



Supplementary Information

Presentation from Cameco Fuel Manufacturing Inc.

In the Matter of the

Cameco Fuel Manufacturing Inc.

Application to Renew the Class IB Nuclear
Fuel Facility Licence for Cameco Fuel
Manufacturing Inc. in Port Hope, Ontario

Commission Public Hearing

November 23, 2022

Renseignements supplémentaires

Présentation de Cameco Fuel Manufacturing Inc.

À l'égard de

Cameco Fuel Manufacturing Inc.

Demande de renouvellement du permis
d'exploitation de l'installation de combustible
nucléaire de catégorie IB pour Cameco Fuel
Manufacturing Inc. à Port Hope (Ontario)

Audience publique de la Commission

23 novembre 2022



Energizing a clean-air world

CNSC Licence Renewal Hearing Cameco Fuel Manufacturing

November 23, 2022

CMD 22-H-12.1B

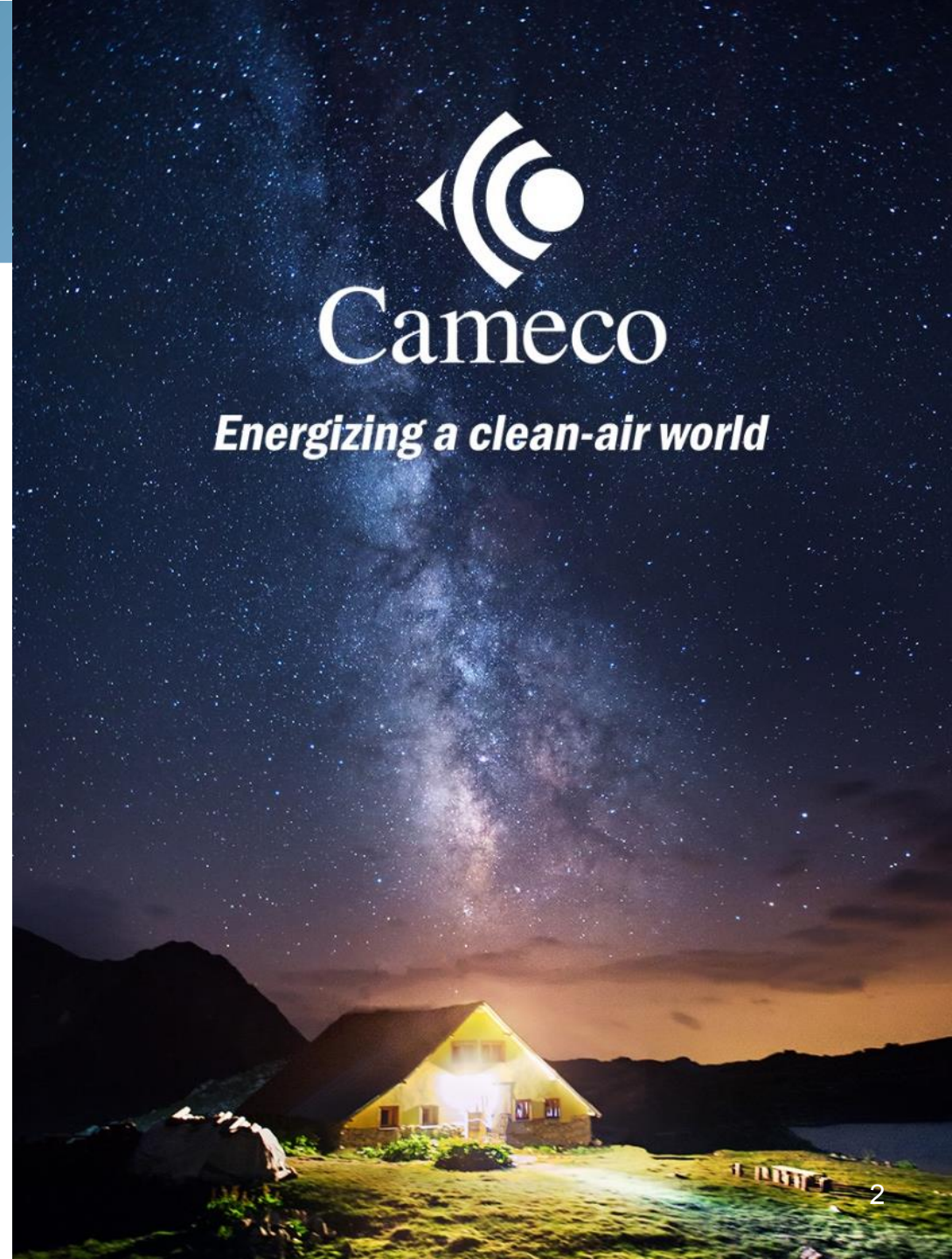


Vision and Values

- Our Vision is aligned with the world's growing need for carbon-free energy
- Our Values
 - Safety and Environment
 - People
 - Integrity
 - Excellence



Energizing a clean-air world



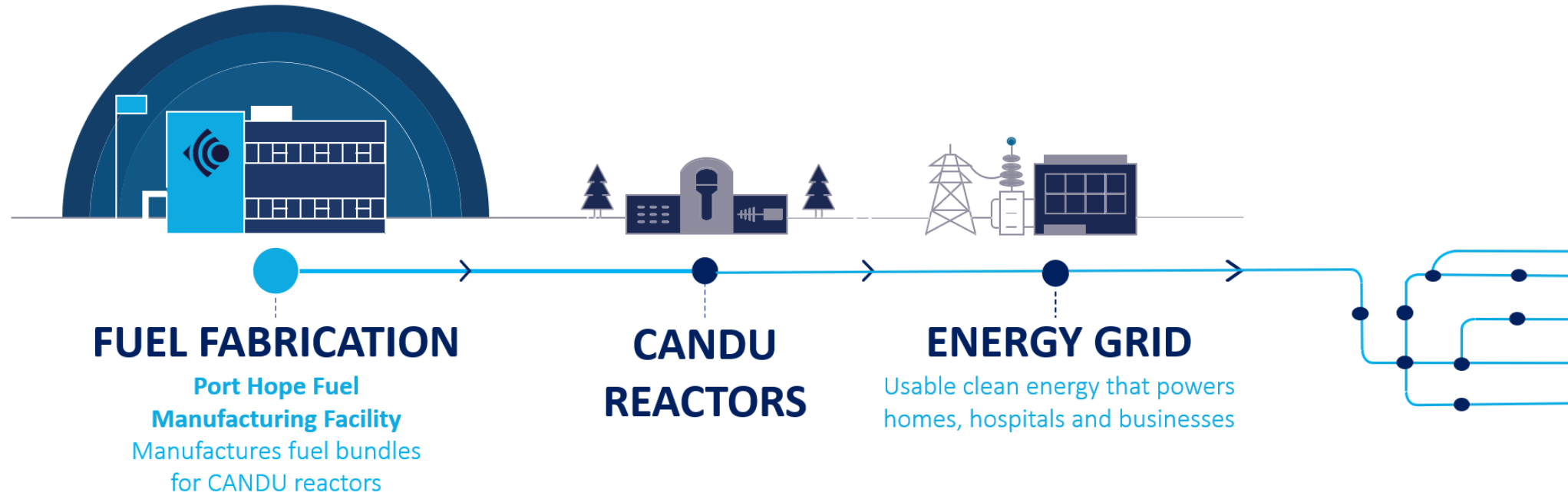
Cameco Fuel Manufacturing



Located in
Port Hope

Natural uranium dioxide (UO_2) powder is pressed into pellets, fitted into zirconium tubes and then assembled into CANDU reactor fuel bundles

Cameco Fuel Manufacturing



Cameco Fuel Manufacturing



CFM's highest priorities are the protection of people and the environment as demonstrated by our strong performance and achievements



As concerns about climate change continue to grow, demand for zero-emission sources of electricity, like nuclear, continue to increase. CFM is here to play a stable and continued role in energizing a clean air world

Licence Renewal Request

What is the same?

No new activities being requested

No changes to existing production lines/equipment

Reporting requirements remain the same

Release limits and action levels remain the same

What is different?

Renewal for a 20-year term

Increase the amount of UO_2 that may be processed in a single year

Successful Licence Term

Safety

Strong occupational safety performance

Over 7 years without a Lost Time Injury at the site

Implemented requirements of more than 20 CSA standards and CNSC REGDOCS

Radiation Protection

Annual employee doses are a small fraction of regulatory dose limits

Average Whole-Body Dose for all NEWs was below the public dose limit of 1 mSv per year (~ 0.5 mSv per year)

Average Total Effective Dose for all NEWs has been steady at 1 mSv per year

Environmental Performance

Upgraded manufacturing equipment and emissions control systems

Implemented new environmental regulatory requirements from standards and REGDOCS

Maintained total uranium emissions to air and water well below regulatory limits

Legacy Waste Reduction

Waste outlets determined for all legacy and processing wastes

Several large waste disposal campaigns completed

Successful Licence Term

Manufacturing Improvements

Improvements to employee safety facilitated by automation and improved workplace design

Emissions reductions through re-engineered processes and implementation of new technology

Improved quality and reliability of product to the nuclear industry

Pandemic Response

The safety of workers, their families and the community remained Cameco's top priority

Quickly implemented and constantly updated protocols

Continued operations throughout, ensuring that electricity generation was not affected

Medical Isotopes

Direct supplier of Cobalt-60 adjuster sets to the industry; key in the sterilization of single use medical devices

Participated in the supply chain to enable production of Lu-177 for use in cancer treatment

Ongoing participation with the Canadian Nuclear Isotope Council

Community Support

Community support over the 10-year term has consistently been 84% and higher

2022 polling – 93% of residents support the continuation of Cameco's operations

Safety



Safety is the paramount consideration guiding decisions and actions

Committed to safe operations and strive to continually improve performance

Safety is the paramount consideration guiding decisions and actions:

- Safety is our first priority
- We are all accountable for safety
- Safety is part of everything that we do
- Safety leadership is critical to Cameco Corporation
- We are a learning organization

Committed to safe operations and strive to continually improve performance:

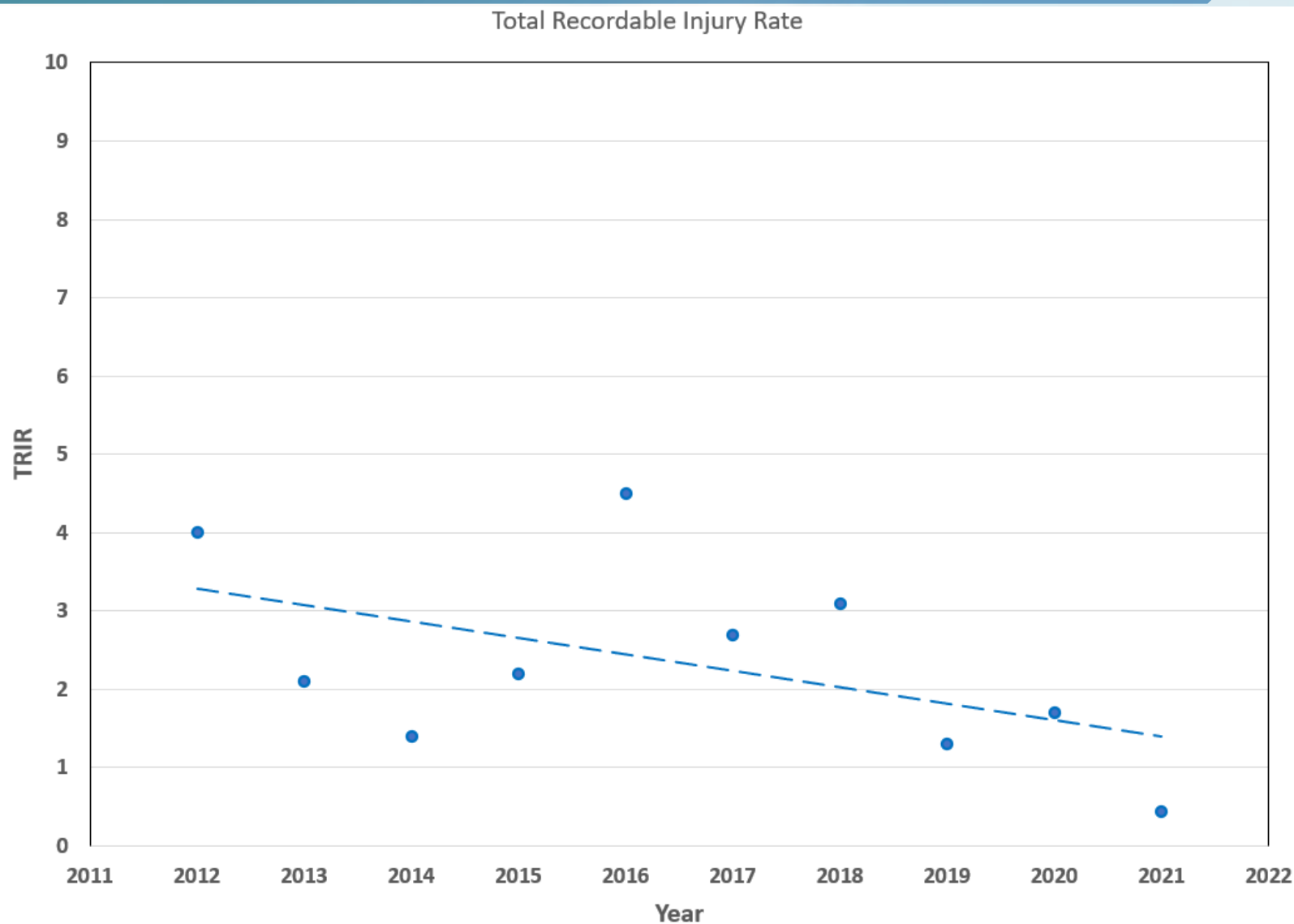
- Maintained satisfactory rating across all 14 Safety and Control Areas
- No lost time injuries at the site since 2015
- Employee dose rates well below regulatory limits, while continually improving measurement methods
- Continual improvement of training program
- Uranium emissions well-below regulatory limits
- Safe operations during the pandemic

Safety

Total Recordable Injury Rate (TRIR)



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Radiation Protection



Extensive and mature
Radiation Protection
Program satisfies
requirements



Radiation exposures
controlled through:

- Engineering Controls
- Administrative Controls
- Training
- Zone Controls
- PPE



Comprehensive
monitoring of workers
and their work areas

Committed to keeping radiation doses As Low As Reasonably Achievable (ALARA)

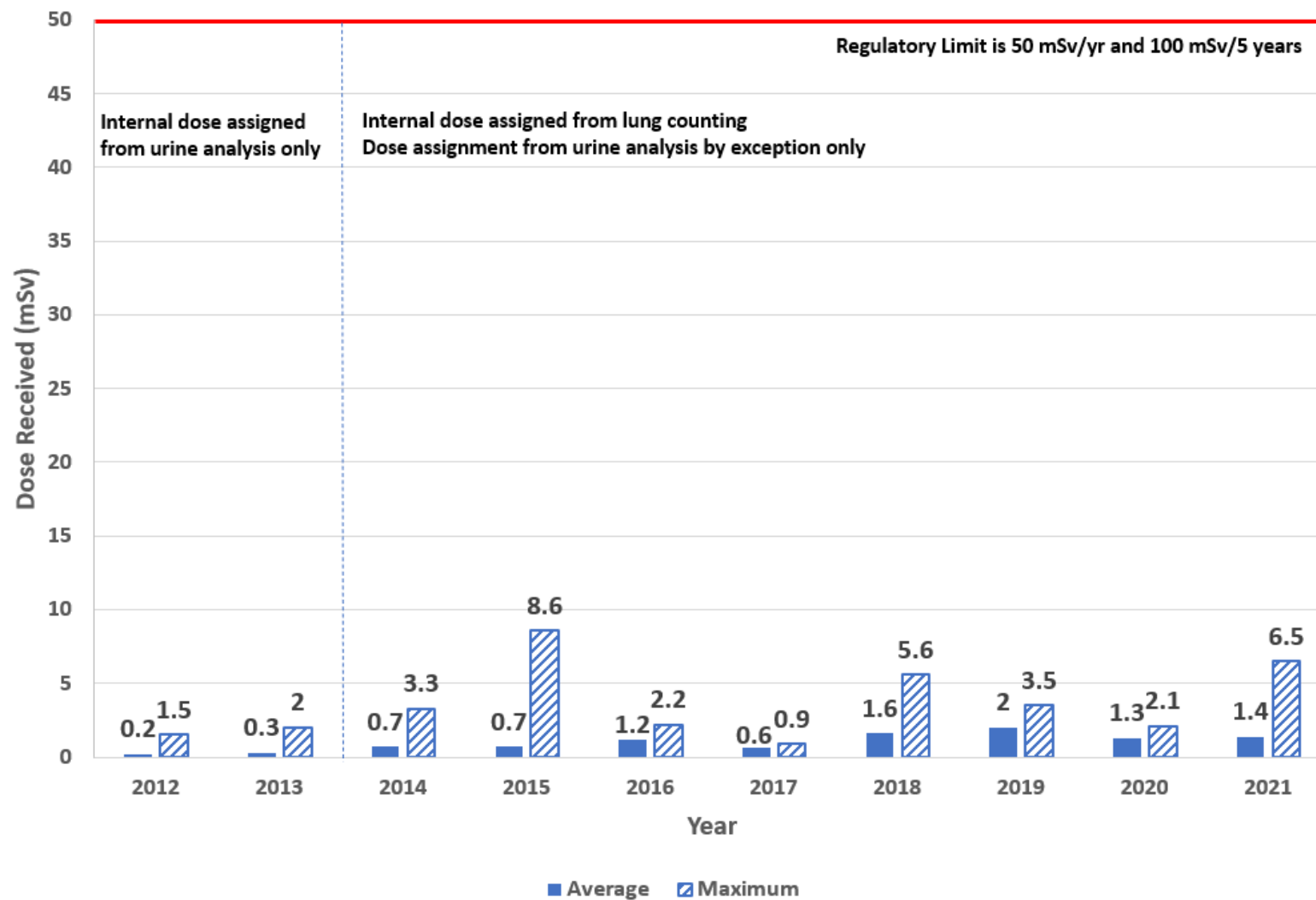
Radiation

Internal Dose



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2012 - 2021 Internal Dose



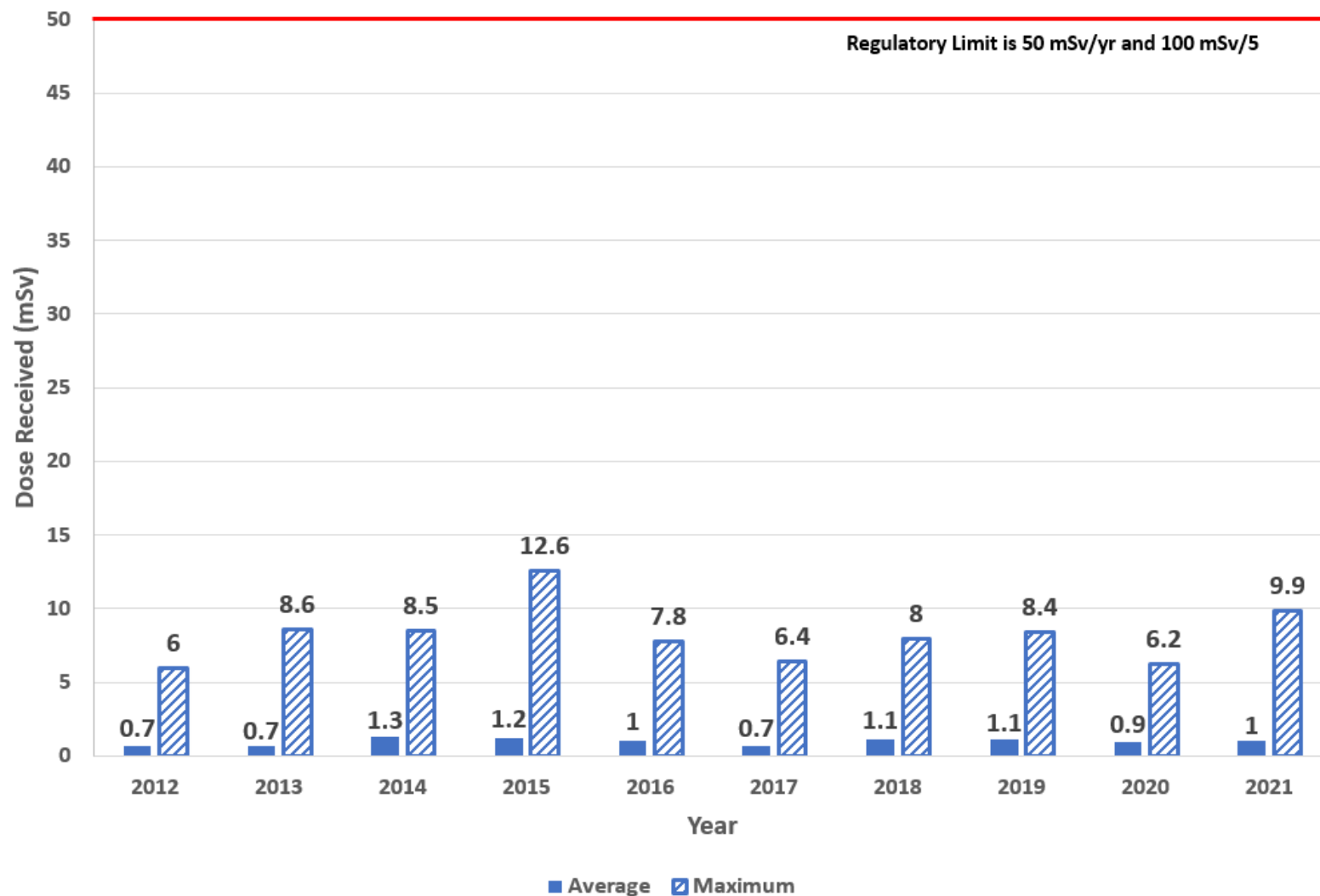
Radiation

Total Effective Dose



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2012 - 2021 Total Effective Dose



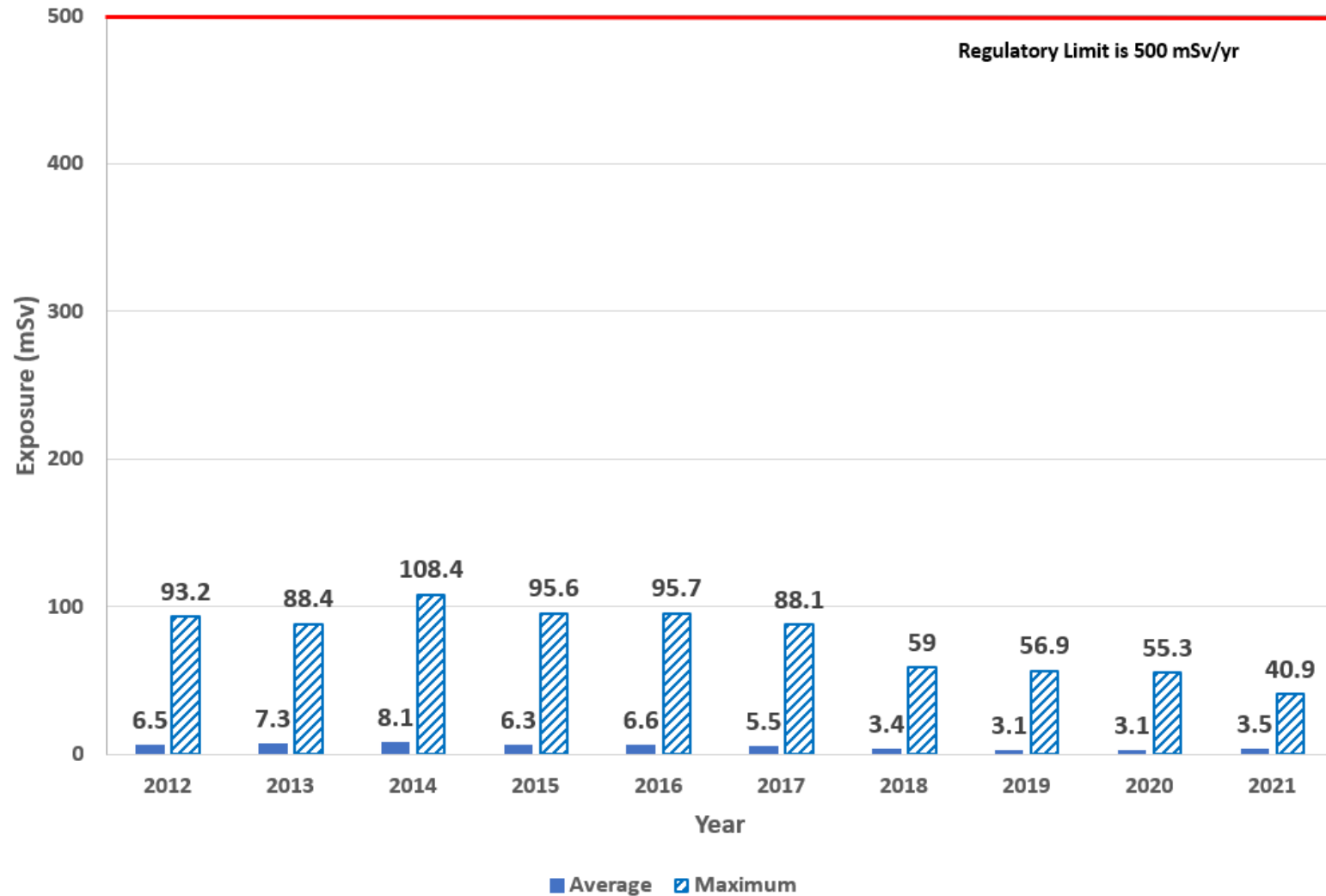
Radiation

Skin Dose



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2012 -2021 Skin Dose



Environmental Performance



Strong environmental performance throughout current licence period



Robust and comprehensive environmental monitoring program measures quality of stack and sanitary sewer emissions as well as condition of surrounding environment



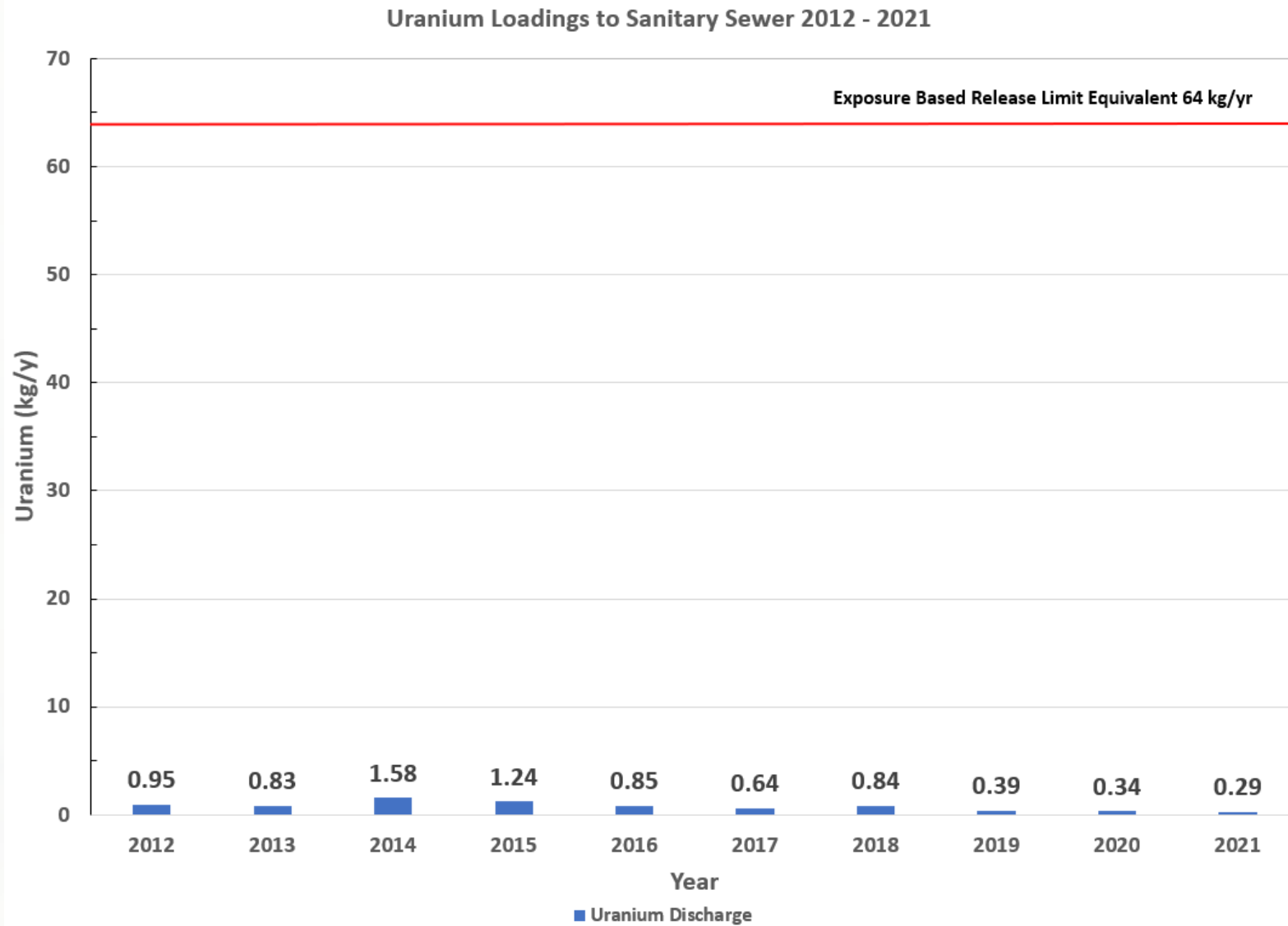
All stack and sanitary sewer emissions were a small fraction of regulatory limits



ERA review in 2021 concluded human health and ecological risks remain negligible

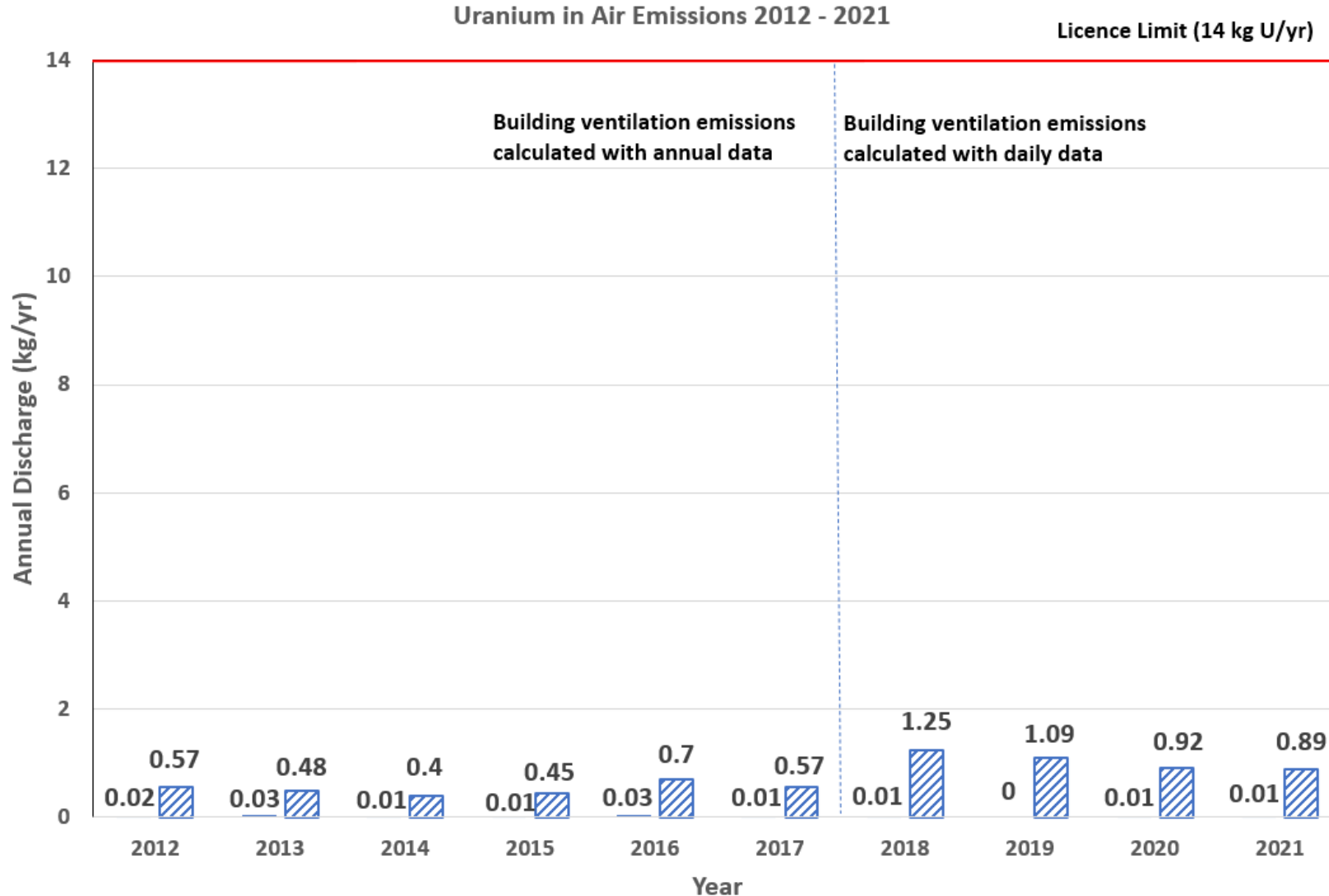
Environmental Performance

Sanitary Sewer Emissions



Environmental Performance

Air Emissions



Legacy Waste Reduction



Reduced legacy inventory of low-level radioactive waste

- 900 m³ disposed of at hazardous waste landfill via rail transfer campaign in 2014
- 500 m³ disposed of at hazardous waste landfill via tractor trailers in 2019-2021

Waste generated from operations is very low

- Approximately 1 truckload of contaminated combustible material is generated in one year and sent for incineration
- Approximately 1 truckload of contaminated non-combustible material is generated in one year and sent for disposal at a hazardous waste landfill
- Non-contaminated waste is sent to municipal landfill and recycle facilities

Manufacturing Improvements



Results of equipment upgrades implemented to facilitate single piece flow strategy

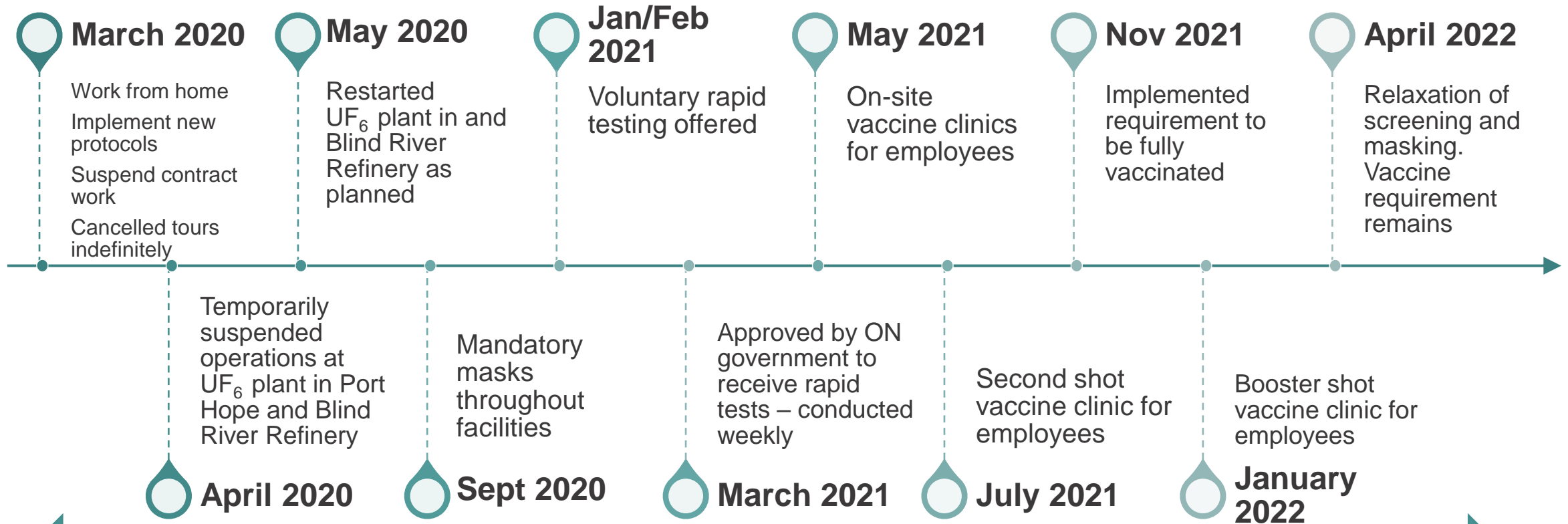
Lower doses due to lower work in process levels

Lower injury risks and by automating material handling functions and improving ergonomic design

Lower emissions by increased use of engineering controls

Lower customer risk through use of automated mistake proofing strategies

Pandemic Response



Safety of our workers, their families and our communities has been, and remains, our top priority
Adjusted protocols according to government and public health requirements

Pandemic Response



May 2020 – established the
COVID-19 Relief Fund



\$250,000 available to
Northumberland County and
Blind River area organizations
impacted by the pandemic

- 23 organizations supported in Northumberland County

Donated about 100,000 masks
and other PPE to community
organizations

Committed to continuing to
support our communities going
forward



Medical Isotopes

Each year, more than 40 million medical procedures are performed using medical isotopes worldwide

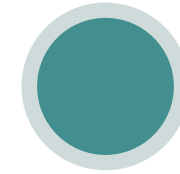
The energy produced in nuclear power reactors like Bruce Power's is created using the fuel bundles from CFM. This energy is harnessed to produce life-saving medical isotopes



Cobalt-60

Cobalt-60 is used for specialized cancer treatment and to sterilize the world's single-use medical devices

The COVID-19 pandemic increased the demand for sterilized masks and syringes



Lu-177

Lu-177 is used in targeted radionuclide therapy to treat cancers like neuroendocrine tumours and prostate cancer

Community Support

Public Information Program meets the requirements of REGDOC 3.2.1

Community support over the 10-year term has consistently been 84% and higher

Use of Facebook and Twitter in 2013 and added Instagram in 2019

Implemented dedicated website for Ontario sites in 2017 – camecofuel.com

Introduced Community BBQ in 2019



20-Year Licence Request



What it does

Supports Canada's commitment to net-zero and the clean-air energy we need to help combat climate change

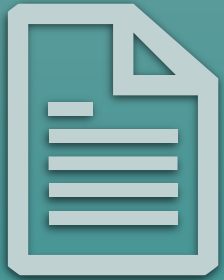
Provides security of supply to the CANDU industry and stability to our workforce and business

What it does not do

Does not affect regulatory oversight including safety and environmental performance

Does not diminish or reduce our engagement with the public, stakeholders or Indigenous communities

Continued Involvement in a 20-Year Licence



Indigenous communities, stakeholders and the public can participate in the annual Regulatory Oversight Report



Cameco has a Public Information Program and additional information may be requested from Cameco at any time



Cameco Fuel Manufacturing is committed to meaningful engagement with Indigenous communities, members of the public and stakeholders



Cameco Fuel Manufacturing welcomes ongoing dialogue about our operations, how safety is assessed and potential impacts of our operations



Concerns may be raised to CNSC staff by Indigenous communities, stakeholders and the public at any time



20 Years

Production Increase

Current licence allows for 125 Megagrams of UO_2 (=1,500 tonnes per year as pellets)

Requesting 1,650 tU as pellets per year (=155 Megagrams of UO_2 as pellets per month)

tU is consistent with all other Cameco licences

Represents a 24% increase in annual uranium processing

The change will reflect CFM's actual production capacity

UO_2

Licensed Capacity
1500
Tonnes/year

Current Licence Limitation

Currently, CFM is licensed to operate at below the facility's production capacity in a given month

UO_2

100%
Facility Capacity
1650
Tonnes/year

New Licence Request

- ✓ Aligns with current production capacity
- ✓ Meets potential changes in demand
- ✓ More effective use of current facilities
- ✓ Greater security of supply for global electricity

Of the 14 Safety and Control Areas, 11 would permit the production increase with no changes to existing programs or supporting assessments:

Management System

Training

Fitness for Service

Emergency Protection

Safeguards

Training

Radiation Protection

Waste Management

Packaging and Transport

Physical Design

Health and Safety

Security

Three Safety and Control Areas required further analysis

Operating Performance

- Administrative changes required once increase approved
- New operating limits (how much we can produce in a year) would need to be incorporated into the site documents

Safety Analysis

- Production increase does not impact the methodology, inputs or conclusions of the safety analysis
- Administrative changes required once increase approved

Environmental Protection

- Emissions, action levels, dose to the public evaluated
- Details on following slides

Environmental Protection Analysis



Release Limits



Action Levels



Uranium Emissions



Dose to the Public



Environmental Impact

Environmental Protection Analysis



Building Ventilation

- The projected increase in uranium emissions to the building ventilation will remain well under (<17%) current safe licence limits



Process Stack Emissions

- The projected increase in uranium emissions to the process stacks will remain well under (<1%) current safe licence limits



Liquid Emissions

- The projected increase in uranium emissions to the sanitary sewer will remain well under (<4%) current safe licence limits

Air and liquid emissions

Current emissions are about 1 cup of uranium to air and water annually

Projected emissions (worst case) are about 1 and 1/3 cups of uranium to air and water annually

No changes to release limits required

Overall Conclusions

There is no change to the risk analysis for the site

There is no impact on the conclusions of the Environmental Risk Assessment

Current programs and policies will ensure the ongoing safety and health of people and the environment

Operating at current rates 7 days a week would result in an increase in annual loadings to current emissions release points

This increase remains within current limits and action levels and all provincial and federal requirements

Indigenous Engagement

Cameco regularly reaches out to all seven William's Treaties First Nations, the Mohawks of the Bay of Quinte and the Métis Nation of Ontario

Strive to keep Indigenous communities informed

Informed all nine Indigenous communities of licensing activities

Cameco committed to building relationships with Indigenous communities and continuing to listen and learn

Regular meetings with Curve Lake and Scugog Island First Nations have been established since 2021

Cameco is committed to continuing a positive, respectful path together

Meetings are scheduled when requested: i.e., Hiawatha First Nation (2021) and the Métis Nation of Ontario (2022)

Cameco Fuel Manufacturing submitted an Indigenous Engagement Report in accordance with REGDOC 3.2.2

Committed to Indigenous engagement and provided details as outlined in REGDOC 3.2.2.

Public Information Program



We make information about our operations and activities available several ways:

- Meetings/presentations
- Energize newsletter
- Community BBQ and participation at Fall Fair
- Tours
- Social Media
- Camecofuel.com



Public Disclosure Protocol

- [Public-Disclosure-Protocol-Cameco-Ontario-Operations.pdf \(camecofuel.com\)](#)
- [Environment & Safety - Fuel Manufacturing: Port Hope & Cobourg - Fuel Services - Businesses - Cameco](#)



The spring issue of Energize is now available on our website. In this edition:

- Cameco Fuel Manufacturing licence renewal process
- Quick facts about CFM Port Hope
- The benefits of nuclear
- Cameco in the community

<http://ow.ly/lpZ050JlcRJ>



Public Support



We are proud to have strong support for a 20-year licence

95% of the interventions for CFM's licence renewal are in support of a 20-year licence

Support includes all three levels of local government, emergency services, employees and community organizations

2022 Public Opinion Polling

82% of residents support Cameco's request for a 20-year licence

93% of residents support the continuation of Cameco's operations in Port Hope

Future Success

Cameco is qualified to carry out the activities permitted in our licence for a 20-year term and remains committed to:

Excellence in
health and
safety

Strong
environmental
performance

Continual
improvement

Building and
maintaining
meaningful
relationships
with Indigenous
Nations and
communities

Providing open,
timely and
transparent
communication



Cameco

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Thank You

