

Canadian Nuclear
Safety Commission



Commission canadienne
de sûreté nucléaire

Minutes of the Canadian Nuclear Safety
Commission (CNSC) Meeting held
on November 5, 2014

Minutes of the Canadian Nuclear Safety Commission (CNSC) Meeting held Wednesday, November 5, 2014 beginning at 9:00 at the Public Hearing Room, 14th floor, 280 Slater Street, Ottawa, Ontario.

Present:

M. Binder, President
A. Harvey
D.D. Tolgyesi
R. Velshi

M. Leblanc, Secretary
L. Thiele, General Counsel
S. Dimitrijevic, Recording Secretary

CNSC staff advisors were: G. Rzentkowski, T. Jamieson, L. Sigouin, R. Jammal, B. Poulet, K. Murthy, D. Céleste, J. Sandeman, P. Fundarek, H. Rabski, S. Faille, J. Plante, J. Schmidt, L. Simoneau, C. Carrier, P. Thompson and R. Awad

Other contributors were:

- Ontario Power Generation Inc.: K. Gilbert, M. Knutson and J. Coles
- Fire Marshal and Emergency Management: T. Kontra
- Health Canada: B. Ahier
- Intervenors: B. Devitt and M. Purdy
- Public Safety Canada: C. Oldham
- Regional Municipality of Durham: W. Leonard
- Canadian Radiation Protection Association: J. Dovyak and A. Shoushtarian
- McMaster University: C. Heysel and D. Tucker

Constitution

1. With the notice of meeting CMD 14-M67 having been properly given and four permanent Members of the Commission being present, the meeting was declared to be properly constituted.
2. Since the meeting of the Commission held October 1-2, 2014, Commission Member Documents CMD 14-M69 to CMD 14-M74 were distributed to Members. These documents are further detailed in Annex A of these minutes.

Adoption of the Agenda

3. The revised agenda, CMD 14-M68.B, was adopted as presented.

Chair and Secretary

4. The President chaired the meeting of the Commission, assisted by M. Leblanc, Secretary and S. Dimitrijevic, Recording Secretary.

Minutes of the CNSC Meeting Held October 1-2, 2014

5. The Commission Members approved the minutes of the October 1-2, 2014 Commission Meeting with the following two corrections to the draft presented in CMD 14-M69:
 - In paragraph 56 of the draft, the phrase “and is planning to apply to the Commission for an increase in the capacity of the in-pit TMF at Key Lake” is deleted, so that the paragraph reads
“The Commission enquired whether tailings would be added to the above ground TMF at Key Lake in the future. CNSC staff responded that they have not received any applications in this regard. The Cameco representative advised the Commission that the company has no plans at this time to add tailings to the above-ground TMF.”
 - In paragraph 86 of the draft, the phrase “financial guarantees were in place” is replaced by “all necessary financing is in place”, to read
“The Commission requested confirmation that all necessary financing is in place to ensure completion of the Beaverlodge project. The representative from the Saskatchewan Ministry of the Economy responded that all necessary financing is in place.”

STATUS REPORTS

Status Report on Power Reactors

6. With reference to CMD 14-M70, which includes the Status Report on Power Reactors, CNSC staff had no additional information. CNSC staff underlined the information already presented in CMD 14-M70, that two of the 19 reactor units, Unit 5 at Bruce A Station and Unit 7 at Pickering Station, were in a planned maintenance outage. CNSC staff also provided more details regarding the manual trip of Pickering Unit 4, and noted that the event was not a serious process failure and had no impact on the safety of workers, the public or the environment.

7. The Commission sought more details about the automatic shutdown system, which had been triggered but had not completed the action, so that the Pickering Unit 4 reactor had to be shut down manually. CNSC staff provided technical details on the event, and an OPG representative added information on activation signals that caused the event.
8. The Commission asked about the frequency of similar events. CNSC staff responded that they report two to four similar events per year. The OPG representative concurred and stated that, on average, similar spurious signals caused by different reasons, spread over six operating units, are typically seen once per quarter. The OPG representative added that the root cause for such spurious signal was still being investigated and that they had checked all connections and replaced all active components. The OPG representative further added that, in the majority of previous events, they had found the root causes.
9. The Commission asked about the number of channels and about the nature of the test conducted in another channel. The OPG representative described the channels and testing done on them. CNSC staff stated that they are following these tests during which the reliability of the shutdown system has to be demonstrated against established reliability targets.

Event Initial Report (EIR)

Refueling Error at the McMaster Nuclear Reactor

10. With reference to CMD 14-M73, CNSC staff presented information regarding a refueling error that occurred at the McMaster Nuclear Reactor (MNR) on October 8, 2014. In this event, during the rearrangement of two in-core fuel assemblies, one assembly was, by mistake, left in the channel dedicated for iodine-125 production, which does not have cooling like other normal fuel positions. The error was discovered after the reactor restart. The reactor was manually tripped and the CNSC was informed. The affected fuel assembly was replaced, tagged and removed to fuel storage. After the safety review, the Manager Reactor Operations and the Reactor Supervisor concluded that there were no safety concerns, and the reactor was restarted. However, this was in contravention of MNR's Operating Limits and Conditions (OLC) which require the reactor restart approval by McMaster's internal Nuclear Facilities Control Committee (NFCC) and the CNSC. The contravention was recognized and the reactor was kept shutdown the next day. CNSC staff noted that the workers and members of the public were not affected and the event had no impact on the environment. A representative from MNR confirmed that the CNSC staff's summary of the event was accurate.

11. The Commission enquired about reporting criteria for EIRs. CNSC staff responded that their view regarding this event had evolved over time and that the main criteria for reporting the event were a potential radiological release from the core, as well as a possibility that the event could receive substantial media coverage and have a high public visibility.
12. The Commission asked if the event could have been undetected for a longer time, with greater consequences, without an operator being close to the reactor controls, and whether the operator's presence was a common practice. CNSC staff responded that a normal process requires that the operator go back and remove the fission chamber after the reactor restart. As part of the process, operators go every 30 minutes to look at the core. In addition, even small fuel defects would be readily detected due to the radiation monitoring and fission product detectors, and the reactor would have tripped. CNSC staff reiterated that the consequences of this event would not be significant to the public.
13. The Commission asked CNSC staff to outline what could be the worst-case scenario in events like this one. CNSC staff responded that there are provisions in place to automatically trip the reactor on detection of fission products, and that events like this one are bounded by a complete flow blockage in the reactor core, which is covered by the safety analysis report. CNSC staff noted that this particular case was not analyzed in the safety analysis report, but is bounded in the worst-case scenario. The consequence of such events is less than $1\mu\text{Sv}$ (microsievert) to members of the public, representing less than 0.1% of the allowed public dose. The MNR representative concurred with this statement and added that the worst-case scenario in the safety analysis report for this type of event foresees the release of the dose equivalent of 1 mSv to the public, even if a partial failure of containment through the early phases of the accident is assumed.
14. The Commission asked about the frequency of fuel shuffling. CNSC staff responded that, on average, six changes/interactions with the core are expected per year.
15. The Commission asked if MNR was developing techniques to prevent this kind of events. The MNR representative responded that they were updating their procedures to include some extensive independent verification steps and were considering a change that would physically prevent placing of fuel in those locations.
16. The Commission asked about expected time for completion of the root-cause analysis and whether the root-cause analysis would encompass the causes for the restart that had happened without following the appropriate approval channels. The MNR

representative responded that the root-cause analysis will include the operator error associated with a fueling incident as well as the decision-making process for restart. The MNR representative said that they had not established an endpoint and explained that their priority is to ensure a thorough investigation and that the university has appointed a team, including outside industry experts, to conduct the investigation. The MNR representative committed to provide regular updates to the CNSC staff on the progress of the investigation. The MNR representative stated, and CNSC staff confirmed, that MNR will review the procedure, subject to internal approval, before the next refuelling of the reactor or fuel reshuffling.

17. The Commission asked whether the final configuration and procedures recommended in the final report would have to be approved by CNSC staff. CNSC staff responded that there is no formal approval process; however, CNSC staff will review the root cause analysis and the proposed action plan to judge its acceptability, and will review adequacy of the measures in place prior to accepting the proposed measures as corrective actions. The Commission requested that CNSC staff present the findings of the final report at one of its public proceedings as soon as the results of the investigation are available.

ACTION
by
May 2015

Shipping of Contaminated Type A Packages by Isologic Innovative Pharmaceuticals Ltd.

18. With reference to CMD 14-M74, CNSC staff presented information regarding shipping of contaminated Type A packages by Isologic Innovative Radiopharmaceuticals Ltd. (Isologic) that had occurred on August 12, 2014, when the Royal Victoria Hospital in Montreal and the Montreal General Hospital had received externally contaminated Type A packages of radioisotopes delivered by Isologic. On August 13 and 14, the Montreal Children's Hospital had also received contaminated Type A packages of radioisotopes. The contamination was noticed at the hospitals and Isologic had been immediately informed of the event. On August 14, Isologic reported the above series of events to the CNSC, which contravenes the CNSC regulations that require licensees to immediately report such incidents to the CNSC. CNSC staff had reviewed the report and identified serious failures by Isologic to follow basic radiation protection and contamination control measures, as well as failing to follow procedures under their licence.
19. On October 17, Isologic submitted to the CNSC a detailed final event report that describes the causes and circumstances of the series of events, and proposed corrective actions to prevent recurrence of similar events. CNSC staff stated that this series of

- events was still under investigation by Isologic and by CNSC staff. CNSC staff noted that the probable cause of this series of events appears to be associated with a significant failure by Isologic to fully implement the Radiation Safety Program under their CNSC licence and lack of management control over work practices. CNSC staff added that it was working to obtain information from other licensees who may have been affected by these events, to determine the safety significance of the events.
20. CNSC staff informed the Commission that there is a low probability that members of the public may have been affected by this series of events, and that there was no impact to the environment. Two hospital technologists and the driver from Isologic have received minor skin doses. CNSC staff will prepare a report to close the file, to be presented to the Commission at a future Commission Meeting.
- ACTION**
by
April 2015
21. The Commission enquired about the continued operation of Isologic, which was allowed after the series of events. CNSC staff explained that Isologic was allowed to operate since no contamination events had been detected after August 14, 2014. CNSC staff noted that restricting Isologic operations would affect a large number of hospitals. CNSC staff added that this event was the first one that involves Isologic and that the main issue was a quick re-occurrence of the event and lack of immediate corrective actions, rather than the extent of contamination and associated risks to the public and the environment.
22. The Commission further enquired about inspections or other oversight of Isologic performed before the event. CNSC staff responded that the facility had been inspected regularly and that they are aware of Isologic's track record. CNSC staff is conducting a thorough evaluation of the report that Isologic had submitted and the proposed corrective measures. CNSC staff added that they were in close contact with the hospitals in Montreal to monitor if there is any further information regarding contaminated packages. CNSC staff noted that the hospitals in the Montreal region were very diligent in reporting the events immediately to the licensee.
23. The Commission asked if Isologic delivers other types of packages, apart from radioisotopes, and if the contaminated packages had been sent back. CNSC staff responded that the company does not deliver other packages, and confirmed that the packages had been decontaminated by hospital staff and sent back to Isologic.
24. The Commission asked about reasons for contamination not being detected at the Isologic facility, before the delivery. CNSC staff responded that the reasons were a part of the investigation, and that there are procedures under the licence that include a monitoring step before packages leave the facility.

25. The Commission sought more information regarding the procedures for monitoring contamination of the packages. CNSC staff explained that the procedures implemented at Isologic require them to monitor every single package before it is put on a truck for delivery. CNSC staff added that there are hand and foot monitors for isotope handlers, and explained the procedure of personal monitoring before the workers leave the facility. CNSC staff noted that, based on a conversation with the person responsible for radiological protection at Isologic, they believe that the packages had been contaminated after monitoring by the person that had been manipulating the packages. CNSC staff stated that they had learned only after interviewing staff from affected hospitals and Isologic that the hands of the driver had been contaminated for several hours during the August 12 event.
26. The Commission expressed concerns regarding the CNSC response to this event and asked why an unannounced inspection had not been performed at the facility after the report on the event had been received. CNSC staff responded that they had commenced their investigation and arranged for interviews with all parties that were involved in this event.
27. The Commission asked if there was a procedure regarding frequent unannounced inspections to monitor licensees' response to events and to prevent reoccurrence. CNSC staff responded that CNSC inspectors have the authority to inspect any facility at any time. Inspectors could be asked to produce monthly reports of inspections they have conducted. CNSC staff added that there is a variety of compliance tools that the CNSC can use.
28. The Commission enquired why the whole procedure of preparing this EIR took so long. CNSC staff explained that they wanted to combine the site visit with other regulatory actions planned in the coming months, in order to evaluate the steps the company had taken and measures that Isologic has implemented. CNSC staff further explained that hospitals and their RSOs had done exactly what they were required by informing Isologic, and that there is no obligation under the *General Nuclear Safety and Control Regulations*¹ to inform the CNSC².

¹ *General Nuclear Safety and Control Regulations*, Statutory Orders and Regulations (S.O.R.)\2000-202.

² On November 12, 2014, CNSC staff sent to the Commission a correction to this statement. The correction includes the following:

"The *Packaging and Transport of Nuclear Substances Regulations* sub-sections 19(2), 19(3), 19(4) and 19(5) contain prescriptive reporting requirements that apply to all entities that handle a package containing nuclear substances during its transport, namely the consignor, the carrier, and the consignee. Among other things, the regulations stipulate that any party, upon detecting non-fixed contamination on a package during its transport, shall immediately notify the consignor and submit a preliminary report to the Commission and a full report within 21 days of the event."

29. The Commission stated that an immediate action by CNSC staff would have been more appropriate. CNSC staff noted that some time was needed to account for every single event, to verify if there were more contaminated packages delivered to different medical institutions, and then more time to communicate with all these institutions. The Commission directed CNSC staff to conduct an immediate inspection of the facility, before the final report is completed.
- ACTION**
By
December
15, 2014
30. The Commission asked what the initial CNSC rating for this event was. CNSC staff responded that, for the radiological impact alone, the event would be rated low, but because of the extent of the contamination and continued unmitigated repetition for several days, CNSC would increase its risk level to medium or high.
31. The Commission asked why it had not been notified of this event during the Commission Meeting in October. CNSC staff responded that the information they had from Isologic had not been completed at the time of the meeting, and the real extent of the event was not well understood.
32. The Commission reminded CNSC staff that the event initial report (EIR) is not designed for the Commission to have all the information, but, rather, to provide information as fast as possible. The Commission directed CNSC staff to look at its response plan and re-examine its slow reaction in this case. The Commission will consider this issue when the detailed final report is presented at a future Commission Meeting.
- ACTION**
by
April 2015

Canadian Police College: Missing Sealed Source

33. CNSC staff presented information regarding an event that had happened the day before, on November 4, 2014, when CNSC staff discovered that a CNSC owned radioactive source used during an emergency training exercise that took place on August 22nd, 2014 at the Canadian Police College in Ottawa had been left behind on the college campus in Ottawa, away from public areas. The source was retrieved intact on November 4th, 2014. CNSC staff stated that there was no impact on the environment. All activities requiring the use of sources at the CNSC have been suspended, and a direct physical inventory verification was immediately

CNSC staff also stated that the three hospitals concerned, which operate under the one licence issued to the McGill University Health Centre (MUHC), should have submitted a preliminary event report to the CNSC on each day that they received contaminated packages. No report was submitted by this licensee. CNSC staff has notified the licensee, MUHC, of its failure to meet its obligation to report this event to the CNSC.

CNSC staff committed to ensure that all licensees involved in similar activities are reminded of their reporting obligations. These expectations will be clearly communicated to licensees through outreach and a special edition of the DNSR newsletter.

- conducted. The inventory confirmed that all the Type 1, Type A packages at the CNSC laboratory had contained corresponding sources. A thorough investigation, involving an independent team, had been initiated, and the results will be reported to CNSC management as required by the end of November or early December.
34. The Commission enquired about a recent procedure review and inventory checks. CNSC staff responded that an evaluation of the CNSC Radiation Safety Program by an external third party had been conducted in the summer 2014, and that the third party confirmed that the Radiation Safety Program aligns with best industry practices. However, the initial limited information indicates that there had been a series of non-adherence to procedures, so this event is considered to be a serious one. CNSC staff stated that activities requiring the use of sources in the field will not take place until corrective actions are implemented to meet the regulatory requirements.
35. The Commission asked how CNSC staff found that the source was missing. CNSC staff responded that it was discovered that the source was missing when its container was opened for a new training session in Vancouver. The CNSC officer conducting the training session remembered that the source was used for an earlier training session on August 22, 2014, at the police college in Ottawa.
36. The Commission asked what the implication of the suspension of activities involving the use of sources were. CNSC staff responded that the suspension means that the planned training of first responders in the field has been suspended. Since there is no one else who can offer that kind of training, these training sessions will be postponed. The impact of postponing those is relatively small. CNSC staff estimated that the suspension would be rather short, since the full report is expected this fall.
37. The Commission asked how often inventories verifications are done. CNSC staff responded that the final report will shed more light on this issue, and noted that it seems that the training officer did not check for potential residual radiation, or remaining sources, at the site after the training session. The procedure also requires that the content of the container be checked upon returning to the CNSC laboratory, which does not appear to have been done. An inventory that includes checking of bar codes, to minimise the exposure of the laboratory personnel, is conducted four times per year, and presence of the sources is normally verified by a radiation leak test. CNSC staff added that the CNSC laboratory staff was reviewing the inventory procedures to make sure that the sources are in their containers. CNSC staff was also making

- adjustment to the workers' dose accounting to take into account exposure to radiation for the workers authorized to open the containers and check sources.
38. The Commission asked if a source could be kept for several training sessions before being returned to the CNSC laboratory. CNSC staff responded that the return date, linked to the specific training session, is specified when the source is provided to the authorized user, so that it could not be kept for longer period. There is an automatic call-up system linked to the source database.
39. The Commission asked if the event needs to be reported to the International Atomic Energy Agency (IAEA), and how the event was categorized. CNSC staff responded that it was a Category 4 source (low risk). The report to the IAEA is optional, but CNSC provides reports, as part of its transparency philosophy, to the IAEA on lost, stolen and recovered sources.
40. CNSC staff reiterated that they were taking this event very seriously and that such an event should not have happened. CNSC staff stated that the established procedures have been verified and that they were robust; however, more effort has to be done for their strict enforcement, so that human errors are eliminated.
41. The Commission requests that CNSC staff submit a detailed event report with identified causes for the incident and a corrective action plan.

ACTION
by
March 2015

INFORMATION ITEMS

Exercise Unified Response Update

Presentation by CNSC Staff

42. With reference to CMD 14-M72 and CMD 14-M72.A, CNSC staff and industry stakeholders presented an update on *Exercise Unified Response*. CNSC staff informed the Commission about the purpose of the exercise, exercise objectives and expected benefits from the CNSC participation, CNSC staff's observations, key outcomes, and plans for future improvements. CNSC staff added that after Action Reports are being finalized and that it will develop a management response and an action plan to address any CNSC-specific continuous improvement opportunities that are identified in any of the reports.
43. The Commission expressed its appreciation for the work done related to this exercise. The Commission directed CNSC staff to present this action plan in April 2015, and asked if other participants would update their plans by that time. An OPG

ACTION
by
April 2015

representative responded that many of the recommendations are going to take more time to address and that a complete report, that would include all the changes that have been made, would not be available before the end of next year. CNSC staff added that their report will attempt to present an integrated picture, and suggested that providing the updates through annual reports on the Fukushima-related actions could be a good mechanism to integrate all those action plans into one single update to the Commission. The OPG representative said that, by April 2015, OPG would have a corrective action plan identified to address more significant issues and would be ready to present to the Commission at least a status report on those activities.

ACTION

by
August
2015

44. The Commission asked if the timeline for the After Action Report and the action plan for improvements represent a source of concern. The representative of the Office of the Fire Marshal and Emergency Management Ontario (OFMEM) stated that the exercise had demonstrated that the integrated plans will keep the public safe and that those plans will be integrated. The OFMEM representative added that the Office will be prepared to present to the Commission periodic updates on the progress in preparation of the final report.
45. The Commission asked about the CNSC's role in leadership and decision making process at the beginning and during an event. CNSC staff responded that, due to the regulatory framework, CNSC staff does not give forward directions to the licensee on how to operate the plant and how to mitigate consequences of an event. CNSC staff's role is that of reviewing the state of the plant and the actions that the licensee has taken. If CNSC staff observes a questionable situation, it requests clarification from the licensee; however, the decisions are the responsibility of the licensee. The OPG representative added that CNSC staff is present in their Emergency Operations Centre (EOC) during a response, so that all questions could be answered or discussed and clarified immediately.
46. The Commission asked for the rating for the hypothetical incident simulated during the exercise according to the International Nuclear Event Scale (INES). CNSC staff responded that the rating was Level 5, which is an accident involving releases to the environment with a potential for more. For comparison, the Fukushima event was rated at 7, which is the maximum level for the scale. CNSC staff noted that the IAEA was developing additional guidance for this kind of events.

Oral Presentation by Ontario Power Generation Inc.(OPG)

47. With reference to CMD 14-M72.1 and CMD 14-M72.1A, OPG presented its After Action Report, lessons learned and a video from Exercise Unified Response. The presentation provided more detail on the planning and preparation of the exercise and included a full list of federal, provincial, regional and municipal organizations, as well as information on international participation.
48. The Commission sought more information regarding the roles of different agencies at the beginning of the event and during its further development. The OPG representative explained that, at the onset of an event, the shift manager is the leader of the response and is authorized to communicate with offsite agencies to alert them of the emergency. The offsite response is directed by the OFMEM. A representative from OFMEM added that the response lines go from the bottom up, and that the municipality carries out the actions and has the resources available to respond. With respect to decision making, there is a 15-minute plan to respond at the early stages of an event, and the decision is made by a Duty Operations Chief. The decision-making continues at the provincial level, at the provincial Emergency Operations Centre Commander, who reports to the Cabinet Committee on Emergency Management.
49. The OPG representative informed the Commission that all participating agencies had worked together on the development of a strategy and communications plan targeting the public after the exercise. This plan included the development of the video in both French and English, which has been posted on the OPG website and is available to the public. The interagency After-Action Report presented at this meeting will be posted online and made available to the public. Discussion is also ongoing about the prospect that the next revision of the provincial plan would be submitted for public review in advance.

Oral Presentation by Health Canada

50. With reference to CMD 14-M72.2, Health Canada presented on their participation in the exercise and the Federal Interdepartmental After Action Report, with a focus on the federal response under the integrated framework of the Federal Emergency Response Plan (FERP) and Federal Nuclear Emergency Plan (FNEP). The presentation included a review of successes, areas for improvement and recommendations. A representative from Health Canada stated that the exercise has successfully validated the FNEP and demonstrated that its governance and concept of operations were sound.

51. The Commission asked if there will be any changes to FNEP as a result of this exercise. The representative from Health Canada responded that the exercise had shown that FNEP is well integrated with the FERP, a parent document. Some changes might be necessary only if changes are made to the Public Safety Plan. A representative from the Public Safety commended the exercise Unified Response and confirmed that FNEP was well integrated into FERP. The Public Safety representative added that the FERP has been used to successfully manage 412 different events since the beginning of this year.
52. The Commission further asked if the FERP has recovery and restoration in its scope. The Public Safety representative responded that they were introducing a whole section on so-called initial recovery in their plans; however, this was outside of the scope of this particular exercise, and FNEP will reflect this change in the future.
53. The Commission noted that there is a difference between a nuclear emergency and other kinds of emergency since, in the case of a nuclear incident, the recovery cannot take place as long as a certain level of radiation is still present. The Commission expressed its support for regulatory agencies coming up with new parameters for doing evacuation and recovery. The Public Safety representative concurred and added that every event has its own specifics, but all of them need to have initial stages of recovery integrated into them.
54. The Commission enquired if recovery and restoration, or any elements of it, will be included in Health Canada's Management Response Action Plan. The Health Canada representative responded that the dimension of recovery will be in the Management Response Action Plan, but not necessarily in an emergency plan.

Oral Presentation by Brian Devitt

55. With reference to CMD 14-M72.3, B. Devitt presented a summary of his involvement, as part of the Durham Nuclear Health Committee (DNHC), in the focus group for Exercise Unified Response. The focus group observed information and communication products offered during the exercise and provided its recommendations.
56. The Commission sought more information about communication to the public during the exercise. B. Devitt responded that he had a lot of insight through his participation in the focus group. The OPG representative said that OPG had provided presentations to the Pickering and Clarington Community Advisory Councils. The invitation had also been extended to the Durham Nuclear Health

- Committee. OPG was satisfied to have a three-member focus group that had participated for a few days during the exercise. Representatives from the neighbouring communities expressed their satisfaction for the opportunity to participate during the exercise, and pointed out that many practical aspects of the exercise had been clarified during the planning stages for the exercise. The exercise itself provided a great opportunity for the community to test the efficiency of the actions that have to be taken locally within an operation of a much larger scale.
57. The Commission enquired about the participation of local School Boards in this exercise. The representatives from the neighbouring communities responded that the School Boards had set up their own in-house operation centre and had been passing information back and forth between the regional Emergency Operations Centre and the School Board operations centre. Their involvement was part of the planned exercise.
58. The OFMEM representative noted that, in an actual emergency, they would not be relying on a focus group, but rather on the response and the feedback from the population at large. The OFMEM representative underlined a useful role that the focus group had played during the exercise in testing the communication lines towards the public. The OFMEM representative explained that provincial communication specialists that are involved in emergency events are qualified to translate technical jargon, used among technical specialists, into publicly-available messaging.

Oral Presentation by M. Purdy

59. With reference to CMD 14-M72.4, M. Purdy, who was engaged by CNSC staff as an external independent evaluator, presented an independent evaluation of strategic-level aspects of CNSC's engagement in the exercise with special attention to governance and decision making, interoperability, and information sharing and communication. The presentation included conclusions on overall CNSC response and a list of recommendations.
60. The Commission enquired about the level of preparedness for a real event and about the role of this exercise in making sure that all the planned actions, communication lines and coordination between involved organizations would function as planned in case of a real event. M. Purdy responded that this exercise included a challenging simulation of a severe and unexpected incident. The scenario was realistic and multilayered to test and validate responsiveness of a multitude of participants at different levels. M. Purdy added that the exercise showed a good indication of how well prepared and how well integrated the participating organizations were. M. Purdy pointed out that a limiting factor

- was the 12-hour per day engagements of the participants, instead of a full-time, 24/7 prolonged engagement in case of a real incident, and recommended that future exercise planning ensure an uninterrupted flow of information and that all important positions are filled full-time for a prolonged period. M. Purdy underlined the importance of appropriate public information and preparedness for dealing with disinformation that are expected in case of a realistic incident of a larger scale.
61. The Commission asked about steps needed to maintain the level of awareness and ability to communicate under conditions of personnel fluctuations in the participating organizations. M. Purdy responded that these abilities are tested, on a smaller scale, during everyday activities, responses to smaller incidents of different kinds and through continuous communications between the involved organizations.
62. The Commission asked M. Purdy to rate CNSC's ability to respond to a nuclear emergency. Hesitating to give a numerical rating, M. Purdy responded that the CNSC is well prepared to act in a real incident, and pointed out a delicate position of the CNSC being simultaneously a regulator with large responsibilities and powers, and a federal organization that must participate in coordination with other federal, provincial and municipal organizations.
63. Referring to the comment in M. Purdy's report to the effect that the CNSC's role and authority does not appear to be well and widely understood, the Commission sought clarification of that statement. M. Purdy responded that she noted an inconsistency between the internal CNSC nuclear emergency response plan and the FNEP in terms of the role of CNSC and described the roles of such organizations. M. Purdy noted that key point is that information from the two federal agencies needs to be well coordinated.

General Questions

64. The Commission enquired about an exercise that would include Ministers and expressed concerns regarding public statements and communication during the first moments and first 24 hours after an event, having in mind the developments during the Fukushima event and lack of official statements. M. Purdy responded that there were exercises that had involved members of the Cabinet, and added that their periodical involvement, including individual departments and agencies, in exercises like this one would be desirable.
65. The Commission asked participants for their opinion on, and recommendations for, exercises of this scale in the future, noting that the federal plan foresees that exercises are organized at a

- minimum every five years. The representative from Health Canada responded that FNEP foresees periodic full-scale exercises in the range of four to five years, other types of drills and exercises between full-scale exercises, as well as ongoing series on preparedness activities and committees that meet routinely. The representative from Health Canada added that they were working with federal and provincial partners to further develop sustainable nuclear exercise approaches and to elaborate a nuclear exercise calendar.
66. The Commission sought more information regarding the frequency of large-scale exercises and elaboration of a nuclear exercise calendar. CNSC staff responded that, in REGDOC-2.10.1, which provides guidance for the licensees' emergency preparedness and response, it is required that the licensees test their plans and do exercises, with a recommendation that they do a full-scale exercise with the offsite authorities every five years. CNSC staff stressed the importance of the preparedness activities in a broad context with all the government agencies and all the various international exercises, and stated that it would be appropriate to increase the frequency of domestic exercises. In addition, CNSC staff commented on their experience during the Fukushima event and described the formation of the CNSC Emergency Operations Centre (EOC) and its activities and communication with other federal agencies during the event.
67. The Commission asked OFMEM for their comments. The representative from OFMEM responded that OFMEM has to deal with all kinds of emergencies, nuclear ones being one of them, and that they have exercises in all those domains. The representative from OFMEM said that they had participated in two major exercises since the Fukushima event to test their offsite response, with Bruce Power and in this one.
68. The Commission sought clarification about the governance structure and leading role in events and exercises like this one. The Health Canada representative responded that, according to the *Emergency Management Act*³, Public Safety Canada has the overall authority for coordinating emergency preparedness response in Canada. Many organizations are involved in nuclear emergency preparedness response, and all of them have a particular mandate, expertise and a role to play in the preparedness and response to an emergency. Health Canada is responsible for nuclear emergencies. In order to fulfil this mandate, Health Canada had updated the FNEP to integrate fully with the governance structure established within the Federal Emergency Response Plan as established by Public Safety Canada. The Health Canada

³ S.C. 2007, c. 15

- representative added that they were in the process of developing its Management Response Action Plan, which will address issues around roles and responsibilities and potential misalignments in plans.
69. The Commission pointed out that, as the regulator, the CNSC is looking for a plan with clear roles that have to be fulfilled by the participants in an emergency response. The Commission enquired about effectiveness of integration of emergency response activities, from the operator's point of view, and asked OPG to comment. The OPG representative responded that all the plans were very well integrated, and that identified opportunities for improvement, especially in the field of communication equipment, should be used to further improve interoperability.
70. The Commission enquired about OFMEM's ability to respond to multiple events during an emergency. The OFMEM representative provided more details regarding the operation of the provincial Emergency Operations Centre in different emergency events from the past, and stated that they are able to carry on for multiple events for long periods of time.
71. The Commission asked about reports, conclusions and follow-up from the past exercises similar to this one. The Health Canada representative responded that the reports exist at the federal level and that the results, conclusions and lessons learned were used for improvement in many areas. CNSC staff concurred, and noted that the issues identified at that time had been dealt with and are no longer present. In addition, the re-organization of CNSC's Emergency Operations Centre and the creation of a dedicated division for emergency management preparedness had been based on the results of the past exercises. The OFMEM representative added that the results of the past exercises had been incorporated in their 2001 review of the Provincial Nuclear Emergency Response Plan.
72. The Commission asked about exercises of similar size in other countries. CNSC staff responded that, during the events of Fukushima, it was recognized that the IAEA did not do any technical analysis, diagnosis or prognosis for the events. One of the lessons learned from these events was that it would be a useful role for the IAEA to perform an independent analysis of what is happening and to communicate the results. The IAEA has developed in-house capability for such analyses, but needed to test them with the different member states. Canada was the first one to participate in testing the IAEA's capability to exchange technical information with specialists in member countries and to interpret and analyze the received technical information. Canada is still the only country to have conducted such an exercise, but the IAEA

- intends to schedule exercises with the other member states.
73. The Commission asked if foreign exercise participants have provided any formal feedback or observation to the CNSC. CNSC staff responded that the USNRC had provided written feedback identifying a number of best practices from what they saw, and that they intend to incorporate those into their equivalent to *Exercise Unified Response*, which is scheduled for the summer of 2015.

Nuclear Substances in Canada: A Safety Performance Report for 2013

74. With reference to CMD 14-M71 and 14-M71.A, CNSC staff presented its annual report for 2013 on the safety performance and regulatory compliance of Canadian industries using nuclear substances. The report included information on overall safety performance, focussing on doses to workers, radiation protection measures and reporting, as well as an overview of performance and summaries per sector, including medical, industrial, academic and research, and commercial sectors.
75. With reference to CMD 14-M71.1, the Canadian Radiation Protection Association (CRPA) informed the Commission about the organization and emphasized that their membership comes mostly from medical, academic and research sectors. Representatives from CRPA noted that their organization is a member of the International Radiation Protection Association (IRPA). Representatives from CRPA further informed the Commission about their registered radiation safety professional program that offers CRPA members the chance to become registered radiation safety professionals.
76. The Commission asked about registration of radiation safety professionals and about the nature of the CRPA exam. The CRPA representative described the exam and responded that the benefit of taking the exam was a verification of continuing education for their members. The CRPA representative added that the CRPA credential was not a CNSC requirement.⁴ CNSC staff noted that they had not systematically kept track of Radiation Safety Officer credentials in terms of CRPA registration.
77. The Commission asked what were the future priorities in the area of nuclear substances for the CNSC. CNSC staff responded that, even with generally good performance in the field of regulating nuclear substances in Canada, attention should be paid to the loss of control of radioactive sources, as well as in some industrial subsectors such as industrial radiography, portable gauge subsector and nuclear gauge subsector, where CNSC had already started a

⁴ After the Meeting of the Commission, on November 6, 2014, the CRPA sent to the members of the Commission the document “Registration as Registered Radiation Safety Professional CRPA(R)”, revision 17.

- focused effort to achieve better compliance. CNSC staff added that they were working on initiatives related to financial guarantees for fixed gauges safety and for the implementation of security conditions. CNSC staff further informed the Commission about new regulations regarding packaging and transport of nuclear substances, which were being prepared for implementation in 2015.
78. The Commission asked for clarification regarding categorization and re-categorization of events during the reporting period. CNSC staff clarified that, when an event is first reported, because there is a potential for a person to receive a high dose, CNSC would initially classify that event as potentially a higher risk event. If, after the analyses conducted for the 21-day report, it turns out that it was really a non-event, or lower risk event, CNSC staff would re-classify the event to a low-risk one. The Commission further asked whether it is appropriate to use the same scale for categorizing risks stemming from different areas, such as nuclear substances and nuclear power plants. CNSC staff responded that they were considering this issue from the potential consequences of an event, and that, so far, the source of a risk needs to be specified in order to distinguish between different risk categories. As for this report, the significance of the mentioned risks will be clearly presented to the public.
79. The Commission sought an explanation for the increased number of reported events. CNSC staff explained that the increased number of reported events was rather due to stricter reporting requirements than to a real increase in the number of events.
80. The Commission asked for the CRPA's comments regarding the report on nuclear substances in Canada. The CRPA representative responded that the report accurately represents the safety performance of the sector in Canada in 2013, and noted that the presented data are useful to Radiation Safety Officers and their membership.
81. The Commission enquired about how CNSC staff disseminates information about events to the radiation protection community. CNSC staff responded that they have regularly published event-focused newsletters for the last two years. In the case of specific events, CNSC staff prepares a special edition of the report. CNSC staff also prepares presentations for outreach meetings. These presentations include lessons learned from those events. In addition, information on the events that have been communicated to the Commission, as well as webcasts from the Commission proceedings, are sent to the licensees using e-mail. The orders, the AMPs and other enforcement actions are presented to the public through the CNSC website.

82. The Commission enquired about the operation of big installations, such as TRIUMF and Canadian Light Source (CLS), and sought more information on the historical aspect of their performance and continuous operation. CNSC staff explained that there had been a change in reporting for these two installations, and that, in the future, regulatory focus would be shifted to the safety areas where the performance has been below expectations. In those areas, the mitigation measures are going to be done through inspection or through programmatic review. CNSC staff added that the compliance verification criteria are clearly stated in the Licence Conditions Handbook (LCH). CNSC staff also explained the way they compiled the data on the doses received by workers in these two installations.
83. The Commission asked if administrative monetary penalties (AMP) are seen by the licensees as a disciplinary measure to make them comply with regulations. CNSC staff stated that AMPs have received the attention of all licensees, and that it begins to play an important role in their decision making.
84. The Commission noted that the number of incidents reported in the area of packaging and transportation is negligible compared to the number of delivered items, and asked if there could be more events that are not reported. CNSC staff responded that the number encompasses all events that have been reported directly to the CNSC. CNSC staff noted that all numbers are very low and comparable with the number of events in other countries.
85. The Commission sought more information about the consolidation of licences, and asked CNSC staff to compare efforts to regulate nuclear power plants and nuclear substances. CNSC staff responded that their effort to regulate these two fields is commensurate with associated risks from these activities and their potential impact to the safety of the public and protection of the environment. With respect to the consolidation of licences, CNSC staff stated that the number of licences and the number of activities that are included in a licence are two different things. Different types of activities are consolidated under one licence, mainly to reduce the red tape on licensees. The consolidation does not reduce the complexity of the activities or the number of facilities.
86. The Commission asked about challenges being confronted by a regulator arising from a rapid development of new technologies. CNSC staff responded that both the *General Nuclear Safety and Control Regulations*⁵ and specific regulatory documents are written in broad terms and on a relatively high level so that they can be

⁵ S.O.R. 2000-202.

applied to a majority of newly introduced technologies.

87. The Commission asked for the reasons that the mandatory compliance for the REGDOC-2.12.3. that deals with security of nuclear substances, was set for 2015, two years after the document has been approved by the Commission. CNSC staff explained that there were a number of new requirements for licensees to adhere to, including criminal record checks, improved security for sources in transfer (e.g., in mobile situations) and increased requirements for security plans. It was necessary to allow licensees sufficient time to implement appropriate solutions to those new requirements prior to imposing the mandatory compliance.

88. The Commission commended CNSC staff for this comprehensive report. The Commission pointed out to some typographical errors in the draft report and suggested more exact and precise presentation of numerical data, as well as improvements in the graphical presentation of the data.

Closure of the Public Meeting

89. The meeting closed at 18:23.



Recording Secretary

DEC 19 2014

Date



Secretary

DEC 19 2014

Date

APPENDIX A

CMD	DATE	File No
14-M67	2014-10-08	Edocs #4534267
Notice of Meeting of November 5, 2014		
14-M68	2014-10-23	Edocs #4543156
Agenda of the meeting of the Canadian Nuclear Safety Commission to be held on Wednesday, November 5, 2014, in the Public Hearing Room, 14 th floor, 280 Slater Street, Ottawa, Ontario		
14-M68.A	2014-10-30	Edocs #4544809
Revised agenda of the meeting of the Canadian Nuclear Safety Commission to be held on Wednesday, November 5, 2014, in the Public Hearing Room, 14 th floor, 280 Slater Street, Ottawa, Ontario		
14-M68.B	2014-11-04	Edocs #4571701
Revised agenda of the meeting of the Canadian Nuclear Safety Commission to be held on Wednesday, November 5, 2014, in the Public Hearing Room, 14 th floor, 280 Slater Street, Ottawa, Ontario		
14-M69	2014-11-04	Edocs #4569348
Approval of Minutes of Commission Meeting held October 1 and 2, 2014		
14-M70	2014-11-03	Edocs #4562986
Status Report on Power Reactors as of November 3, 2014		
14-M71	2014-10-23	Edocs#4500050
Nuclear Substances in Canada: A Safety Performance Report for 2013 – Written submission by CNSC staff		
14-M71.A	2014-10-03	Edocs#4528358
Nuclear Substances in Canada: A Safety Performance Report for 2013 – Oral presentation by CNSC staff		
14-M71.1	2014-10-30	Edocs#4550225
Nuclear Substances in Canada: A Safety Performance Report for 2013 – Oral presentation by Canadian Radiation Protection Association		
14-M72	2014-10-23	Edocs#4544016
Exercise Unified Response Update – Written submission by CNSC staff		
14-M72.A	2014-10-29	Edocs#4548135
Exercise Unified Response Update – Oral presentation by CNSC staff		
14-M72.1	2014-10-21	Edocs#4543198
Exercise Unified Response Update – Written submission by Ontario Power Generation Inc.		

14-M72.1A 2014-10-21 Edocs#4543242
Exercise Unified Response Update – Oral presentation by Ontario Power Generation Inc.

14-M72.2 2014-10-21 Edocs#4543331
Exercise Unified Response Update – Oral presentation by Health Canada

14-M72.3 2014-10-21 Edocs#4543360
Exercise Unified Response Update – Oral presentation by Brian Devitt

14-M72.4 2014-10-21 Edocs#4543372
Exercise Unified Response Update – Oral presentation by Margaret Purdy

14-M73 2014-10-23 Edocs#4543865
McMaster Error at the McMaster Nuclear Reactor – Oral presentation by CNSC staff

14-M74 2014-11-04 Edocs#4571603
Event Initial Report – Isologic Innovative Pharmaceuticals Ltd.: Shipping of contaminated Type A packages by Isologic Innovative Pharmaceuticals Ltd. – Oral presentation by CNSC staff