CMD 19-M42
IEMP Program Update

OUTLINE

- Objectives
- History
- IEMP process
- Completed sampling
- Recent improvements
- Summary

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Locations of facilities sampled to date
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OBJECTIVES

• To independently verify that the public and the environment around nuclear facilities are protected
• To complement CNSC’s ongoing environmental protection compliance verification activities
• To engage with the public and Indigenous communities near nuclear facilities

The IEMP does not relieve licensees of their responsibilities
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HISTORY

WHY THIS PROGRAM WAS LAUNCHED

• International Atomic Energy Agency’s General Safety Requirements, states that: “...the regulatory body shall be responsible, as appropriate for... making provisions for an independent environmental monitoring program”

• Interest from Commission members, Indigenous communities and the public

The IEMP provides another verification tool

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The IEMP helps to build public trust and confidence in CNSC oversight of nuclear facilities.

IEMP Track Record:

- Six successful campaigns in 2013
- Developed screening levels for radioactive and hazardous substances in 2015
- Continuous improvement
- 61 sampling campaigns to date
- Pilot sampling campaign launched in 2012
- Enhanced user-friendly IEMP online dashboard
- Increased outreach activities
- More focus on Indigenous engagement in 2017

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THE IEMP PROCESS

- Program and sample planning
- Sampling
- Laboratory analysis
- Interpretation of results
- Publication of results

CNSC staff spend approximately 1500 person days for an annual IEMP cycle
PROGRAM AND SAMPLE PLANNING (1)

Annual site/facility selection considerations:

- Commission direction
- Upcoming licence hearings
- CNSC’s regulatory experience with the site
- Establishing baseline (3 years)
- Routine monitoring

Air sampling near BWXT–Toronto

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PROGRAM AND SAMPLE PLANNING (2)

Sample planning is informed by:

- Environmental risk assessment (ERA)
- Effluent/emission monitoring program
- Environmental monitoring program (EMP)
- Facility performance history
- Facility-specific contaminants
- Indigenous knowledge
- Public concerns
SAMPLING
WHAT AND WHERE

Sampling media

- Air
- Water
- Soil, sediment, sand
- Vegetation
- Local food (produce, meat, milk, fish)

Accessible locations

- Municipal properties
- Local farms
- Crown land
- Provincial parks
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**SAMPLING COMMUNICATION**

- Handouts that explain the program in plain language
- Sampling campaigns are featured on Facebook and Twitter in real time
- Local municipalities and Indigenous communities are notified in advance of sampling

CNSC issued 105 IEMP social media posts in 2018-2019
LAboratory AnalysiS

• Radioanalytical analyses: alpha, beta and gamma screening and some individual isotopes
• Hazardous substance analyses: heavy metals and other contaminants of potential concern

Over 1500 IEMP samples have been analyzed producing over 6000 results
INTERPRETATION OF RESULTS

Environmental Program Officers review results against:

- Guidelines, where available
- Screening levels derived by CNSC staff
- Licensee data
- Background data, where available
- Reference location data, where available

Results of Potential Interest:

- Procedure guide developed for results of potential interest (RPI)
- May involve additional sampling and discussion with licensee

To date all IEMP results verify that human health and the environment are protected
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PUBLICATION OF RESULTS

- CNSC homepage and IEMP dashboard updated
- Results sent to local media and Indigenous groups
- Social media posts and email to subscribers
- Federal Geospatial Platform data updated

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## COMPLETED ENVIRONMENTAL SAMPLING (2012-2019)

<table>
<thead>
<tr>
<th>Nuclear Power Generating Sites</th>
<th>Uranium and Nuclear Substance Processing Facilities</th>
<th>Uranium Mines and Mills</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bruce (4)</td>
<td>Blind River Refinery (4)</td>
<td>McClean Lake (1)</td>
<td>Chalk River Laboratories (4)</td>
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<tr>
<td>Darlington (3)</td>
<td>Shield Source Inc. (3)</td>
<td>Key Lake (1)</td>
<td>TRIUMF (2)</td>
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<tr>
<td>Pickering (3)</td>
<td>SRB Technologies (4)</td>
<td>McArthur River (1)</td>
<td>Whiteshell Laboratories (1)</td>
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<tr>
<td>Point Lepreau (4)</td>
<td>BWXT- Peterborough (3)</td>
<td>Cluff Lake (1)</td>
<td>Nuclear Power Demonstration Waste Facility (1)</td>
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<tr>
<td>Gentilly-2 (3)</td>
<td>BWXT-Toronto (4)</td>
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<td>Port Hope Project and Port Granby Project (4)</td>
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<tr>
<td></td>
<td>Port Hope Conversion Facility and Cameco Fuel Manufacturing (3)</td>
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<td>Elliot Lake Closed Mine Sites (2)</td>
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<td></td>
<td>Nordion (2)</td>
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<td>Deloro Closed Mine Site (2)</td>
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<td>Bancroft Closed Mine Sites (1)</td>
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</tbody>
</table>

|                                | 17                                               | 23                      | 4       | 17 |

**Number of sampling campaigns completed to date by facility type**

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Eastern Athabasca Regional Monitoring Program (EARMP) and IEMP

- EARMP: original program 2011 – 2017
  - Community: monitoring of metals and radionuclides in traditional foods
  - Technical: Cumulative effects monitoring
- Community Program continued to 2023
  - CNSC joined as funding partner
- Exploring options to complete technical program once within the current 5 year funding cycle
Added Information

• Using health science expertise to enhance the conclusions on the IEMP dashboard and in outreach activities

• Providing links to other federal, provincial, and municipal monitoring programs
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PROGRAM IMPROVEMENTS (3)

CNSC Truck

- Customized for IEMP field work
- Enhanced security of equipment and chain-of-custody of samples
 Greater access to IEMP data

- 2017: IEMP data available for download (as CSV files) for easier public access
- 2019: IEMP data launched on the Federal Geospatial Platform
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PROGRAM IMPROVEMENTS (5)

 Increased Indigenous collaboration in sample planning and collection

2017 & 2018 Sampling took place on Mississauga First Nation land near the Blind River Refinery

2018 Sumac berries collected with the Algonquins of Ontario near Nuclear Power Demonstration Waste Facility

2019 Mi'gmawe'l Tplu'taqnn Inc. (MTI) and Wolastoquey Nation touring the CNSC lab

2019 Fishing with the Saugeen Ojibway First Nation near the Bruce site

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61 IEMP sampling campaigns around 24 sites have been completed to date

The IEMP has evolved into a CNSC-wide initiative

The CNSC will continue to seek Indigenous input in sample planning

The IEMP supports regulatory oversight by complementing the CNSC’s ongoing environmental protection compliance verification activities
IEMP IN ACTION

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