



CMD 22-M6.A Potassium Iodide (KI) Pill Working Group – Phase I Report



CNSC Staff Presentation
January 26 – 27, 2022



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Acknowledgement

The land on which the Pickering Nuclear Generating Station is located is within the traditional and treaty territory of the Chippewa and the Michi Saagiig Nations, collectively known as the Williams Treaties First Nations.



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Overview

- Preface
- Background Information
- Terms of Reference
- Phase I Report
- Engagement on Phase I Report
- Phase II Engagement
- Conclusion and Next Steps



The purpose of this Proceeding is to present the Phase I Report of the Working Group to the Commission for information



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PREFACE



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Context

CNSC Public Hearing on the Pickering licence renewal (June 2018)

- Intervenors raised questions regarding Potassium Iodide (KI) Pill pre-distribution and distribution in an emergency in the Ingestion Planning Zone (IPZ; 50 km)
- Based on the information provided during this hearing, the Commission was satisfied that plans are in place for the emergency distribution of KI to residents of the IPZ
- The Commission expressed that clarity and transparency of detailed KI distribution strategies could be improved



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Formation of the CNSC KI Pill Working Group

To address the questions raised during this hearing about the KI pill distribution strategies, **CNSC staff proposed the creation of a KI working group.**

Through this working group, CNSC staff committed to working with the appropriate and responsible stakeholders **to provide clarity on the plans and responsibilities regarding distribution of KI pills in the IPZ in the event of an emergency at the PNGS.**

An Advisory Committee was also established to provide advice to CNSC staff chairing the KI Pill Working Group.



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BACKGROUND INFORMATION



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KI Pills

- Used to protect the thyroid gland from radioactive iodine
- In very small quantities, Iodine is an essential nutrient for the thyroid gland
- KI is effective in reducing the threat of thyroid cancer if taken at the appropriate time
 - Most effective if taken 2-6 hours before exposure
 - Province of Ontario maintains a centralized stockpile
 - Decision to ingest KI during an emergency is made by the Provincial Chief Medical Officer of Health



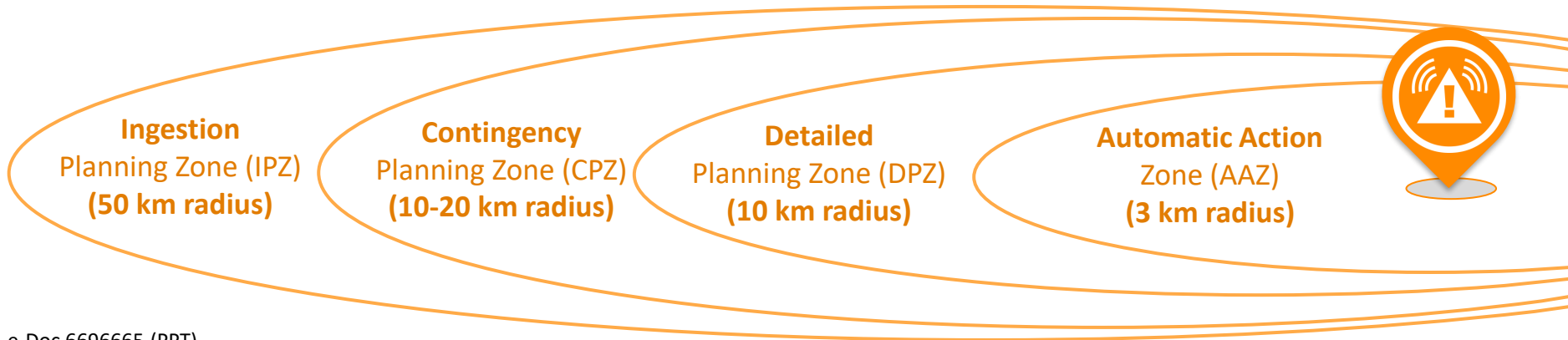


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Planning Zones

Defined areas beyond the boundary of a **reactor facility** in which implementation of operational and protective actions might be required during a **nuclear emergency**.

Planning zones (and the affiliated distances in Ontario) include the following:

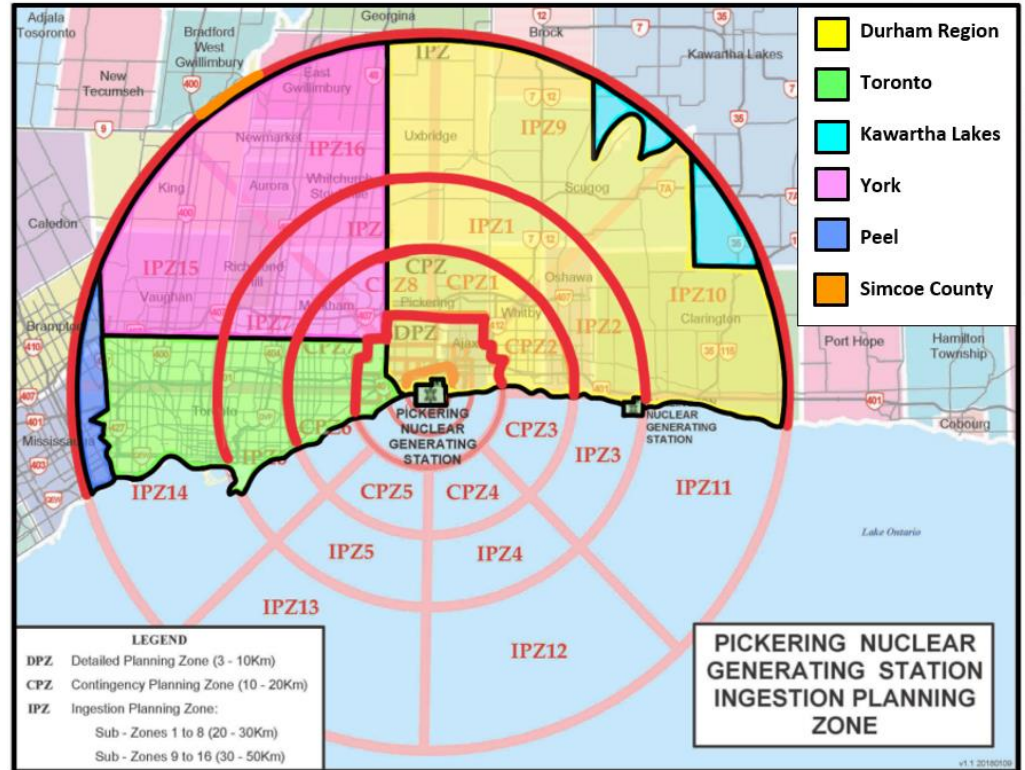




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Ingestion Planning Zone

Ingestion Planning Zone (IPZ)
for Pickering Nuclear
Generating Station, and
associated municipalities





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Regulatory Requirements for KI Pills

- REGDOC-2.10.1, *Nuclear Emergency Preparedness and Response* was published in October 2014
- REGDOC-2.10.1 requires licensees of nuclear power plants to provide resources and support to provincial and municipal authorities for the following:
 - Pre-distribution of KI pills to all residents in the 10 km Detailed Planning Zone (DPZ)
 - Procurement of KI pills for distribution beyond 10 km when required
 - Ensure KI pills are available upon request to all residents of the IPZ
 - Ensure pre-distributed and stockpiled KI pills are maintained within expiry date
 - Provide the public with information on emergency preparedness (including KI pills)



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Current Status

- OPG is compliant with CNSC regulatory requirements
 - Full scale emergency exercises conducted every 3 years
- Municipal, Provincial and Federal emergency response plans are in place
- Emergency Preparedness Review (EPREV) mission conducted in Canada in 2019
 - Canada demonstrated a high level of readiness in its Nuclear Emergency Preparedness Plans
 - Good practice identified with respect to KI pill pre-distribution, public information campaigns and measures ensuring new residents receive KI pills



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TERMS OF REFERENCE



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Terms of Reference

Draft Terms of Reference (TOR) prepared by:

- The CNSC
- Ontario Ministry of Health (MOH)
- Ontario Office of the Fire Marshal and Emergency Management (OFMEM)
- Ontario Power Generation (OPG)

The TOR establishes the membership, mandate, deliverables and conduct of the Working Group

Public comment period

Dec 24, 2018 - Feb 14, 2019
(17 submissions received)

TOR revised

based on comments and
Commission direction

TOR signed

May 14, 2019
Working Group enacted



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Working Group Membership

Signatories to the TOR:



CNSC



MOH



OFMEM



OPG

The Working Group also includes Health Canada, as well as Public Health Units and Emergency Management Coordinators from the following municipalities:

- Peel Region
- York Region
- City of Toronto
- Peterborough County
- Simcoe County
- City of Kawartha Lakes
- Durham Region



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Mandate

The mandate of the Working Group is to be completed in two phases:

Phase I

Fulfill the commitment to the Commission to provide clarity on the existing plans and associated responsible authorities for distributing KI pills in the IPZ in the event of an emergency at the Pickering NGS

Phase II

(Anticipated completion Spring 2023)

Fulfill the direction from the Commission in the detailed Record of Decision

- Determine feasibility of pre-distribution of KI pills to all schools within the IPZ
- Establish clear and detailed plans for the distribution of KI pills in the IPZ in the event of an emergency at Pickering



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Deliverables

The TOR includes specific deliverables for the Working Group and CNSC

Working Group

- TOR (Complete)
- Phase I Report (Complete)
- Phase II Report

CNSC

- Develop [Working Group webpage](#) (Complete)
- Establish an Advisory Committee to advise CNSC staff (Complete)
- Lead and coordinate Indigenous engagement opportunities
- Post all working group deliverables for public comment
- Present Phase I and II Reports to the Commission in a Public Proceeding



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CNSC Website

A dedicated [webpage](#) for the Working Group was launched on June 14, 2019

- Background information
- TOR
- Project milestones
- Meeting minutes
- CNSC Advisory Committee
- Quick facts on KI pills

Additional documentation is added on an ongoing basis

The screenshot shows the CNSC website page for the Potassium Iodide (KI) Pill Working Group. The page title is "Potassium Iodide (KI) Pill Working Group". The main content area contains the following text:

In 2019, the CNSC established a Potassium Iodide (KI) Pill Working Group and Advisory Committee to provide clarity on the existing plans and associated responsible authorities to distribute KI pills in the Ingestion Planning Zone (IPZ), in the event of an emergency at the Pickering Nuclear Generating Station (see figure 1).

The Working Group, chaired by the CNSC, is co-chaired by the Office of the Fire Marshal and Emergency Management (OFMEM), the Ontario Ministry of Health and Long-Term Care (MHLTC) and Ontario Power Generation (OPG). The Working Group also has representatives from Health Canada; and Public Health Units and Emergency Management Coordinators from Peel Region, York Region, City of Toronto, Durham Region, Simcoe Muskoka District, Haliburton-Kawartha-Pine Ridge District, and Peterborough County.

Figure 1. Pickering Nuclear Generating Station Ingestion Planning Zone

Source: Office of the Fire Marshal and Emergency Management

► Description

What is KI?

In the event of a nuclear emergency, KI is effective in reducing the threat of thyroid cancer to residents at risk of inhaling or ingesting radioactive iodine. The CNSC established regulatory requirements for nuclear power plant licensees to ensure that KI pills are pre-distributed to everyone within 10 km of all power plants. Regional, municipal and provincial authorities responsible for emergency management, including the Province of Ontario's Office of the Fire Marshal & Emergency Management and the New Brunswick Emergency Management Organization, also facilitate the pre-distribution of KI pills.



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Advisory Committee

A commitment was made to the Commission in November 2018 to form a **Advisory Committee**

Purpose of the Advisory Committee

To provide independent advice to CNSC staff on the deliverables of the Working Group and input on topics discussed at the Phase I and Phase II workshops.

- CNSC staff considered all advice and input from the Committee
- Operating procedures were developed to clarify the purpose, membership, engagement opportunities and conduct of the Committee activities



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Advisory Committee Membership

The Committee is co-chaired by the CNSC Director General of the Directorate of Power Reactor Regulation and Director General of the Directorate of Security and Safeguards

The Committee includes the following members:

- Canadian Environmental Law Association
- Toronto District School Board
- Toronto Catholic District School Board
- Municipality of Kincardine
- Bruce Power
- A professor from McMaster University



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PHASE I REPORT



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Phase I Workshop

- Two-day Workshop held in November 2019 with all Working Group members present
- The objective of the Workshop was to gather the information necessary to achieve the mandate of Phase I
- Draft Phase I Report developed following the workshop
 - Concurrence on the report was delayed due to Covid-19
- Concurrence was achieved in December 2020





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Phase I Report

- The Phase I Report covers the following topics:
 - Nuclear emergency management framework in Canada
 - Information on KI pills and pre-distribution
 - Current plans and associated roles and responsibilities for KI pill emergency distribution
 - Public Resources Relating to KI
 - Concept of Operations for KI Emergency Distribution



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Public Information

- The Phase I Report includes excerpts and references from important publicly available information:
 - *Potassium Iodide (KI) Guidelines* (MOH: 2014)
 - *Radiation Health Response Plan* (MOH: 2014)
 - *Potassium Iodide Tablets (KI) Fact Sheet* (MOH 2014)
 - *Provincial Nuclear Emergency Response Plan (PNERP) – Master Plan* (OFMEM: 2017)
 - *Provincial Nuclear Emergency Response Plan – Implementing Plan for Pickering* (OFMEM: 2018)
 - PreparetoBESafe.ca (Durham Region, City of Toronto, OPG: 2015)
 - REGDOC-2.10.1, *Nuclear Emergency Preparedness and Response, version 2* (CNSC: 2016)
 - *Federal Nuclear Emergency Plan* (Health Canada: 2014)
 - Other Municipal, Provincial and Federal emergency response plans

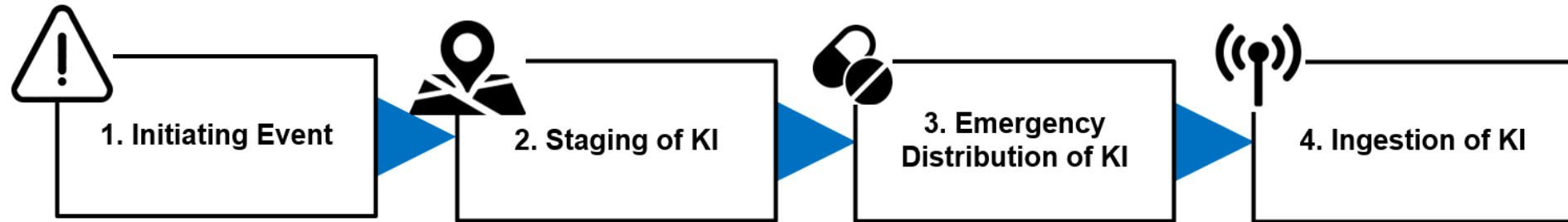


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Phase I Report: Concept of Operations (1/5)

The existing concept of operations for emergency distribution of KI in the IPZ is depicted here

Demonstrates a flexible approach to emergency distribution of KI pills that can be adapted in response to multiple variables





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Phase I Report: Concept of Operations (2/5)

Step 1: Initiating Event

The scenario begins with an anticipated offsite release

Stakeholders monitor and evaluate potential offsite consequences as they relate to required protective actions (e.g. KI)

The Ministry of Health (MOH) begins preparing the KI pill stockpile for prompt staging in the municipalities.





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Phase I Report: Concept of Operations (3/5)

Step 2: Staging of KI

Logistical requirements are being arranged for the transportation of KI pills to certain locations within the IPZ.

The Province recommends the IPZ area(s) within which KI pills will be required for potential ingestion purposes.

KI is staged at locations around the IPZ to support the possible requirement to distribute KI pills.





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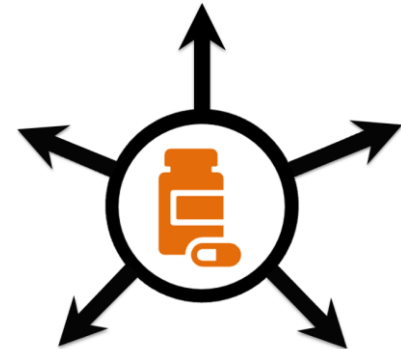
Phase I Report: Concept of Operations (4/5)

Step 3: Emergency Distribution of KI

The scenario assumes KI pill distribution is required, and the timeframe for the anticipated release is established.

The province to work with the municipalities to distribute KI pills throughout the specific region of the IPZ likely to be affected.

Distribution would utilize local pickup locations and/or distribution by trained emergency workers.





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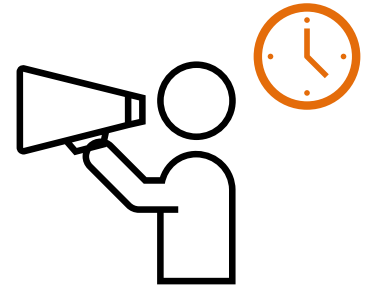
Phase I Report: Concept of Operations (5/5)

Step 4: Ingestion of KI

An offsite release is determined to be likely, and the order for KI ingestion is given by the Chief Medical Officer of Health.

As KI efficacy is time sensitive, the order will be given in advance of the ingestion time.

The public would be made aware of the order through emergency communications and notifications.





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Phase I Report: Conclusion (1/2)

The Working Group made the following conclusions:

- Roles and responsibilities are clearly defined in current plans
 - The report provides clarity on the existing plans and associated responsible authorities for the emergency distribution of KI
- A flexible concept of operations exists for emergency distribution
- Public awareness and information campaigns are conducted but improvements have been identified



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Phase I Report: Conclusion (2/2)

In addition to the mandate for Phase II, the Working Group identified the following topics for further consideration:

- Public awareness and education in designated and non-designated municipalities
- Pre-staging of the centralized stockpile to municipalities in the IPZ
- Development of a pre-existing emergency communications strategy for use by Municipalities and PHUs within the IPZ during an event



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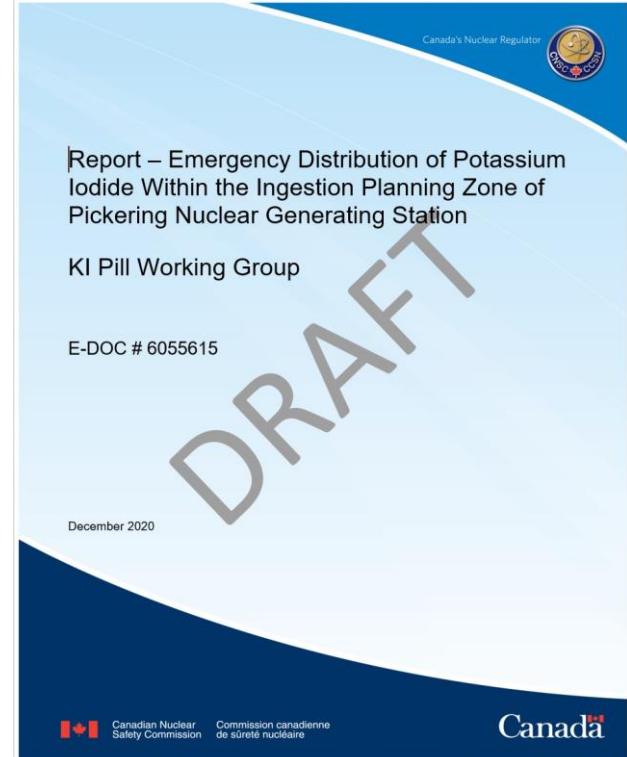
ENGAGEMENT ON PHASE I REPORT



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Draft Phase I Report – Public Review

- The KI Pill Working Group's draft report was open for consultation from April 6 to July 5, 2021 through CNSC's e-consultation page (www.letstalknuclearsafety.ca)
- 16 comments were submitted from 3 reviewers; key themes raised include:
 - Information on how new residents obtain KI pills
 - Clarification of definitions and terminology
 - Acknowledgement of Treaty Lands the PNGS resides on





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Indigenous Engagement on Draft Phase I Report (1/2)

- Notification letters sent to Indigenous Nations and communities in August 2019
 - The Métis Nation of Ontario
 - Mississaugas of the Credit First Nation
 - Alderville First Nation
 - Curve Lake First Nation
 - Hiawatha First Nation
 - Mississaugas of Scugog Island First Nation
 - Chippewas of Beausoleil First Nation
 - Chippewas of Georgina Island First Nation
 - Chippewas of Rama First Nation (Mnjikaning)
 - Mohawks of the Bay of Quinte
- CNSC staff conducted follow-up phone calls and met with interested communities

Indigenous engagement is an important consideration in CNSC activities and ensures opportunities for input are provided



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Indigenous Engagement on Draft Phase I Report (2/2)

- Draft Phase I Report sent to Indigenous Nations and communities in April 2021
- Curve Lake First Nation was awarded funding through the Participant Funding Program to review the draft Phase I Report and meet with CNSC staff
- Comments from Curve Lake First Nation were received on the following topics:
 - Impacts to non-human species during an emergency
 - Communications to Indigenous communities during an emergency
 - Information, awareness and education related to KI pills for Indigenous communities
 - How Indigenous communities outside the IPZ obtain KI pills

Indigenous engagement is an important consideration in CNSC activities and ensures opportunities for input are provided



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Advisory Committee Workshop (1/2)

An Advisory Committee Workshop was held November 19, 2021.

The objective of the workshop was to:

- Solicit comments on the Phase I Report
- Discuss comments received from the public review period
- Determine if the committee agreed that the report meets the mandate for Phase I

Members did not request specific changes to the Phase I Report.

Members provided valuable input on further topics for consideration as part of Phase II of the Working Group.

**Advisory
Committee
members at the
workshop
concluded that
the Phase I
Report meets
the mandate of
Phase I**



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Advisory Committee Workshop (2/2)

Input on further topics for consideration as part of Phase II includes the following:

Information
on the actions taken
by municipalities
in support of
emergency distribution
of KI pills

**Need for an availability
of information**
and medical advice for
individuals who cannot take
KI pills, and how it differs
from other populations

Impact on timelines
and capabilities for
KI pill distribution from
a severe beyond design
basis accident



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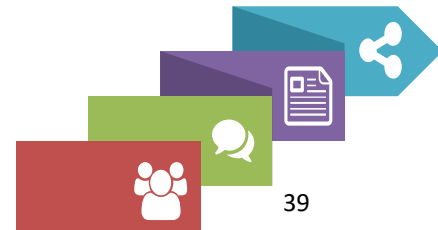
PHASE II ENGAGEMENT



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Public and Advisory Committee Engagement

- The draft Phase II Report will be posted by the CNSC for public review
 - The public review period will be advertised through the CNSC social media accounts
- CNSC staff will solicit input from the Advisory Committee, including a focused workshop on the draft Phase II Report
- The Working Group will consider all comments received





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Indigenous Engagement

- All identified communities will be sent the Phase II Report and informed of the public review period
- CNSC staff will continue to meet with Indigenous Nations and communities at any time upon request
 - CNSC staff to conduct follow-up with the Mississaugas of Scugog Island First Nation as they have expressed interest in Phase II and are located within the IPZ
 - CNSC staff committed to follow-up with Curve Lake First Nation to discuss information related to their comments on Phase I
- The Working Group is currently discussing additional opportunities for Indigenous engagement throughout Phase II





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CONCLUSION AND NEXT STEPS



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Conclusion

Pre-distribution in the DPZ and stockpiling in the IPZ of KI pills meet CNSC regulatory requirements

Plans are in place for the distribution of KI to residents of the IPZ in the event of an emergency at the Pickering NGS

Existing response capabilities are adequate with no major issues identified

The Phase I Report provides clarity on the interoperability of existing plans and associated responsible authorities

The Working Group members conclude that the Phase I Report meets the mandate of Phase I of the KI Pill Working Group



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Next Steps

The Phase I Report will be finalized and published following this Commission Meeting and made available on the Working Group webpage

The Working Group will continue planning the Phase II workshop, anticipated for Spring 2022

A Phase II Report will be prepared by the Working Group and undergo public review and be presented to the Commission, anticipated for early 2023



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