Canadian Nuclear Safety Commission

Commission canadienne de sûreté nucléaire

Minutes of the Canadian Nuclear Safety Commission (CNSC) Meeting held Wednesday, October 24 and Thursday, October 25, 2012

Canada

Minutes of the Canadian Nuclear Safety Commission (CNSC) Meeting held Wednesday, October 24 and Thursday, October 25, 2012 beginning at 5:00pm at the Public Hearing Room, 14th floor, 280 Slater Street, Ottawa, Ontario

Present:

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

M. Leblanc, Secretary
J. Lavoie, Senior General Counsel
L. Casterton, Recording Secretary

CNSC staff advisors were: G. Rzentkowski, F. Rinfret, M. Santini, P. Elder, D. Howard, B.R. Ravishankar, J. LeClair, M. Rinker, M. Dallaire, K. Heppell-Masys, S. Locatelli and R. Jammal.

Other contributors were:

- Emergency Management Ontario: T. Kontra
- Durham Region Emergency Management Office: G. Cubitt and I. Ciuciura
- Health Canada: B. Ahier
- AREVA Resources Canada Inc.: J. Corman
- Shield Source Inc.: L. McMurray and L. Newton
- GE Hitachi: P. Mason
- Nordion: R. Decaire, R. Mc Gregor
- SRB Technologies Canada Inc.: S. Levesque
- Cameco Corporation: L. Mooney, J. Alonso and D. Ingalls
- Ontario Power Generation: B. Duncan, G. Jager, F. Saunders, F. Dermarkar and L. Swami

Constitution

1. With the notice of meeting, CMD 12-M51, having been properly given and a quorum of Commission Members being present, the meeting was declared to be properly constituted.

2. Since the meeting of the Commission held September 13, 2012, Commission Member Documents CMD 12-M51 to CMD 12-M60 were distributed to Members. These documents are further detailed in Annex A of these minutes.

Adoption of the Agenda

3. The revised agenda, CMD 12-M52.B, was adopted as presented.

Chair and Secretary

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

Minutes of the CNSC Meeting Held September 13, 2012

5. The Commission Members approved the minutes of the September 13, 2012 Commission Meeting as presented in CMD 12-M53.

STATUS REPORTS

Status Report on Power Reactors

6. With reference to CMD 12-M54, which includes the Status Report on Power Reactors, CNSC staff presented updates on the following:

   - Bruce A, Unit 1 is at 88% of full power.
   - Bruce A, Unit 2 is at 50% of full power and completed first synchronization to the Ontario grid on October 16th, 2012. CNSC staff is awaiting results from the high power physics test before a recommendation can be made on the removal of the last hold point on Unit 2.
   - Pickering A, Unit 1 is in a planned maintenance outage.
   - Pickering A, Unit 4 is returning to full power operation following a forced outage to repair the main output transformer; the unit is at 0.5% of full power.
   - Pickering B, Unit 7 is in a planned maintenance outage.
   - Point Lepreau turbine generator commissioning continues and first synchronization to the electrical grid occurred on October 24th, 2012. It is currently at 35% of full power.

7. With reference to CMD 12-M54, CNSC staff provided details regarding an event initial report concerning Bruce A, Unit 4. This unit has been shut down since August 2, 2012. During this planned maintenance outage, a monitoring system detected higher than planned radiation levels. Work resumed after Bruce Power confirmed there was no risk to employees or the environment.

8. CNSC staff presented information regarding a spill on October 12, 2012 of approximately 400 litres of heavy water at Pickering A, Unit 1. The spill occurred in the moderator room within containment and did not pose a risk to the environment. As a result of tritium uptake during the clean-up operation, two workers were placed on removal.

9. The Commission enquired about worker exposure to tritium during an event at Pickering A, Unit 1, on October 12, 2012. The event involved a spill of 400 litres of heavy water resulting in high airborne tritium levels in the moderator room, which is in containment. CNSC staff responded that as a result of the clean-up operation, two workers received doses between 2 and 3 millisieverts, which was higher than the planned dose and action level, but well below regulatory levels.

10. CNSC staff provided further details regarding an initial event report at Pickering A, Units 1 and 4, concerning asbestos exposure during conventional maintenance work on October 6, 2012. The Joint Health and Safety Committee declared a work stoppage on October 16, 2012. Work resumed on October 19; however, some areas in the Unit 1 turbine hall remain as asbestos exclusion zones. The Ontario Ministry of Labour is investigating the matter, working closely with CNSC staff. CNSC staff will provide a further update once OPG completes the root cause analysis of this event. **ACTION** by January 2013

11. The Commission asked for more information regarding the current licence and government view of Gentilly-2. CNSC staff responded that the current licence has a hold point at the end of December 2012 to allow Hydro-Québec to decide about the future of the unit. CNSC staff added that on September 19, 2012, the Government of Quebec announced its decision not to refurbish Gentilly-2.

12. The Commission further asked when Hydro-Québec would submit its decommissioning plan. CNSC staff explained that, while this decommissioning plan is not expected to be submitted before several months, it received from Hydro-Québec a document listing the activities planned to attain a safe storage state within the next few years and CNSC staff are in the process of reviewing this submission.

13. CNSC staff presented an update on an EIR presented at the September 13, 2012, Commission meeting regarding the safe shutdown of Darlington Unit 1 after OPG detected the unusual operation of a heat transport feed pump. CNSC staff agree with the preliminary root cause analysis and OPG has correctly identified the weaknesses which contributed to this event. CNSC staff will provide a further update if the final root-cause analysis changes this conclusion.

14. The Commission asked for an explanation of the event initial report at Darlington Unit 1. An OPG representative explained the root cause was the mechanical failure of a valve. The valve separated a pressurized instrument air system from the heat transport purification system. The valve failed to close allowing instrument air to enter the purification system causing the feed

pumps required by the primary heat transport system to fail. The root cause analysis determined that this valve did not meet the intent of what was required or industry best practice. OPG personnel repaired the valve and identified other valves that could be prone to the same issue. OPG took corrective action by double isolating the valves. OPG shared its findings with other nuclear power plants and is assessing further corrective actions.

Performance of Canadian Uranium Fuel Cycle and Processing Facilities: 2011

15. With reference to CMD 12-M55, CNSC staff presented a report on the 2011 performance of Canadian uranium fuel cycle and processing facilities. CNSC staff presented information on uranium mines and mills, uranium processing facilities, tritium processing facilities and other nuclear substance facilities. The public was invited to participate through the filing of written submissions. One submission was received on the Cameco Port Hope facility.

Uranium Mines and Mills

16. CNSC staff proceeded with a summary of its performance and compliance report regarding uranium mines and mills facilities, including Areva's Cigar Lake and McClean Lake, and Cameco's Key Lake, McArthur River and Rabbit Lake. Based on compliance activities, CNSC staff reported a satisfactory performance rating for all 14 safety and control areas for uranium mines and mills facilities. CNSC staff added that the licensees' radiation protection measures were effective in keeping doses as low as reasonably achievable (ALARA), that their environmental protection programs were effective at keeping impacts to the environment ALARA and that their conventional health and safety programs continue to protect workers.

17. The Commission commented that information regarding uranium mines and mills lost time incidents could be normalized to allow for easier comparisons with other mining industries. CNSC staff noted that the intent is to start using normalized data, however the issue of identifying and normalizing data of employees and contractors is still being resolved. CNSC staff confirmed that the next report would adopt the mining industry standard to provide easier comparisons between all mining sectors.

18. The Commission inquired why certain lost time incidents in uranium mines and mills were discussed but not others. CNSC staff responded that the incidents reported were more significant and warranted a notification report. CNSC staff confirmed that these events were brought forward to highlight that the incidents were reviewed, appropriate corrective actions were taken and corrective measures were implemented by the proponents.

19. The Commission asked for CNSC staff's input on why the uranium mining facilities 100 percent compliance with Environment Canada *Metal Mine Effluent Regulations* is higher than other mining sectors. CNSC staff responded that uranium mining is the only one that has a full-time regulator that stresses the importance of safety culture and management systems, and conducts routine compliance and monitoring activities of all uranium mines. CNSC staff noted that the report outlining these findings would be shared with Environment Canada and a summary posted on the CNSC's website.

20. The Commission asked for more information on how CNSC staff determine a satisfactory environmental protection performance given the number of spills at certain facilities. CNSC staff responded that the reporting requirement applies to any unauthorized release and does not take significance into consideration. For example, an unauthorized release can also include a release of clean water. CNSC staff further explained that the review focuses on whether the proponent is in compliance with the requirements of the entire program and takes into consideration the significance of spills as well as the response and corrective actions implemented as a result of the program.

21. The Commission asked whether the uranium mines and mills operators count and investigate the impact of every spill. A representative from Cameco responded that every environmental incident is tracked, and a corrective action process ensures the impact is assessed and followed up. An AREVA representative explained that site-specific performance objects are set, and confirmed all spills are reported and investigated to determine impact and follow-up requirements.

22. The Commission noted that molybdenum levels at McArthur River have decreased from 1.3 to 0.34 milligrams per litre and inquired whether further decreases were expected and whether there was any effect to the environment at this level. CNSC staff responded that monitoring programs have shown concentrations in the environment to be decreasing. CNSC further explained that the first step was to control the release at a level deemed satisfactory, and the second step is ensuring the environmental monitoring programs continue to monitor environmental releases and potential environmental effects. A representative from Cameco confirmed that molybdenum at McArthur River has been an area of focus and that ongoing monitoring will ensure releases remain low and environmental effects are continually assessed.

23. The Commission inquired why no national standard for selenium or molybdenum exists. CNSC staff responded that the lead for setting limits in the *Metal Mine Effluent Regulations*[1] is Environment Canada. CNSC staff explained that Environment Canada is currently working on developing a national standard, but in the interim the CNSC looks at each facility on a site-specific basis, considers the risks posed to the environment and sets limits for these selenium and molybdenum releases to ensure protection of the environment.

24. The Commission asked for clarification why the quantity of ore being milled was larger than the quantity of ore being mined. CNSC staff responded that mined ore is blended with stockpile material during the milling process to ensure the appropriate grade. A representative from Cameco confirmed that the difference is accounted for with in-circuit inventory between what is in the mine and what is in the circuit at the mill.

25. The Commission asked Cameco what plans or programs are in place to prevent spills at Key Lake. A representative from Cameco responded that the spills were related to activities that were out of the ordinary, and following a review of the incidents, corrective actions were identified, implemented and tracked through Cameco's incident reporting system. A Cameco representative stated that since the implementation of corrective actions, Key Lake has operated for 435 days without an environmental spill.

Uranium Processing Facilities

26. CNSC staff proceeded with a summary of its performance and compliance report regarding uranium processing facilities, including Cameco's Blind River Refinery (BRR), Port Hope Conversion Facility (PHCF) and Fuel Manufacturing Facility (CFM), and GE Hitachi's Toronto and Peterborough Facilities (GEH-C). Based on compliance activities, CNSC staff concluded that a satisfactory and above performance rating was assessed for all 14 safety and control areas for uranium processing facilities in 2011. CNSC staff stated that all licensees' radiation protection measures were effective at keeping doses ALARA, that their environmental protection programs were effective at keeping impacts ALARA, and that their conventional health and safety programs continued to protect workers.

27. The Commission asked for an update on incidents regarding uranium processing facilities. CNSC staff noted that they reported an incident at the PHCF regarding an overrun of water coming out of water bags. An analysis has confirmed that most of it would have been captured by Cameco's storm water management system. Cameco commented that this incident led to a very small release.

[1] Statutory Orders and Regulations (*SOR)/2002-222*

28. The Commission inquired about the objective of the new groundwater water wells at PHCF, given the existing system in place. CNSC staff responded that the risk management plan originally identified the need for a series of groundwater wells to capture and treat the existing plume. As a result of ongoing monitoring, Cameco determined that four additional wells would increase the capture and treatment of groundwater performance of the existing network.

29. The Commission inquired whether the existing groundwater treatment system at PHCF was effective. CNSC staff responded that there has been a decrease in concentration, but it is only a temporary measure as the Vision 2010 Project is intended to address site wide clean-up including groundwater contamination.

30. The Commission asked for more information on where treated water at PHCF is stored. CNSC staff responded that the groundwater is treated through an evaporation treatment system and there is no liquid effluent discharge.

31. The Commission requested an explanation of why the annual regulatory licence limit at PHCF is 0.3 mSv and not 1 mSv. CNSC staff responded that although the regulatory limit is 1 mSv per year, a special study commissioned by the Commission recommended a licence limit of 0.3 mSv per year for the Port Hope area due to the proximity of the facility to houses. A representative from Cameco stated that the new licence limit is even lower, and that air and water emissions must not exceed 0.05 mSv per year, or 0.3 mSv per year including gamma radiation.

32. The Commission asked for any safety issues related to leaving a truck containing uranium hexafluoride unattended. The Cameco representative responded that all transport of uranium hexafluoride cylinders meets all relevant shipping requirements, and that the potential dose to a member of the public and the truck driver is very low.

33. The Commission asked for more information on the implications of the concentrations of uranium in soil of 4.8 parts per million (ppm) in Blind River and 4.4 ppm around the CFM facility. CNSC staff responded that the natural background of uranium in soil in Ontario is between 2 and 4 ppm. CNSC staff further explained that the clean up criteria that is established in regulation for Ontario is 23 ppm.

34. The Commission asked for an update on the flood study planned for the BRR. CNSC staff responded that a third party consultant is currently reviewing it and that CNSC staff should also review it shortly. The Cameco representative explained that the report concludes that there is no risk of flooding at the BRR.

35. With reference to the intervention from the Port Hope Community Health Concerns Committee, CMD 12-M55.1, the Commission requested an explanation of the difference between natural uranium and other uranium isotopes, such as uranium-236, with respect to clean up criteria. CNSC staff explained that all uranium, regardless of the isotope will be cleaned up if it is above the clean up criteria. CNSC staff further explained that the clean up criteria established in regulation for Ontario is 23 ppm.

36. The Commission asked all proponents, since this is the first annual performance review, whether there was any positive or negative feedback on the annual reporting process. A representative from GE Hitachi responded that with a 10-year licence, the annual review was a good approach and provided an opportunity to summarize annual operations. A Cameco representative responded that they do not want to see it turn into a mid-term review, as this requires significant resources, but supported the conclusions of the report. A Nordion representative supported smaller reviews, as it highlights facility operations frequently eliminating potential surprises. A representative from SSI stated it was a good opportunity to come before the Commission and provide information annually for the public concerning all facilities. A SRBT representative responded that it was a good practice on an annual basis given relicensing occurs every 5 or 10 years.

Nuclear Substance Processing Facilities

37. CNSC staff proceeded with a summary of its performance and compliance report on nuclear substance processing facilities, including Shield Source Incorporated (SSI) and SRB Technologies (SRBT), two tritium processing facilities, and Nordion, an isotope processing facility. Based on compliance activities, CNSC staff concluded that satisfactory and above performance ratings were assessed for all 14 safety and control areas for Nordion, SRBT and SSI. One exception was the management system safety and control area at SSI, which was rated as “below expectations” due to a failure of the facility to implement some portions of the facility’s management system in a timely manner.

38. The Commission asked whether the SRB Technologies’ (SRBT) good performance has had any effect on public relations with the local citizens. A SRB representative responded that, in 2011, only one request from the public regarding the facility was received, but efforts have been made to communicate more with the public, which has helped reduce the amount of public concern around the facility.

39. In May 2012, the Commission amended, on its own motion pursuant to section 25 of the *Nuclear Safety and Control Act*, SSI's operating licence. The amendment restricts SSI from processing tritium gas until the Commission decides otherwise. In addition, the Commission extended the licence for a period of five months until December 31, 2012. SSI has yet to apply for approval to restart operations[2]. The 2011 performance ratings are likely to change based on the new information provided regarding the under-reported emissions.

40. The Commission asked for more information from SSI regarding the anticipated timeframe to apply for restart of operation. A representative from SSI responded that work is being completed and submitted to the CNSC to close out all findings from CNSC inspections. A SSI representative stated that programs and processes are still being updated and developed, and anticipate asking for an amendment to extend their licence until mid-year 2013, when they anticipate being ready to come before the Commission for a licence approval to restart. CNSC staff reported reviewing all programs at SSI to provide proper conclusions and recommendations to the Commission at licensing hearings.

41. The Commission asked CNSC staff whether the SSI performance for 2011 will be revised following their review of all information. CNSC staff responded that some retroactive changes based on the programs and the information may be required, as conclusions may be based on reported data that may not be accurate.

42. The Commission asked if CNSC staff has done an internal investigation to determine lessons learned from this event. CNSC staff responded that it is currently occurring and that they intend to report on this topic during the licensing for the restart of SSI operations.

43. The Commission asked Nordion how material may be contaminated with cobalt-60 and any ideas how to avoid shipment of this material to Canada. A Nordion representative responded that the contamination is likely from level gauge sources, which Nordion does not produce, that get recycled to scrap metal incorrectly. To stop this, Nordion suggested measurement devices at recycling locations, as well as at ports of entry.

[2] In November 2012, SSI applied for an extension of the expiry date of their current, restricted licence to December 31, 2013.

Updates on items from previous Commission proceedings

Update on the Public Alerting System for Pickering City and the Durham Region

44. With reference to CMD 12-M58.1, regarding the updates to items from previous Commission proceedings, an Emergency Management Ontario (EMO) representative presented information regarding an update on the public alerting system for Pickering City and the Durham Region. The EMO representative discussed the provincial requirements for designated municipalities, including the Durham Region, to prepare a plan that conforms to the provincial plan to respond to off-site consequences of a nuclear emergency. The EMO representative presented an overview of emergency public alerting systems and emergency management in Ontario. The City of Toronto, Ahmerstburg, Essex Country and Windsor have addressed all outstanding issues. Deep River and Laurentian Hills still have outstanding issues related to outdoor public alerting requirements and potassium iodide (KI) distribution. The City of Peterborough requires minor adjustments only. Kincardine and Saugeen Shores were provided an extension to report on updates due to their participation in the Huron Challenge. The Huron Challenge was a province-wide emergency exercise led by EMO.

45. The EMO representative provided an update on Durham public alerting and the three-kilometre zone. Darlington indoor and outdoor alerting systems meet the requirements of the Provincial Nuclear Emergency Response Plan (PNERP). The Pickering indoor public alerting system also demonstrated conformity with the PNERP. However, to address outstanding issues with regard to the outdoor public alerting system requirements, the Durham Region received approval for the installation of additional sirens. To address the requirements for a ten-kilometre zone, a working group including EMO, OPG, Durham Region and Toronto has been formed. The group has drafted a Request for Proposals (RFP) to seek options for a public alerting system that meets the requirements of the PNERP. The RFP is pending final review and should be issued before the next update opportunity. The EMO representative explained that the City of Toronto has a dialling system as an interim alternative means of alerting.

46. EMO is expecting to complete the reviews of all municipal emergency plans by the end of December 2012. EMO will also remain in close contact with Durham Region and Pickering as they continue with the installation process for public alerting within the three-kilometre zone, and will work diligently to complete the request for proposal and issue it for the three to ten kilometres alerting zone.

47. The Commission asked when the outstanding outdoor public alerting requirements and KI distribution would be resolved by Deep River Laurentian Hills. A representative from EMO stated that work is being conducted with the community, but could not confirm if the target is the end of the calendar or fiscal year.

48. The Commission enquired about the federal government role in a significant emergency response. The representative from EMO explained that the Federal Nuclear Emergency Plan for which Health Canada is responsible, is in support of the province should the province require assistance, such as aerial monitoring. In the case of an evacuation, Health Canada, Public Safety Canada and the CNSC would send representatives to the provincial emergency operations centre.

49. With reference to CMD 12-M58.2, a Durham Regional Emergency Management Office (DEMO) representative presented information regarding an update on the installation of additional sirens in the Pickering three-kilometre zone. Consultants identified a technical discrepancy in the existing sirens at Pickering whereby the sirens output was limited to 110 decibels. Adjustments were made by the consultants, and the sirens now operate at the standard 116 decibels, therefore only eleven additional sirens are required. Council approval was given, and the contracts have been signed to purchase, locate and install the additional sirens.

50. The Commission asked for an explanation of the root cause of the technical discrepancy in the existing sirens at Pickering limiting output to 110 decibels. A Regional Municipality of Durham (RMD) representative explained that during the initial installation, engineers lowered the frequency of the siren to increase the penetration of the sound. In doing so, the amplification of the siren also had to be changed. This resulted in the sirens output being limited to 110 decibels. Once adjustments to the amplification were made, the sirens were performing back at their specified levels.

51. The Commission asked for more information regarding the expected date of completion of sirens installation. The representative from the Regional Municipality of Durham stated that the sirens should be operational by the end of December 2012, and testing for compliance purposes should occur in January 2013.

52. The Commission asked whether there were concerns regarding the sirens audibility along major roads. The RMD representative clarified that the sirens are not intended for individuals in vehicles, and roads of concern were not in pedestrian corridors. The Commission asked EMO to clarify if regulatory requirements would still be met. A representative from EMO confirmed that regulatory requirements would be met.

53. The Commission enquired how the output of each siren is calculated. A representative from DEMO explained that there is a standard approach for measuring decibels at 100 feet from the siren with the microphone on an axis. The DEMO representative confirmed that the normal range of 114 to 118 decibels is at 100 feet from the siren.

54. The Commission requested further information on performance testing to ensure the system is maintained. A RMD representative explained that performance testing on the sirens and dialling system are conducted each year.

55. The Commission enquired as to who would trigger the emergency plan. A representative from EMO responded that the province makes the decision on activation of the public alerting system. Within 15 minutes, the province will notify the Durham Region regarding the offsite actions to take. During day time hours, the system can be activated by the municipal government, and at night time, by the Police Service Communication Centre.

56. The Commission asked whether a document existed that outlines actions required by all levels of government for site specific emergencies. The representative from DEMO responded that check-lists exist for every event and every facility.

Update on the CNSC Action Plan Lessons Learned from the Fukushima Accident

57. With reference to CMD 12-M56, regarding the updates to items from previous Commission proceedings, CNSC staff presented information regarding an update to the *CNSC Action Plan: Lessons Learned from the Fukushima Accident*. The report addresses the External Advisory Committee recommendations and the Commission's direction issued in the context of the May 3, 2012 Commission meeting to incorporate these recommendations into the *CNSC Action Plan*.

58. CNSC staff provided information on three recommendations from the External Advisory Committee that did not integrate directly into the Action Plan recommendations. The first recommendation was to explain to the public the approach taken for all nuclear facilities, not just power plants. The second recommendation was to look at human and organizational performance lessons being incorporated into the Action Plan. The last recommendation was regarding communications and public education.

59. The Commission expressed its satisfaction on the video prepared by CNSC staff on a sequence of a potential blackout at a generic CANDU nuclear power plant. The Commission suggested presenting in another video information on the fuel base and the differences between the fuel base in Canada and other countries. CNSC staff responded that they are considering further modules, and that they will look to further enhance the video once it is launched on the CNSC's website.

60. A Bruce Power representative presented a video regarding the Huron Challenge, a province-wide emergency exercise led by EMO that took place from October 15-19, 2012, in the region of Bruce County. The Huron Challenge was intended to simulate a major emergency and involved over 1,000 participants from 73 municipalities (e.g., Huron and Bruce County), organizations (e.g., St. Johns Ambulance, Red Cross), government agencies (e.g., EMO, CNSC) and others.

61. The Commission expressed its satisfaction on the quality of CMD 12-M56.

62. The Commission commented that one comprehensive document (Action Plan), for all nuclear facilities would be beneficial, and a dashboard would be an effective way to provide status updates. CNSC staff agreed.

63. The Commission asked for clarification whether all activities could be completed by 2015 as indicated in the report. CNSC staff responded that the majority of implementation plans must be submitted by the end of 2012 and a schedule for every single action will be generated at the beginning of 2013. Based on current discussions with industry, CNSC staff anticipate that no actions will extend beyond 2016. CNSC staff concluded that the Action Plan will be revised upon review of the implementation plans, and the Commission will remain updated of changes with respect to the timelines.

64. The Commission requested further information on international benchmarking with respect to stress tests. CNSC staff reported that Canadian findings were similar to the EU stress test conclusions, which indicated that billions of dollars in enhancements were required. CNSC staff explained that the review of all safety cases determined that they are adequate for existing facilities in Canada. CNSC staff stated that Canada is leading on execution and implementation of enhancements to respond to beyond design basis elements. In addition, the CNSC and licensees identify enhancements through normal operations and exercises that can be

implemented to provide additional levels of safety. CNSC staff concluded that existing facilities in Canada are safe, and enhancements are continually being identified and implemented to make them even safer.

65. The Commission asked for a comparison between the response from the Chernobyl and Fukushima accidents. CNSC staff responded that openness in international collaboration has grown as a result of the International Atomic Energy Agency for regulators, and the World Association for Nuclear Operators for operators, to identify safety goals and enhancements. CNSC staff stated that not all countries implement these safety goals and enhancements as minimum safety requirements; however, Canada is among the leaders of the world. CNSC staff stated that as a result of Fukushima, probabilistic safety goals were also introduced into reactors regulatory framework. The OPG representative stated that this has changed operators' perspectives to not only plan for design basis events, but also to respond and mitigate events beyond the design basis.

66. The Commission asked for clarification whether all countries followed this approach. CNSC staff responded that there are inconsistencies in the implementation of lessons learned from previous nuclear accidents, as well as in the implementation of technical improvements.

67. The Commission asked how frequently the CNSC emergency website is tested and which succession planning the CNSC has concerning media spoke persons. CNSC staff replied that there are a large number of staff trained to speak on a variety of issues, and that the Management Committee ensures new incumbents have the capacity for translating technical information into common language. CNSC staff stated that the emergency website has been tested and will continue to be tested regularly. All information on this site is currently available on the CNSC site, but during an emergency it is packaged to address a specific event.

68. The Commission asked for more information regarding how the need for an evacuation is determined. A representative from Bruce Power indicated that air monitoring is conducted to identify the areas of concern to help coordinate an evacuation, but that an evacuation is at the province's discretion. A Health Canada representative stated that Health Canada, through the Federal Nuclear Emergency Plan (FNEP), will support the province in decisions regarding evacuation if requested. Health Canada has developed guidelines regarding evacuations to support federal and provincial responses, based on a detailed technical assessment of the accident. This technical assessment may be informed by short

and long range atmospheric modelling conducted by Environment Canada. CNSC staff concluded that the Province of Ontario has a clear mechanism to seek advice, if requested, from Health Canada under the FNEP or directly with the CNSC.

69. The Commission asked for the frequency of large scale exercises like the Huron Challenge. A representative from Bruce responded that exercises are conducted approximately four times a year; however, these usually do not involve as many agencies and municipal partners. The Huron Challenge was also conducted in real time over a number of days, while typical exercises are compressed into 8 to 16 hours. The magnitude cannot be frequently repeated, but lessons learned included a simulation-type approach to training rather than the standard training tools.

70. The Commission asked for preliminary findings related to the emergency exercise at Bruce. The Bruce Power representative responded that one finding was to ensure that the exercise control centre is fit for coordinating the event.

71. The Commission asked CNSC staff whether the frequency of emergency training exercises was a licence requirement. CNSC staff confirmed there are clear requirements for the licensees to include exercises within their emergency management programs. The requirement is referenced in licence conditions or within the licence conditions handbook.

72. The Commission asked whether Health Canada was still planning a nation level nuclear exercise for 2013. A representative from Health Canada responded that the Deputy Ministers' Emergency Management Committee approved the revised Federal Nuclear Emergency Plan on October 9, 2012, which endorsed a national level exercise for next fiscal year. Health Canada is working with CNSC staff and Public Safety to get the involvement of a power plant, provinces, other federal departments and potentially international participants. Health Canada is also working in parallel to develop a rigorous and sustainable exercise regime where full-scale national exercises would be conducted routinely every two to three years.

73. The Commission inquired about the prospective date for the establishment of the emergency equipment center. A Bruce Power representative responded that Bruce and OPG were working to identify a location, and provided construction is not required, it could be established sometime next year.

74. The Commission inquired about the release of information to the public concerning the implementation of enhancements post Fukushima. Representatives from Bruce and OPG confirmed that some information is provided on their websites, through press releases or other media tools. CNSC staff also confirmed that relevant information on past and future enhancements are posted on the CNSC website.

INFORMATION ITEMS

Regulatory Oversight of the Transition between Operation and Decommissioning of a Nuclear Power Plant

75. With reference to CMD 12-M60, CNSC staff presented information on the key elements of the nuclear power plant end of life plan, specifically the transition from power operation to decommissioning. The decommissioning strategy can be direct and occur within 2 to 10 years, or deferred and completed in 25 to 40 years.

76. The Commission asked whether the upcoming activities at Gentilly-2 would be akin to refurbishment given the recent decision to decommission Gentilly-2 by the Province of Quebec. CNSC staff responded that the first steps are identical, and included safe shutdown, removal of reactor fuel and removal and storage of water from significant systems.

77. The Commission asked for the differences between the options of short-term (2 to 10 years) decommissioning compared to deferred decommissioning. CNSC staff responded that the licensee needs to choose between the two options depending on its own criteria, but that one important criterion is that waiting for decommissioning leads to lower radiation doses to the workers because of the decay of short-lived isotopes.

78. The Commission asked for more details about Hydro-Québec's financial guarantee. CNSC staff responded that there is a financial guarantee in place for Hydro-Québec that was approved by the Commission after the Gentilly-2 relicensing hearings in 2011. The Government of Quebec is ultimately responsible for providing the funds necessary for decommissioning.

79. The Commission asked for clarification on how decommissioning could be achieved in two years. CNSC staff responded that two years referred to smaller reactors such as the Dalhousie SLOWPOKE reactor, which was decommissioned in under two years. Larger nuclear power plants would require up to ten years for decommissioning; however, regulatory approval to initiate some decommissioning activities could be granted in 2 years. CNSC staff explained that certain activities could be completed under an operating licence or a combined operating and decommissioning licence.

80. The Commission requested clarification on the amount of time required for fuel to cool in the fuel bay prior to placement in dry storage containers. CNSC staff responded that for nuclear power plants generating 600 megawatts, fuel is required to cool for 7 years prior to placement in containers. These containers would have to be modified if the cooling period is less than 7 years.

81. The Commission asked for more information on the documentation Hydro-Québec sent to CNSC staff on the decommissioning of the Gentilly-2 NGS. CNSC staff responded that this document was a generic document describing each safety and control area and the activities planned for the next 2 years until safe storage state is reached. CNSC staff expects within the next few weeks more details on how these planned activities will be performed in 2013. There are also requirements on the number of employees remaining at the site during these activities.

Closure of the Public Meeting

82. The meeting closed at 7:42 p.m.

Recording Secretary — JAN 1 8 2013 — Date

Secretary — JAN 1 8 2013 — Date

APPENDIX A

CMD	DATE	File No

12-M51 2012-09-26 Edocs #4012235
Notice of Meeting of October 24 and 25, 2012

12-M52 2012-10-11 Edocs #4019451
Agenda of the meeting of the Canadian Nuclear Safety Commission to be held on Wednesday and Thursday, October 24 and 25, 2012, at the Public Hearing Room, 14th floor, 280 Slater Street, Ottawa, Ontario

12-M52.A 2012-10-18 Edocs #4023434
Updated agenda of the meeting of the Canadian Nuclear Safety Commission to be held on Wednesday and Thursday, October 24 and 25, 2012, at the Public Hearing Room, 14th floor, 280 Slater Street, Ottawa, Ontario

12-M52.B 2012-10-22 Edocs #4024918
Updated agenda of the meeting of the Canadian Nuclear Safety Commission to be held on Wednesday and Thursday, October 24 and 25, 2012, at the Public Hearing Room, 14th floor, 280 Slater Street, Ottawa, Ontario

12-M53 2012-10-18 Edocs #4023470
Draft of Minutes of the Meeting of the CNSC held September 13, 2012

12-M54 2012-10-16 Edocs #4021793
Status Report on Power Reactors Units as of October 16, 2012

12-M55 2012-09-06 Edocs #3999046
CNSC Staff Report on the Performance of Canadian Uranium Fuel Cycle and Processing Facilities: 2011 – Oral presentation by CNSC staff

12-M55.1 2012-10-09 Edocs #4019422
CNSC Staff Report on the Performance of Canadian Uranium Fuel Cycle and Processing Facilities 2011 – Written submission from the Port Hope Community Health Concerns Committee

12-M56 2012-10-09 Edocs #4013625
Status Update on the CNSC Action Plan: Lessons Learned from the Fukushima Accident – Oral presentation by CNSC staff

12-M57 2012-10-09 Edocs #4017998
This item is postponed to a later date

12-M58.1 2012-10-10 Edocs #4019480
Update on the Public Alerting System for Pickering City and the Durham Region – Oral presentation by Emergency Management Ontario

12-M58.2 2012-10-23 Edocs #4026043
Update on the Public Alerting System for Pickering City and the Durham Region – Oral presentation by the Durham Region Emergency Management Office

12-M60 2012-10-22 Edocs #4016627
Regulatory Oversight of the Transition Between Operation and Decommissioning of a Nuclear Power Plant