

# Regulatory Oversight Report on the Use of Nuclear Substances in Canada: 2020



CNSC Staff Presentation  
Commission Meeting  
November 23, 2021  
CMD 21-M35.A



# Overview

- Introduction and Program Overview
- Pandemic Response
- Overall safety performance in 2020
- Stakeholder Engagement
- Interventions
- Concluding remarks





## Errata (1/2)

### Corrections in the ROR

- Incorrect information related to doses to NEWs in the waste nuclear substance licensees
  - Affects only the number of NEWs in the “below detectable limit” and “<0.5 mSv” categories (details of corrections on following slide)
- Error in reporting on the issuance of an unacceptable rating
  - Sub-sector was incorrectly noted as: “industrial radiography”; will be changed to “industrial sector” (p. 14 of 69, para. 2)

**These errors  
do not  
change any  
conclusions  
in the report**



## Errata (2/2)

- Figure 11 (p. 42 of 69)
  - Number of NEWs in the commercial sector with doses less than or equal to 0.5 mSv will change from 1,928 to 1,945
- Figure 12 (p. 43 of 69)
  - Number of NEWs for 2020 with doses less than or equal to 0.5 mSv will change from 16,034 to 16,051
- Figure 16 (p. 47 of 69)
  - Number of NEWs in the waste nuclear substance sub-sector will change from 406 to 613
  - Number of NEWs in the commercial sector with doses less than or equal to 0.5 mSv will change from 1,738 to 1,945



# Update on Mississauga Metals and Alloys

- Mississauga Metals and Alloys hold a waste nuclear substance licence
- Bankruptcy declared on August 20, 2021
- CNSC staff undertook numerous actions as a result
- [Event Initial Report](#) presented to the Commission on October 5, 2021 (CMD 21-M49)
- CNSC staff continue to investigate options regarding:
  - Decommissioning and removal of the nuclear substances
  - Regulatory actions
- CNSC staff will be requesting that the Commission revoke the Mississauga Metals and Alloys licence under the *Nuclear Safety and Control Act* prior to the end of the fiscal year

# INTRODUCTION AND PROGRAM OVERVIEW



ROR on the Use of Nuclear Substances in Canada: 2020  
CMD 21-M35



# Key Messages for 2020

- Licensees implemented appropriate programs to protect health, safety, security and the environment and maintained adequate measures to implement Canada's international obligations
- CNSC staff were able to maintain regulatory oversight over licensees

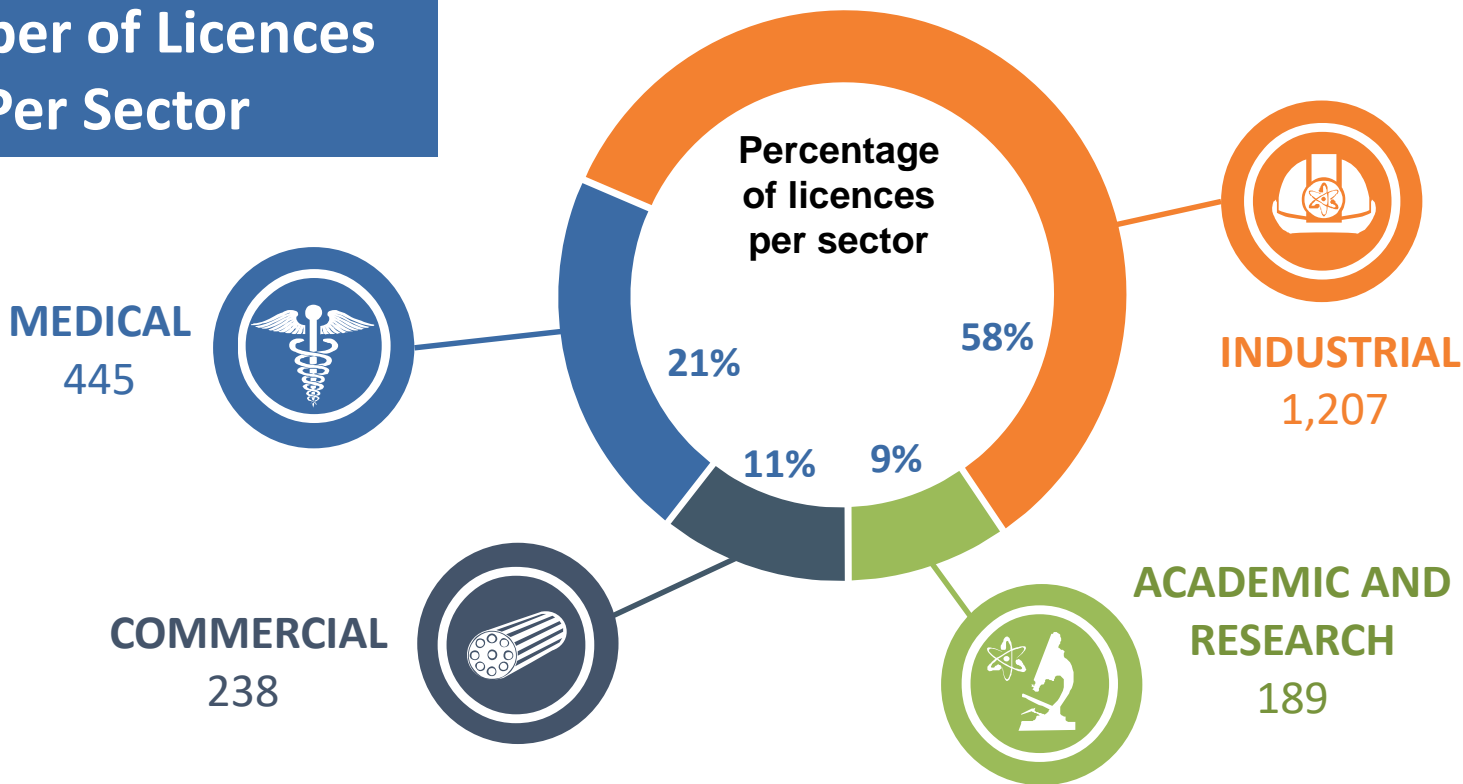


**The use of nuclear substances in Canada is safe**



# Diverse Uses Of Nuclear Substances

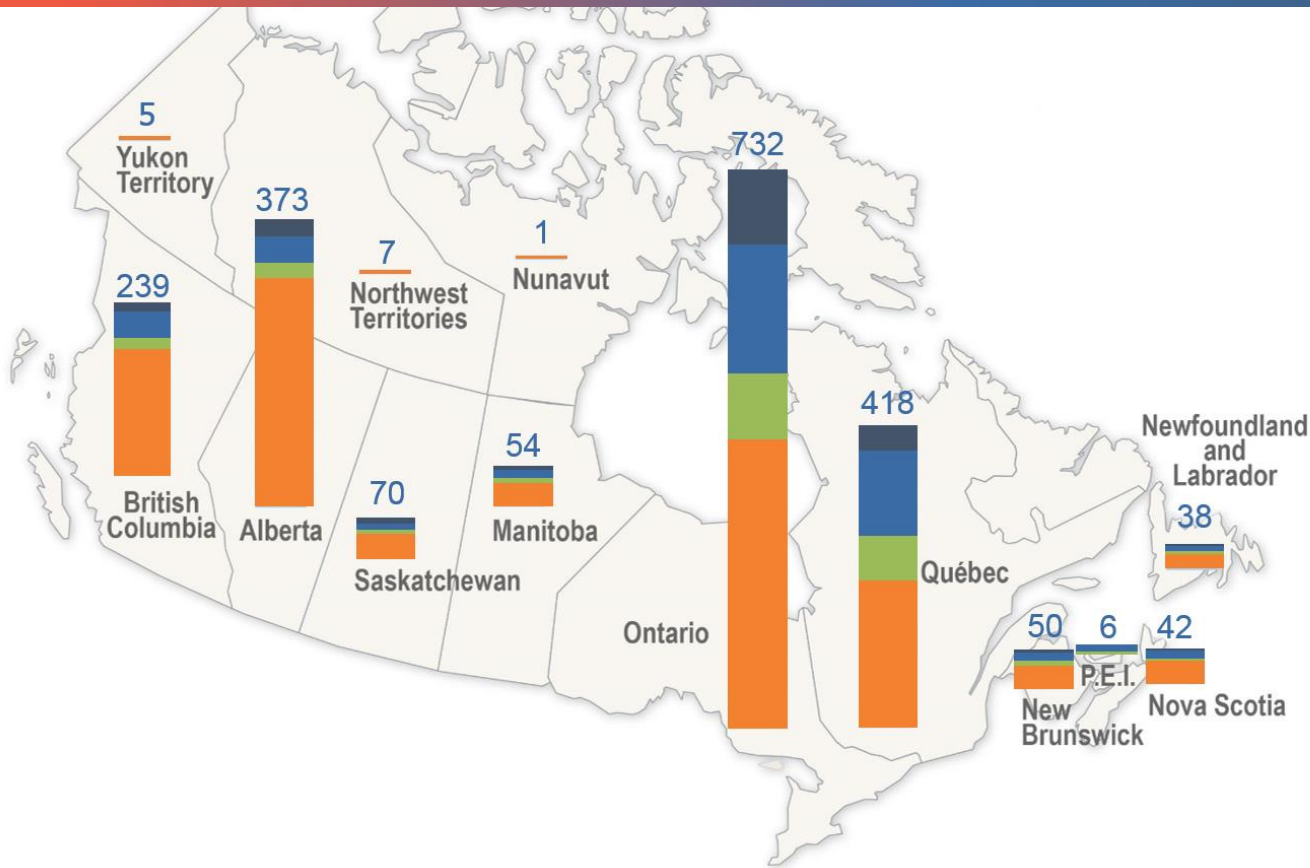
## Number of Licences Per Sector







# 2035 Licences across Canada\*



\* Plus 44 licences issued to licensees based outside Canada



# Nuclear Substances Program Strategic Goals

Risks associated with the use of nuclear substances and prescribed equipment are:

Identified

Monitored

Controlled

Nuclear substances and prescribed equipment regulatory framework is:

Clear

Understood

**The ROR demonstrates how we achieve these goals**

# PANDEMIC RESPONSE



ROR on the Use of Nuclear Substances in Canada: 2020  
CMD M21-35



# Effect of pandemic on regulatory oversight

- Little to no impact on licensing or certification activities
- Impact on compliance activities
  - Conducted just under half the originally planned number of annual inspections
  - Reduced compliance oversight could lead to a gradual reduction in licensee performance
  - This incremental increase in risk remained within acceptable limits



**Effective regulatory oversight of the use of nuclear substances in Canada was maintained**



# Pandemic Measures

## Initial Impact

Activation of the Business Continuity Plan and Implementation of Health and Safety Controls:

- Restricted access to CNSC systems
- Suspension of non-critical oversight activities, including routine on-site inspections



## Initial Measures Implemented

Ensure critical services:

- Immediate readiness to respond to unplanned events or situations
- Ensured licensing and certification activities continued to be performed
- Conducted outreach activities to ascertain licensees' operating environment



## Revised Approach for Regulatory Oversight

Ensure capability in performing regulatory functions:

- Developed alternative oversight process for remote inspections
- Developed revised regulatory oversight plans
- Developed health and safety protocols for performing on-site inspections safely



## Ongoing

Maintain regulatory oversight:

- Continued licensing and certification activities
- Perform inspections in a fully remote environment
- Share lessons learned and adjust protocols as needed
- Respond on-site as needed
- Pilot on-site inspections with restrictions in place

**Effective regulatory oversight continues in spite of the pandemic**



# Inspection Planning During a Pandemic

- Inspection plans revised due to lost time related to the initial suspension of inspections and subsequently adjusted as the pandemic progressed
- Developed remote inspection procedures
- Modified compliance verification strategy
- Focus remained on highest priority inspections

**Staff applied a risk-informed approach to inspection planning throughout the year**



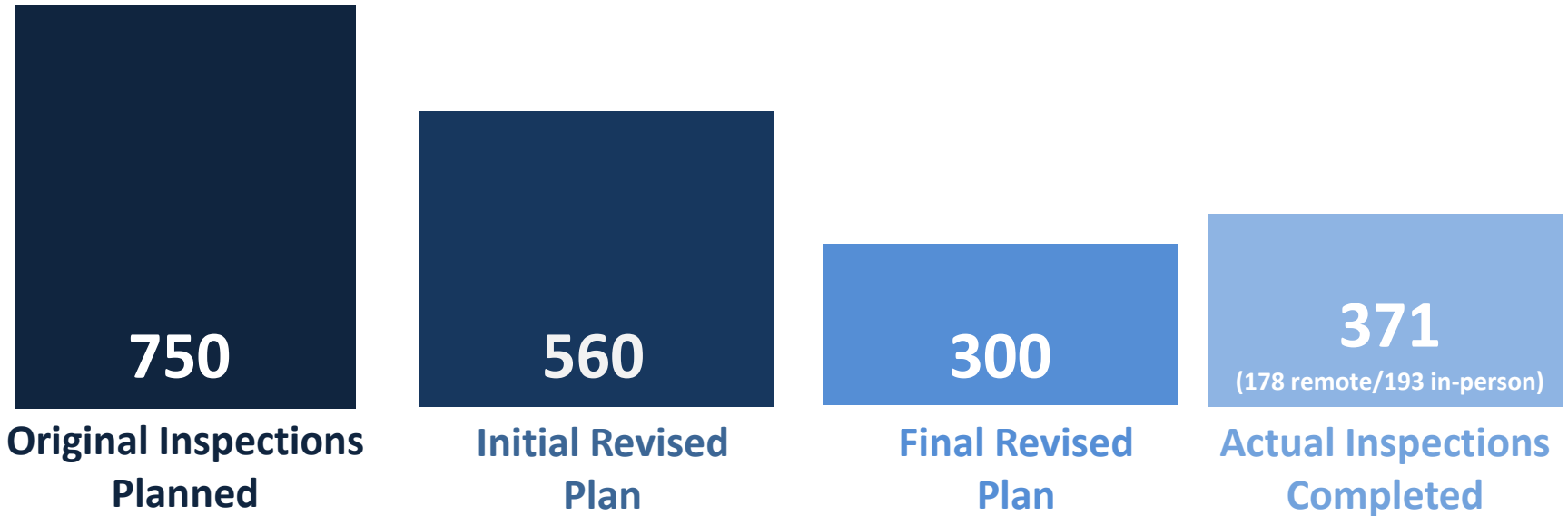
# Remote Inspections

- Allowed CNSC staff to maintain regulatory oversight of licensees
- Record reviews and interviews/observations were performed by inspectors using virtual and online tools
- Not a replacement for immersive experience of an on-site inspection

**Remote Inspections are a functional  
tool to verify compliance**



# Inspections 2020

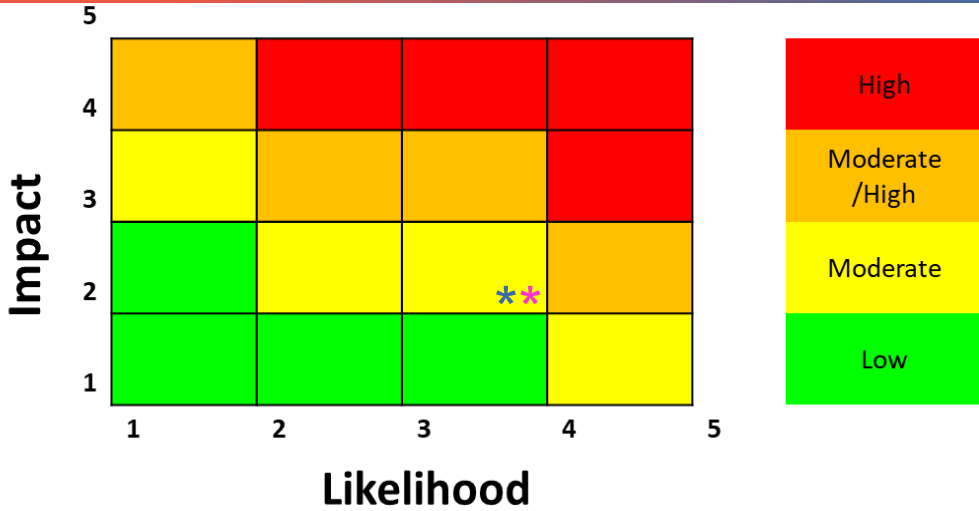


**All high risk licensee inspections that were in the original plan were completed**





# Effects of Reduction in Inspections (1/2)



- \* Safe licensee work practice risk profile pre-pandemic
- \* Safe licensee work practice risk profile with reduced inspections

**Risk profile for this program increased incrementally during the pandemic**

Risk profile for safe licensee work practices →

**Risk profiles are used to guide program planning**



## Effects of Reduction in Inspections (2/2)

- Primary responsibility for safety rests with the licensee
- A decrease in regulatory oversight does not **necessarily** mean a decrease in licensee performance in the short term
- **Possibility** of a reduced number of inspections leading to decreased licensee performance does exist in the longer term
- Will continue to monitor performance trends and adjust compliance approach as necessary

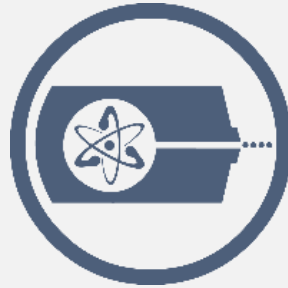


# Key Messages for Pandemic Response

**CNSC staff responded well** to the changing regulatory oversight environment during the pandemic

**Impact** on safety and security due to the revised regulatory oversight program is limited and **acceptable**

# OVERALL SAFETY PERFORMANCE IN 2020



ROR on the Use of Nuclear Substances in Canada: 2020  
CMD M21-35



# Regulatory Oversight Report Overview

## Four key metrics:

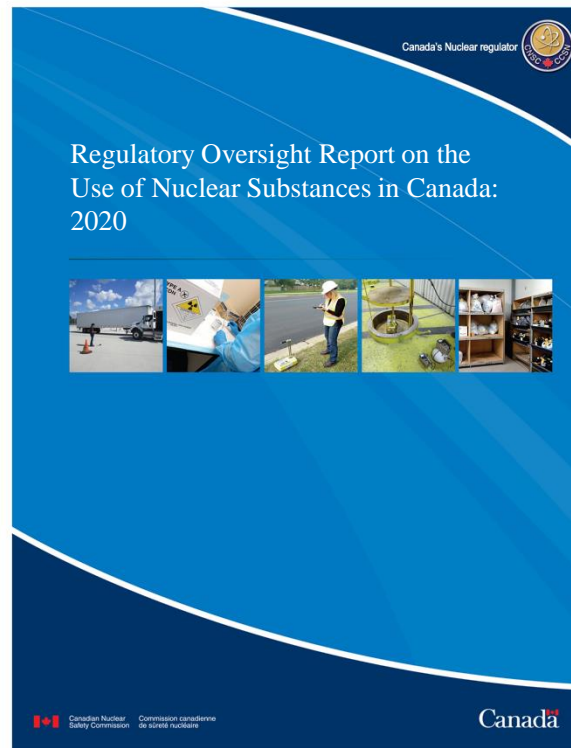
Performance results

Enforcement actions

Doses to workers

Events

**The ROR conveys a snapshot of the nuclear substances program**





# Performance Results in Safety and Control Areas

- Management System
- Operating Performance
- Radiation Protection
- Security
- Environmental Protection\*
- Occupational Health and Safety\*

\* Reported on for waste nuclear substance licences

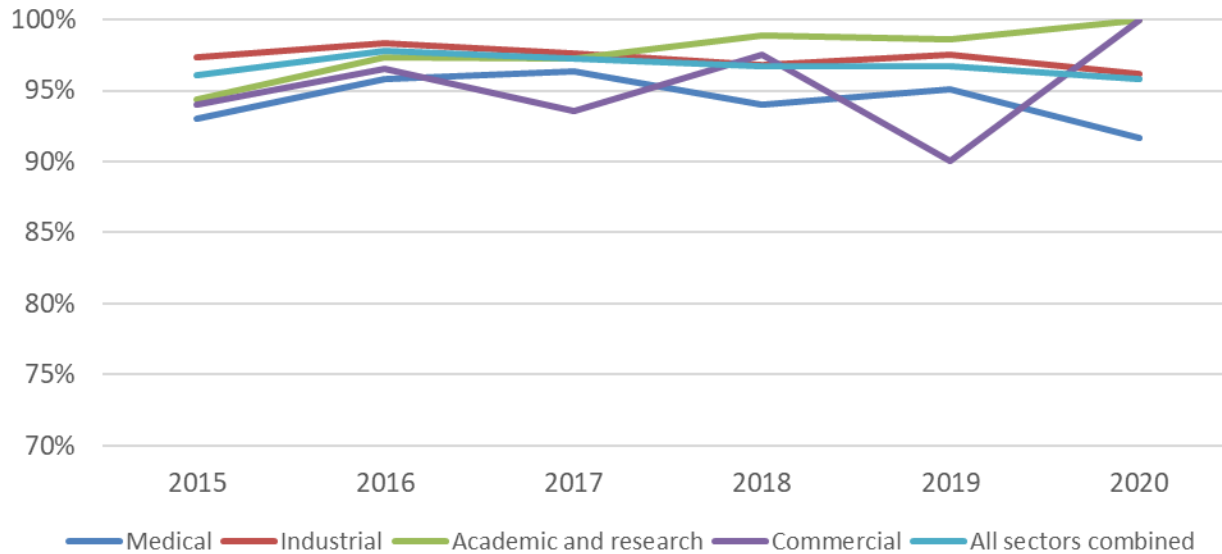
Results  
presented  
at the  
sector level

**All relevant SCAs are assessed during  
compliance verification and licence assessments**



# Management System (MS)

Inspections Meeting Expectations for Management Systems



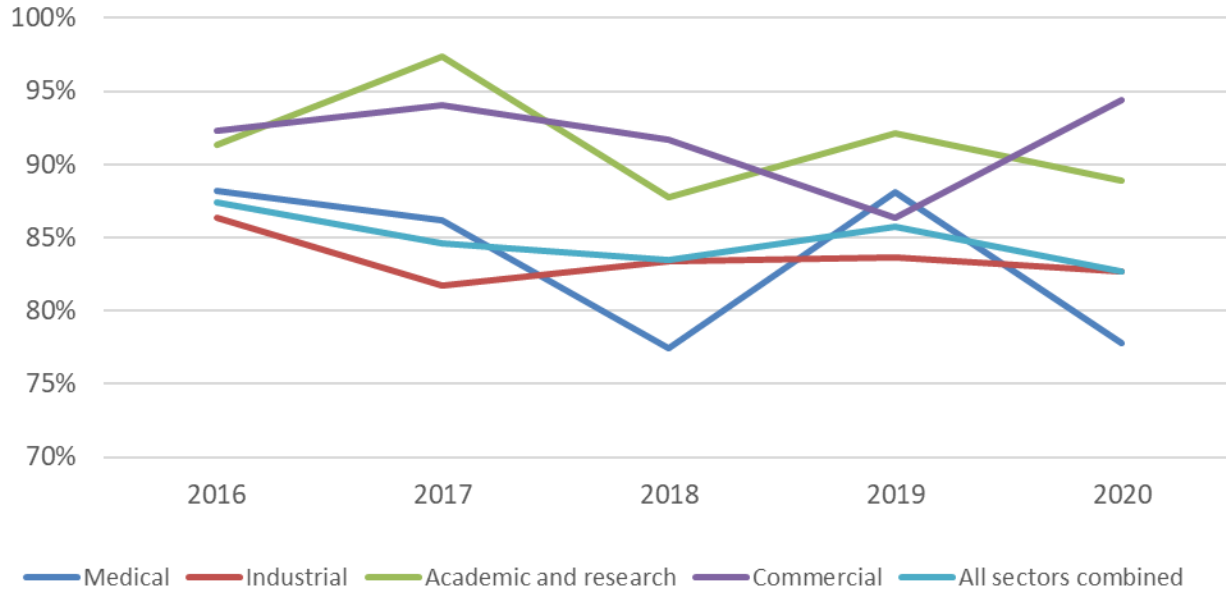
**96% of inspections met expectations**

**No Unacceptable ratings in the MS SCA**



# Operating Performance (OP)

Inspections Meeting Expectations for Operating Performance



**83% of inspections met expectations**

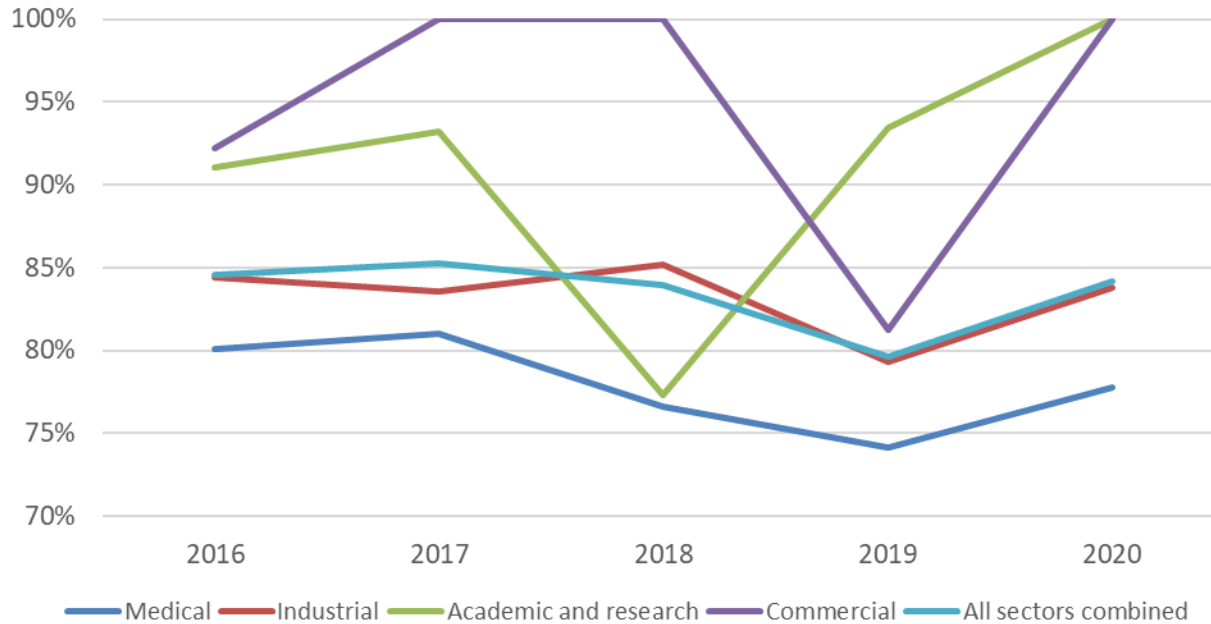
**No Unacceptable ratings in the OP SCA**





# Radiation Protection (RP)

Inspections Meeting Expectations for Radiation Protection



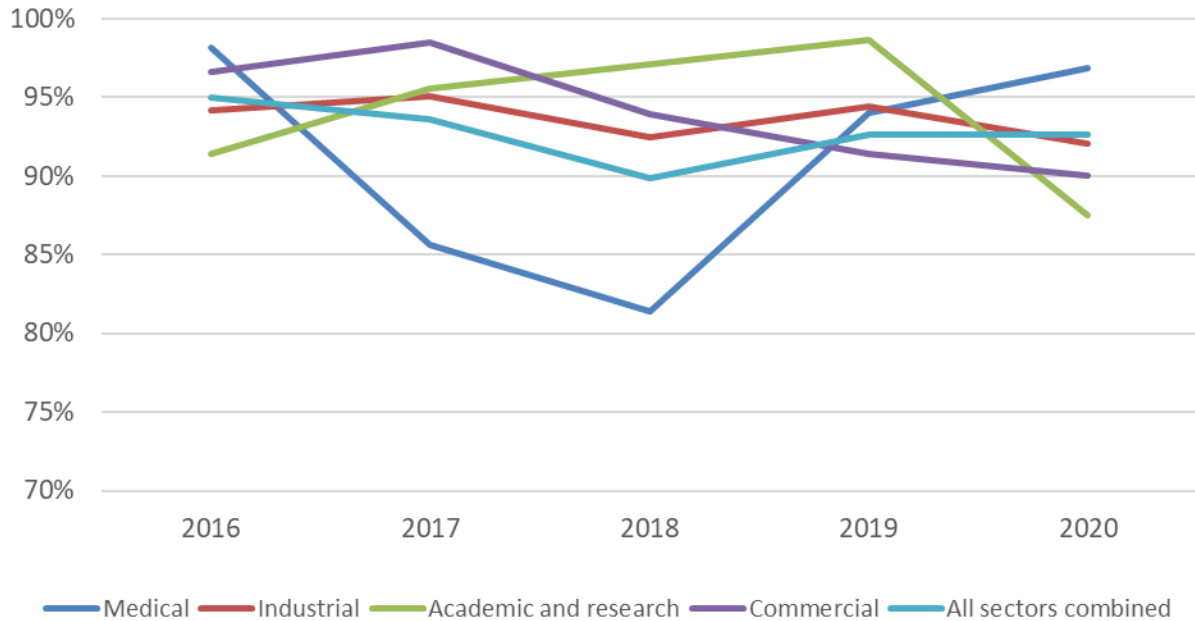
**84% of inspections met expectations**

**1 Unacceptable rating in the RP SCA**



# Security

Inspections Meeting Expectations for Security



**93% of inspections met expectations**

**No Unacceptable ratings in the Security SCA**



# Environmental Protection and Occupational Health and Safety

No licensees received below expectations or unacceptable ratings in the environmental protection SCA or in the conventional health and safety SCA.

**100 %  
of inspections  
met expectations**



# Enforcement: Orders and AMPs

Six enforcement  
Actions in 2020

Four enforcement  
actions were orders  
and two were AMPs

All enforcement actions  
are closed

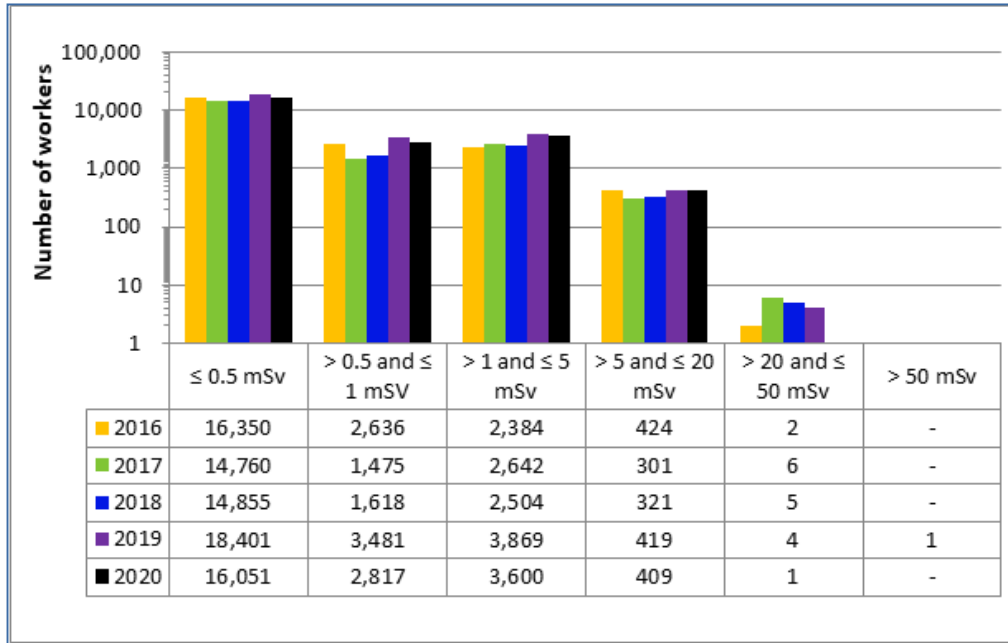
Sector	2016	2017	2018	2019	2020
Medical	1	0	1	0	0
Industrial	18	23	14	9	4
Academic	0	0	0	0	0
Commercial	3	1	1	4	2
<b>ALL</b>	<b>22</b>	<b>24</b>	<b>16</b>	<b>13</b>	<b>6</b>

**Licensees addressed all conditions of the orders and AMPs**



# Doses to Workers 2020

## Annual Effective Doses to NEWs:



Doses to workers remain low

**58,967 workers** in the four sectors monitored for occupational doses

- **22,861 Nuclear Energy Workers (NEWs)**
- **36,106 non-NEWs**



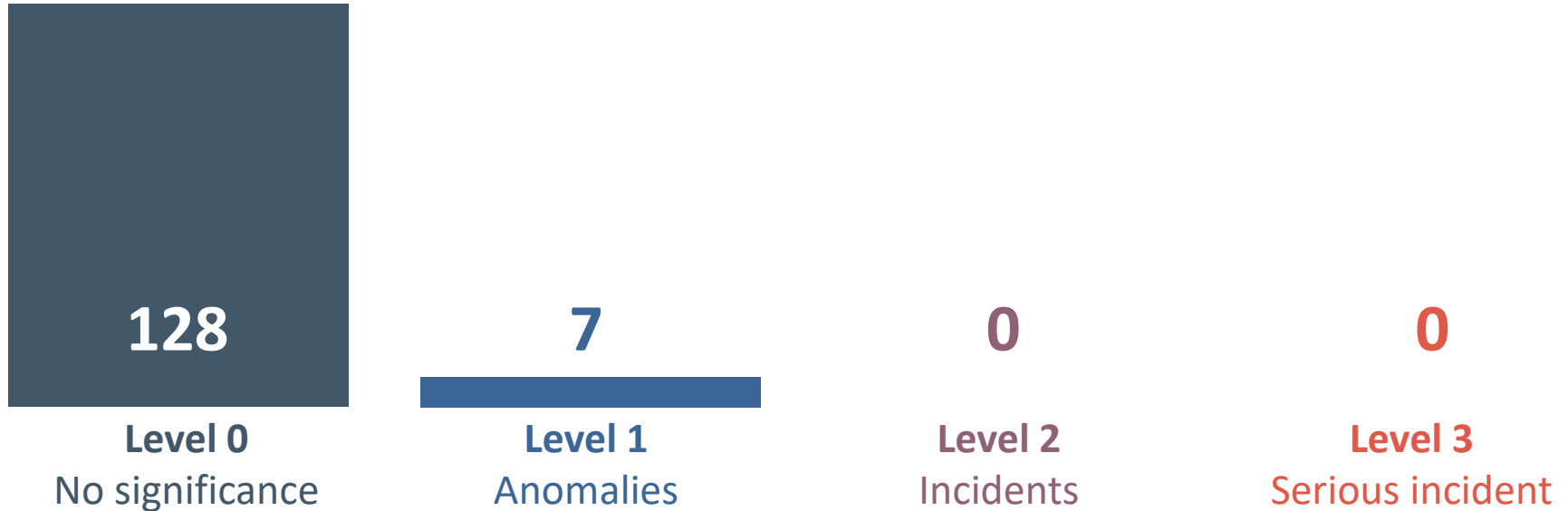
## Dose Limit Exceedances: 2020

- Dose data collected on 36,106 workers not designated as NEWs
- 3 workers exceeded the annual dose limit of 1 mSv for non-NEWs

**No impact on the health of workers**



# Events Reported in 2020



**All events reported by licensees are reviewed by staff regardless of significance.**



## Summary of Overall Safety Performance

- One unacceptable rating issued in all SCAs considered for this report
- All six enforcement actions issued in 2020 are closed
- Doses to all workers remain low
- No serious events were reported in 2020





# Stakeholder Engagement

- Individually contacted all licensees to ascertain the operating environment of all licensees
- Continued to engage with stakeholders throughout the year, e.g.:
  - Six issues of the DNSR Digest distributed
  - Meeting with the Industrial Radiography Working Group
  - Meetings with the Canadian Radiation Protection Association



CNSC staff participate in outreach activity  
(source: CNSC)



# Public Interventions

Report was publicly available for written comments for a period of 45 days

Participant Funding was awarded to the Canadian Environmental Law Association (CELA)

One intervention received



## Key Themes in Interventions – Recommendations (1/2)

CELA provided 20 recommendations in the following areas:

- Depth and scope of review
- Compliance performance
- Environmental protection
- Inspections
- International obligations
- Reported Events



## Key Themes in Interventions – Recommendations (2/2)

- Many suggestions for improvements to the ROR to be addressed in the ROR Discussion Paper presentation in January 2022
- Follow-up with CELA on select areas that have been previously addressed
- Information added to this presentation to address specific questions (e.g. how Class IB Medical Accelerators are incorporated in the ROR)



# Conclusion

- SCA performance was satisfactory
- Reported events were of low/negligible safety significance
- Doses to workers remain low
- All enforcement actions were addressed by licensees and closed
- CNSC staff leveraged alternate performance verification activities to ensure continued regulatory oversight of licensees
- Engagement activities continued with stakeholders

**Nuclear substance and prescribed equipment licensees are operating in a safe and secure manner**

# Connect With Us

Join the conversation



[nuclearsafety.gc.ca](http://nuclearsafety.gc.ca)



Canadian Nuclear  
Safety Commission

Commission canadienne  
de sûreté nucléaire

Canada 