



Minutes of the Canadian Nuclear Safety
Commission (CNSC) Meeting held on
September 21 and 22, 2016

Minutes of the Canadian Nuclear Safety Commission (CNSC) meeting held Wednesday, September 21, 2016, beginning at 1:00 p.m. and Thursday, September 22, 2016, beginning at 9:00 a.m., in the Public Hearing Room, 14th floor, 280 Slater Street, Ottawa, ON.

Present:

M. Binder, President
A. Harvey
D. D. Tolgyesi
R. Velshi
Dr. S. McEwan

M. Leblanc, Secretary
L. Thiele, Senior General Counsel
P. McNelles and B. Gerestein, Recording Secretaries

CNSC staff advisors were: R. Jammal, G. Frappier, M. Langdon, D. Schryer, H. Tadros, J. LeClair, K. Glenn, M. Rinker, B. Barker, B. Torrie, C. Ducros, K. Owen-Whitred, C. Moses, M. McKee, L. Forrest, P. Fundarek, H. Rabski, S. Faille, J. Plante, L. Simoneau, L. Jobin, C. Françoise, M. Heimann

Other contributors were:

- OPG : K. Dehdashtian, S. Smith
- Bruce Power: F. Saunders
- NB Power: S. Demmons
- Cameco: L. Mooney, K. Nagy
- CNL: B. Pilkington, N. Mantifel, K. Kehler, P. Daly, T. Buckley, D. Coyne, P. Quinn
- AECL: S. Quinn
- CRPA: L. Shuparski-Miller, J. Dovyak, A. Shoushtarian, B. Hardy, Tanya Neretljak, S. Jean-François

Constitution

1. With the notice of meeting CMD 16-M-53 having been properly given and all permanent Commission members being present, the meeting was declared to be properly constituted.
2. Since the meeting of the Commission held August 17 and 18, 2016, Commission member documents CMD 16-M37, CMD 16-M48, CMD 16-M51 to CMD 16-M52 and CMD 16-M55 to CMD 16-M59 were distributed to members. These documents are further detailed in Annex A of these minutes.

Adoption of the Agenda

3. The revised agenda, CMD 16-54.A, was adopted as presented.

Chair and Secretary

4. The President chaired the meeting of the Commission, assisted by M. Leblanc, Secretary, and P. McNelles and B. Gerestein, Recording Secretaries.

Minutes of the CNSC Meeting Held August 17 and 18, 2016.

5. The minutes of the August 17 and 18, 2016, Commission meeting were presented in CMD 16-M55. The Commission requested clarification and updates on the following two items.

6. In regards to the best international practices of Probabilistic Safety Assessment (PSA), as discussed in paragraph 90 of CMD 16-M55, the Commission requested a completion date for this action item. This date was set for August 2017.

ACTION
by
August
2017

7. Regarding paragraph 94 of CMD 16-M55, the Commission requested a progress report from CNSC staff by March 2017 on the assessment of safety culture at the CNSC before the final completion date of this action item in August 2017.

ACTION
by
March
2017

8. The Commission approved the minutes of the August 17 and 18, 2016 Commission meeting with the above changes.

STATUS REPORTS

Status Report on Power Reactors

Pickering

9. With reference to CMD 16-M56, which includes the Status Report on Power Reactors at Canadian Nuclear Generating Stations (NGS), CNSC staff provided the following corrected information:

- Pickering Unit 1 is currently derated to 85% of Full Power (FP), due to a combination of a scheduled maintenance outage of the fuel handling machine and high lake water temperatures. The planned return to service date for the fuelling machine is September 21, 2016. The targeted date for the return of Unit 1 to 100% of FP is September 25, 2016.
- Pickering Unit 8 has returned to 100% of FP.

- Following a shift on September 16, 2016, an Ontario Power Generation (OPG) employee fell and fractured his knee. The injured employee subsequently underwent knee surgery. OPG notified CNSC staff, and CNSC staff will follow up on this event once the Preliminary Event Report is submitted by OPG.
- ACTION**
by
December
2016
10. The Commission commented that this was the cleanest Status Report on Power Reactors that they had seen in recent years, and congratulated CNSC staff on their efforts.
 11. The Commission requested more details about the accident involving the OPG employee who injured his knee. The OPG representative stated that the employee was wearing improper footwear, and then slipped and fell onto his kneecap in a changing area while changing from his radiation clothing to his civil clothes. The OPG representative added that there was no water present at the accident location.
 12. The Commission enquired about why only Pickering Unit 1 was affected by the high lake water temperature, and not all of the operational reactors, as the lake water temperature will be the same for all units. CNSC staff responded that the lake acts as a heat sink, therefore a change in lake water temperature will affect the performance of the reactor. The OPG representative stated that Unit 1 was particularly affected because of a maintenance outage of its turbine condenser. Other units were not derated as the turbine condensers for those units were operational. The Commission further asked about the steps OPG was taking to cope with increases in lake water temperatures. The OPG representative responded that operational turbine condensers will correct for high lake water temperatures.
 13. The Commission asked the OPG representative to provide a description of a “closure plug,” which was responsible for the derating of Unit 8. The OPG representative responded that the closure plug is the last plug put into the fuel channel in order to close this channel. The OPG representative confirmed that replacing the closure plug will close the fuel channel.

Event Initial Report (EIR)

Cameco Corporation Cigar Lake: Worker injured due to an animal attack

14. With reference to CMD 16-M58, CNSC staff presented information regarding a worker injury due to an animal attack at

- the Cameco Corporation Cigar Lake uranium mine. At 12:05 a.m., on August 29, 2016, a contract worker was walking from the contract camp to the main camp and was attacked by a lone wolf, resulting in bites to the worker's head, shoulder and neck. Other employees and staff responded to the attack and scared off the wolf. The on-site Emergency Response Team was activated and the worker was treated by an on-site nurse before being evacuated to the hospital. For safety reasons, and as consistent with the standard practice of Saskatchewan Environment Conservation Officers, wolves near the scene of the attack were put down by Conservation Officers and Cameco's environmental personnel. This event was reported on television, radio, newspapers and the internet.
15. The Commission asked if similar incidents had occurred at other Cameco facilities. The Cameco representative responded that there was a previous wolf attack at the Key Lake uranium mine approximately 10 years ago.
 16. The Commission enquired about what brought the wolf into the area. The Cameco representative stated that they are conducting a root cause investigation to determine the factors that may have attracted the wolf into the area. The Cameco representative also emphasized that the mine operation is located in a wilderness area where there are occasional animal sightings. These sightings are tracked, and Cameco works with the province to use that data in its wildlife management program to take action if necessary. The Commission further asked about possible reasons for a wolf to attack a human in such a relatively built-up area. The Cameco representative explained that their root cause investigation is ongoing, that they have retained the services of a wildlife expert, and that the results of the investigation will be used to minimize the chances of future wildlife encounters.
 17. The Commission requested to be provided with further information on the results of Cameco's root cause investigation from CNSC staff, including any background information on similar events in Saskatchewan.
 18. The Commission asked for more details regarding the walking ban that was implemented following the animal attack. The Cameco representative stated that some of the restrictions put in place had been lifted as certain animals in the area had been removed, but there were still more restrictions in place than before the event.
 19. The Commission enquired about Cameco's policies on feeding wildlife and on food storage. The Cameco representative responded that a wildlife management program is in place, intended to

ACTION
by
March 2017

- minimize potential encounters, which was developed with the assistance of wildlife experts. The Cameco representative added that any feeding of wild animals is actively discouraged.
20. The Commission asked about the condition of the employee that was attacked by the wolf. The Cameco representative responded that the employee was still in hospital, but was recovering and in good spirits. CNSC staff concurred with Cameco.

Canadian Nuclear Laboratories: Fatality at Chalk River Laboratories

21. With reference to CMD 16-M59, CNSC staff presented information regarding a worker fatality at the Chalk River Laboratories. On September 10, 2016, Canadian Nuclear Laboratory's (CNL) emergency services responded to a medical emergency involving a CNL employee at the Chalk River Laboratory main campus, which ultimately resulted in a fatality. CNL informed CNSC staff regarding the incident, and have been conducting an internal investigation on this matter. CNL also reported the incident to the Deep River Police and Employment and Social Development Canada (ESDC), both of which continue to investigate this incident. CNSC staff reviewed the initial report from CNL and, as this event was not the result of a nuclear activity nor an industrial accident, CNSC staff determined that this event was not a regulatory, licensing or compliance matter. CNSC staff stated that CNL remains focused on the continued safe operation of the facility.
22. The Commission asked to be updated only if the results of the investigation reveal information different from what was initially reported.

INFORMATION ITEMS

Canadian Nuclear Laboratories Limited: Status Report on Fitness for Service for the Chalk River Laboratories

23. With reference to CMD 16-M57, which includes the Status Report on Fitness for Service for Chalk River Laboratories (CRL), CNSC staff presented to the Commission an update on CNL's progress regarding the fitness for service for CRL. In the Record of Decision for the renewal of the CRL licence¹, the Commission requested CNSC staff to report on the status of the fitness for service Safety Control Area (SCA) at each Commission meeting, until an overall rating of satisfactory is obtained. CNSC staff

¹Canadian Nuclear Safety Commission Record of Decision – *Application to Renew and to Amend the Nuclear Research and Test Establishment Operating Licence for Chalk River Laboratories*, April 6, 2016, Canadian Nuclear Laboratories Limited.² International Atomic Energy Agency GSR Part 6, *Decommissioning of Facilities*, Vienna, Austria, 2014

- reported that the CRL site, except for the National Research Universal (NRU) reactor, has progressed to a satisfactory rating in the fitness for service SCA. However, there remains additional work to be performed before the NRU reactor can be rated overall as satisfactory in the fitness for service SCA. This document represents the third status update on this matter.
24. CNSC staff stated that there were no changes in the status of specific areas identified for improvement since the previous update, therefore there is no change to the rating of the fitness for service SCA at this time. CNSC staff added that the updates presented in this status report provide the additional clarification that was requested by the Commission at the August 17 and 18, 2016, Commission meeting.
 25. The Commission commented that the status report clearly identified the areas needed for improvement and the progress that had been achieved.
 26. The Commission expressed concerns about inspections in light of the fact that the NRU will close in March 2018. The Commission asked how the safety and security of the vessel will be ensured. The CNL representative explained that the inspection intervals represent an inspection program spread over outages that occur with the NRU, and that the inspection program will continue as planned until the end of life of the NRU. The CNL representative added that the inspection cycle is part of this program. All required inspections on the reactor vessel were completed for the year, with no indication that any of the inspection results were unacceptable. The CNL representative further stated that, based on the inspection cycle, some areas of the vessel will not be inspected again before the end of life of the NRU. The CNL representative added that an annual fitness for service report is issued, with the next report due on October 16, 2016.
 27. The Commission asked for more data in the area of preventative maintenance backlog to determine whether there is a reduction in this backlog, as detailed in Section M5, page 4 of CMD 16-M57. CNSC staff responded that there is a substantial volume of data available. However CNSC staff focused on providing a summary of the information to the Commission. For that specific report, additional data were provided to better explain the “satisfactory” ratings, as requested by the Commission at the August 17 and 18, 2016, Commission meeting. The Commission further asked if CNL will meet the target completion date of December 31, 2016, for the items covered in Section M5. The CNL representatives stated that they are confident this target completion date will be met.

28. The Commission noted that on page 2 of CMD 16-M57, the mean time between trips and unplanned shutdowns approximately doubled between 2012 and 2015. The Commission asked what work must be completed for this area to be rated as “satisfactory”. CNSC staff responded that the “below expectations” rating refers to the overall rating for that specific area (“Equipment Fitness for Service” or EFFS), and takes into account other items listed on page 3 of CMD 16-M57. Considering only the item presented on page 2 of CMD 16-M57 (EFFS1), that specific item was rated as “satisfactory”. The CNL representative added that CNL is continually working to improve the mean time between trips.
29. The Commission asked if CNL was satisfied with the current mean time between unplanned shutdowns. The CNL representative responded that they will continue to work towards reducing the rate of trips and unplanned shutdowns, and that CNL is confident that the NRU will continue to operate safely. CNSC staff noted that they are monitoring this trend to ensure operability and noted that maintenance of the NRU continues to improve.
30. The Commission enquired if there were any changes to the target completion dates in this status report, from the previous status report presented at the August 17 and 18, 2016, Commission meeting. CNSC staff responded that there were no changes to target completion dates and information would be updated if any of the target dates were to change.
31. The Commission asked CNL to confirm that it was committed to completing the major improvements specified in CMD 16-M57. The CNL representative stated that CNL is in agreement with the information CNSC staff has included in that CMD. The CNL representative added that CNL will continue to implement improvements to the NRU and still intends to retire the NRU on March 31, 2018.
32. The Commission enquired about potential shortages of medical isotopes due to the closure of the NRU reactor and asked CNL whether, if necessary, the safe operation of the NRU could be extended to cope with any potential shortage. The CNL representative responded that medical isotope production from the NRU is currently low and accounts for a small percentage of the total market share of medical isotopes. Additionally, the production of Molybdenum-99 by the NRU is scheduled to end by October 31, 2016, but production of that isotope could be restarted if instructed by the Government of Canada.

33. With reference to CMD 16-M52, CNL representatives gave a presentation on CNL's strategy on Decommissioning and Waste Management (D&WM). CNL representatives presented information on the new scope and mandate of the D&WM program, including the accelerated decommissioning and environmental revitalization timelines, as part of the CRL revitalization strategy. The presentation included an update on three large projects that CNL has initiated: the Near Surface Disposal Facility (NSDF), the decommissioning of the Nuclear Power Demonstration (NPD) reactor, and the decommissioning of the WR-1 reactor. These decommissioning projects are supported by an integrated waste management strategy.
34. The Commission commented that the presentation and associated documents from CNL were of very high quality.
35. Addressing why in situ decommissioning is not supported by the International Atomic Energy Agency (IAEA), as stated in the CNL presentation, the CNL representative noted that the IAEA states that in situ decommissioning is not the preferred approach, except in certain conditions. CNSC staff noted that the IAEA document on decommissioning, GSR 6², states that in situ decommissioning (also referred to as entombment) is not a recognized decommissioning activity. CNSC staff stated that internationally, entombment referred to a situation such as Chernobyl, where a sarcophagus was erected over an accident type scenario, and does not account for a planned or engineered decommissioning of a facility. CNSC staff further stated that the IAEA document does not account for facilities that were built prior to regulations that mandated decommissioning procedures to be considered during the design phase of a facility. CNSC staff also added that the IAEA is currently working on a document to provide guidance for in situ decommissioning; however, the IAEA has not indicated when that document would be published.
36. In relation to the medium and long-term risks of using a self-levelling cement-based mixture called 'grout', such as potential leaks of radionuclides into the groundwater, the CNL representative noted that they are undertaking an environmental assessment, using a model based on very conservative assumptions, to establish that the radionuclides will be contained for a long period. The CNL representative added that their model is intended to show that any release of radionuclides will not exceed the exposure limits to the public, and that the disposal facility will meet Canadian and international standards.

² International Atomic Energy Agency GSR Part 6, *Decommissioning of Facilities*, Vienna, Austria, 2014

37. The Commission noted that several examples of entombment, which occurred several decades ago, were mentioned in the presentation by the CNL representatives. The Commission enquired if there were any breakdowns of the models used in those entombment projects. CNL staff responded that when those specific entombments were performed, the current models, standards and computing power were not available. The CNL representative further stated that grouting was performed in those cases and no degradation of the grout or any radionuclide releases have been observed. CNSC staff stated that the environmental assessment (EA) will consider additional disposal options, to assess whether the in situ decommissioning method is the most appropriate method for the protection of the environment and for the protection of the workers during the decommissioning project. CNSC staff also added that the EA will consider the effects of an entombment failure. Based on groundwater monitoring of the facility in its current state, the risk of radionuclide contamination of the groundwater appears to be low.
38. Commenting on the scope of the projects, the CNL representative stated that CNL staff working on these projects has significant experience with accelerated decommissioning and closure projects. CNL has a very detailed plan regarding the building turnover and the steps required for decommissioning the facilities. The CNL representative stated that waste is an important issue within the nuclear field, and that the construction of the NSDF facility is a key activity, as it will allow CNL to avoid the need for multiple waste handling facilities. The CNL representative further added that CNL is developing the skills needed for these projects in-house to reduce the dependence on subcontractors. Once the decommissioning crews are trained and experienced, they will be able to perform the decommissioning projects safely and efficiently.
39. The CNL representative noted that CNL is decommissioning many older buildings and the waste will be stored in an engineered disposal facility. The CNL representative added that these decommissioning and waste storage projects will permit an accelerated site remediation and environmental clean-up, improving the quality of the environment in the area for the public.
40. The Commission noted the difference between original and revised completion dates for the decommissioning projects and asked for reasons behind this change. The CNL representative responded that most of the previous dates came from the Integrated Decommissioning Plan which included a 70-year schedule for the decommissioning of nuclear liabilities. The CNL representative

added that accelerated decommissioning projects have occurred and that CNL is confident the original decommissioning timeline can be accelerated. The CNL representative also confirmed that the new completion dates are part of the contract and understanding with AECL.

41. The Commission, noting that the NSDF is intended primarily for low-level waste and intermediate-level waste with short half-lives, asked about the length of the half-lives of the intermediate level waste intended to be stored in the NSDF. The CNL representative, while he did not have an inclusive list of radioisotopes present, stated that the NSDF is expected to include Cobalt-60 and similar isotopes.
42. The Commission enquired about CNL's strategy and timeline for the waste that is not intended for the NSDF. The CNL representative responded that, regarding spent nuclear fuel, CNL is relying on the Nuclear Waste Management Organization for a national repository. The CNL representative further stated that for the remainder of the intermediate level waste, there is no single strategy. This has resulted in CNL's development of an integrated waste management strategy.
43. The Commission asked if CNL had commented on the discussion paper on waste management³. The CNL representative responded that CNL commented on the categorization and characterization of waste in that discussion paper.
44. The Commission enquired about the timeline for the repatriation of the Highly Enriched Uranium (HEU) from CRL. The CNL representative responded that the process of shipping the HEU to Savannah River in the U.S. is ongoing. The U.S. Department of Energy has set a target date for the completion of this repatriation for May 2019, but is expected to extend that date. CNL does not have an exact target completion date, as the receiver facility is not yet able to accept the liquid HEU. The CNL representative added that there has been a court case filed in the U.S. to stop these shipments, which remains unresolved.
45. The Commission asked if there was any high or medium enriched uranium or waste products being transported from other sites for storage at CRL. The CNL representative indicated that he is not aware of any other HEU shipments coming from other sites to the CRL site.

³ Canadian Nuclear Safety Commission Discussion Paper DIS-16-03 – *Radioactive Waste Management and Decommissioning*, May 2016.

46. The Commission asked about decommissioning plans for Gentilly-1 and if those plans would be coordinated with the decommissioning of Gentilly-2. The CNL representative responded that CNL does not have definitive plans for the decommissioning of the Gentilly-1 nor does it have a licence to decommission the facility. The CNL representative stated that they are developing their 10-year plan, and will re-evaluate it with AECL regarding budgets and the work CNL plans to accomplish. The CNL representative added that CNL has been in discussion with Hydro-Québec representatives on how to proceed with decommissioning projects.
47. The Commission enquired whether the proposed NSDF could accommodate the waste from future Gentilly-1 and Douglas Point decommissioning projects. The CNL representative responded that the NSDF would not be large enough to accommodate large reactor decommissioning projects.
48. The Commission asked about the proposed location of the NSDF at the CRL site. The CNL representative responded that the final site has not yet been determined and that there are two candidate sites under consideration. The CNL representative added that the initial drainage for neither site would be towards the river; however, all surface water eventually reaches the river.
49. On the issue of funding, the representative from AECL responded that all of the decommissioning and waste liabilities discussed in CMD 16-M52 are the responsibility of AECL and the Government of Canada and that the Government of Canada has made a commitment perform the work and making the necessary funds available.
50. The Commission asked the CNL representatives to explain the objective for the end state of the WR-1 facility. The CNL representative responded that CNL is in the process of developing their primary Environmental Impact Statement (EIS), and have recently met with CNSC staff to discuss the EA and the EIS. The CNL representative stated that the exact end state has not been finalized at this point.
51. The Commission asked for information about institutional control of the Whiteshell Laboratories (WL) site. The CNL representative responded that it is too early to determine the exact parameters for institutional control, adding that the current CNL contract for WL expires in 2024. Beyond that, AECL must decide on the implementation of future contracts for that site.

52. The Commission asked CNSC staff about their environmental targets for the WL decommissioning project. CNSC staff responded that, typically, environmental targets for moving the remediation site to institutional control would be part of the objectives of the EA and accepted by the Commission as part of the EA process. In Saskatchewan, which maintains provincially run institutional control, the proponent would develop an institutional control program, which would be presented to the Commission for its consideration.
53. CNSC staff further stated that, in support of the WL decommissioning process, a comprehensive study was conducted in 2002 that considered an institutional control period of approximately 200 years. In that report, the intent of the institutional control period was only for monitoring the site and did not consider the entombment option for decommissioning WR-1.
54. The CNL representative provided details on the committees used to inform the public on activities occurring at the WL and the CRL sites. The CNL representative added that CNL has kept the committees informed of the three proposed D&WM projects. The CNL representative added that these groups have Aboriginal representation and that CNL has started an Aboriginal and Métis engagement program, as specified in REGDOC-3.2.2⁴.
55. The Commission, noting that the CNL representative had significant experience with similar decommissioning and waste management projects, asked if in situ decommissioning projects had occurred outside of North America. The CNL representative responded that CNL had performed a literature survey on this topic, and found that a recent in situ decommissioning project occurred in Russia for a joint research-plutonium production reactor.
56. The Commission asked, regarding the in situ decommissioning projects in North America mentioned in the CMD, how recently the grout was installed, and if there were any environmental impacts from failures in the grout. The CNL representative responded that in situ decommissioning projects in CMD 16-M52 occurred approximately 45 years ago. Ground water monitoring of these facilities has not detected any migration of radionuclides. The CNL representative added that more recent in situ decommissioning projects have occurred in Idaho and Savannah River. These projects are too recent to have a history of legacy sampling.

⁴ Canadian Nuclear Safety Commission Regulatory Document REGDOC-3.2.2, *Aboriginal Engagement*, February 2016.

2015-16 Regulatory Framework Program

57. With reference to CMD 16-M48 and CMD 16-48.A, CNSC staff presented a report on the 2015-2016 Regulatory Framework Program. CNSC staff stated that there are two main elements to the CNSC's Regulatory Framework Program: CNSC's participation in the Government of Canada's Agenda for Legislative and Regulatory Reform, and the structured collection of documents, including regulations and regulatory documents (REGDOCS), known as the CNSC's Regulatory Framework. The goal of the Regulatory Framework Program is to make the CNSC's regulatory expectations clear to licensees and licence applicants. CNSC staff noted that, since the 2015 update to the Commission, nine regulatory documents have been published or revised and that public feedback was sought on five discussion papers on topics including waste and decommissioning and small modular reactors.
58. CNSC staff remarked that the number of REGDOCS will be reduced to 58 from 150 by 2018 and that 22 have been published since the new framework structure was adopted in 2013. Additionally, CNSC staff noted that the *Packaging and Transport of Nuclear Substances Regulation, 2015*⁵ were made. CNSC staff also provided updates on initiatives undertaken in support of the Government of Canada's "Red Tape Reduction Action Plan," and on collaboration through the Canada-U.S. Regulatory Cooperation Council to enhance cooperation between regulatory bodies.
59. The Commission congratulated CNSC staff on the preparation of the Regulatory Framework Report and on the goal to substantially streamline and reduce the number of documents.
60. The Commission asked about the process to keep documents up-to-date going forward. CNSC staff responded that there will be a rolling five-year review cycle for the documents. Staff also commented that future changes to documents may be made more quickly, depending on the complexity and scope of the issue, and changes could be made at any time if needed.
61. The Commission noted that 22 documents have been developed in the past four years and enquired about the likelihood of completing the remaining 36 documents in two years. CNSC staff indicated that the pace will increase because many documents are simultaneously under development and that many documents are relatively recent and therefore require less effort to update. CNSC staff noted that the plan is to publish another 22 documents in the

⁵ SOR/2015-145

current year alone.

62. The Commission asked if CNSC staff could provide an example of a robust regulatory framework in another organization. CNSC staff indicated that it is difficult to find another organization that regulates an entire project or regulates for the whole lifecycle like the CNSC but that through the Community of Federal Regulators, for example, best practices are shared.
63. The Commission asked about regulatory framework practices internationally and if there is a comparison to Canada. CNSC staff responded that the IAEA encourages a 5 to 10-year timeframe for the review of documents within a regulatory framework and that the CNSC is meeting this objective. CNSC staff added that the CNSC is a leader in this regard.
64. The Commission enquired about the perception of the nuclear industry regarding the comparison to other jurisdictions. A representative from the nuclear power industry stated that the CNSC's regulatory framework is clear and the documents in it are clear. The representative indicated, however, that there are some process issues that are of concern to industry. The representative indicated that the volume of changes in CNSC documents over a short period can present problems because changes are consequentially required in the licensee's own documentation and practices, and these take time to incorporate and implement. Additionally, the licensee must ensure that the changes required through new REGDOC initiatives will actually improve safety and that the changes can be made in a cost-effective manner.
65. The Commission asked CNSC staff to explain how they consider cost/benefit when proposing regulatory instruments. CNSC staff indicated that cost/benefit information is considered when it is brought forward by a licensee and that the onus is on the licensee to present information to the CNSC on how the licensee will meet a regulatory requirement.
66. The Commission enquired about the apparent low level of interest among licensees to comment on some REGDOCs and asked about the nature of the outreach efforts to communicate with stakeholders. CNSC staff stated that in some instances stakeholders are targeted specifically, such as Aboriginal groups for the Aboriginal Engagement REGDOC. In other instances, where there is a larger target audience, email, social media, workshops and other communication tools are used. CNSC staff indicated that some stakeholders find it difficult to respond to requests for comment since they have competing priorities and resources. CNSC staff added, however, that comments are welcomed and

considered at any time, even following completion of a document.

67. The Commission asked about communication efforts directed at specific groups representing the medical and university communities. CNSC staff remarked that CNSC representatives attend professional association annual meetings to provide information and that every licensee receives, as part of the consultation process, a copy of proposed REGDOCs affecting them. CNSC staff also detailed other outreach activities undertaken. The Commission noted that a regulated community is able to contact the CNSC at any time regarding the impact of REGDOCs and that amendments to documents can be considered and incorporated at any time.
68. The Commission requested an update on the Radioactive Waste Management and Decommissioning Discussion Paper, DIS-16-03. CNSC staff noted that the comment period on the discussion paper had just ended and CNSC staff is in the process of preparing the draft REGDOCs, one on waste programs and one on decommissioning planning, for consultation. This is expected in June 2017 with a goal to publish the documents by the end of the fiscal year 2017-2018. CNSC staff added that there is also consideration being given to developing waste management regulations and that development of such regulations would be a major, multi-year project. CNSC staff noted that the regulatory framework provides clarity on how the CNSC regulates nuclear waste and that CNSC staff is updating requirements as appropriate.

Regulatory Oversight Report on the Use of Nuclear Substances in Canada: 2015

69. With reference to CMD 16-M37 and CMD 16-M37.A, CNSC staff presented the “Annual Regulatory Report on the Use of Nuclear Substances in Canada: 2015” (Nuclear Substances Report) to the Commission. The report summarizes the safety performance of 1,599 licensees, holding 2,295 licences, which are authorized by the CNSC to use nuclear substances and prescribed equipment in the medical, industrial, academic and research, and commercial sectors. CNSC staff noted that, as in 2014, through inspections, reviews and assessments, the nuclear substance industry continues to operate safely under the oversight of the CNSC. CNSC staff stated that there were 155 reported events in 2015 and that one resulted in a worker exceeding the regulatory dose limit.
70. The Commission expressed its appreciation for the CNSC staff’s effort in preparing the Nuclear Substances Report and remarked that the report improves each year.

Interventions – Written and Oral Submissions

71. With reference to CMD 16-M37.1 and CMD 16-M37.1A, the Canadian Radiation Protection Association (CRPA) representatives provided information about the CRPA, its relationship with the CNSC, and focused on the comment sections in their written submission. The CRPA noted that, during the previous year, at the suggestion of CNSC staff, it had created an operational experience (OPEX) forum called SHARE (Stakeholder Hub for Accrued Reported Events) to track events at licensed facilities whether or not the events were subject to reporting to the CNSC. The qualifications and appointment of Radiation Safety Officers (RSOs) was raised as a major issue within the CRPA. The CRPA representative stated that the organization encourages the CNSC to formally recognize the CRPA (R) designation as a key element in the CNSC process to qualify and appoint RSOs.
72. The Commission thanked the CRPA for the very useful presentation.

Radiation Safety Officers

73. The Commission asked CNSC staff to comment on the remarks put forward by the CRPA regarding the designation of persons as RSOs. CNSC staff indicated that qualifications for RSOs vary depending on the industry sector in which they are working. To address this issue, CNSC staff is undertaking a review to determine what qualifications RSOs should have and how to ensure that qualifications are maintained. CNSC staff is not at this time able to comment on whether the process and qualification criteria used by the CRPA to designate its members through its CRPA (R) designation would be adopted by the CNSC.
74. The Commission commented that RSOs are vital in large, complex organizations and due consideration should be given to requiring formal training and certification. CNSC staff indicated that a rigorous process is in place to review qualifications of RSOs, and applications from licensees are evaluated carefully in this regard. CNSC staff noted that, in addition to RSO qualifications, the licensee must ensure that sufficient personnel, time and financial resources are available to enable RSOs to effectively carry out their functions. CNSC staff added that these issues are reviewed at the time of licensing and monitored during the term of the licence. The issue is complex, CNSC staff stated, and it is the licensee's responsibility to ensure safety and to ensure that personnel are qualified to carry out and oversee the licensed activity.
75. CNSC staff suggested that further engagement with CRPA be

undertaken to determine where gaps may exist and to make a concerted effort to resolve issues, keeping safety at the forefront. CNSC staff stated that a comprehensive systematic evaluation of RSOs would be conducted and that CNSC staff would provide regular updates to the Commission. CNSC staff informed the Commission that if certification of all RSOs is determined to be the best option, this alternative may require regulatory change, which entails a different process than changing a CNSC regulatory document. The Commission requested that, prior to undertaking the evaluation, CNSC staff present to the Commission the scope of the review and terms of reference to ensure that the evaluation meets the expectations of the Commission.

ACTION
by
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76. With respect to acceptance of the RSO designation, a CRPA representative commented that some employers are not supporting the CRPA's safety professional program because the CNSC does not require it. As a result, some employees are allowing their CRPA (R) designation to lapse. The CRPA representative remarked that CNSC recognition of the professional designation of CRPA (R) may foster employer support for designation.

Event Reporting

77. The Commission posed a number of questions relating to event reporting and the CRPA's recommendation on having more detailed reporting of Level 0 events under the International Nuclear Events Scale (INES). The Commission asked if near misses are reported; if comparisons can be made with the rating system used at nuclear power plants; if conventional non-nuclear incidents are reported; if OPEX incidents outside Canada are considered; and, if information on U.S. reporting compared to that in Canada could be addressed.
78. On the question regarding U.S. reporting, CNSC staff indicated that an automated update system is used by the United States Nuclear Regulatory Commission (USNRC) that enables immediate website posting. CNSC staff noted that while immediate reporting may be more difficult in Canada, partly due to official languages requirements, the regulatory oversight report now contains a list of all reported events. CNSC staff provided additional remarks on how information is shared and indicated that feedback in this regard from the CRPA would be welcomed.
79. The Commission asked if events could be posted to the CRPA's SHARE system more quickly. CNSC staff responded that reporting in this manner is a possibility and is encouraged by the CNSC but an industry-wide approach may not yet be possible. A CRPA representative remarked that SHARE is available to CRPA

members but that the organization does not represent all people who work with nuclear substances.

80. Regarding the Commission's question on reporting near misses, CNSC staff reported that it is working with the industrial radiography sector, through a working group, to share operating experience and develop tools in order to mitigate the consequences of all events, including near misses.
81. With respect to INES reporting, CNSC staff informed the Commission that INES was developed as a communication tool regarding incident severity at nuclear power plants. INES has been adapted to address all nuclear events including those associated with radioactive sources and nuclear substances, but is not designed to compare safety performance among facilities or organizations. CNSC staff added that the scale is intended to report on radiological and nuclear events and not on industrial events. CNSC staff noted that INES reporting is only one of many tools used to report incidents and that comments on developing a more customized approach for the nuclear substances industry are helpful.
82. On the question regarding international OPEX reporting, CNSC staff indicated that participation in the IAEA, and bilateral agreements with some countries, enable the CNSC to monitor international events. CNSC staff noted, for example, that Canada works closely with the U.S. on cross-border transport issues.
83. The Commission asked the CRPA representatives about how event information was communicated prior to the implementation of SHARE. The CRPA representative commented that event information was distributed through email groups, informal means such as information sharing at conferences, and the CRPA's regular newsletter. The Commission remarked on the importance for a professional organization to have an information-sharing tool and the CRPA representative commented that, with SHARE, event summaries and trends are more easily disseminated than in the past.
84. The Commission requested CNSC staff to address the CRPA's statement in Comment 9 of their submission regarding ALARA (As Low As Reasonably Achievable) requirements and the relationship with risk. CNSC staff stated that there is not a direct correlation between poor ALARA and high doses. During inspections, CNSC staff cites non-compliances against requirements to keep doses ALARA even if workers do not have elevated doses. CNSC staff always encourages the principle of ALARA, a regulatory requirement, in order to promote a healthy

safety culture and encourages the development and maintenance of strong radiation protection measures in all programs.

85. The Commission asked the CRPA representative if hospital consolidations make it more difficult for CRPA members to perform their jobs and if employees have clear lines of reporting and the support of hospital administration. The CRPA representative remarked that changes in structure are in the early stages and that data collection is important at this stage in order to track the impacts. The Commission suggested that a third party be engaged to provide some data and advice on the issue of consolidation of services and the impact on service delivery by CRPA members. A CRPA representative outlined his experience regarding consolidation of healthcare regions in Manitoba, noting that radiation programs continue to work effectively under the model developed.
86. Continuing on the topic of licence consolidation, the Commission asked CNSC staff if there was a numerical objective and asked about the importance of a reduction in the number of licences. CNSC staff outlined that the goal of consolidation is to reduce the administrative burden on licensees which hold multiple licences, such as hospitals and universities. CNSC staff responded that there is no definitive number and that consolidation takes many forms based on uses of radioactive materials and the geographic location of licences held by a licensee. CNSC staff summarized that the number of licensees could possibly be reduced by a few hundred.
87. The Commission enquired about how licensees might view consolidation. CNSC staff indicated that some licensees prefer multiple licences and added that consolidation is not mandated or required. The Commission stressed that the goal must be safety and that licence consolidation must not compromise the responsibilities of licensees.
88. CNSC staff noted that, currently, under REGDOC-1.6.1, “Licence Application Form – Nuclear Substances and Radiation Devices,” licence applicants who operate in more than one location must name workers at each location who report to the RSO. In addition, CNSC staff stated there must be a person responsible for radiation safety at each location. For clarification, CNSC staff indicated that not all licences held by a single licensee can be consolidated because the radiation safety programs may be different for various activities permitted under the licences. The Commission indicated that a key element of safety is ensuring that RSOs have the appropriate authority to take action when needed. CNSC staff remarked that management structure is an important part of licence assessment to ensure that RSOs have appropriate levels of

authority and responsibility. CNSC staff added that the RSO must also have the ability to talk with the licence authority directly without any intermediaries.

General Questions

89. The Commission asked the CRPA representative about outreach and the availability of CNSC staff. The representative indicated that ongoing communication is important and that incremental change is preferable to immediate major change. CNSC staff provided information on their outreach activities and suggested that, in order to better meet the needs of the CRPA, the CRPA provide to the CNSC a list of topics for future consideration.
90. The Commission asked CNSC staff about their oversight responsibilities for human research protocols using medical isotopes. CNSC staff responded that an ethical review of proposed procedures involving human research trials is required and the RSO is responsible for forwarding information to the CSNC on the protocols to be used pursuant to the activities conducted under the licence.
91. The Commission enquired about guidance for the research community on expectations regarding human research. CNSC staff responded that there is not a specific REGDOC on human research but information on requirements for issuing a licence for human research is contained in REGDOC-1.6.1. CNSC staff indicated, in response to the Commission's question on the number of research protocols that exist, that the number of protocols is not currently available but that 24 licensees may perform human research. CNSC staff indicated that the number of protocols could be provided in the future.
92. The Commission asked about the reduced number of inspections in the academic and research sector, as noted in Figure 34 of the CNSC Staff CMD, "Academic and research sector performance comparison with the laboratory studies and consolidated use of nuclear substances sector – inspection ratings meeting or exceeding expectations of operating performance, 2011-2015." CNSC staff responded that this reduction follows a CNSC staff review in 2014 of the risk ranking and performance of licensees within the sector. CNSC staff determined that where risk was no longer considered high following the 2014 review, fewer inspections were required. CNSC staff added that annual inspections are undertaken only for higher risk licensees and a two- year cycle is now used for other licensees. Also, CNSC staff noted that desktop assessments were instituted on a frequent basis. CNSC staff summarized that the focus has changed to place additional emphasis on non-

compliances and CNSC staff is working in this regard with individual licensees and the nuclear substance sector as a whole.

93. The Commission asked if inspection of operating performance includes both nuclear energy workers and non-nuclear energy workers. CNSC staff commented that there is no difference in inspection procedures for activities conducted by nuclear energy workers or non-nuclear energy workers. CNSC staff noted that most employees are not nuclear energy workers.
94. The Commission enquired about how the results of desktop reviews complemented inspections and how they get factored into the overall assessment and the annual report. CNSC staff indicated that an inspection may not occur if a desktop assessment does not reveal any issues. During the conduct of the desktop assessment, CNSC staff would review all the performance data, events, previous inspections and the licensee's annual compliance report (ACR). The results of the desktop assessment are then used as the basis for an inspection and any type of regulatory action that may be triggered.
95. The Commission sought clarification on the number of licensing specialists indicated on page 21 of the CNSC presentation, "Regulatory Oversight of Nuclear Substance Use." CNSC staff commented that Calgary is the only regional office that has licensing specialists and this is to ensure coverage across Canada during all business hours. CNSC staff added that additional licensing specialists are located in Ottawa and this number would be provided.
96. The Commission asked about what appears to be a 60 per cent increase in staff effort on regulatory oversight of nuclear substance use. CNSC staff indicated that this increase is the result of changes in coding practices and time accounting. The time of all staff, including administrative staff performing initial licence assessments, is now included. The Commission remarked that this information should be noted in the Annual Report in order to explain the big change over the previous year.
97. The Commission asked how the four Safety and Control Areas (SCAs) highlighted in the Annual Report were chosen. CNSC staff responded that all SCAs relevant to the licence are covered when conducting compliance inspections. The four reported in the Annual Report were chosen because they apply to all licences and they provide an overall view of industry performance.

98. With respect to the Security category, the Commission asked about “enhanced security” and why it is taking so long to become a requirement. CNSC staff stated that this relates to sealed sources and is covered in REGDOC- 2.12.3, “Import and Export.” A phased implementation approach is being applied to focus initially on high-risk sources. CNSC staff added that it is promoting increased awareness of the security requirements among licensees.
99. The Commission asked if any of the transportation events reported involved Category 1, 2 or 3 radioactive sealed sources. CNSC staff replied that some incidents involved Category 2 sealed sources and that most incidents related to lost or stolen devices that were quickly recovered. All other events related to traffic accidents or slight damage to packages that did not result in a significant release or impact to the environment.
100. The Commission enquired about the use of financial guarantees for the nuclear substances sector in jurisdictions outside Canada. CNSC staff responded that the Canadian use of financial guarantees is unparalleled, although the United States requires financial guarantees for some aspects of the industry. CNSC staff also indicated that there is now widespread acceptance of financial guarantees among licensees.
101. The Commission asked about the increase in packaging and transport events, also reported in Figure 11 of the CNSC staff CMD, “Reported events from 2011-2015 – all sectors combined.” CNSC staff reported that there has been an increase in packaging and transport events but this increase is not the result of changes to the regulations. CNSC staff indicated that regulatory compliance did not decrease and no common contributing factors were identified in the events reported.
102. The Commission asked about the renewal of certification of exposure device operators and if the 141 new exposure device operators noted on page 30 of the CNSC staff presentation, “Certification of Exposure Device Operators,” were additional or replacements for operators who have left. CNSC staff stated that the 141 new operators are new and not replacements for operators who have left.
103. With respect to figure 6 in the CNSC staff CMD, “Inspection ratings for operating performance, 2011-2015”, the Commission asked CNSC staff if they could determine how many of the 120 licensees reported as “Below Expectations” in 2015 were similarly categorized in earlier years and if some form of intervention might be required. CNSC staff indicated that, in the course of conducting a licensing review, past performance is considered, trends are

established and continued poor performance would be addressed. In future, the report should look at repeat offenders as well as multiple offenders.

104. The Commission asked CNSC staff about possibly having different licensing regimes for large medical and university organizations compared, for example, to single-site licensees. In the same context, the Commission enquired if radioisotope producers in the university or hospital sectors are reported under the commercial sector if they are covered by the same licence as the larger organization. CNSC staff responded that isotope production accelerators are generally covered under a separate licence and are reported separately. CNSC staff added that isotope production facilities are licensed separately because they have a separate radiation safety program.
105. The Commission requested an update on the pilot phase of the mobile inspection kit (MIK) project, as referenced on page 15 of the CNSC staff CMD. CNSC staff commented that handheld tablets were distributed to staff inspectors about one year ago and have been used extensively. The tablets have been most beneficial on Type II inspections that are normally done by a single inspector, as opposed to Type I inspections that are usually conducted by a team. CNSC staff noted that the pilot project is continuing and enhancements are being made to the tool so it is too early to report final results at this time.
106. The Commission asked if licence applications covered by REGDOC-1.6.1 could be completed online. CNSC staff responded that forms could be completed and forwarded to the CNSC online.
107. The Commission asked if the map on page 2 of the CNSC staff CMD, "Map of Canada including examples of licensee locations," is available on the CNSC's website and if it is interactive. CNSC staff indicated that the map is on the website. It is Google-based and users can click on the map points to access detailed information on the licensees at that location.
108. The Commission enquired about the focus in 2016 on performance-based inspections, as noted on page 50 of the CNSC staff presentation, "Regulatory Focus in 2016." The Commission asked about the ability to compare year-over-year results when some reporting aspects are changing. CNSC staff acknowledged that changes are being made but that reporting continues to be categorized according to the SCAs. CNSC staff added that a new, more comprehensive, template for inspection is being implemented. The new process will enable both the CNSC and industry to better identify areas for improving worker performance.

109. The Commission concluded with remarks of appreciation to CNSC staff that the Annual Report was well crafted and provides good information. During the course of the meeting, the Commission provided suggestions for improving future reports. The Commission indicated, for example, that data and data analysis should be key elements of the report going forward. The Commission requested that the table on page 3 of the CNSC presentation, “CNSC Regulatory Oversight Reports,” be updated and presented to the Commission at each meeting where an oversight report is to be discussed.

DECISION ITEMS – Decision on a Regulatory Document

Regulatory Document REGDOC-2.9.1, *Environmental Protection: Environmental Principles, Assessments and Protection Measures*

110. With reference to CMD 16-M51 and CMD 16-M51.A, CNSC staff presented to the Commission REGDOC-2.9.1, *Environmental Protection: Environmental Principles, Assessments and Protection Measures*⁶ for consideration. REGDOC-2.9.1 provides the CNSC’s comprehensive, lifecycle environmental protection framework in one document. This document describes the CNSC’s guiding principles for environmental protection, the scope, roles and responsibilities of an environmental assessment (EA), and the CNSC’s requirements on environmental protection measures for licensees and applicants. CNSC staff expects that REGDOC-2.9.1 will lead to greater regulatory certainty and consistency for licensees, enhanced harmonization with other provincial/federal jurisdictions, and improved transparency for the Canadian public and the international community. If approved, REGDOC-2.9.1 would supersede two previous regulatory documents: P-223⁷, *Protection of the Environment*, and the previous REGDOC-2.9.1, *Environmental Protection Policies, Programs and Procedures*⁸.

111. The Commission noted that, on page 13 of CMD 16-M51.A, one of the objectives of REGDOC-2.9.1 is to “enhance harmonization with provincial and other federal jurisdictions.” The Commission asked for an example of such harmonization. CNSC staff responded that, if the provincial requirements are scientifically defensible, the CNSC incorporates those requirements into its licences.

⁶ Canadian Nuclear Safety Commission Regulatory Document REGDOC-2.9.1, *Environmental Policy, Assessments and Protection Measures* (Draft).

⁷ Canadian Nuclear Safety Commission Regulatory Policy P-223, *Protection of the Environment*, February 2001.

⁸ Canadian Nuclear Safety Commission Regulatory Document REGDOC-2.9.1, *Environmental Protection Policies, Programs and Procedures*, September 2013.

112. The Commission asked if, under REGDOC-2.9.1, a separate EA would have to be performed for the Commission in addition to a provincial one. CNSC staff stated that the provincial requirements can be mapped against the CNSC requirements in order to prevent duplicate work from being performed. The process for harmonization into one single document is also formalized in this REGDOC.
113. The Commission asked if REGDOC-2.9.1 would address the issue of determining when and by whom decisions would be made. CNSC staff responded that this would be determined on a case-by-case basis. However, REGDOC-2.9.1 on its own is not capable of completely solving jurisdictional issues.
114. CNSC staff noted that many of the environmental protection requirements of CEAA 2012 and the NSCA are the same. Therefore, the results of the EA would be the same under either. CNSC staff also added that REGDOC-2.9.1 illustrates the different processes that could be applied, and that information was included to address the issue of confusion raised by industry groups at workshops.
115. The Commission noted that in REGDOC-2.9.1, proponents can choose an integrated or sequential approach to the EA, both of which have a timeline of 24 months. In the case of sequential processes, there may be delays. The Commission asked if 24 months was a realistic timeline for both approaches. CNSC staff responded that, once they receive an application, there is a 24-month regulated timeline for licensing respecting Class 1 facilities and uranium mines and mills. . CNSC staff added that there would be a 24-month period for the decision on the EA. The proponent can choose to submit the licence application after the EA decision is complete, in which case there would be another 24-month timeline applied to the licensing decision.
116. The Commission commented that, under REGDOC-2.9.1, the licensing information should be updated based on the results of the EA. CNSC staff noted that, in past situations such as with the Darlington refurbishment EA, the licensing hearing happened two years after the EA was performed, allowing for enough time to update the hearing documents.
117. CNSC staff noted that REGDOC-2.9.1 is not intended to introduce new requirements to facilities such as hospitals, where the releases go to a sewage treatment plant. The Commission also asked if there

- was a consultation with facilities such as hospitals and universities regarding REGDOC-2.9.1. CNSC staff responded that every licensee is on the distribution list to be consulted on changes to documents in the REGDOC framework.
118. The Commission reiterated its concern over the clarity of REGDOC-2.9.1 when considering facilities such as hospitals, universities and cyclotrons, as well as the boundaries of the graded approach. CNSC staff responded that they have noted the Commission's concern.
119. The Commission commented that REGDOC-2.9.1 implies a formal process for all facilities, and should indicate that an applicant should consult with the CNSC before commencing an EA. CNSC staff stated that the licence application guide for facilities such as hospitals, universities and cyclotrons has been updated, and highlights that applicants should consult with the CNSC before starting an EA. CNSC staff added that information submitted to CNSC staff from applicants, based on the licence application guide, is used by CNSC staff to determine the potential environmental interactions of the project.
120. The Commission asked CNSC staff for views on why environmental groups other than the Canadian Environmental Law Association did not provide comments on the REGDOC. CNSC staff responded that it could be that the main concern from environmental groups would be the actual projects or changes in legislation, and that a change in a REGDOC may not be a priority for those groups. The Commission enquired as to why there was no reaction from Aboriginal groups. CNSC staff responded that they received comments from the Saugeen Ojibway Nation on an earlier version of this REGDOC.
121. Asked about the CEAA review, CNSC staff responded that REGDOC-2.9.1 provides needed clarity on CEAA 2012 and on performing EAs under the NSCA. CNSC staff stated that the aforementioned review may be a lengthy process, and that REGDOC-2.9.1 will provide additional guidance and regulatory certainty to applicants and licensees while the CEAA 2012 review is underway.
122. The Commission asked for an industry representative to provide remarks on the issue of duplicative comments from different licensees, as well as their level of satisfaction with REGDOC-2.9.1 and the overall REGDOC development process. The Bruce Power representative stated that they accept the final REGDOC and, overall, they were satisfied with the level of interaction they received as stakeholders. The Bruce Power representative stated

that the industry provides joint comments, and may attach comments separately if the organization feels strongly about particular issues. The Bruce Power representative added that industry organizations do not always agree on everything, so not all comments can be jointly submitted.

123. The Commission noted that it is the responsibility of the Commission to determine the scope of an EA, and it may designate another jurisdiction to perform aspects of the EA. The Commission enquired if the designated jurisdiction could modify the scope of the EA, based on their own concerns. CNSC staff responded that this may occur but the final decision on the EA rests with the Commission, and that consideration of any extra scope included by another jurisdiction is at the discretion of the Commission, in its EA.


124. The Commission asked CNSC staff for an overview of the BATEA principle (Best Available Technology Economically Achievable), and how it applied to REGDOC-2.9.1. The expectation of CNSC staff regarding BATEA is that during the design stage of a new project, licensees will ensure that their technologies, such as pollution prevention systems, are meeting the capabilities and performances of the top performing facilities in their industry sector. A second situation where BATEA applies is during adaptive management. CNSC staff added that BATEA includes economic considerations with regards to the selection of technology.

125. After considering the recommendations submitted by CNSC staff, the Commission approves regulatory document REGDOC-2.9.1, *Environmental Protection: Environmental Principles, Assessments and Protection Measures*, for publication and use after minor modifications requested by the Commission during the meeting are made.

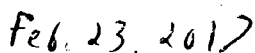
DECISION

Closure of the Public Meeting

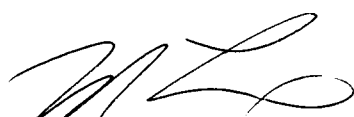
126. The meeting closed at 12:34 PM on September 22, 2016.



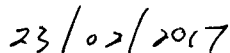
Recording Secretary



Date



Secretary



Date

APPENDIX A

16-M54	2016-09-08	6.02.02
Agenda of the meeting of the Canadian Nuclear Safety Commission (CNSC) to be held on Wednesday and Thursday, September 21 and 22, 2016 in the Public Hearing Room, 14 th floor, 280 Slater Street, Ottawa, Ontario		
16-M54.A	2016-09-15	6.02.02
Revised Agenda of the meeting of the Canadian Nuclear Safety Commission (CNSC) to be held on Wednesday and Thursday, September 21 and 22, 2016 in the Public Hearing Room, 14 th floor, 280 Slater Street, Ottawa, Ontario		
16-M55	2016-09-20	6.02.03
Approval of Minutes of Commission Meeting held on August 17 and 18, 2016		
16-M56	2016-09-16	6.02.04
Status Report on Power Reactors		
16-M58	2016-09-08	6.02.04
Event Initial Report – Cameco Corporation Cigar Lake: Worker injured due to animal attack Submission from CNSC Staff		
16-M59	2016-09-20	6.02.04
Event Initial Report – Canadian Nuclear Laboratories Fatality at Chalk River Laboratories Submission from CNSC Staff		
16-M57	2016-09-19	6.02.04
Information Item – Canadian Nuclear Laboratories Limited Status Report on Fitness for Service for the Chalk River Laboratories Submission from CNSC Staff		
16-M52	2016-08-31	6.02.04
Event Initial Report – Canadian Nuclear Laboratories’ Integrated Strategy for Decommissioning and Waste Management Presentation by Canadian Nuclear Laboratories Limited		
16-M51	2016-08-19	6.02.04
Decision Item on a Regulatory Document REGDOC 2.9.1 – Environmental Protection Submission from CNSC Staff		

CMD		
16-M51.A	2016-09-22	6.02.04
Decision Item on a Regulatory Document REGDOC 2.9.1 – Environmental Protection Presentation by CNSC Staff		
16-M48	2016-09-05	6.02.04
Information Item – 2015-16 Regulatory Framework Program Submission from CNSC Staff		
16-M48.A	2016-09-21	6.02.04
Information Item – 2015-16 Regulatory Framework Program Presentation by CNSC Staff		
16-M37	2016-07-28	6.02.04
Information Item – Regulatory Oversight Report on the Use of Nuclear Substances in Canada: 2015 Submission from CNSC Staff		
16-M37.A	2016-09-22	6.02.04
Information Item – Regulatory Oversight Report on the Use of Nuclear Substances in Canada: 2015 Presentation by CNSC Staff		
16-M37.1	2016-08-31	6.02.04
Information Item – Regulatory Oversight Report on the Use of Nuclear Substances in Canada: 2015 Submission from the Canadian Radiation Protection Association		
16-M37.1A	2016-09-14	6.02.04
Information Item – Regulatory Oversight Report on the Use of Nuclear Substances in Canada: 2015 Presentation by the Canadian Radiation Protection Association		