

Canadian Nuclear  
Safety Commission



Commission canadienne  
de sûreté nucléaire

Minutes of the Canadian Nuclear Safety  
Commission (CNSC) Meeting held Wednesday,  
January 16 and Thursday, January 17, 2013

Minutes of the Canadian Nuclear Safety Commission (CNSC) Meeting held Wednesday and Thursday, January 16 and 17, 2013 beginning at 9:04 at the Public Hearing Room, 14th floor, 280 Slater Street, Ottawa, Ontario.

Present:

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

M. Leblanc, Secretary  
J. Lavoie, Senior General Counsel  
T. Johnston/M. Young/S. Dimitrijevic, Recording Secretaries

**CNSC staff advisors were:**

R. Jammal, G. Rzentkowski, F. Rinfret, M. Santini, B. Poulet, A. Régimbald, I. Tremblay, P. Fundarek, H. Rabski, C. Purvis, P. Thompson, J. Plante, Y. Picard, M. Rickard, P. Denhartog, T. Jamieson, N.-O. Kwamena, M. Rinker, S. Mihok, B. Thériault, R. Awal, K. Owen-Whitred, H. Robertson and W. Gibson

**Other contributor was:**

- Ontario Power Generation Inc.: G. Jager

Constitution

1. Since the meeting of the Commission held October 24-25, 2012, Commission Member Documents CMD 12-M57 to CMD 12-M57.A, CMD 13-M1 to CMD 13-M7.A and CMD 13-M9 were distributed to Members. These documents are further detailed in Annex A of these minutes.

Adoption of the Agenda

2. The revised agenda, CMD 13M2.A, was adopted as presented.

Chair and Secretary

3. The President chaired the meeting of the Commission, assisted by M. Leblanc, Secretary and T. Johnston, M. Young, and S. Dimitrijevic, Recording Secretaries.

Minutes of the CNSC Meeting Held October 24 and 25, 2012

4. Regarding item 9 in the draft minutes concerning a heavy water leak at the Pickering Nuclear Generating Station (NGS) in October 2012 as

presented in CMD 13-M3, the Commission sought clarification regarding a possible discrepancy in public information on worker doses published online between the CNSC and OPG, and if the information on the CNSC website would be corrected if necessary. CNSC staff responded that the information and the communication process would be reviewed and verified. CNSC staff also responded that when a licensee provides public information or an update on their website, CNSC staff link the information to the CNSC website. CNSC staff intends on following-up on the above event during the February 20-21, 2013 Commission hearing on the renewal of the Pickering NGS operating licence.

**ACTION**

By  
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5. Regarding item 10 in the draft minutes as presented in CMD 13-M3, the Commission enquired about the anticipated CNSC staff update on an asbestos exposure event at Pickering A. CNSC staff responded that the update would be provided during the February 2013 Pickering relicensing public hearing. CNSC staff added that they are working closely with the Ontario Ministry of Labour (MOL) and that OPG has been issued a total of 6 orders by the MOL, 2 of which have been since closed. An OPG representative added that some of the remaining open orders pertain to long term remediation and a more complete update would be provided in February 2013.
6. The Commission Members approved the minutes of the October 24 and 25, 2012 Commission Meeting as presented in CMD 13-M3. One Commission member was not present during the previous Commission meeting and abstained from the approval of the meeting minutes.

**ACTION**

By  
February  
2013

**Decision of the Commission**

7. On January 21, 2013, a panel of the Commission approved CNSC staff's recommendation to update CMD 08-M10, *Designated Officers*, to provide powers to Designated Officers to authorize transfers of licences. CNSC staff's recommendation was presented in CMD 13-M15.

**STATUS REPORTS****Status Report on Power Reactors**

8. With reference to CMD 13-M4, which includes the Status Report on Power Reactors, provided to the Commission members on January 16<sup>th</sup>, 2013, CNSC staff presented no further oral updates on the status of power reactors.
9. CNSC staff provided further details regarding an event that occurred at an OPG Darlington project site in the evening of January 15<sup>th</sup>, 2013 in which a contractual worker fell through a trench box because part

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of the excavated wall collapsed. CNSC staff noted that the worker was hospitalized and treated for dislocated shoulder, and that both CNSC staff and contractor had independently notified the MOL. CNSC staff added that the scene has been secured, all excavations have been put on hold as a precaution, and that CNSC inspectors would visit when conditions would permit. CNSC staff would provide an update to the Commission if necessary.

10. The Commission enquired as to what role the CNSC has in the excavation process to ensure safety in general, aside from the responsibilities of the MOL. CNSC staff responded that this incident was not a typical activity that inspectors would witness in the field. CNSC staff added that while the incident took place outside of the licensed area, CNSC staff are working diligently with the MOL to ensure that there are no gaps in regulatory oversight.
11. The Commission sought further information regarding the impact of the commissioning of the annulus gas system as the remaining hold point at Bruce A Nuclear Generating Station (NGS). CNSC staff responded that once commissioning of the annulus gas system has been achieved, the final hold point would be released and Bruce A would resume normal operation at full power. CNSC staff gave approval for 90 percent of power operations to allow testing over the entire temperature range.
12. The Commission enquired about the probability of future safety or environmental implications having resulted from an underground diesel fuel leak at Bruce B NGS. CNSC staff responded that, at the time of the event, there was a minor environmental impact since only a small amount of oil leaked into Lake Huron. CNSC noted, however, that the situation was contained very quickly. CNSC staff added that Bruce Power had proposed modifications as part of lessons learned from this event and such modifications are currently being put in place to avoid future leaks.
13. The Commission sought clarification regarding the status of CNSC staff at Gentilly-2 (G2) in terms of the duration and necessity of their presence. CNSC staff responded that CNSC staff are required and expected to be on site for approximately two years. The Commission further enquired about the CNSC's role after the two-year period. CNSC staff responded that after the two-year period, the reactor fuel would be completely transferred to dry storage containers and the nature of the licence requirement would change with a decommissioning licence application.
14. The Commission asked for more information about an agreement signed by Hydro-Quebec and the CNSC. CNSC staff confirmed that the protocol has been signed between Hydro-Quebec and AECL to facilitate exchange of information.

15. The Commission enquired on CNSC staff's involvement at the G2 site after 2015. CNSC staff responded that, at that time, the fuel will have been removed from the reactor. CNSC staff added that they would still perform regular inspections and inspectors would stay on-site if needed.
16. The Commission enquired if CNSC staff has considered the possibility of Hydro-Quebec and AECL joining efforts in the future to decommission Gentilly-1 and G2 as a whole. CNSC staff responded that communication between Hydro-Quebec and AECL to discuss combined decommissioning efforts is expected to begin in approximately two months.
17. In regards to a fire event at Pickering A, the Commission enquired about the potential risk or danger that would be expected if the unit was not offline at the time. CNSC staff clarified that the fire took place on the secondary site of the reactor. CNSC staff noted that while there was potential risk to the safety of workers, there was no risk to the operation of the reactors directly.
18. The Commission asked if there was to be a root cause analysis done in regards to the steam leak at Pickering B. CNSC staff responded that this particular event was of very low safety significance and did not require a root cause analysis or further follow-up.
19. The Commission sought further information regarding the boiler chemistry issues affecting the unit power at Point Lepreau. CNSC staff noted that boiler chemical impurities are not unusual following prolonged outages and this is supported by international operating experience. CNSC staff added that NB Power is continuously working towards removing the impurities, and in time, this would return the unit to full power. CNSC staff noted that this issue is operational; it is not a nuclear safety concern.

### INFORMATION ITEMS

#### Annual CNSC Staff Report for Nuclear Substances in Canada: A Safety Performance Report for 2011

##### *Summary of CNSC Staff Presentation*

20. With reference to CMD 13-M6, CNSC staff presented its annual report for 2011 on the safety performance of the nuclear industry with respect to the use of nuclear substances in medical, industrial, academic and research, and commercial applications with the exclusion of Class I nuclear facilities. Pursuant to the *Nuclear Safety and Control Act*, safety performance was measured based on regulatory compliance, reported incidents and occupational doses to

workers.

21. CNSC staff stated that the medical sector displayed trends of declining radiation protection ratings that could be explained by the consolidation of licences. CNSC staff added that there was an increase in reported events in the 2011 period as a result of promotion by the CNSC to licensees to encourage reporting events. CNSC staff noted that radiation doses to workers remained low as compared to previous years.
22. CNSC staff stated that the industrial sector displayed good compliance with Sealed Source Tracking System (SSTS) requirements and was generally compliant in the safety areas of operating performance and radiation protection. CNSC staff noted that there was an increase in reported incidents involving portable gauges in the 2011 period. CNSC staff emphasized that none of the reported events resulted in a radiation dose to a worker or a member of the public exceeding regulatory limits. CNSC staff stated that the number of CNSC issued orders was higher in 2011 due to an increased presence of CNSC inspectors in the field. CNSC staff noted that radiation doses to workers remained well below the dose limit of 50 mSv per year for nuclear energy workers.
23. CNSC staff reported that the academic and research sector was compliant, occupational doses were within regulatory limits, and that the ratings of operating performance and radiation protection were stable. CNSC staff noted that there was one CNSC order issued to a licensee in the academic and research sector; however, the non-compliance issue did not affect the safety of the licensed activities.
24. CNSC staff reported that there was an improvement in the ratings of the compliance safety and controls areas of operating performance and radiation protection for the commercial sector in 2011. CNSC staff stated that, in 2011, the total number of events reported in the commercial sector decreased as there were no orders issued by the CNSC, and the occupational doses were within regulatory limits and had not significantly changed since 2008. CNSC staff added that the nuclear substances processing sub-sector demonstrated superior performance in the areas of operational performance and radiation protection in comparison to the overall sector.
25. CNSC staff reported that, with respect to the tracking of sealed sources, all sectors showed strong compliance with CNSC's sealed source tracking requirements. CNSC staff added that compliance levels were consistent with previous reporting years, with the medical sector as well as the academic and research sector achieving 100% compliance.
26. CNSC staff noted that occupational doses were well within regulatory

limits, with the exception of two non-nuclear energy workers who exceeded the public dose limit of one millisievert. CNSC staff emphasized that they ensured that proper corrective measures were implemented. CNSC staff added that there was an increase in incident reporting and more orders were issued. However, CNSC staff concluded that, overall, there was an industry-wide increase in compliance.

27. The Commission commended CNSC staff for the thorough and detailed safety report and provided CNSC staff with editorial comments.

#### *Occupational doses*

28. The Commission enquired about the one hundred percent achievement in regulatory dose limit compliance when there were noted exceptions. CNSC staff responded that the two non-nuclear energy workers (non-NEWs) exceeded the public regulatory limit of one millisievert but that, following an internal investigation by the licensee, the workers should have initially been designated as nuclear energy workers (NEWs) with a regulatory limit of fifty millisieverts per year. CNSC staff added that when there is an event of a non-NEW or a member of the public who has exceeded the regulatory dose limit and an internal investigation confirms they are still not a NEW, it is reported to the Commission and dealt with very seriously and specifically.
29. The Commission enquired about how occupational doses to non-NEWs are measured. CNSC staff responded that licensees either estimate doses or require that their non-NEWs wear dosimeters depending on internal policies and procedures. CNSC staff added that non-NEWs who receive an occupational dose significantly less than the public limit per year are not required to wear a dosimeter as per CNSC regulations.
30. The Commission sought clarification regarding graphic trends displaying a jump in the number of industry workers with an occupational dose from the range of 0.5 to 1 millisievert to the range of 1 to 5 millisieverts. CNSC staff responded that the graphs displaying occupational doses in CMD 13-M6 include both non-NEWs and NEWs whereby non-NEWs and NEWs typically receive an occupational dose of less than 0.5 millisieverts and more than 1 millisievert, respectively.
31. The Commission enquired if CNSC staff trusted the occupational doses that licensees report. CNSC staff confirmed their trust in licensees' self-reporting. CNSC staff explained that CNSC inspectors verify that the doses that licensees provide in the Annual Compliance Reports (ACR) for their workers match those submitted in Health

Canada's National Dose Registry (NDR). CNSC staff added that licensees are required by law to inform the CNSC if there are any changes or discrepancies in worker doses.

32. The Commission enquired as to why the NDR cannot be used by CNSC staff to eliminate the need for representative sampling. CNSC staff responded that there are two limitations with using the NDR for information. CNSC staff explained that the NDR only captures the doses of NEWs and non-NEWs who wear dosimeters while other non-NEWs report their estimated doses in their ACRs. CNSC staff added that the CNSC does not have remote access to the NDR due to IT issues that are currently being addressed.
33. The Commission enquired if it would be easier for CNSC staff to extract dose data directly from the NDR. CNSC staff responded that extracting data from the NDR would not facilitate the sampling process as the NDR does not contain the estimated doses of all non-NEWs.
34. The Commission enquired if previous (a few years ago) problems with Health Canada regarding the dosimetry calculations affected the annual report and if there are mechanisms in place to prevent the issue from reoccurring. CNSC staff responded that Health Canada has corrected their algorithm and that all of the worker doses have been rectified. CNSC staff added that the CNSC conducted a Type 2 inspection to verify that Health Canada has implemented all required measures and that the quality assurance program has been extensively revisited and is being monitored very closely by the CNSC on an ongoing basis.

*Number of licences and workers*

35. The Commission sought information regarding the decrease in the total number of licences issued by the CNSC from 2008 to 2011. CNSC staff responded that the total number of CNSC-issued licences has decreased due to factors such as consolidation of multiple licences, revocations, and the status of the economy whereby many companies have merged or downsized. CNSC staff added that nuclear substance exemption quantities have also been revised a few years ago which led to several licensees no longer requiring licences. CNSC staff noted that the total number of licences does not necessarily reflect the activity in the industry because, despite the decreasing number of licences issued, there may still be an increase in activity.
36. The Commission enquired about the sampling methods and the total numbers of workers represented in the sample groups. CNSC staff responded that the sample groups of workers were extracted from a sample number of ACRs submitted by licensees. CNSC staff

explained that at least 200 ACRs were used in each sector, and if there were more than 200 ACRs for a specific sector, at least ten percent of the total number of ACRs made up the sample group. CNSC staff added that the total numbers of workers provided in the report were extracted from the annual compliance sample groups and is not representative of the actual total number of industry workers.

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| <p>37. The Commission asked how many NEWs exist in the medical, industrial, academic and research, and commercial sectors as compared to the remaining sectors of the nuclear industry, such as nuclear power plants and uranium mines and mills. CNSC staff responded that the information would be provided to the Commission at a later date.</p>   | <p><b><u>ACTION</u></b><br/>By<br/>February<br/>2013</p> |
| <p>38. The Commission also requested information on the total number of incidents, workers, and licences. CNSC staff responded that it would be very difficult to provide and report exact numbers of incidents and injured workers each year in a timely manner since there is approximately 2 500 ACRs and they all have varied due dates. CNSC staff added that they would look into providing estimates in the next annual report.</p> | <p><b><u>ACTION</u></b><br/>By<br/>February<br/>2013</p> |

#### *Inspections and Orders*

39. The Commission asked if it is possible for higher risk non-compliances to go unnoticed by the CNSC over a long period of time. CNSC staff responded that, aside from inspections, licensees submit ACRs where non-compliances could be detected. CNSC staff noted that when non-compliances in the medical sector are identified they are treated very seriously, they are made publicly available online, and the licensee works very quickly to take corrective actions.
40. The Commission asked if it was acceptable in the nuclear culture to accept, as a Commission, less than one hundred percent compliance. CNSC staff responded that non-compliances are found during inspections and, at that time, deficiencies are outlined for the licensee and corrective action measures are discussed. CNSC staff added that, the current compliance rating is at eighty percent and is increasing. CNSC staff emphasized that the CNSC is not satisfied with less than one hundred percent compliance and the goal is to achieve total regulatory compliance.
41. The Commission enquired about the similar trend between increasing inspections and increasing orders. CNSC staff responded that with more field inspections, CNSC inspectors are able to find more health and safety issues. CNSC staff noted that when CNSC inspectors issue orders, they also educate licensees on the particular compliance deficiencies. CNSC staff further noted that orders are issued based on a licensee's history of repetitive non-compliance and/or immediate

health and safety issues. CNSC staff predicted that in time, with issued orders and compliance outreach, there will be a lower number of orders issued despite increasing inspections.

42. The Commission asked if the CNSC has enough staff to conduct the required number of inspections. CNSC staff responded that the CNSC has the necessary resources to ensure safety. CNSC staff added that resources have been optimized to inspect higher risk installations as first priority.
43. The Commission enquired about the measures and procedures that are in place for device storage following the issuance of an order. CNSC staff responded that if a licensee is issued an order to store nuclear gauges or devices until their radiation protection program is restored, the CNSC inspector who issued the order would lock the device on-site prior to leaving the site.

#### *Reporting Period*

44. With reference to page 3 in the CMD 13-M6, the Commission sought clarification regarding the mentioned January 1<sup>st</sup> five-year occupational dose reporting period. CNSC staff responded that the mentioned reporting period is the fixed five-year regulatory occupational dose limit of 100 millisieverts for NEWs that was implemented in January of 2001. CNSC staff added that the fixed five-year reporting period is internationally practiced and accepted and confirmed that, following the five-year period, workers' five-year dose limit is reset. CNSC staff further added that licensees develop radiation protection programs to lessen worker doses. CNSC staff noted that the fixed five-year period would be discussed in future regulatory reviews.
45. The Commission sought further clarification regarding the scope of ACRs that were used in the safety report sampling. CNSC staff responded that all of the ACRs from the 2011 year may not be received by the CNSC in time for the annual safety report. CNSC staff explained that those reports that were not received in time are used for the following year. CNSC staff also noted that the ACRs do not reflect the calendar year but the 12 months preceding their due dates.

#### *Sector-by-Sector Considerations*

##### *Medical Sector*

46. The Commission enquired about the slower improvement in performance ratings in the medical sector as compared to other nuclear sectors. CNSC staff responded that they have increased the scope of the inspections rather than the frequency, and that the

majority of the non-compliances are administrative in nature and do not pose a risk to the health and safety of the public or the environment.

47. The Commission sought information regarding the forums for learning and sharing of best practices in the medical sector in regards to radiation protection. CNSC staff responded that licensees have an opportunity to discuss compliance issues or concerns during several conferences that are held annually as well as during inspections. CNSC staff added that the Directorate of Nuclear Substance Regulation (DNSR) newsletter that is published on a bi-annual basis as well as special editions on an as-needed basis when there are specific compliance areas upon which licensees can focus.
48. The Commission enquired if there should be further measures taken for compliance improvement since the medical sector demonstrated a declining compliance trend for 2011. CNSC staff responded that due to the number of consolidated licences, when one area is affected by non-compliance, the inspection rating carries across the remaining licences. CNSC staff added that non-compliances in this sector were mostly administrative in nature. CNSC staff further added that the 2011 safety report demonstrated findings but did not represent the current status, in 2013, of non-compliance items. CNSC staff committed to report the number of non-compliance items that are closed and their level of risk in future reports. CNSC staff noted that, despite the declining compliance performance, a number of the non-compliance items have since been closed.

#### Industrial Sector

49. The Commission sought more information regarding CNSC staff's satisfaction concerning the safety rating for the industrial sector. CNSC staff confirmed their satisfaction as the overall compliance increased from 2010 to 2011. CNSC staff explained that the potential for an increase in incidents exists with increases in the number of workers and in work activity. CNSC staff added that they are focused on the quality of licensee's radiation protection programs and their compliance relating to event reporting to the Commission.
50. The Commission enquired if CNSC staff is able to technically verify the number of exposures a worker receives in the industrial sector. CNSC staff responded that licensees are not obligated to record the actual number of exposures that are received in the radiography sector but that, through discussions in working groups, licensees are able to confirm if there is a general increase or decrease in work activity for that year.

#### Academic and Research Sector

51. The Commission enquired about the computed tomography (CT) image of a concrete barrier provided on page 67 of CMD 13-M6 (academic and research sector). CNSC staff responded that licensees are required to provide third-party verification of the density measurements to prove that there are no voids in shielding during construction.

#### Commercial Sector

52. The Commission enquired as to why radiation protection and operating performance grades were not available for the isotope production accelerator sub-sector (commercial sector) for 2011. CNSC staff responded that inspection grades are only provided with Type 1 (audit) inspections and during the 2011 year, there were six Type 2 (more general) inspections conducted. CNSC staff added that the licensees are made aware of their Type 2 inspection findings and are expected to develop corrective actions if any non-compliances are identified.

#### Canadian Nuclear Safety Commission Staff Update of the Event Involving Check Sources Left at the CNSC Head Office

53. With reference to CMD 13-M7 and CMD 13-M7.A, CNSC staff updated the Commission on the event involving check sources left at the CNSC Head Office in June 2012, and presented the findings of the root-cause analysis and recommendations regarding the event. There were no actions requested of the Commission.
54. The check sources were used by CNSC staff for a demonstration session, which included a search for purposely hidden small size check sources by using Geiger counters. Three of the check sources used in this demonstration were accidentally left behind in the meeting room at the CNSC headquarters in Ottawa. Each source contains a small amount of cesium-137 sealed inside a capsule similar in size to a \$1 coin, and radiates approximately the same amount of radiation as that found within household smoke detectors. These sources did not represent a risk to the health or safety of CNSC staff or the general public, since they are designed to be handled by hand. The sources were recovered by CNSC staff three weeks after the demonstration session.
55. The sources were provided by the CNSC Laboratory, which is itself a CNSC licensee and holds two licences under the *Nuclear Safety and Control Act*: a Class II nuclear facility licence for its gamma irradiator, and a nuclear substance and radiation device licence. This nuclear substance and radiation device licence is issued by a Designated Officer in the Directorate of Nuclear Substance Regulation (DNSR), while the CNSC Laboratory operates within the Directorate of Environmental and Radiation Protection and

Assessment (DERPA). CNSC staff pointed out that this case demonstrate independence of the Commission from CNSC staff, since this was the first time that a section of the CNSC appears in front of the Commission as a licensee.

56. CNSC staff informed the Commission that, following the event, all sources, other than those in CNSC regional and site offices, had been quarantined at the CNSC Laboratory and no authorized users had been provided with sources for training until approved procedures were put in place. The operation was thus restricted to the possession and storage of nuclear substances and equipment until further notice. However, the use of nuclear substances and radiation devices necessary for uninterrupted regulatory compliance purposes was allowed to continue.
57. An independent internal investigation was immediately launched to identify root causes and prevent reoccurrence. This investigation was led by CNSC staff who do not work for either of the directorates associated with the operation of the CNSC Laboratory or the regulatory oversight of it. The investigation team found that after the recovery of the sources, DERPA, as the licensee, responded to the event in a timely manner and took adequate actions to ascertain that there was no risk to staff or the public at any time.
58. CNSC staff further informed the Commission that, one week after recovery of the sources, CNSC inspectors also conducted an inspection at the CNSC Laboratory to verify compliance with its nuclear substance and radiation device licence. The investigation team and the inspectors concluded that the event was caused by deficiencies in procedures, policies, administrative controls, and management oversight. As a result of the investigation and the inspection, the investigation team made the following eight recommendations:
  - Strengthen procedures for radioactive source control;
  - Increase management oversight and self-auditing of licensed activities;
  - Achieve compliance with CNSC Regulatory Document RD/DG 371 for the next licence renewal;
  - Change the person designated as Radiation Safety Officer;
  - Improve procedures for maintaining prescribed records;
  - Bring the two CNSC licences under a single Applicant Authority;
  - Revise and improve training plan and procedures for use of radioactive sources; and
  - Review program and procedures for first-responder training activities.
59. DERPA, as the licensee, responded to the recommendations by proposing twenty-one corrective actions and a plan for their

implementation. CNSC staff reported that the implementation of the corrective actions was well under way.

60. CNSC staff pointed out that the lessons learned include the following:
  - that the same rigour applied by the CNSC towards other licensees should be applied internally;
  - that improvements in order to strengthen CNSC's regulatory process should include enhanced collaboration between licensing and compliance groups, clearer regulatory expectations, clearer technical assessment criteria and stronger regulatory enforcement action taken when needed; and
  - that outstanding issues should be brought to the attention of the CNSC management in a timely manner.
61. CNSC staff also reported that a comprehensive review of the documentation submitted for the next licence renewal, which is due in April 2013, would be completed before a decision is made with respect to the licence renewal. CNSC staff noted that it was expected that the licensee would have sufficient time to address the identified issues related to the event prior to the licence renewal date. CNSC staff further noted that DNSR staff, which had issued the current licence, would continue to monitor the actions of the CNSC Laboratory to ensure that effective measures are implemented in accordance with the accepted corrective action plan, and stated that they would report to the Commission on any issues regarding licensing and compliance through regular annual industry reporting.
62. Providing more details on the actions that were taken during the implementation of the corrective actions, DERPA staff reported that all sources used for training were returned to the laboratory and that a single inventory had been created by consolidating the six existing inventories. Each radioactive source was barcoded to facilitate inventory control; procedures and forms to maintain control and accountability of nuclear substances were drafted and implemented; and electronic request forms supporting this procedure were put in place.
63. DERPA staff informed the Commission that they had conducted an internal review of compliance with regulatory requirements for their type of licence, and that their own findings were the same as findings of the independent investigation team. DERPA staff reiterated that they were implementing the detailed corrective action plan, and stated that they expect to complete this plan by April 2013 in support of the licence renewal.
64. With respect to using radioactive sources for training purposes, DERPA staff stated that, as a precautionary measure, no radioactive sources will be made available for any training unless a formal training plan is in place identifying the training objectives and

whether or not these objectives can be achieved without radioactive sources. They added that DERPA was looking into training systems using virtual sources, which would eliminate the use of radioactive sources for training purposes and would reduce radiation doses to CNSC staff conducting first responder training.

65. To address a number of findings pointing to unclear or inadequate procedures, changes related to the positions of the Applicant Authority and the Radiation Safety Officer have been implemented. DERPA staff provided details regarding these changes and noted that these changes will provide for better alignment of the Applicant Authority with the management authority responsible for the activities of the laboratory. In addition, the proposed system of internal permits for site and regional offices listed on the licence would ensure that the Radiation Safety Officer will have the authority and the mechanisms to enforce full compliance with the licence. This system should also be completed in time for the licence renewal.
66. DERPA staff informed the Commission that they plan on having an external third party audit of the laboratory radiation safety manual and of compliance with the CNSC's regulatory requirements. The results of this audit would be used to identify opportunities for further improvement and to identify the focus of self-assessments planned for fiscal year 2013-2014.
67. DERPA staff further informed the Commission that the laboratory staff had begun the work necessary to support the accreditation of the laboratory to the ISO 17025 standard, which would, together with the implementation of the upgraded radiation safety manual, enhance the culture of accountability and continuous improvement.
68. The Commission expressed concerns regarding the fact that such an event had happened to the CNSC's proper laboratory during a relatively simple demonstration, and asked how many sources had been used during the demonstration. CNSC staff responded that the event clearly showed weaknesses in source handling practices and in inventory control and accountability. CNSC staff said that about 15 check sources had been used during the demonstration. CNSC staff added that procedures, such as bar-coding, inventory control, and electronic forms to request sources with dates for returning them, are now in place and are being followed.
69. The Commission further asked how organizational changes would impact the process and prevent reoccurrence of the event. CNSC staff responded that the changes would make the management and radiation safety oversight more robust, taking into account the qualification of appointed officers and the authority to enforce all requirements given to their positions as a result of the implemented changes. CNSC staff further explained that the Radiation Safety

Officer would have exclusive access to the vault with sources and would be responsible for accountability and the issuance of sources.

70. The Commission said that it was imperative that CNSC be as demanding towards itself as it is towards other licensees and stressed the importance of such a conduct for the public credibility of the CNSC. The Commission enquired which of the laboratory's activities have been stopped after the event. CNSC staff responded that the laboratory studies and activities that were not linked to normal functioning of CNSC inspectors, such as first responder training, have been cancelled and postponed until the acceptable procedures needed to support source control, contamination control and decommissioning after an exercise have not been fully implemented and freed from deficiencies. The first responder training has continued using a range of options for their training, and some activities have continued in December of 2012, but with sources from another source provider.
71. The Commission asked if this was the first time for the CNSC to conduct this type of internal investigation, and whether it was considered, as an option, to include investigation experts from outside of the CNSC. CNSC staff responded that, although the CNSC had conducted self-assessments earlier, this was the first time the CNSC conducted such an in-depth internal investigation. CNSC staff noted that an external party would be heavily involved in the process of examination for the laboratory's ISO certification. CNSC staff added that they had considered the relevance of including a third party to review the existing practices; however, after receiving identical findings of the independent internal investigation team and the conducted self-assessment, it had been decided not to engage external parties in this process. Instead, it had been decided to put in place the corrective action plan.
72. The Commission questioned the adequacy and robustness of inspections conducted in the laboratory before the event, and pointed out that, in order to improve the prevention of similar events, the focus of inspection might need to expand to cover not only high-risk areas, but also low-risk areas. CNSC staff responded that the latest two inspections conducted after the licence renewal in 2008 have shown fully satisfactory results for the high-risk areas, but the rigour was not applied for administrative areas. CNSC staff noted that, previously, there were no self-assessments organized, no management reviews, and consequently, no corrective actions defined for low-risk areas.
73. The Commission asked how CNSC staff intends to share lessons learned from this event and the best practices that were implemented. CNSC staff responded that they would concentrate on sharing lessons learned once they have completed the full implementation of the

corrective actions.

74. The Commission asked about other organisations that possess or use check sources. CNSC staff responded that there is a number of licensees across the country that use check sources, including hospitals, universities and other educational institutions, as well as organisations that use radiation survey meters.
75. The Commission enquired how, in terms of safety culture within the CNSC, the employees reacted to the event, the following internal investigation and the implementation of the corrective actions. CNSC staff responded that the event was taken seriously. Information had been provided and all details discussed openly in a two-way communication with the investigation team, with no fear of reprisal. CNSC staff added that not only the issues directly related to the sources, but all other potential issues related to compliance with the licence had been raised and reviewed, which reflects the existing safety culture within the CNSC.
76. The Commission further enquired whether the procedures that are coming into place do align with other providers of checked sources. CNSC staff responded that the Directorate of Nuclear Substance Regulation published CNSC Regulatory Document GD 371: *Licence Application Guide – Nuclear Substances and Radiation Devices*, in 2011. This document consolidates different licence applications types into one and provides sufficient and extensive guidance for licensees to fill out their applications and to develop radiation safety programs. CNSC staff stated that the application to renew the operating licence for the CNSC Laboratory would be considered through evaluation of the compliance with this document, a procedure identical to that applied for all other licensees.
77. The Commission asked if the CNSC Laboratory possesses higher radiation level sources. CNSC staff responded that there is a variety of radioactive sources in the laboratory's inventory, and that a number of these sources are of higher intensity. CNSC staff added that that was the main reason for the immediate action by the laboratory staff to consolidate six existing source inventories into one inventory, and to introduce electronic requests and bar-coding for easier monitoring of a source being taken out and returned. To ensure the efficiency of this monitoring, a recently introduced procedure provides for a physical reconciliation of all the sources four times a year.
78. The Commission enquired how would the application for the ISO certification influence management practices related to the CNSC Laboratory. CNSC staff responded that the preparation for the ISO accreditation was delayed due to engagement of the staff to implement the corrective actions. CNSC staff added that the work on

accreditation would have a positive effect since all the procedures for management reviews, self-assessments, document control, record control, and all other processes are needed for the ISO 17025 accreditation.

79. Asked about a potential timeline for the accreditation, CNSC staff responded that, regarding the required audit by an external third party, arrangements had been made with the Ontario Ministry of Labour who have laboratory activities similar to the CNSC laboratory, which are accredited, and with the Québec Ministry of Environment to do assessments of the readiness of CNSC's application for certification by mid-summer 2013.

#### CNSC Staff Site Visit to Fukushima

80. With reference to CMD 13-M9, CNSC staff presented a detailed presentation of the CNSC staff site visit to Fukushima and the Daiichi nuclear power plant (NPP). CNSC staff presented various presentation slides describing the Fukushima region's airborne radiation levels, dose rates, decontamination timelines and completion goals, and finally, decontamination progress in the areas surrounding Fukushima.
81. CNSC staff reported that the Fukushima national government, with international assistance, implemented acts and regulations to begin region-wide decontamination. CNSC staff added that the Japanese government categorized the Tohoku region into two decontamination groups based on dose rates. CNSC staff added that the areas are being decontaminated through thorough and extensive measures.
82. CNSC staff reported that there are extensive ongoing studies following children and those of child-bearing age, and the ongoing conclusion is still that the probability of risk of cancer in these persons is low. CNSC staff noted that food in general is being monitored for safe consumption.
83. CNSC staff concluded with an overview of the mid-to-long term plans for the decommissioning of the Daiichi Nuclear Power Plant.
84. The Commission enquired about how remote controlled equipment, located on the Daiichi NPP site, was constructed and installed safely. CNSC staff responded that there were over 30,000 workers involved with installing the remote-controlled equipment and that the workers rotated shifts to minimize their exposure. The Commission further enquired if most of the thousands of workers were volunteers. CNSC staff confirmed that the majority of the workers were volunteers.
85. The Commission enquired about the final number of mortalities resulting from the Daiichi reactor explosion and if long-term health

studies are being conducted. CNSC staff responded that there were no deaths as direct result of the explosion, or radiation, but that any deaths recorded were as a result of the natural disaster itself. CNSC staff further explained that a large number of the population in the affected areas is being tracked and monitored so that health studies can be carried out in the long-term. CNSC staff added that children and persons of child-bearing age are currently being tracked and monitored for current and long-term health study purposes.

86. The Commission asked if the government of Tohoku is committed to cleaning up the land regardless of cost. CNSC staff reported that the director of Fukushima City stated that the government is committed to achieving a complete region dose rate of 1 millisievert or less regardless of cost.
87. The Commission sought further details regarding the Japanese long-term waste storage plan. CNSC staff responded that Japanese federal government officials have stated that they would dispose of the waste within three years. CNSC staff noted that no additional information was provided on this topic.
88. The Commission enquired about the level of public confidence in the Japanese government. CNSC staff responded that there have been no major protest groups and, while visiting, public reaction was not personally witnessed by CNSC staff. CNSC staff noted that the Japanese government has made numerous resources available to the public to rebuild trust and regain confidence and would continue to do so for the reassurance of the public concerning public health and safety. CNSC staff added that, while some residents may never return to the affected areas, many residents are returning to their homes.
89. The Commission sought information regarding the clean-up process of the water and surrounding beach areas of the Daiichi NPP. CNSC staff responded that follow-up will be required as specific decontamination measures were not discussed or presented during the site visit. CNSC staff emphasized, however, that the leaching of nuclear fuel into the Pacific Ocean is under control and water treatment facilities are up and running.

#### Update on the Implementation of Recommendations from the Tritium Studies Project Synthesis Report

90. With reference to CMD 13-M5, CNSC staff presented an update on the implementation of recommendations from the Tritium Studies Project Synthesis Report<sup>1</sup>. CNSC staff's update included a description of the Tritium Studies Project, a summary of the key objectives and

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<sup>1</sup> CNSC Information Document INFO-0800, *Tritium Studies Project Synthesis Report*, Revision 1, January 2011.

recommendations of the project, and a discussion of the implementation of recommendations to date, as well as future actions. CNSC staff explained that the CNSC has published six public information documents on the subject of tritium in Canada, including the standards and guidelines for drinking water, releases and dose consequences, evaluation of facilities handling tritium, and health effects and radiological protection.

91. CNSC staff noted that the Tritium Studies Project Synthesis Report summarized the main conclusions of the Tritium Studies Project. CNSC staff explained that, while the existing regulatory mechanisms in place are protective of the health and safety of Canadians against tritium, the report recommendations were made to improve the existing framework in the context of environmental protection. CNSC staff noted that the recommendations were to investigate variability of organically bound tritium (OBT) relative to tritiated water (HTO) in environmental samples and assess dose consequences, address groundwater protection issues, and compare the relative biological effectiveness of tritium to other forms of radiation.
92. Regarding the variability of OBT relative to HTO in environmental samples, CNSC staff stated that, while Canadian Standards Association (CSA) standard N288.1<sup>2</sup> assumes an OBT/HTO ratio between 0.6-0.8, OBT/HTO ratios were generally observed to be greater than one in samples taken at the nuclear facilities in the study, including a maximum ratio of 45.6 found in one milk sample. CNSC staff stated that while the dose would increase from 0.0001 millisieverts per year (mSv/y) to 0.005 mSv/y in this instance, the consequences of this increase would be minor as the overall dose to the public would still be well below the public dose limit of 1 mSv/y. CNSC staff noted that it would undertake further studies on this matter.
93. CNSC staff also discussed the calibration of active and passive tritium air samplers around nuclear facilities. CNSC staff explained that there is a need to assess the accuracy of the different sampling methods because the results can differ significantly in different locations. CNSC staff noted that it was conducting research and collaborative studies to improve tritium measurements in air and other environmental media.
94. Regarding groundwater protection, CNSC staff stated that groundwater is protected based on its 'use', i.e., whether it would be used for drinking water, and that most CNSC licensees have groundwater protection programs in place. CNSC staff further stated that the CNSC is proposing to clarify and formalize requirements

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<sup>2</sup> Canadian Standards Association, *N288.1-08 - Guidelines for calculating derived release limits for radioactive material in airborne and liquid effluents for normal operation of nuclear facilities*, 2008.

relating to groundwater protection through regulatory documents. CNSC staff provided information concerning drinking water standards for tritium, including a comparison of Health Canada's drinking water guideline of 7,000 Becquerels per litre (Bq/L) with international standards and guidelines. CNSC staff noted that the current Canadian drinking water guideline of 7,000 Bq/L is safe, approximately equivalent to a dose of 0.1 mSv/y, based on an average consumption of two litres of water per day. CNSC staff further noted that the CNSC is proposing an effluent/emission design objective of 100 Bq/L for tritium in groundwater. CNSC staff also described the consultation activities it was undertaking regarding the protection of groundwater and the establishment of release limits.

95. CNSC staff also provided information regarding radiological protection and the toxicity of tritium. CNSC staff stated that health effects due to tritium exposure at current levels in Canada are unlikely, but noted that it would be further researching the stochastic effects (e.g., cancer) due to tritium exposure and the relative biological effectiveness of tritium radiation compared to gamma radiation.
96. Regarding the understanding of the environmental behaviour of tritium, CNSC staff stated that it was participating in a working group to further develop models for accidental and pulse tritium releases, with a focus on modelling tritium behaviour in the terrestrial environment and integrating the results in a radiological impact assessment model.
97. The Commission enquired about the regulation of tritium emissions in other countries. CNSC staff explained that while many countries have nuclear power plants and reprocessing plants under regulation, such as France, Canada is one of the few countries with tritium processing facilities.
98. The Commission asked for more information concerning the recommendations regarding groundwater. CNSC staff responded that it looked into best practices for groundwater protection in other countries and for other types of industry and determined that the CNSC must have clear expectations for the protection of groundwater based on what it considers best practice. CNSC staff noted that it is important to implement these practices because tritium released through the atmosphere will be deposited on the ground and could result in groundwater contamination.
99. The Commission asked for more information concerning the OBT/HTO ratio and questioned why it was found to be so much greater in some environmental samples. CNSC staff responded that the value of 0.6-0.8 in the CSA standard is based on scientific work under controlled conditions. CNSC staff noted that, because HTO is

heavier than water, it is not taken up as quickly in organisms. CNSC staff explained that one reason for the increase could be release patterns, as some facilities only release tritium during the day and not at night, whereas laboratory experiments to date had been under more steady conditions. CNSC staff noted that this discrepancy is one reason for conducting further research into the behaviour of tritium in the environment.

100. The Commission asked for more information regarding the behaviour of OBT in organisms, such as humans. CNSC staff responded that OBT is eliminated more slowly from the body than HTO. CNSC staff noted that a small fraction of ingested HTO, around 0.5%, becomes OBT. CNSC staff noted that, for conservatism, dose models assume that 3% of HTO becomes OBT.
101. The Commission asked if the higher ratio would have a health impact. CNSC staff responded that there are no health consequences associated with the higher ratio because the dose is well below the public dose limit, which is a safe and conservative limit. CNSC staff noted that it would be looking into having the CSA take this information into account.
102. The Commission enquired about the ratio results for other types of produce and asked about the average values, rather than the maximums presented. CNSC staff responded that the average ratios were between 0.9 and 11, and that the study focussed on above- and below-ground fruit, such as corn which had a ratio of 2, and tomatoes which had a ratio of 4. CNSC staff noted that the highest values were found in milk and beef. CNSC staff noted that it would be publishing its results, including an explanation of the associated dose consequences.
103. The Commission, noting that in the past it had heard concerns from members of the public that the standards for tritium were too low, asked for more information concerning the regulation of tritium releases. The Commission also noted the recommendation from the Ontario Drinking Water Advisory Council to lower the drinking water limit to 20 Bq/L. CNSC staff responded that, due to the improving measures in place to control tritium releases, the trend for releases had gone down. CNSC staff noted that while there may yet be uncertainties in science and improvements that could still be made, the doses to the public at the current and past levels have remained low. CNSC staff noted that the tritium levels in drinking water supply plants around nuclear facilities in Canada are generally below 18 Bq/L. CNSC staff stated that it could look at ways to implement action levels on drinking water, within its regulatory framework, which could provide further assurance to the public.
104. The Commission asked for more information concerning the

differences between active and passive sampling. CNSC staff responded that passive sampling generally results in higher measurements. CNSC staff noted that regardless of the type of sampling, the highest results are incorporated into the dose models for the public dose at each nuclear facility. CNSC staff noted that it would be conducting further research, including collaboration with regulators in France, into the calibration factors of each type of device in order to better understand the results.

105. The Commission also enquired about the possibility of having more independent monitoring. CNSC staff responded that it had upgraded its laboratory in order to improve its capacity to conduct independent monitoring. CNSC staff noted that it takes samples independent of licensees and plans to get the laboratory accredited by a third-party. CNSC staff added that it would be able to measure OBT at the laboratory and provide independent monitoring data to the public.
106. The Commission asked CNSC staff if it would be publishing more documents in order to provide more information to the public. CNSC staff responded that while much of its technical work, including the review of work practices and mitigation measures, was not in a format appropriate for publication, CNSC staff was intending to publish a third document concerning OBT around nuclear facilities. CNSC staff noted that third parties, including the University of Ottawa and Atomic Energy of Canada Limited, would be publishing the results of research activities that they are carrying out on the topic. CNSC staff concurred with the Commission that it was important for the CNSC to publish peer-reviewed documents.
107. The Commission asked CNSC staff to explain the reason for implementing the lower design objective of 100 Bq/L. CNSC staff responded that, under the *Nuclear Safety and Control Act*<sup>3</sup> and the *Canadian Environmental Protection Act*<sup>4</sup>, the CNSC strives for pollution prevention and the best environmental quality in its regulation. CNSC staff stated that, based on what could be achievable around nuclear facilities in terms of groundwater protection, 100 Bq/L meets both the objective of pollution prevention enacted in the *Canadian Environmental Protection Act* and also corresponded to a very low cancer risk. CNSC staff further noted that, while the CNSC does not have control over the National Drinking Water Guidelines or the Provincial Drinking Water Standards, it does have control over design objectives and practices at nuclear facilities.
108. The Commission, noting that there is no clear definition of a 'standard' or an 'objective', sought clarification regarding the various international standards for tritium in drinking water. CNSC staff

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<sup>3</sup> Statutes of Canada (S.C.) 1997, c. 9.

<sup>4</sup> S.C. 1999, c. 33.

concurred with the Commission that the definitions are not clear and noted that it would aim to be more clear in future documents. CNSC staff noted that it published an overview of various international standards in its information document INFO-0766<sup>5</sup>. CNSC staff explained that many of the international standards were not health-based limits but used as design objectives or as monitoring thresholds. CNSC staff further explained that because tritium is easily detectable, the 100 Bq/L standard in the European Union is used as an indicator to investigate other possible concurrent radionuclide releases. CNSC staff further stated that the World Health Organization sets the health limit at 10,000 Bq/L, or 0.1 mSv/year, and that there is no intention on changing that limit at this time.

109. CNSC staff noted that different scientific communities have different ways of addressing the issue of toxicity and risk for radionuclides. CNSC staff explained that municipal drinking water policies include cost-effectiveness and an assessment of risk. CNSC staff reiterated that while the Canadian limit of 7,000 Bq/L is safe, the actual risk is even lower because the levels in drinking water supply plants are much lower, in keeping with the ALARA (As Low as Reasonably Achievable) principle.

110. The Commission asked when CNSC staff would be able to provide its next update on this subject. CNSC staff responded that it planned to present an update in 2016, once it had completed aspects of its research initiatives. CNSC staff noted that, in the meantime, it would bring any matter of significance to the Commission's attention, and that information would continue to be posted on the CNSC Web site.

**ACTION**

by  
Fall 2016

Update on Regulatory Document RD-336: *Accounting and Reporting of Nuclear Material*

111. With reference to CMD 12-M57 and CMD 12-M57.A, CNSC staff presented to the Commission a status update on the implementation of Regulatory Document RD-336: *Accounting and Reporting of Nuclear Material*<sup>6</sup>, with new versions of templates for the Inventory Change Document and the Physical Key Measurement Point Inventory Summary. CNSC staff also informed the Commission about the eSubmissions project timeline. The project aims at enabling licensees to report safeguard accountancy information to the CNSC in electronic form. There was no action requested of the Commission.

112. CNSC staff, in their presentation, summarized the principles of the safeguard system, specifically the accounting of nuclear material, and pointed out the importance of international cooperation and the role of the International Atomic Energy Agency (IAEA) in implementing

<sup>5</sup> CNSC Information Document, INFO-0766, *Standards and Guidelines for Tritium in Drinking Water - Part of the Tritium Studies Project*, January 2008.

<sup>6</sup> Minutes of the Canadian Nuclear Safety Commission Meeting held on January 13 and 14, 2010.

safeguards through collaboration with national authorities in member states. CNSC staff further explained the role of the CNSC as Canada's designated Safeguard Regulatory Authority.

113. CNSC staff emphasized that the main goal of the safeguard system is to ensure that nuclear material (meaning uranium, plutonium, and thorium) is not diverted from peaceful activities for use in weapons programs. Another goal of the safeguard system is to discover evidences of undeclared nuclear material or activities.
114. CNSC staff presented schematics of information flow from a licensee, through CNSC, to the IAEA, and explained the purpose of reporting documents, such as the Inventory Change Report, submitted to IAEA monthly, and annually submitted Material Balance Report and Physical Inventory Listing. CNSC staff informed the Commission on reporting statistics, noting that there are, on average, 10 650 accounting reports received annually from licensees, and about 450 state reports generated using the licensees' data, and submitted to the IAEA annually.
115. With respect to implementation of the RD-336, CNSC staff stated that the 18-month transition period, which provided for a sufficient time to the licensees to modify their accountancy systems and procedures in order to comply with the new accounting requirements, had ended on July 1, 2012. Based on their review of the data submitted by the licensees, CNSC staff is satisfied that all affected licensees have in place the necessary measures to comply with RD-336. Minor errors identified in the received reports are dealt with through outreach and compliance promotion activities carried out by CNSC staff.
116. CNSC staff reported that, in response to the Commission's instruction, they had launched a project called eSubmissions in October 2010. The goal of the eSubmissions project is to improve the quality and the timeliness of safeguards accountancy by moving from a manual system to an automated processing of machine-readable data. The implementation of this project would allow licensees to upload their accountancy reports through an online CNSC portal. These reports would be simultaneously filed with the IAEA.
117. CNSC staff presented a timeline for the project and stated that they anticipated its implementation to be completed by the third quarter of 2013. CNSC staff added that they intend to hold three large outreach sessions on this topic in February 2013, and that the feedback from licensees appears positive.
118. The Commission sought more information on reporting format that licensees could use. CNSC staff responded that Excel 2003 was the default format; however, having the XML, extended mark-up language, which is a common web-based format for larger

organizations, licensees would be able to send their reports so that they are acceptable to CNSC.

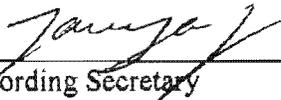
119. The Commission noted that some licensees have much more movement of nuclear material than others, and asked if the smallest licensees would be exempted from reporting. The Commission also asked who, from the safeguards point of view, were the larger clients. CNSC staff responded that the largest were probably AECL and Cameco. CNSC staff added that the smaller organisations that did not have changes in the materials inventory throughout a year, would not have to submit certain types of report, which should be submitted only if there were changes in materials inventory. However, a “general ledger”, which is a listing of transactions during one month, would have to be submitted even if there were no changes.
120. The Commission asked how many licensees would have to submit their reports. CNSC staff explained that the term “nuclear material” that has to be reported refers only to uranium, plutonium and thorium, the three elements that could be used for a nuclear weapon. CNSC staff said that there are 37 licensees who have uranium, thorium or plutonium in Canada, and are submitting reports. Some of them, such as AECL, have multiple material reporting areas, which are referred to as “material balance areas”, so that there are 51 material balance reporting areas.
121. The Commission asked about change in the scope of the project and related delays. CNSC staff responded that the first phase of the project had to be modified in order to upgrade the CNSC internal electronic nuclear material accounting system, which had caused the delay in the first phase completion, and consequently delayed the second phase, eSubmission implementation, which is linked to the first phase sequentially. As a result, the completion of the eSubmission implementation was rescheduled for the end of the third quarter of 2013. Asked how confident they were with respect with the new completion date for the project, CNSC staff responded that they have made a good progress and that they were confident that the project would be completed as currently scheduled.
122. The Commission asked if CNSC staff participates in physical verification of a licensee’s inventory. CNSC staff responded that they participate in annual physical inventory together with IAEA inspectors.
123. The Commission enquired if there was a threshold in size of nuclear material, with respect to inventory verification and reporting. CNSC staff responded that there was no threshold size, and that the smallest amounts of nuclear materials have to be tracked and accounted for, regardless of its quantity.

**ACTION**  
by January  
2014

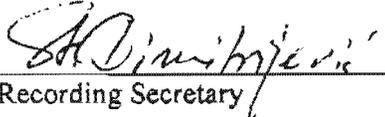
124. The Commission asked what improvements are expected from the project. CNSC staff responded that manual transcription of data is time-consuming and implementation of a direct electronic submission of data would be more efficient, minimize human errors and result in shorter reporting timelines. CNSC staff added that this improvement would allow them to use the existing human and other resources to expand their efforts in the analysis of the collected data and to plan more efficiently.
125. The Commission further enquired about the safety of such a system. CNSC staff responded that they were using a Government of Canada newly implemented authentication process, which was already applied to two systems recently set up by the CNSC. The process has been verified by a third party.
126. The Commission sought more information regarding licensees' simultaneous reporting to CNSC and the IAEA. CNSC staff reported that there were two reasons for this double reporting. The first one was that the IAEA was performing an audit of Canada state reports against the incoming licensee (or source) data. Secondly, licensees were submitting certain types of low-level information directly to the IAEA, as a result of a working level arrangement that CNSC has with the IAEA.
127. The Commission asked about the other countries and implementation of the electronic filing of the safeguard data. CNSC staff responded that Canada is the first one to implement electronic data submission.

Closure of the Public Meeting

128. The meeting closed at 12:07 p.m.

  
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 Recording Secretary

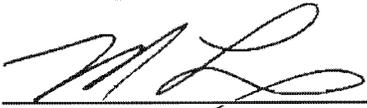
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## APPENDIX A

CMD	DATE	File No
13-M1	2012-12-17	Edocs #4054888
Notice of Meeting of January 16 and 17, 2013		
13-M2	2012-12-21	Edocs #4057113
Agenda of the meeting of the Canadian Nuclear Safety Commission to be held on Wednesday and Thursday, January 16 and 17, 2013, at the Public Hearing Room, 14 <sup>th</sup> floor, 280 Slater Street, Ottawa, Ontario		
13-M2.A	2013-01-10	Edocs #4064090
Updated agenda of the meeting of the Canadian Nuclear Safety Commission to be held on Wednesday and Thursday, January 16 and 17, 2013, at the Public Hearing Room, 14 <sup>th</sup> floor, 280 Slater Street, Ottawa, Ontario		
13-M3	2013-01-09	Edocs #4062647
Draft of Minutes of the Meeting of the CNSC held October 24 and 25, 2012		
13-M4	2013-01-15	Edocs #4062234
Status Report on Power Reactors Units as of January 15, 2013		
13-M5	2012-12-17	Edocs #4054725
Update on the implementation of recommendations from the Tritium Studies Project Synthesis Report – Oral presentation by CNSC staff		
13-M6	2012-12-13	Edocs #4052554
Nuclear Substance in Canada: A Safety Performance Report for 2011 – Oral presentation by CNSC staff		
13-M7	2012-12-21	Edocs #4055319
CNSC staff update of the event involving check sources left at the CNSC head office – Oral presentation by CNSC staff		
13-M7.A	2013-01-09	Edocs #4063726
CNSC staff update of the event involving check sources left at the CNSC head office – Oral presentation by CNSC staff		
13-M8	2012-12-20	Edocs #4056880
This item is postponed to a later date		
12-M57	2012-10-09	Edocs #4017998
Update on Regulatory Document RD-336, Accounting and Reporting of Nuclear Material – Oral presentation by CNSC staff		
12-M57.A	2012-12-19	Edocs #4056417
Update on Regulatory Document RD-336, Accounting and Reporting of Nuclear Material – Supplementary Information – Oral presentation by CNSC staff		

13-M9          2013-01-16    Edocs #4066826  
CNSC Staff Site Visit to Fukushima – Oral presentation by CNSC staff