



Regulatory Oversight Report for Uranium Mines and Mills in Canada: 2018

Commission Meeting
December 12, 2019
CMD 19-M36.A



CNSC Staff Presentation





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CMD 19-M36.A – 2018 ROR for Uranium Mines and Mills

CNSC Regulatory Oversight Reports for 2018

- **November 6, 2019:** Canadian Nuclear Power Generating Sites: 2018
- **November 7, 2019:** Use of Nuclear Substances in Canada: 2018
- **November 7, 2019:** Canadian Nuclear Laboratories Sites: 2018
- **December 11, 2019:** Uranium and Nuclear Substance Processing Facilities in Canada: 2018
- **December 12, 2019:** Uranium Mines and Mills in Canada: 2018

**Reporting on licensee performance
based on CNSC oversight**



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Presentation Outline

- Errata
- CNSC's regulatory oversight activities
- Uranium mine and mill facilities
- Performance of uranium mines and mills
- Interventions
- Conclusions



SAG mill used to grind ore at the McArthur River Operation.
(Photo source: CNSC)



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Errata – to be corrected before the report is published

Appendix B, Table B1, corrected information

Facility	Safety and control area	Date report issued
McArthur River Operation	Fitness for Service, Conventional Health and Safety, Environmental Protection, Human Performance Management	March 20, 2018
	Environmental Protection, Radiation Protection, Conventional Health and Safety	October 31, 2018
	Physical Design, Environmental Protection, Radiation Protection, Conventional Health and Safety	August 8, 2018
	Environmental Protection	October 2, 2018
	Emergency Management and Fire Protection	January 16, 2019



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Errata – to be corrected before the report is published

Appendix J:

Environmental Action Level and Regulatory Exceedances Reported to CNSC.

- Key Lake row indicates “None Reported”
- There was a Regulatory exceedance reported by Key Lake Operation
 - a short duration effluent exceedance of pH (10m³ over 1 minute)
 - included on page 84, paragraph 1 of the main body of the ROR
 - Appendix J will be corrected in the published version



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CNSC'S REGULATORY OVERSIGHT ACTIVITIES



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ROR for Uranium Mines and Mills in Canada: 2018

Highlights:

- Compliance verification activities
- Licensees' performance across 14 safety and control areas (SCAs) with a focus on:
 - radiation protection
 - environmental protection
 - conventional health and safety
- Licensing activities and significant events



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CNSC Regulatory Oversight

- Includes licensing, compliance verification and reporting to the Commission
- Compliance verification is accomplished through:
 - inspection activities
 - review of operational activities and documentation
 - review of licensee reports and events
- Oversight is commensurate with risk



Risk-informed and performance-based approach



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CNSC Engagement Activities

- Information sharing and funding support through Participant Funding Program (PFP)
- Participation in meetings of the Northern Saskatchewan Environmental Quality Committee (EQC)
- Participation in meetings with Indigenous communities hosted by licensees
- Meetings with Indigenous groups on the *Regulatory Oversight Report for Uranium Mines, Mills, Historic and Decommissioned Sites in Canada: 2017*

**Information shared through
the CNSC website and social media**



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Indigenous and Community Engagement (1/2)

What we heard last year regarding the ROR

- Include a plain language summary
- Provide more time for review
- Hold dedicated information session on technical aspects of the ROR data



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Indigenous and Community Engagement (2/2)

Prince Albert, Saskatchewan September 4 and 5, 2019

- In response to recommendation by the Commission
- Met with Northern Saskatchewan Environmental Quality Committee (EQC) for full day session on draft 2018 ROR
- Met with Indigenous community leaders
- Over 40 people in attendance each day



CNSC staff presenting information to the EQC members on September 4, 2019 in Prince Albert, SK. (Photo source: CNSC)



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Public Information

REGDOC-3.2.1, *Public Information and Disclosure* sets out guidance and requirements for licensees.

- Licensees continued communication with interested communities
- Licensees' websites updated for onsite events
- Licensees held workshops with the Athabasca collaboration agreement communities



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Independent Environmental Monitoring Program (IEMP)

- **McArthur River** – Completed 2014
- **Key Lake** – Completed 2014
- **McClellan Lake** – Completed 2016
- **Cigar Lake** – Planned for 2020
(2021 licence renewal)
- **Rabbit Lake** – Not scheduled



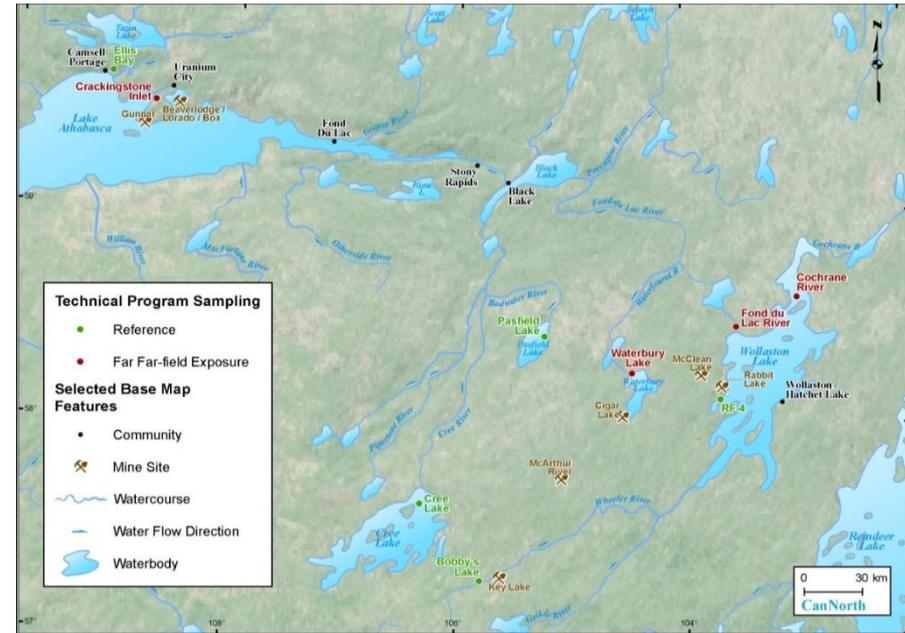
CNSC staff taking water samples. (Photo source: CNSC)



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Eastern Athabasca Regional Monitoring Program (EARMP) (1/2)

- EARMP monitors the safety of traditionally harvested country foods annually
- Designed to gather data on environment and cumulative impacts
- CNSC staff participate development of the EARMP
 - review of the sampling data and input into conclusions of the report



<http://www.earmp.ca/index.html>



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Eastern Athabasca Regional Monitoring Program (EARMP) (2/2)

- As part of the community program, samples were collected from September to December 2017
- All samples were collected independently by, or with, the aid of community members
- Specific objective of the 2017/2018 program were to fill in gaps from previous monitoring years

**2017/2018 EARMP concluded that consumption of
local water and traditional country foods is safe**



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URANIUM MINE AND MILL FACILITIES



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Uranium Mine and Mill Facilities

Cameco Corporation

- Cigar Lake Operation (mine)
- McArthur River Operation (mine)
- Rabbit Lake Operation (mine/mill)
- Key Lake Operation (mill)

Orano Canada Inc.

- McClean Lake Operation (mill)





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2018 Uranium Mine and Mill Regulatory Effort

Trend arrows indicate change from 2017 values

↑ = Increase ↓ = Decrease → = No change

	Cigar Lake		McArthur River		Rabbit Lake		Key Lake		McClellan Lake		Total	
Person days for compliance verification	252	↑	137	↓	182	↑	143	↓	245	↓	959	→
Person days for licensing	7	↓	42	↑	56	↑	4	↓	52	↓	161	↓
Number of inspections	6	→	5	↓	4	↓	5	↓	6	→	26	↓
Number of non-compliances	9	↑	5	↓	9	↑	5	↓	3	→	31	↑



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Cigar Lake Mine

- No licensing or LCH changes
- Ongoing high-grade ore production and shipment of ore to McClean Lake mill
- Improvements to mine water treatment
- Seven action level exceedances associated with radiation exposure due to two events



Cigar Lake Operation uranium mine, operated by Cameco Corporation, is located approximately 670 kilometres north of Saskatoon, Saskatchewan. (Photo source: Shaw Global)



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McArthur River Mine

- No licensing or LCH changes
- Indeterminately suspended operations in 2018
- Care and maintenance activities in place to ensure safety of workers, the public and protection of the environment



Cameco Corporation operates the McArthur River mine located approximately 625 kilometres north of Saskatoon, Saskatchewan.
(Photo source: Cameco)



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Rabbit Lake Mine and Mill

- No licensing or LCH changes
- Reclamation activities continue
- Care and maintenance activities in place to ensure the safety of workers, the public and protection of the environment



Cameco Corporation operates the Rabbit Lake mine and mill facility located 705 kilometres north of Saskatoon, Saskatchewan. (Photo source: CNSC)



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Key Lake Mill

- No licensing or LCH changes
- Indefinitely suspended operations in 2018
- Care and maintenance activities in place to ensure the safety of workers, the public and protection of the environment



Owned and operated by Cameco Corporation, Key Lake is located approximately 570 kilometres north of Saskatoon, Saskatchewan.
(Photo source: Cameco)



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McClean Lake Mine and Mill



- Licence amendment, July 2018
 - Changed name from AREVA Resources Canada Inc to Orano Canada Inc.
- No changes to the LCH
- Continued processing of uranium ore slurry received from Cameco's Cigar Lake mine
- JEB tailings management facility optimization stage 2 completed in summer of 2018



McClean Lake Operation, located approximately 705 kilometres north of Saskatoon, Saskatchewan, is operated by Orano Canada Inc. (Photo source: Orano)



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REGULATORY PERFORMANCE OF URANIUM MINES AND MILLS



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CNSC Regulatory Oversight Safety and Control Area Performance Ratings

- CNSC staff assess and evaluate licensee performance on applicable SCAs
- Performance is rated as:
 - Fully satisfactory
 - Satisfactory
 - Below expectations
 - Unacceptable
- Ratings derived from results of regulatory oversight activities



Safety and Control Areas (SCAs)

Management system
Human performance management
Operating performance
Safety analysis
Physical design
Fitness for service
Radiation protection
Conventional health and safety
Environmental protection
Emergency management and fire protection
Waste management
Security
Safeguards and non-proliferation
Packaging and transport



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CNSC Regulatory Oversight

SCA Performance Rating Methodology

- CNSC staff use expert judgement to rate performance based on multiple inputs, including:
 - key performance indicators
 - results of compliance verification activities
 - repeat of non-compliance and effectiveness of licensee actions
- Ratings represent a holistic summary of each SCA



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2018 Uranium Mines and Mills Performance Ratings

FS = Fully satisfactory
SA = Satisfactory
BE = Below expectations
UA = Unacceptable

- CNSC staff’s review of key performance indicators resulted in a rating of **“satisfactory”** for all operating mines and mills
- The McClean Lake radiation protection program was rated **“fully satisfactory”**

Safety and control area	Cigar Lake	McArthur River	Rabbit Lake	Key Lake	McClean Lake
Management system	SA	SA	SA	SA	SA
Human performance management	SA	SA	SA	SA	SA
Operating performance	SA	SA	SA	SA	SA
Safety analysis	SA	SA	SA	SA	SA
Physical design	SA	SA	SA	SA	SA
Fitness for service	SA	SA	SA	SA	SA
Radiation protection	SA	SA	SA	SA	FS
Conventional health and safety	SA	SA	SA	SA	SA
Environmental protection	SA	SA	SA	SA	SA
Emergency management and fire protection	SA	SA	SA	SA	SA
Waste management	SA	SA	SA	SA	SA
Security	SA	SA	SA	SA	SA
Safeguards	SA	SA	SA	SA	SA
Packaging and transport	SA	SA	SA	SA	SA



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Radiation Protection Performance

- Licensees' radiation programs and practices were effective in controlling radiological hazards
- As low as reasonably achievable (ALARA) initiatives provided enhanced radiation protection
- Action levels ensured detection of potential problems
- Radiation doses received by workers and the public were well below regulatory limits

CNSC staff's compliance verification activities verified radiation doses were kept ALARA



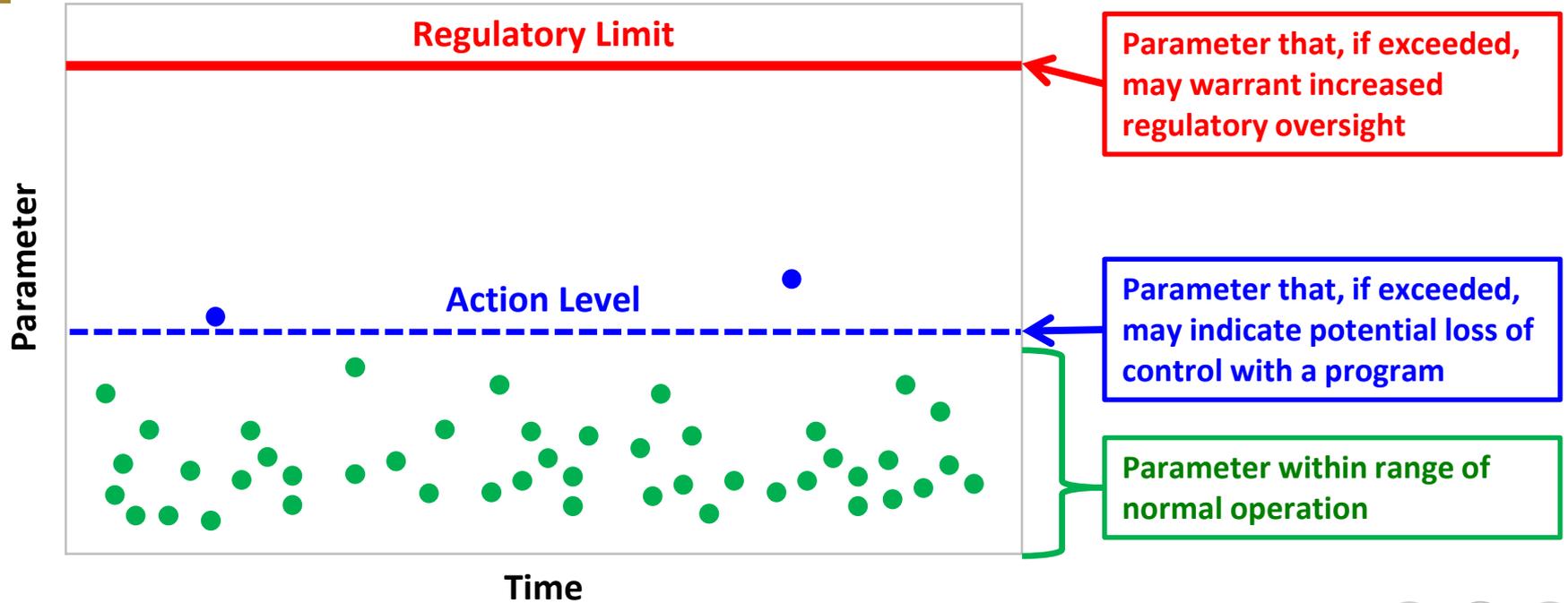
CNSC staff taking dose rate measurements at the McArthur River Operation. (Photo source: CNSC)



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CNSC Regulatory Oversight

Regulatory Limits and Action Levels





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Radiation Protection Performance **Action Level (1/3)**

Two action level exceedances at Cigar Lake:

1. Long lived radioactive dust exposure June and July 2018

- Underground employees were replacing medium pressure pumps
- Pre-cleaning included washing the area down to remove dust
- Residual clay was disturbed during the work
- Four workers exceeded the weekly action level of 1.0 mSv (1.17 mSv to 1.67 mSv)
- One worker exceeded the quarterly action level of 5.0 mSv (5.17 mSv)



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Radiation Protection Performance **Action Level (2/3)**

Two action level exceedances at Cigar Lake (cont'd.):

2. Radon progeny exposure November 2018

- Workers replacing the flush tube on jet boring system
- Workers failed to close a ball valve to isolate flush tube
- Worker positioned at opening of flush tube downwind of pipe opening
- One worker exceeded the weekly action level of 1.0 mSv (4.57 mSv) and the quarterly action level of 5.0 mSv (5.21 mSv)



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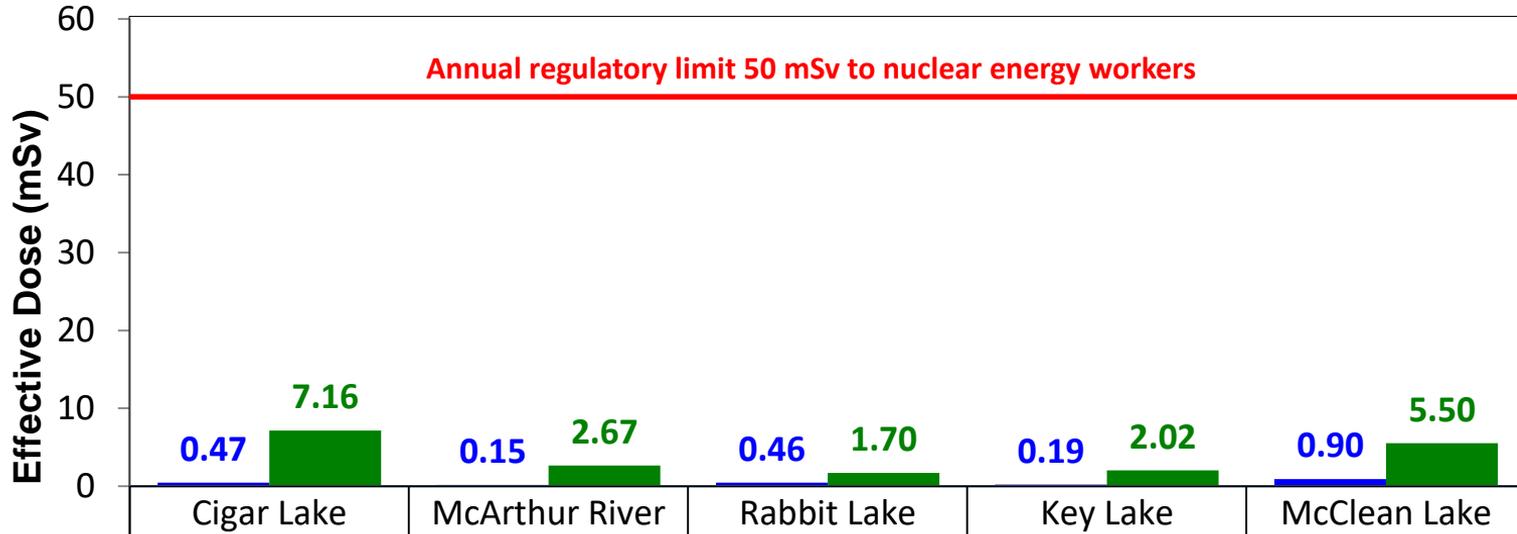
Radiation Protection Performance **Action Level (3/3)**

- In both events, the licensee conducted the necessary follow-up and made improvements to the radiation protection program
- CNSC conducted an inspection and verified that corrective actions were implemented, programs were improved and continue to be effective
- No regulatory limits were exceeded



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Radiation Protection Performance 2018 Effective Dose (mSv)



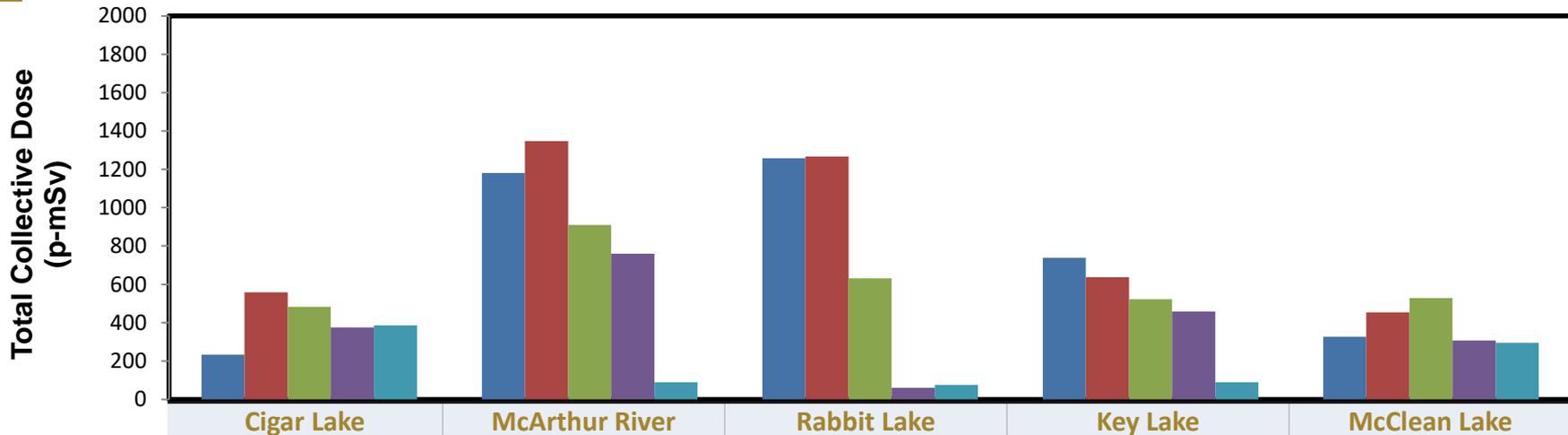
■ Average	0.47	0.15	0.46	0.19	0.90
■ Maximum	7.16	2.67	1.70	2.02	5.50



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Radiation Protection Performance

Total Collective Dose (p-mSv) – 5-Year Trend



	Cigar Lake	McArthur River	Rabbit Lake	Key Lake	McClean Lake
2014	233	1181	1257	738	327
2015	559	1347	1267	638	454
2016	483	909	631	522	529
2017	375	761	61	459	307
2018	386	89	76	89	296



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Environmental Protection Performance (1/4)

- Licensees required to implement environmental protection programs
- Action levels ensured early detection of potential problems

CNSC staff verified licensees' environmental protection programs continue to be effective



McArthur River – Treated water flow path.
(Photo source: CNSC)



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Environmental Protection Performance (2/4)

McArthur River - one action level exceedance for radium in treated effluent released from the environment, March 8, 2018

- Release average of radium (based on the average of 10 ponds) exceeded the administrative level of 0.30 Bq/L resulting in an action level exceedance
- Transition from operation to care and maintenance resulted in a change to process chemistry, affecting the onsite Ra-226 analysis
- Treatment methodology was modified and Ra-226 levels were returned to historic levels
- Regulatory limits were not exceeded



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Environmental Protection Performance (3/4)

Key Lake - one regulatory limit exceedance for pH in treated effluent released from reverse osmosis plant to the environment, October 12, 2018

- Reverse osmosis WTP had one pH exceedance
- pH above upper pH limit (9.5) in the *Metal and Diamond Mining Effluent Regulations*
- 10 m³ of high pH water (pH of 10.16) was released (average daily discharge for October was 14,860 m³/day)
- Investigation by licensee into elevated pH completed; follow-up of corrective actions completed by CNSC staff
- No environmental impact



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Environmental Protection Performance (4/4)

Key Lake - contaminated groundwater, reported in December 2018

- Elevated uranium detected in ground well MT-802
- No other wells show increasing trend
- Preliminary results show contamination to limited area of the well and under the SX building
- Licensee constructed and sampled more monitoring wells in the area
- Site assessment report and action plan expected early 2020

**No impact to the surrounding
environment**

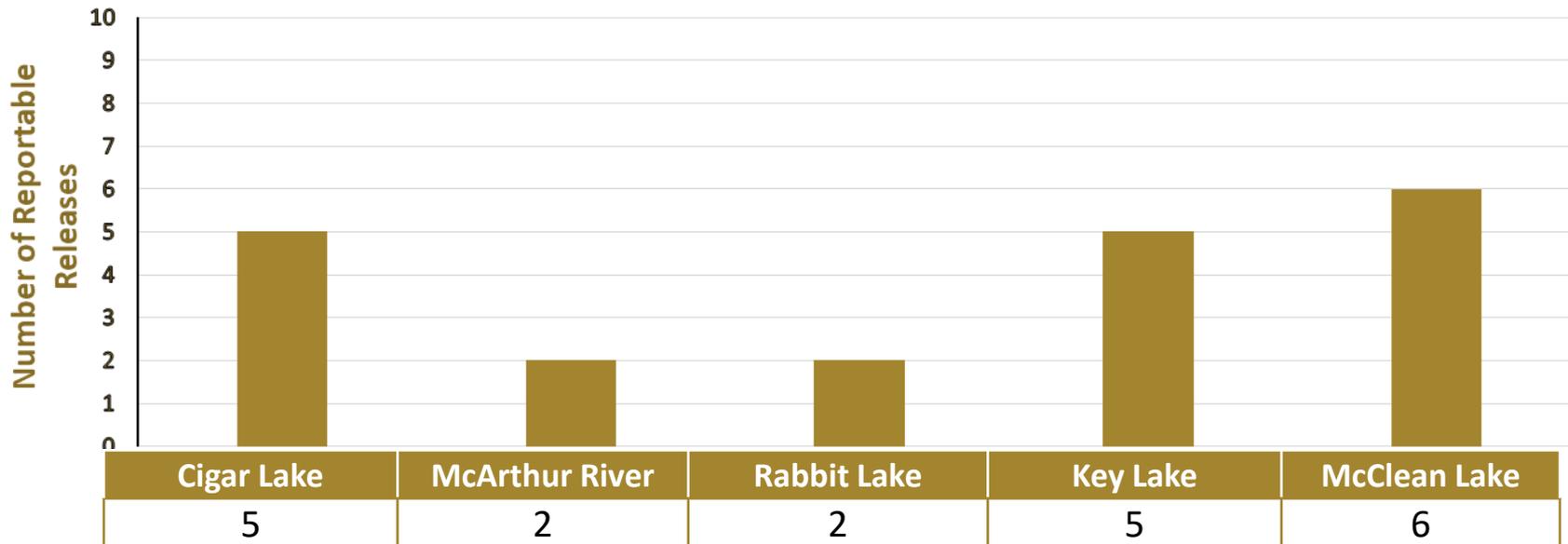


Groundwater monitoring well by solvent extraction (SX) building. (Photo source: CNSC)



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Environmental Protection Performance 2018 Reportable Releases



No residual impacts to the environment



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Environmental Protection Performance Selenium in Treated Effluent

	Cigar Lake (mg/L)	McArthur River (mg/L)	Rabbit Lake (mg/L)	Key Lake (mg/L)	McClellan Lake (mg/L)
2014	0.0009	0.0024	0.0042	0.0180	0.0007
2015	0.0038	0.0025	0.0042	0.0180	0.0092
2016	0.0062	0.0037	0.0035	0.0170	0.0210
2017	0.0042	0.0036	0.0024	0.0150	0.0110
2018	0.0044	0.0023	0.0026	0.0100	0.0210

Provincial licence effluent discharge limit is 0.6 mg/L



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Environmental Protection Performance

Molybdenum in Treated Effluent

	Cigar Lake (mg/L)	McArthur River (mg/L)	Rabbit Lake (mg/L)	Key Lake (mg/L)	McClellan Lake (mg/L)
2014	0.0303	0.1865	0.2820	0.1600	0.0024
2015	0.1662	0.1458	0.2680	0.1000	0.0024
2016	0.0369	0.1851	0.2730	0.0800	0.0020
2017	0.0640	0.1460	0.1390	0.1200	0.0040
2018	0.0103	0.0164	0.1800	0.0700	0.0030

Key Lake effluent discharge action level is 0.6 mg/L



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Environmental Protection Performance Uranium in Treated Effluent

	Cigar Lake (mg/L)	McArthur River (mg/L)	Rabbit Lake (mg/L)	Key Lake (mg/L)	McClean Lake (mg/L)
2014	0.0193	0.0095	0.0460	0.0060	0.0018
2015	0.1310	0.0089	0.0520	0.0080	0.0042
2016	0.0063	0.0055	0.0730	0.0060	0.0040
2017	0.0018	0.0056	0.0700	0.0110	0.0040
2018	0.0005	0.0071	0.0320	0.0130	0.0070

Provincial discharge limit is 2.5 mg/L
CNSC interim objective is 0.1 mg/L



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Environmental Protection Performance

Radium in Treated Effluent

	Cigar Lake (Bq/L)	McArthur River (Bq/L)	Rabbit Lake (Bq/L)	Key Lake (Bq/L)	McClellan Lake (Bq/L)
2014	0.008	0.058	0.010	0.050	0.007
2015	0.010	0.065	0.007	0.070	0.006
2016	0.007	0.082	0.007	0.050	0.006
2017	0.007	0.061	0.007	0.070	0.006
2018	0.006	0.079	0.006	0.070	0.006

Provincial and federal discharge limit is 0.37 Bq/L



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Environmental Protection Performance 2018 Radionuclides in Ambient Air (High-Volume Air Samples)

Radionuclides in Ambient Air at Uranium Mines And Mills in 2018

Parameter	Reference annual air quality levels	Cigar Lake	McArthur River	Rabbit Lake	Key Lake	McClellan Lake
Pb ²¹⁰ (Bq/m ³)	0.021 ¹	0.00037	0.0003	0.000015	0.0002	0.000253
Ra ²²⁶ (Bq/m ³)	0.013 ¹	0.000026	0.00001	0.0000002	0.0001	0.000022
Th ²³⁰ (Bq/m ³)	0.0085 ¹	0.000018	0.00001	0.0000003	0.0001	0.000004
U (µg/m ³)	0.06 ²	0.00103	0.0001	0.000277	0.0012	0.001654

¹ Reference dose levels were derived using an annual dose to a member of the public of 1 mSv per year

² Reference annual air quality levels derived from Ontario 24-hour *Ambient Air Quality Criteria* (OMOE 2012)

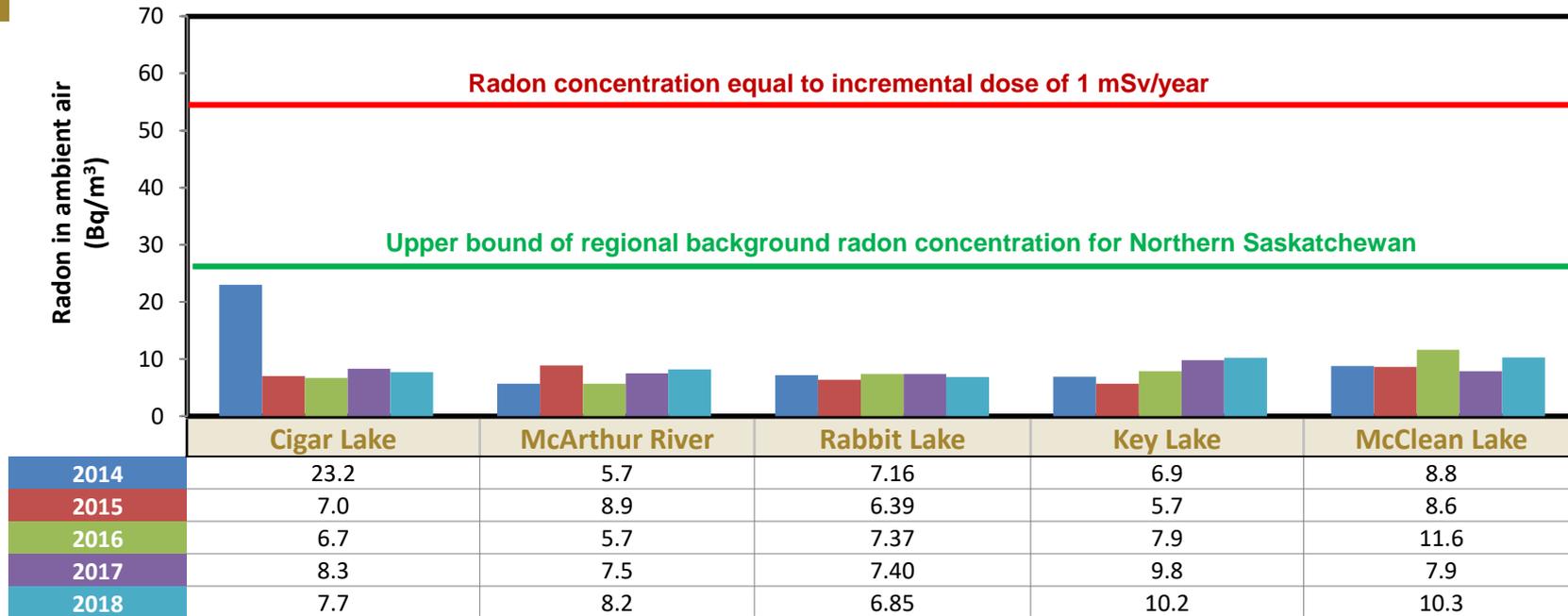
Concentrations were well below reference levels



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Environmental Protection Performance Radon in Ambient Air - 5-Year Trend





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Conventional Health and Safety Performance Lost-Time Injuries (LTIs) and Total Recordable Incident Frequency (TRIF)

Total number of LTI statistics	Cigar Lake	McArthur River	Rabbit Lake	Key Lake	McClellan Lake
Number of LTIs	0	0	0	0	1
LTI Severity rate	0	23.2*	0	0	4.8
LTI Frequency rate	0	0	0	0	0.3
Total Recordable Incident Frequency (TRIF)	1.0	5.02	5.03	2.59	0.75

*Severity impacted from LTIs in previous years

Severity rate: Total days lost to injury/200,000 person-hours worked

Frequency rate: Number of LTIs/200,000 person-hours worked

TRIF: Fatalities, lost-time injuries, and other injuries requiring medical treatment/ 200,000 person-hours worked

CNSC staff confirmed licensees provided effective oversight of health and safety



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INTERVENTIONS



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Interventions

Participant Funding Program (PFP) and Interventions

Total of nine interventions received

PFP recipients	Other intervenors
Christie Simon (CELA)	Saskatchewan Mining Association
English River First Nation	Northern Saskatchewan Environmental Quality Committee
Prince Albert Grand Council	Canadian Nuclear Association
Ya'thi Néné Land and Resource Office	Canadian Nuclear Workers' Council
	Athabasca Joint Engagement and Environmental Subcommittee



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Key Themes in Interventions – Positive Comments

- Satisfied with licensee performance
- Industry well regulated
- Support for the annual assessment process
- Improvements noted in engagement activities



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Key Themes in Interventions – Recommendations

- Continued improvements in communication
 - Improve engagement with Indigenous groups
 - Improve communication by licensees
- Notification of significant events
- Increased time to review the ROR



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CONCLUSIONS



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Conclusions

CNSC staff confirmed that in 2018, all uranium mine and mill facilities had:

- Satisfactory performance
- Comprehensive radiation protection programs that adequately control radiation exposures, keeping doses ALARA
- Effective programs to protect the environment
- Effective health and safety programs to protect workers



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2019 Regulatory Focus

CNSC staff continue to:

- Use a risk-informed approach to ensure regulatory oversight
- Enhance cooperation with provincial agencies
- Meet commitments for meaningful outreach and engagement with Indigenous groups and the public

**Regulating the nuclear industry in a manner
that maintains public trust and confidence**



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ANNEX 1

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INTERVENTION COMMENTS



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Interventions

Concerns or recommendations from the following interventions are addressed:

- CMD 19-M36.2 – Prince Albert Grand Council
- CMD 19-M36.5 – Canadian Nuclear Workers Council
- CMD 19-M36.6 – Ya'thi Néné Land and Resource Office
- CMD 19-M36.7 – English River First Nation
- CMD 19-M36.8 – Canadian Environmental Law Association



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Interventions

CMD 19-M36.2 - Prince Albert Grand Council (1/3)

Comment	CNSC Disposition
Report Content and Reader Friendly Issues	CNSC is committed to providing translation of its Commission proceedings, meetings with communities and reports/documentation in Indigenous languages upon request. The CNSC ensures that its activities and processes are consistent with all relevant legislation and statutes. As well, when Indigenous groups provide PFP applications to CNSC, they can include costs of translation into the language of their choice, including translation of any documentation or of meetings with the CNSC, where appropriate.
Communication Between CNSC Staff and First Nations Communities	CNSC staff are committed to building meaningful relationships by engaging with Indigenous communities through ongoing engagement and outreach activities. In September 2019, CNSC staff coordinated an engagement session for all interested Indigenous communities in northern Saskatchewan in Prince Albert to discuss the ROR and its content. CNSC staff understand that geographical distances are an issue for Indigenous communities in Saskatchewan, and we are dedicated to ensuring that Indigenous communities are provided with opportunities to meet in person or via teleconference with CNSC staff. This includes support for travel to meetings and engagement activities through the CNSC's PFP.
Participant Funding Needs to be Increased	CNSC staff are dedicated to pursue ongoing collaboration with interested Indigenous communities and organizations. The CNSC's Participant Funding Program (PFP) was established to help support the participation of eligible recipients, including Indigenous groups and organizations, in CNSC regulatory processes. The CNSC ensures that reasonable funding is made available in relation to all of its public Commission proceeding processes, however, the PFP is not meant to cover all expenses related to participation and engagement in CNSC processes. CNSC staff are always looking for ways to improve the program and encourage PAGC and their member Nations to continue to share feedback on how the program can better meet the needs of eligible recipients.



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Interventions

CMD 19-M36.2 - Prince Albert Grand Council (2/3)

Comment	CNSC Disposition
Traditional Ecological Knowledge and Mining Industry	<p>The CNSC acknowledges the importance of working with and integrating Indigenous Knowledge (IK) alongside western scientific and regulatory information in its assessments and regulatory processes, where appropriate and when authorized by Indigenous communities. Indigenous ways of knowing and cultural context enhance the CNSC’s understanding of potential impacts of projects and strengthens the rigour of project reviews and regulatory oversight. The CNSC values Indigenous Knowledge.</p> <p>The CNSC works to integrate IK information, when provided, into a number of areas of its regulatory work, where appropriate.</p> <p>CNSC staff encourages uranium mine and mill operators to continue integrating, collecting and protecting IK throughout the life-cycle of their facilities, when provided by the Indigenous communities they work with in relation to their operations and projects.</p>
Independent Monitoring Quality Assurance	<p>Independent monitoring is conducted by authorized and certified contractors and laboratory services. The CNSC does not hire employees used by the contractors to conduct field sampling.</p>
Uranium Mining Spill and Leakages	<p>Details on all spills discussed in the ROR are included in Appendix I, Table I.1, including volumes reported and standard CNSC Safety Significance definitions are included in Table I.2. The number of uncontrolled releases for the 5-year trend are included on page 33, Figure 2.12, in the ROR.</p>



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Interventions

CMD 19-M36.2 - Prince Albert Grand Council (3/3)

Comment	CNSC Disposition
Independent Monitoring of Human Health	The CNSC continues to study the long term health effects of past, present and future Saskatchewan uranium workers. Results are widely communicated (i.e., radio interviews, Opportunity North, mine visits, NSEQC, CNSC website). The CNSC, Saskatchewan government, and the uranium industry recently initiated the Canadian Uranium Workers Study (CANUWS). It will update past studies and include recent workers. The study's working group will include uranium workers and representatives from interested indigenous communities. CNSC staff are organizing the first study working group meeting for early 2020.
Employment in Decommissioned and Remediation Sites	Outside the scope of the ROR.



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Interventions

CMD 19-M36.5 - Canadian Nuclear Workers Council

Comment	CNSC Disposition
More consideration for a rating of Fully Satisfactory for Worker Health and Safety	CNSC staff use expert professional judgment to rate safety and control area (SCA) performance at uranium mine and mill facilities. Ratings are based on the review of key performance indicators [e.g., accident/event occurrences, responses to accidents/events, desktop review of reports, dose information, environmental (radiological and non-radiological) results] and the results of compliance verification activities such as inspections and technical assessments.



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Interventions

CMD 19-M36.6 - Ya'thi Néné Land and Resource Office

Comment	CNSC Disposition
Provide more than a 30-day period for the review of the ROR document.	CNSC staff are looking for ways to proactively engage with interested communities and organizations. For instance, in September 2019, CNSC staff coordinated an engagement session for all interested Indigenous communities from northern Saskatchewan in Prince Albert to discuss the ROR and its content. Ongoing collaboration throughout the lifecycle of UMM facilities with interested Indigenous communities is a priority for CNSC.
Licensed facilities implement a reporting procedure for alerting local leadership to any incident classified as 'Medium' or 'High' through email.	The public information and disclosure protocol is a Licence requirement for uranium mines and mills. The licensee builds a communications and disclosure program that is tailored to suit its audiences. CNSC staff review the licensee's program annually to ensure it is meeting requirements set out in REGDOC 3.2.1 Public Information and Disclosure through documentation review. I would ask the licensee to discuss how they communicate specifically with the Ya'thi Néné Executive Director to ensure they are getting the information in a timely and meaningful way.
Add Community Comprehension as the fifteenth Safety and Control Area.	The public information program is a formal program that the licensee puts in place to ensure that facility information is being communicated to the public. One of the key elements of the program is the disclosure protocol, which provides specific criteria for when and how information will be disclosed to the public (e.g. info of public interest, events and major changes in operation).PIDPs are reported on annually by the licensee and reviewed by the CNSC.



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Interventions

CMD 19-M36.7 - English River First Nation (1/5)

Comment	CNSC Disposition
Continue to increase communications and involve local leadership in more engagement.	CNSC staff are committed to building trust with Indigenous communities. CNSC staff continue to provide transparent and timely responses to questions and concerns raised by Indigenous communities. CNSC staff are committed to ongoing consultation and engagement with ERFN and working together to enhance our collaboration and communications.



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Interventions

CMD 19-M36.7 - English River First Nation (2/5)

Comment	CNSC Disposition
<p>Improve framework to provide for Free, Prior and Informed Consent (FPIC) including for work change authorizations at times other than for licensing decisions.</p>	<p>Relicensing hearings provide an opportunity for review and consideration of any changes by Indigenous Communities. For example, the anticipated deviation from predictions made in the approved EA for the McClean Lake Operation were assessed as part of the 2017 relicensing hearing where CNSC staff conducted an EA under the NSCA (termed an Environmental Protection Report) which was included in the relicensing hearing documentation. The Commission Hearing provided an opportunity for Indigenous Communities to apply for Participant Funding for review the documentation and to intervene in the hearing.</p> <p>In between licence hearings, when concentrations of contaminants deviate from predictions, Licensees reassess the risk by updating their ERA. If the risk is unreasonable, and has the potential to cause effects that were not predicted in previously approved Environmental Assessments, CNSC ask the Licensee to propose additional mitigation measures.</p> <p>CNSC and the licensees update First Nations on the uranium mine and mill sites in regular community meetings, and updates or changes to ERAs would be included in the presentation/discussion.</p> <p>CNSC Staff is committed to working with ERFN to establish consultation and engagement processes that addresses their concerns meaningfully throughout the life-cycle of CNSC regulated facilities and activities of interest. As a life-cycle regulator the CNSC can build and maintain positive long-term relationships with Indigenous groups based on recognition of rights, respect, co-operation and partnership. CNSC is committed to working to address any issues/concerns as they arise throughout the life-cycle of a facility.</p>



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Interventions

CMD 19-M36.7 - English River First Nation (3/5)

Comment	CNSC Disposition
<p>Operation and ultimate closure of the Key Lake Operations, due to the long-term (1000s of year) management of tailings and linkages to Wheeler River system that is an area of heightened value.</p>	<p>The Wheeler River remains protected, as concentrations of contaminants are within background levels. The original Environmental Assessments for uranium mines and mills predicted localized impacts during operation of the McArthur Rive Mine and Key Lake Mine and Mill. Localized impacts, confined to the areas within the lease boundaries and in the near-field areas, are greatest while the mines and mills are in operation. Upon decommissioning, when effluent is no longer discharged, the impacts will be progressively less as time goes on. Environmental Assessments and Environmental Risk Assessments are used to predict future impacts once the site is decommissioned. The goal of Decommissioning Plans is to ensure that human health and the environment are protected into the future.</p> <p>Monitoring and management of the tailings facilities at the operation are ongoing. Once operations cease, decommissioning activities will be conducted and once decommissioning is completed there will be a period of post decommissioning monitoring to demonstrate that the site remains safe and stable in the long term. Monitoring will be required while under CNSC licence or within the Saskatchewan’s Institutional Control Program (ICP), if the site enters into the ICP.</p>



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Interventions

CMD 19-M36.7 - English River First Nation (4/5)

Comment	CNSC Disposition
<p>Concern regarding the uncontrolled spill to the groundwater at Key Lake and the overall lack of confirmatory information within the 2018 ROR</p>	<p>The initial investigation conducted by Cameco concluded that the concrete in a sump area within the molybdenum extraction building was degraded allowing water to seep through the concrete floor into the ground. The sumps in the molybdenum extraction building were cleaned and pumped dry and will remain dry until the repairs and inspection are completed. Additionally, Cameco has developed an environmental site assessment plan in accordance to the Saskatchewan Environmental Code to address the discharge. This assessment is being conducted in accordance the Saskatchewan Environmental Code and CSA Standard Z769-00 – <i>Phase II Environmental Site Assessment</i>, however the assessment report is not expected to be completed until early 2020. This report will provide a comprehensive compilation of information and will be reviewed by CNSC staff for its adequacy.</p> <p>Considering that the groundwater flow rate is slow, and there are other monitoring wells downstream of the molybdenum extraction building, it is CNSC staff’s opinion that the environmental site assessment implemented by Cameco is adequate.</p>



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Interventions

CMD 19-M36.7 - English River First Nation (5/5)

Comment	CNSC Disposition
Concern regarding the lack of information regarding the information provided to define the risks associated with arsenic in Seru Bay.	At Cigar Lake, a new Environmental Assessment was conducted to support moving the effluent discharge point from Aline Lake, which discharges to Seru Bay, to being directly released into Seru Bay was reviewed and accepted by CNSC staff. New predictions of contaminants levels in Seru Bay were made in the new EA and formed the new compliance basis for the operation.
Concern regarding the lack of information regarding the information provided to define the risks associated with selenium in the East Basin of McClean Lake.	The anticipated deviation from predictions made in the approved EA for the McClean Lake Operation were assessed as part of the 2017 relicensing hearing. The Commission Hearing provided an opportunity for Indigenous Communities to intervene in the hearing. CNSC and the licensees update First Nations on the uranium mine and mill sites in regular community meetings, and updates or changes to ERAs would be included in the presentation/discussion.



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Interventions

CMD 19-M36.8 - Canadian Environmental Law Association (1/3)

Comment	CNSC Disposition
<p>A call-for-comments on a draft of the ROR should be sought prior to the text being finalized for review by the Commission.</p>	<p>The public has 30 days to review and submit comments on the draft ROR, in the form of interventions, before it goes before the Commission.</p>
<p>The Commission should recognize the importance of the public in environmental decision-making and immediately require all PDPs and other licensing documents to be made publicly available.</p>	<p>Licensees submit Preliminary Decommissioning Plans to CNSC for review. These documents are considered proprietary and confidential by the Licensee when submitted and are controlled for public release in accordance with CNSC policies on Classified and Protected information.</p>
<p>The Commission should not permit widespread non-compliance with CNSC RegDocs and at its ROR meeting, clearly set out why this occurs and confirm the basis upon which it fulfills its authority under the <i>Nuclear Safety and Control Act</i> in overseeing nuclear licensees.</p>	<p>CNSC staff understand these comments to be related to Section 1.2.2 of the ROR, specifically Table 1.1. As stated in the ROR, Section 1.2.2, paragraph 1, “CNSC staff continue to modernize the regulatory framework with the REGDOC series of regulatory and guidance documents. The licensees continue to be in compliance with the regulatory documents, or applicable standards, identified in their licence conditions handbooks during the transition process. The licensees are on track for meeting all deadlines established. CNSC staff continue to monitor progress through regular licensing meetings.”</p> <p>CNSC staff environmental and health specialists confirm that the Environmental Protection SCA is “satisfactory” for all uranium mines and mills.</p>



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Interventions

CMD 19-M36.8 - Canadian Environmental Law Association (2/3)

Comment	CNSC Disposition
<p>The rating for all sites for Environmental Protection should be changed from “satisfactory” to “below expectations” as Regulatory Documents specific to environment, human and health, waste management and emergency planning standards have not yet been adopted and implemented by licensees.</p>	<p>CNSC staff have reviewed the environmental management systems, the effluent and emissions control programs, the implementation and results of the environmental monitoring and assessment programs, the environmental risk assessments and the protection of the public from exposures to radiological and hazardous substances for all operating uranium mines and mills and found these satisfactory.</p> <p>If any of these programs were not being appropriately or rigorously conducted by the licensees, or the results of the monitoring programs and environmental risk assessments were not acceptable, CNSC staff would rate the Environmental Protection SCA “Below Expectations”. This was not the case for the implementation of the Environmental Protection SCA in 2018 for any of the operating uranium mines and mills.</p>
<p>Include radionuclides in the NPRI database.</p>	<p>Radionuclides are not part of the NPRI. Proposed changes to the NPRI must be made through Environment and Climate Change Canada (ECCC).</p> <p>The CNSC includes data on the total annual release of radionuclides in Regulatory Oversight Reports. In addition, the CNSC and ECCC are working together to establish linkages between the CNSC and NPRI web sites. A radionuclide stakeholder sub-group has been identified to participate in the beta testing of CNSC-NPRI linkages before the linkages are finalized. The CNSC has also commenced the creation of downloadable digital databases of radionuclide releases further supplementing the range of CNSC environmental data products linked to the NPRI website.</p>



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Interventions

CMD 19-M36.8 - Canadian Environmental Law Association (3/3)

Comment	CNSC Disposition
Respond to the federal Environment Commission which found widespread, incomplete compliance reporting among Canada’s mining industry.	The five uranium mines and mills continue to successfully manage all chemicals and wastes throughout their lifecycle. Compliance reporting for the mines and mills is complete and rigorous. This is confirmed by CNSC staff through inspections, reviews of environmental management systems and environmental monitoring programs, decommissioning plans and progressive decommissioning.
The Commission should state how it seeks to meet the UN’s Sustainable Development Goals.	Waste minimization is one of the basic principles underlying the CNSC’s oversight of radioactive waste management, as outlined in REGDOC 2.11. This requirement is also captured in CSA N292.0, <i>General principles for the management of radioactive waste and irradiated fuel</i> and captures the minimization of the waste generated, as well as any reuse and recycling of the waste. The ROR provides information on licensee performance and the CNSC’s compliance activities; it does not provide information about the CNSC’s regulatory framework or the GoC’s policies.
Contingency and climate planning should assess radon monitoring needs in order to safeguard public health and the environment.	Radon monitoring takes place at the five operations discussed in this report. Each site has a specific section related to air monitoring including radon, metals and nuclides in air.
For all follow-up actions referenced in the ROR, the originating direction should be cited for ease of reference.	Specific information related to events and inspections including following up may be provided upon request following CNSC protocols with respect to release of Confidential and Protected information.



ANNEX 2

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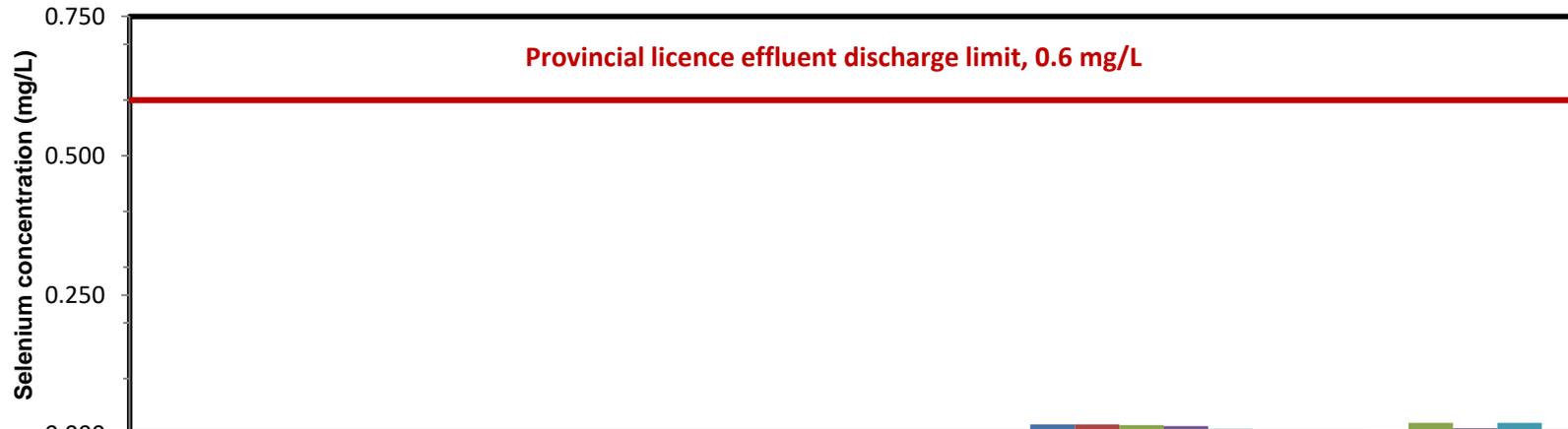
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ADDITIONAL INFORMATION



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Environmental Protection Performance Selenium in Treated Effluent

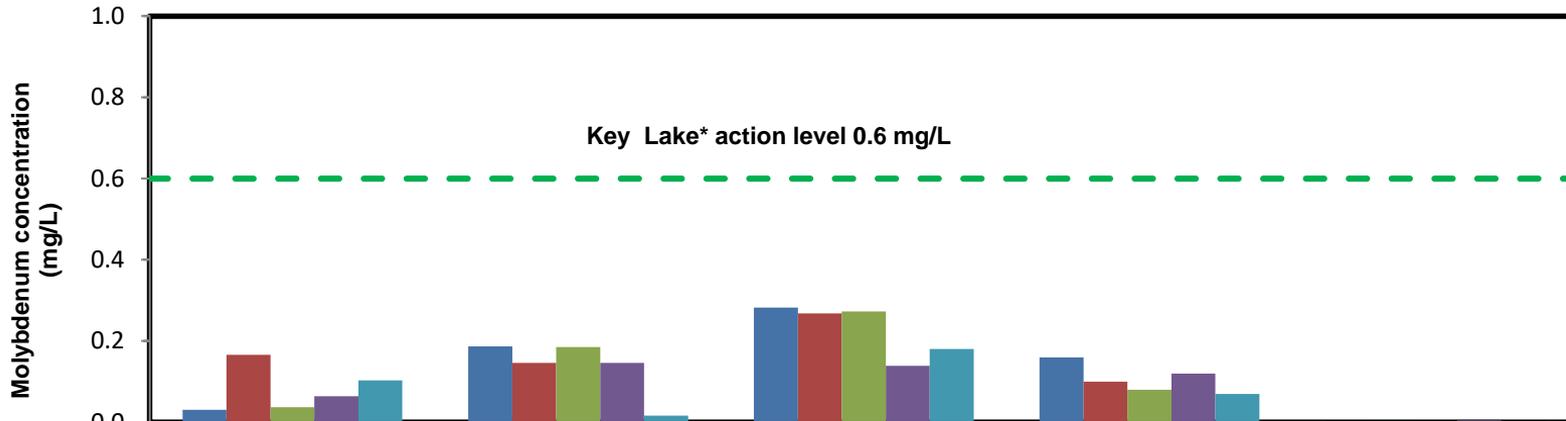


	Cigar Lake	McArthur River	Rabbit Lake	Key Lake	McClean Lake
2014	0.0009	0.0024	0.0042	0.0180	0.0007
2015	0.0038	0.0025	0.0042	0.0180	0.0092
2016	0.0062	0.0037	0.0035	0.0170	0.0210
2017	0.0042	0.0036	0.0024	0.0150	0.0110
2018	0.0044	0.0023	0.0026	0.0100	0.0210



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Environmental Protection Performance Molybdenum in Treated Effluent

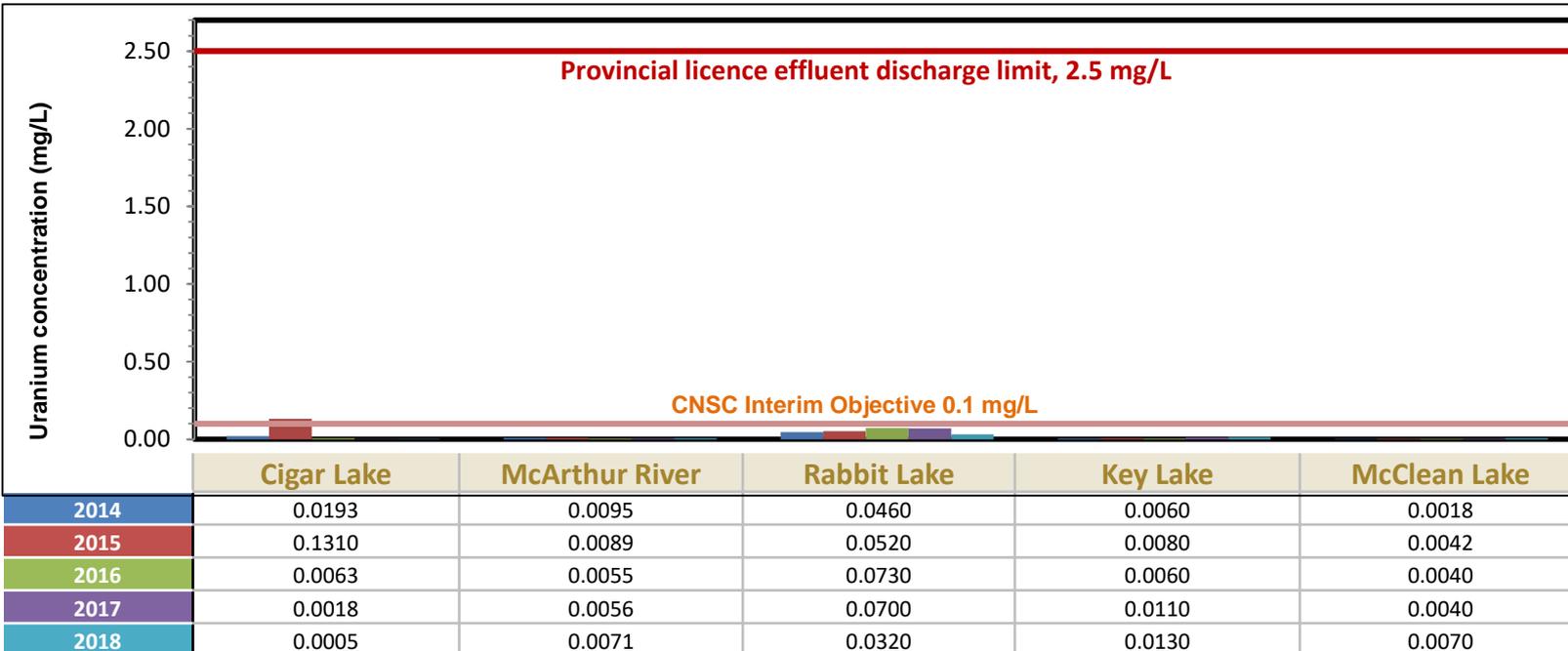


	Cigar Lake	McArthur River	Rabbit Lake	Key Lake	McClean Lake
2014	0.0303	0.1865	0.2820	0.1600	0.0024
2015	0.1662	0.1458	0.2680	0.1000	0.0024
2016	0.0369	0.1851	0.2730	0.0800	0.0020
2017	0.0640	0.1460	0.1390	0.1200	0.0040
2018	0.0103	0.0164	0.1800	0.0700	0.0030



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Environmental Protection Performance Uranium in Treated Effluent





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Environmental Protection Performance Radium-226 in Treated Effluent

