



Independent Environmental Monitoring Program (IEMP)

Program Update

December 11, 2019

CMD 19-M42



e-Doc: 5980828.pptx

e-Doc: 6062185.pdf





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IEMP Program Update

OUTLINE

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



Research



Waste
Management



Fuel
Processing



Isotope
Production



Mining



Power
Generation



Nuclear
Substances

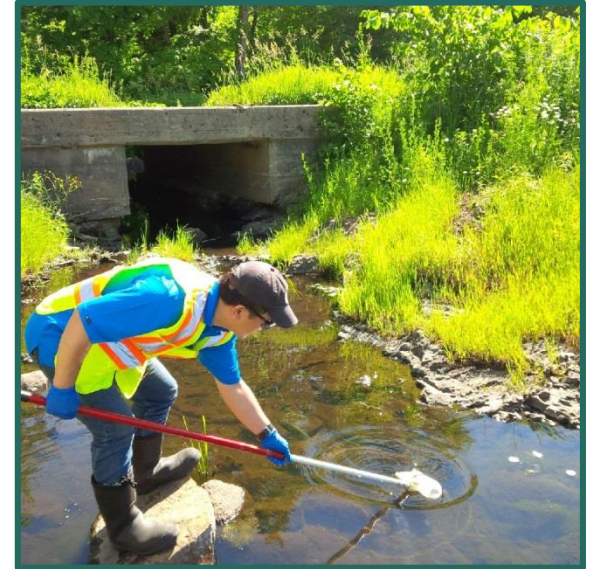


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OBJECTIVES

- 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**



CNSC staff water sampling near Deloro, ON



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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



CNSC staff talking to the public at the Port Hope Fair, 2016

The IEMP provides another verification tool



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The 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

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



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THE IEMP PROCESS



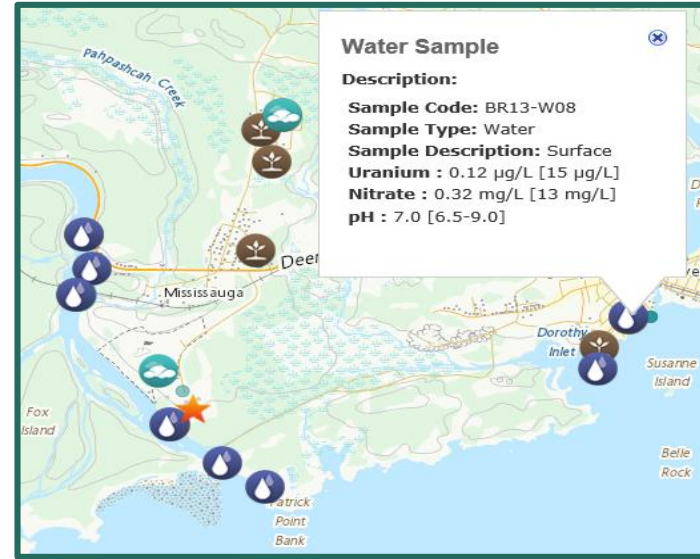
Program and sample planning



Sampling



Laboratory analysis



Interpretation of results

Publication of results

CNSC staff spend approximately 1500 person days for an annual IEMP cycle



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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



Air sampling near Blind River, ON



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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



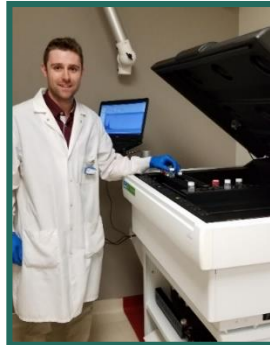
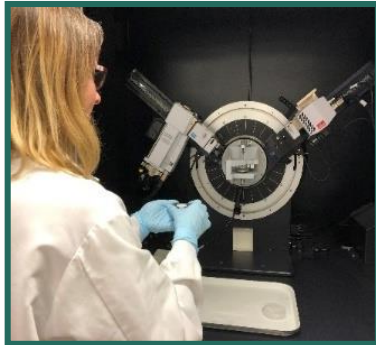
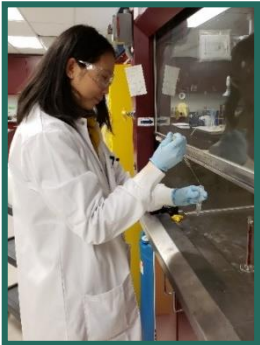
CNSC issued 105 IEMP social media posts in 2018-2019



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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



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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)

Nuclear Power Generating Sites	Uranium and Nuclear Substance Processing Facilities	Uranium Mines and Mills	Other
Bruce (4) Darlington (3) Pickering (3) Point Lepreau (4) Gentilly-2 (3)	Blind River Refinery (4) Shield Source Inc. (3) SRB Technologies (4) BWXT- Peterborough (3) BWXT-Toronto (4) Port Hope Conversion Facility and Cameco Fuel Manufacturing (3) Nordion (2)	McClellan Lake (1) Key Lake (1) McArthur River (1) Cluff Lake (1)	Chalk River Laboratories (4) TRIUMF (2) Whiteshell Laboratories (1) Nuclear Power Demonstration Waste Facility (1) Port Hope Project and Port Granby Project (4) Elliot Lake Closed Mine Sites (2) Deloro Closed Mine Site (2) Bancroft Closed Mine Sites (1)
17	23	4	17

Number of sampling campaigns completed to date by facility type



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PROGRAM IMPROVEMENTS (1)

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





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PROGRAM IMPROVEMENTS (2)

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



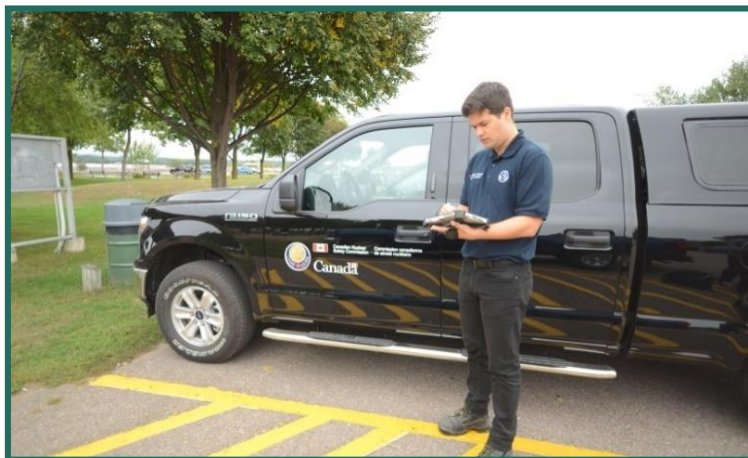


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PROGRAM IMPROVEMENTS (3)

CNSC Truck

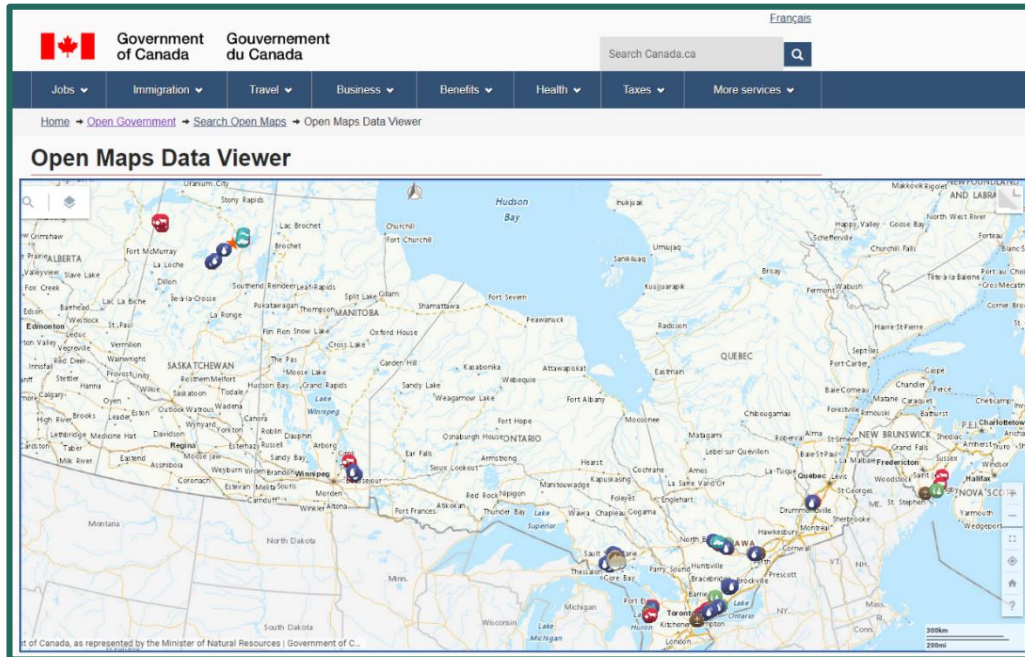
- Customized for IEMP field work
- Enhanced security of equipment and chain-of-custody of samples





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PROGRAM IMPROVEMENTS (4)



Greater access to IEMP data

- 2017: IEMP data available for download (as CSV files) for easier public access
- 2019: IEMP data launched on the 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'gma'we'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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SUMMARY



CNSC staff vegetation sampling near Point
Lepreau Nuclear Generating Station, NB

- 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



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IEMP IN ACTION



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