibility for responding according to the actual situation. The plans should also consider both radiological and non-radiological factors. For the early phase, they should include predetermined radiological criteria for protective actions that need to be implemented promptly, such as sheltering, evacuation, and stable iodine distribution. For a large nuclear accident, the highest exposures should generally occur during the early phase. The ICRP recommends that the first priority should be the avoidance of cases of direct severe tissue/organ damage both on-site and off-site. The main urgent protective actions to be considered in the early phase are evacuation, sheltering, iodine thyroid blocking, restrictions on local food and water supply, and protection of pets and livestock. As these actions must be implemented promptly, it is necessary to prepare them in advance.

The effectiveness of stable iodine for thyroid blocking depends on its timely administration. Taking stable iodine shortly before or at the time of exposure to radioactive iodine offers the most effective protection. Due to the short time available, distribution of stable iodine may present a practical problem, especially if large population groups are concerned. Therefore, national authorities should give careful consideration to the most effective way to ensure the availability of stable iodine to potentially affected populations, including pre-distribution.

Emergency Planning Zones Around Pickering

Protective actions such as evacuation, shelter-in-place, and KI administration are primarily implemented closer to a nuclear facility based on emergency planning zones (Figure 1):

- Automatic Action Zone (AAZ): 0–3 km
- Detailed Planning Zone (DPZ): 3–10 km
- Contingency Planning Zone (CPZ): 10–20 km
- Ingestion Planning Zone (IPZ): 20–50 km

KI is pre-distributed to residents in the AAZ and DPZ. This is done automatically through OPG's collaboration with Canada Post. The expiration dates of KI pre-distributed within 10 km is tracked and replaced as necessary.

KI is pre-stocked at strategic locations within the CPZ and IPZ for prompt distribution should it be needed in the event of a nuclear emergency. Additionally, anyone including businesses can request KI to be sent to them within 50 km of the station through OPG's

www.preparetobesafe.ca website.

These KI distribution arrangements are consistent with international guidance including the IAEA, WHO and ICRP. In 2019 the IAEA conducted an Emergency Preparedness Review (EPREV) mission to Canada. The mission focused on Canada's preparedness for nuclear emergencies stemming from nuclear power plants. The mission provided valuable insight and commended Canada on its well developed and mature nuclear emergency preparedness and response

system in place across all levels of government. The mission also identified the implementation of the arrangements for pre-distribution of KI pills as a best practice.

KI administration would only be recommended where projected thyroid doses exceed 50 mSv in the first seven days following an accident, which would be expected to occur within the AAZ or DPZ—not within the IPZ. Ultimately, the medical officer of the Province of Ontario would determine if KI administration is required.

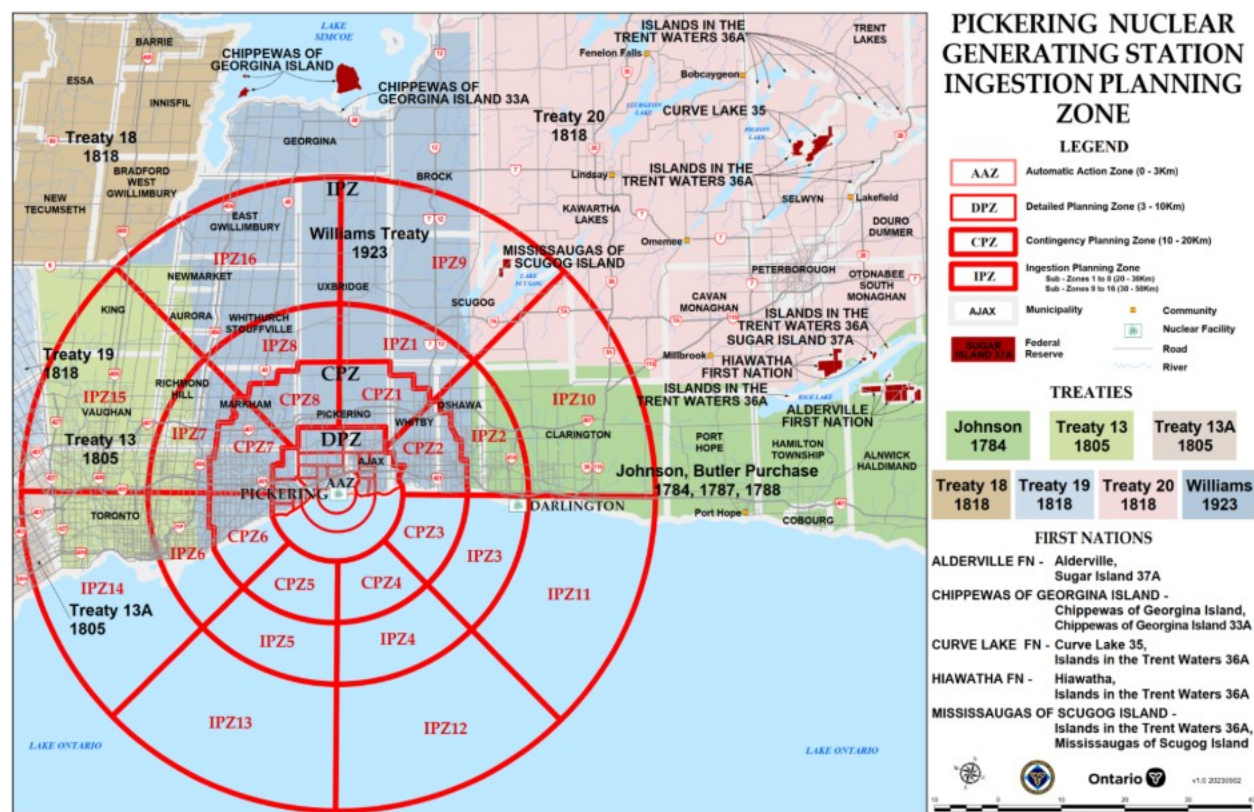


Figure 1 – Pickering NGS Emergency Planning Zones (EPZs)

The KI Working Group agreed that existing KI distribution arrangements for the IPZ are adequate. Any future concerns can be addressed through the Provincial Nuclear Emergency Management Committee.

The Phase II KI Working Group reached consensus that, based on current scientific evidence and international guidance:

- Pre-distribution of KI in the IPZ, including to schools, is not required
- Existing KI distribution and storage arrangements are sufficient
- Further work by the KI Working Group is not necessary

Accordingly, the KI Working Group has fulfilled its mandate, and any future issues related to KI distribution can be addressed at the provincial level.



KI Distribution for Indigenous Nations and Communities

KI distribution to Indigenous Nations and Communities exists through established channels. In addition, Indigenous Nations and Communities are identified as offsite authorities in [REGDOC 2.10.1, Nuclear Emergency Preparedness and Response](#). This requires that a licensee engage with these authorities to develop plans, notify of an accidental release or imminency of a release, report information during and after accident releases, support offsite authorities, and establish communication methods. This allows Indigenous Nations and Communities to be informed in a manner that suits their needs.

Additionally, CNSC staff actively engaged and collaborated with Indigenous Nations and communities in relation to the KI Working Group, with a specific focus on the Mississaugas of Scugog Island First Nation (MSIFN), whose reserve lands and community are located within the Pickering NGS IPZ. CNSC staff worked with MSIFN to develop information pamphlets for community members that provide easily accessible information in relation to KI, its uses, how to get access to KI, and information about nuclear safety and emergency management. CNSC staff continue to engage and collaborate with MSIFN and other Indigenous Nations, including the Michi Saagiig Nations of the Williams Treaties with respect to emergency management and preparedness in relation to Pickering NGS and other nuclear facilities in their territories.

Ontario, via Emergency Management Ontario, are also engaged in a consultation process with all First Nations and Indigenous communities that are located, or have traditional territories that are located, in close proximity to licensed CNSC facilities regarding the Provincial Nuclear Emergency Response Plan and Site Specific-Implementing Plans. Protective measures including the use of KI are discussed in these consultations.

References

1. **World Health Organization.** *Iodine Thyroid Blocking*. 2017.
2. **International Commission on Radiological Protection (ICRP).** *Radiological Protection of People and the Environment in the Event of a Large Nuclear Accident*. 2020.