



Canadian Nuclear
Safety Commission

Commission canadienne
de sûreté nucléaire

UNPROTECTED/NON PROTÉGÉ

SUPPLEMENTAL/COMPLÉMENTAIRE

CMD : 19-M30.A

Date signed/Signé le : October 30, 2019

Reference CMD/CMD de référence : CMD 19-M30

Commission Request for Information

Demande d'information de la Commission

***Regulatory Oversight
Report for Canadian
Nuclear Power
Generating Sites: 2018***

***Rapport de surveillance
réglementaire des sites de
centrales nucléaires au
Canada : 2018***

Public Meeting

Réunion publique

Scheduled for :

6 November 2019

Prévue pour :

6 novembre 2019

Submitted by:

CNSC Staff

Soumise par :

Le personnel de la CCSN

e-Doc 5998733 (WORD)

e-Doc 6031094 (PDF)

Summary

The purpose of this supplemental Commission Member Document (CMD) is to provide additional information to what is presented in CMD 19-M30, including:

- CNSC staff responses to comments received from interventions on the current report
- Updates on topics requested by the Commission and CNSC staff recommendations to close the requests
- The list of changes to licence conditions handbooks for 2018
- Errata to CMD 19-M30

This CMD is for information.

Résumé

L'objectif de ce CMD supplémentaire est d'apporter des informations supplémentaires à ce qui est présente dans CMD 19-M30, comprenant :

- Les réponses du personnel de la CCSN aux commentaires reçus à travers les interventions pour le présent Rapport
- Les mises à jour demandées par la Commission et les recommandations du personnel de la CCSN pour clore les demandes
- La liste des modifications des manuels des conditions de permis pour 2018
- Les Errata au CMD 19-M30

Ce CMD est fourni à titre d'information seulement.

Signed/signé le

30 October 2019



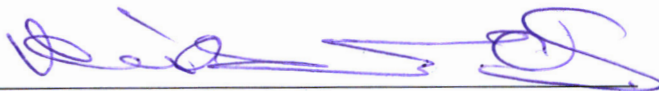
Gerry Frappier, P. Eng.

Director General

Directorate of Power Reactor Regulation

Directeur général de la

Direction de la réglementation des centrales nucléaires



Haidy Tadros

Director General

Directorate of Nuclear Cycle and Facilities Regulation

Directrice général de la

Direction de la réglementation du cycle et des installations nucléaires

This page was intentionally left blank.

TABLE OF CONTENTS

1. OVERVIEW	2
2. RESPONSES TO INTERVENTIONS ON 2018 NPGS ROR.....	2
3. FOLLOW UP ON SPECIFIC REQUESTS FOR INFORMATION FROM THE COMMISSION	9
4. LIST OF LICENSE CONDITIONS HANDBOOKS CHANGES.....	18
5. ERRATA.....	22
6. CONCLUSION.....	24

EXECUTIVE SUMMARY

CMD 19-M30.A is a supplemental CMD to the *Regulatory Oversight Report for Canadian Nuclear Power Generating Sites: 2018* (2018 NPGS ROR). This CMD provides some additional information to address Commission requests for information arising from previous Commission Hearings and Meetings, to complement the information the 2018 NPGS ROR already provides. CNSC staff recommend that the Commission close 11 of the 21 requests.

This CMD also provides CNSC staff responses to certain interventions received on the 2018 NPGS ROR, as well as details on the changes to License Conditions Handbooks for the NPP and WMF licensees during 2018. Finally, this CMD outlines a few minor errors that were identified during the public review of the 2018 NPGS ROR that will be corrected prior to its publication.

1. OVERVIEW

This CMD 19-M30.A is a supplemental CMD to the *Regulatory Oversight Report for Canadian Nuclear Power Generating Sites: 2018*, CMD 19-M30 (2018 NPGS ROR, [5]). The purpose of this supplemental CMD is to:

- provide CNSC staff clarifications and/or responses to certain comments received from interventions on 2018 NPGS ROR
- describe how requests from the Commission for specific information have been addressed, including recommendation of closure for 11 of the 21 associated action items on CNSC staff
- describe the changes to licence conditions handbooks (LCHs) for the NPP and WMF licensees during 2018
- identify errors in the 2018 NPGS ROR to be corrected before publication

Documents referenced in this CMD are listed at the end of this CMD and are available to the public upon request.

2. RESPONSES TO INTERVENTIONS ON 2018 NPGS ROR

The CNSC received nine interventions from the public and non-governmental organizations concerning the 2018 NPGS ROR. CNSC staff clarifications and responses for key topics identified in the interventions, and within the scope of the NPGS ROR, are provided in the following table. Although not all topics covered in the interventions are addressed in the table, CNSC staff reviewed all the interventions carefully and prepared responses.

Comment	CNSC Staff Response
<p>Benoit Poulet [CMD 19-M30.1]</p> <p>References to the International Atomic Energy Agency (IAEA) reporting (item 1):</p> <p>clarification of CNSC's procedure for International Nuclear and Radiological Events Scale (INES) ratings and their use</p>	<p>The INES is a communication tool used for promptly and consistently communicating to the public the safety significance of events associated with radiation sources and nuclear accidents. The CNSC only determines the INES level of an event at an NPP when it activates its Emergency Operating Centre (EOC).</p> <p>The CNSC has a low threshold for reportable events. All reportable events are immediately reviewed for safety significance to determine if follow-up is required. This may include increased regulatory oversight or reporting to the Commission through the Event Initial Report (EIR) process.</p> <p>Events are screened through the CNSC's "OPEX</p>

Comment	CNSC Staff Response
	<p>Clearinghouse”, where CNSC technical specialists have the opportunity to pose additional questions to the licensees or suggest additional actions.</p> <p>When a significant event occurs, it is reported directly to the Commission through the EIR process. This is a public forum where the safety significance is openly discussed and both licensee staff and CNSC staff are present to answer questions. This open public forum permits discussion and communication of the safety significance and CNSC does not need INES to aid in this communication, thus an INES rating would provide no added benefit. The communication of events to IAEA and their INES ratings is not a formal reporting system, and the system operates on a voluntary basis. These events are communicated internationally by INES National Officers in accordance to agreed criteria.</p> <p>CNSC staff reviewed the root cause analysis (RCA) performed by the licensee for the cited Bruce Unit 4 event and CNSC staff determined that the lessons learned were significant. CNSC staff submitted an IAEA International Reporting System (IRS) report based on the licensee RCA to share the lessons learned with the international community. The IRS is an international system through which participating countries exchange experience to improve the safety of nuclear power plants by submitting event reports on events considered important for safety. The aim is to increase the effectiveness in analyzing and communicating operational safety experience. An INES rating is not assigned as part of the IRS process. The intent of IRS reports is to share lessons learned from events and not the safety significance of that event.</p> <p>As part of the INES assessment, qualified CNSC staff would consult the affected licensee (concurrence by the licensee is not required) and determine the INES rating. The INES National Officer of Canada would submit the INES rating to the IAEA</p> <p>The event (at Bruce Unit 4) mentioned in the intervention did not necessitate activation of CNSC’s EOC and so CNSC staff did not determine an INES rating. If the event would have necessitated the activation of the EOC, staff would have referred to INES rating guidance related to degradation of defence in depth. Since the incident at Bruce was part of the design basis, the event would not have not been rated as Level 1 (or above Level 0) because</p>

Comment	CNSC Staff Response
	the criterion for degradation of defence in depth was not met.
<p>Benoit Poulet [CMD 19-M30.1]</p> <p>CNSC inspections at PNGS (item 3):</p> <p>reason for conducting reactive inspection on fuel handling conveyor tunnel, findings and CNSC actions</p>	<p>This desktop inspection was one of several regulatory oversight activities of the corrective actions OPG took to address heavy water leaking into the Unit 5, 6 fuel handling conveyor tunnel. In September 2015, OPG detected elevated airborne tritium in the vicinity of the Unit 6 fuel handling conveyor tensioning tower. OPG determined that the source of the tritium was from a leak in the Unit 5 moderator room. This, in addition to a degradation of the sealant in the moderator room subfloor construction joints, had provided a pathway for the moderator heavy water to reach the 056 fuel handling conveyor tunnel. Elevated tritium was also found in the foundation drain outside the Unit 5 reactor building. OPG removed the tritiated water from the 056 fuel handling conveyor tunnel, repaired the leaking components and resealed the subfloor construction joints. No regulatory limits for environmental releases or radiation exposure were exceeded as a result of the leak.</p> <p>By the fall of 2017, OPG was implementing its corrective action plan and verifying if the condition existed in other units. CNSC staff judged that a focused regulatory review was needed in order to better assess the potential risk associated with the leakage to the fuel handling conveyor tunnel and appropriateness of the corrective actions. Consequently, CNSC staff conducted a Desktop Inspection from December 2017 to March 2018 to review the adequacy of measures taken to prevent recurrence. The inspection resulted in 3 compliant findings as well as 2 two non-compliant findings of low safety significance in the areas of problem identification and resolution and reporting and trending. OPG was requested to provide additional information, such as the results of the Unit 6 and 4 floor joint inspections.</p>
<p>Benoit Poulet [CMD 19-M30.1]</p> <p>Standby Generator Testing – Bruce (item 5):</p> <p>rationale for original requirement and change to requirement related</p>	<p>Bruce Power requested a change to the operating policies and principles (OP&Ps) to allow testing of the standby generators (SGs) when only the minimum number is available. CNSC staff approved this change, as it is preferable to know that the SGs that would be relied upon would, in fact, work (rather than assuming so based on the latest test). If a test were to fail, as a compensatory measure Bruce Power would be expected to follow its impairments manual, which provides clear direction when</p>

Comment	CNSC Staff Response
to testing standby generators	SGs are unavailable. In this specific case, it would commence repairs immediately and if the repairs were expected to exceed 8 hours, then reactors would need to be shut down. As an 8-hour period to repair a SG is deemed acceptable, a short period of unavailability (less than 4 minutes during the testing) is also acceptable.
Dr. Greening [CMD 19-M30.2] Fitness-for-service and Appendix G (item (i)): consistency of Heq predictions for pressure tubes for Pickering, Bruce, and Darlington	The values in Appendix G are extrapolations from equivalent hydrogen (H_{eq}) concentrations reported in the most recent periodic inspection report for each unit. These CSA-mandated reports summarize measurements of hydrogen and deuterium levels in “scrape” samples collected at multiple locations over the length of a subset of pressure tubes. CNSC staff update the extrapolations based on the highest-uptake pressure tubes monitored during the most recent inspection, and this on-going adjustment varies over time for several reasons, including the choice of tubes measured during a given inspection campaign. Thus, the values in Appendix G differ from those presented by CNSC staff in January 2018 [CMD 18-M4].
Dr. Greening [CMD 19-M30.2A] Waterborne emissions from the WWMF: adequacy of monitoring of the emissions and conservativeness of the calculation of the associated DRLs	<p>OPG monitors waterborne emissions from the WWMF via stormwater and subsurface drainage. The WWMF’s waterborne radionuclide emissions from the active liquid effluent are reported in the WWMF quarterly and annual reports. This liquid effluent from the WWMF is sent to the Bruce water treatment plant, which is monitored and reported via the Bruce environmental monitoring program. These WWMF waterborne emissions are accounted for as part of the Bruce site wide emissions and are included in the site wide calculation of dose to the public.</p> <p>In 2017, OPG submitted revised DRLs for WWMF, which were calculated using CSA N288.1-14, <i>Guidelines for calculating derived release limits for radioactive material in airborne and liquid effluents for normal operation of nuclear facilities</i>. Default parameters were taken from the CSA standard and CANDU Owners’ Group (COG) DRL guidance. . To generate a conservative (lower) calculation of the DRL of waterborne emissions, OPG applied a seasonal low flow from Stream C into Baie du Dore to derive the dilution factor. CNSC staff reviewed OPG’s WWMF submission and concluded that it met the guidance in CSA N288.1 and that the assumptions therein were acceptable.</p>

Comment	CNSC Staff Response
<p>Pippa Feinstein, Lake Ontario Waterkeeper [CMD 19-M30.6]</p> <p>Groundwater at PNGS in 2018:</p> <p>reason for spike in tritium concentration and CNSC staff's response</p>	<p>OPG reported that samples taken from the Unit 1 foundation drain area showed highly-elevated tritium concentrations compared to previous samples from the same location. In February 2018, CNSC staff requested OPG to provide weekly updates on its activities to identify and correct the problem.</p> <p>OPG determined the source of the tritium, which was a heavy water leak from a component located in the moderator purification room. Time series plots of the current and historic monitoring data show that the repairs completed by OPG were effective, as the tritium concentrations had dropped sharply. CNSC staff were satisfied with OPG's corrective actions and closed the issue in September 2018.</p> <p>It should be noted that OPG sends contaminated groundwater from the foundation drains to the active liquid waste treatment system, and that no effluent release limits nor action levels for tritium were exceeded.</p>
<p>Pippa Feinstein, Lake Ontario Waterkeeper [CMD 19-M30.6]</p> <p>PNGS storm sewer system:</p> <p>adequacy of monitoring</p>	<p>OPG's monitoring of the storm sewer system at PNGS was discussed before the Commission during the proceedings for the 2018 licence renewal, where it was confirmed that storm water monitoring met requirements and there was no unreasonable risk from PNGS storm waters to Lake Ontario ([1], paragraphs 391, 392). There was no additional information in the intervention on this topic.</p>
<p>Pippa Feinstein, Lake Ontario Waterkeeper [CMD 19-M30.6]</p> <p>Environmental sampling of foundation drain locations at turbine auxiliary building (TAB):</p> <p>lack of sampling in 2018</p>	<p>OPG acknowledged that TAB foundation drain samples could not be collected because the drains were either dry or not accessible for sampling (due to safety reasons or the water level in the sump being higher than the sampling point). OPG committed to improving the sampling methodology at these locations. CNSC staff will evaluate the effectiveness of the corrective measures as part of its regulatory oversight process.</p>
<p>Kerrie Blaise, CELA [CMD 19-M30.7]</p> <p>Section III.4: Asbestos Phase Out:</p> <p>clarification of CNSC's role in the phase out</p>	<p>Environment and Climate Change Canada's (ECCC) is responsible to ensure compliance with the <i>Prohibition of Asbestos and Products Containing Asbestos Regulations</i> (2018). However, through a memorandum of understanding, the CNSC will support ECCC when requested. During the development of the regulations, ECCC and Health Canada consulted the NPP and WMF</p>

Comment	CNSC Staff Response
	<p>licensees to ensure there was no impact on safety. The NPP and WMF licensees</p> <p>The regulations do not require a complete phase out of all products containing asbestos, but require nuclear facilities to determine whether technically or economically feasible alternatives exist for asbestos containing products that are required for the facility. Where no feasible alternatives exist, nuclear facilities must demonstrate this to ECCC and, if accepted, will receive a permit to use the asbestos containing product. These products would then be subject to the reporting and asbestos management plan requirements of the regulations.</p> <p>The regulations include a 4-year exemption for nuclear facilities to ensure that licensees have enough time to identify all products containing asbestos and determine whether a technically and economically feasible asbestos-free alternative is available. This will facilitate full compliance of the NPP and WMFs with the new regulations. During the 4-year exemption period, NPP licensees will still have to apply for permits to use asbestos containing products, report annually to ECCC on their use, and prepare the appropriate asbestos management plans.</p>
<p>Kerrie Blaise, CELA [CMD 19-M30.7]</p> <p>Section III.5 – Waste Management Facilities:</p> <p>need for additional information on interim waste storage</p>	<p>The design life of OPG’s used fuel storage facilities are maintained through a program of planned monitoring, maintenance, component replacement and testing, as required. OPG dry storage containers (DSCs) are designed to provide a storage life of at least 50 years and to meet all shielding and containment integrity requirements over this period. The fuel can be repackaged into new DSCs if necessary.</p> <p>The design life of OPG’s used fuel dry storage containers is assured and assessed via an aging management program. OPG inspects the DSCs periodically to ensure their structural integrity and CNSC staff review OPG’s annual DSC aging management reports. CNSC staff are satisfied with OPG’s DSC aging management inspection results submitted for 2018. Currently, there are no indications of premature aging of the OPG DSCs. This annual performance and condition data will be available for decisions on potential life extension of DSCs. Safety assessments are performed at licence renewal and are submitted to the CNSC for review. Should OPG choose to extend the storage life of the DSCs beyond 50 years, OPG would be required to submit an updated safety assessment</p>

Comment	CNSC Staff Response
<p>Anna Tillman & Eugene Bourgeois [CMD 19-M30.8]</p> <p>Inspections – Compliance Verification Program (CVP):</p> <p>lack of Type I inspections</p>	<p>for the DSCs to the CNSC for review and approval.</p> <p>CNSC’s Type I inspections are at the programmatic level and do not need to be repeated if the program does not change. CNSC uses Type II inspections to regularly check that the implementation of the program is effective. Past Type I inspections and, to some extent, licence renewals, have provided opportunities to review licensee programs in depth. The current licensee programs rarely undergo major changes. As mentioned in the intervention, CNSC has criteria that would trigger a Type I inspection; these include:</p> <ul style="list-style-type: none"> • a new licensee program • significant changes to an existing licensee program • systemic failures within a licensee program • changes to the manner in which a licensee program is implemented or administrated <p>Within the last year there was one Type I inspection at PNGS, on Physical Design, which was conducted in support of the licence renewal.</p>
<p>Anna Tillman & Eugene Bourgeois [CMD 19-M30.8]</p> <p>Public Accountability – Access to Information, Section A: Reporting Events – CNSC Requirements:</p> <p>limited availability of information on events to the general public</p>	<p>The CNSC imposes requirements for the disclosure of reportable events to the public (REGDOC-3.2.1, <i>Public Information and Disclosure</i>). The CNSC also has general and detailed requirements in the regulations for reporting events to the CNSC, as well as additional reporting requirements in REGDOCs that are specific to the type of facility. Most event reports are classified, so the level of detail for the information that can be shared with the public will be different from one event to another.</p> <p>The CNSC has a low threshold for licensee reporting that covers events of all types, including those related to safety, the environment, security, and safeguards. CNSC procedures govern staff’s assessment and follow-up. Corrective actions are identified as needed and tracked to closure the follow-up is similar to that used for inspection findings, for example. Further, staff procedures have extensive criteria for the selection of events to present to the Commission as EIRs; the criteria include those related to safety and public interest.</p> <p>When interested in the details of an event, the public can contact the licensee directly. Currently, all licensees publish quarterly a list of events, including the title and number of each event.</p>

3. FOLLOW UP ON SPECIFIC REQUESTS FOR INFORMATION FROM THE COMMISSION

As a result of the licensing hearings in 2018 for PNGS and Bruce A and B, as well as presentations at other Commission meetings, the Commission has requested specific information to be presented in the 2018 NPGS ROR. Important requests for such information are captured in the Regulatory Information Bank (RIB) used by CNSC staff. The RIB numbers in this supplemental CMD refer to specific entries in this database, which CNSC staff track to closure.

The following table describes how specific requests for information from the Commission have been addressed. Where appropriate, the table indicates the RIB numbers for which CNSC staff confirm the action has been completed. That is, for those requests, CNSC staff are of the opinion that the information provided has addressed the underlying issue and that open items will continue to be addressed in future RORs.

Action	CNSC staff response
<p>[RIB 17560]</p> <p>Following the Nov 8, 2018 Commission Meeting to discuss the 2017 NPGS ROR [6], the Commission requested CNSC staff to report total recordable injury frequency (TRIF) at the NPPs, including data for third-party contractors, in future RORs (assuming that TRIF data are available from the licensees) [7].</p> <p>At the May 15th 2019 Commission Meeting, CNSC staff followed up on that request [3]. The meeting minutes included further direction from the Commission: “Therefore, the Commission directs CNSC staff to carry out a cost-benefit review, including consultation with industry, on the issue of amending REGDOC-3.1.1 to require NGS licensees to report TRIF data for all workers, including third-party contractors.” [4]</p>	<p>CNSC staff circulated a briefing note to the licensees in preparation of the first round of consultations with industry this fall.</p> <p>CNSC staff recommend that this request remain open.</p>

<p>[RIB 19297]</p> <p>As noted above, at the May 15th 2019 Commission Meeting, CNSC staff followed up on the Commission’s request to report TRIF data, including data for third-party contractors, in future RORs [3].</p> <p>“The Commission requests OPG, NB Power and Bruce Power to collect and provide CNSC staff with third-party contractor injury data as soon as practicable. These data should be included in the Regulatory Oversight Report for Canadian Nuclear Power Generating Sites: 2018.” [4]</p>	<p>Through an existing requirement in REGDOC-3.1.1, CNSC staff already collect injury data from NPPs for performance indicator # 21 (SPI 21). 2018, the licensees of the operating NPPs provided SPI 21 data that included third party contractors, tabulated annually for the last five years.</p> <p>CNSC staff presented the injury data for the three distinct indicators covered by SPI 21 in section 2.7 of the 2018 NPGS ROR, providing two graphs for each (with and without third party contractors’ data).</p> <p>CNSC staff plan to continue reporting this data while the related request [RIB 17560] is resolved.</p> <p>Since this request was only for the 2018 ROR, CNSC staff request that the Commission close this request.</p>
<p>[RIB 18711]</p> <p>The discussions on Indigenous engagement during the 2018 Commission meeting for the regulatory oversight report for uranium mines, mills, historic and decommissioned sites led to the following request:</p> <p>“The Commission directed CNSC staff to include such a plain-language summary, as appropriate, in future RORs in order to highlight the most important regulatory information and to facilitate its translation into Cree, Dene, and other Indigenous languages, as applicable.” [8]</p>	<p>Appendix A of this supplemental CMD includes a plain language summary that highlights the most important information from the ROR for possible translation into Indigenous languages.</p> <p>Unless directed otherwise, CNSC staff plan to continue to provide a plain language summary as part of the future NPGS RORs.</p> <p>CNSC staff request that the Commission close this request.</p>
<p>[RIB 17561].</p> <p>During the discussions for the 2017 NPGS ROR, the Commission questioned the accuracy of NPP maintenance information. It subsequently requested CNSC staff to update the corrective maintenance backlog data for the PNGS ([7], paragraph 68).</p>	<p>CNSC provided a memo (e-Doc: 5798315) to the Commission explaining that the message in the existing version of the 2017 NPGS ROR is appropriate and that the data are already accurate. Therefore, CNSC staff do not intend to make any changes to the 2017 NPGS ROR (which will proceed to publishing)</p>

	<p>based on this action.</p> <p>CNSC staff request that the Commission close this request</p>
<p>[RIB 17559]</p> <p>Following the discussions for the 2017 NPGS ROR, the Commission requested CNSC staff to find out why WANO targets for pressurized heavy water reactors (PHWRs) were set at higher values than boiling water reactors (BWRs) and pressurized water reactors (PWRs). “The Commission noted that the WANO unplanned emergency shutdown targets were higher for PHWRs than for BWRs and PWRs. CNSC staff committed to providing the information and explanation for that difference to the Commission at a later date.” ([7], paragraph 51).</p>	<p>CNSC staff have explained the method used by WANO for trips of various reactor types in section 2.3 of the 2018 NPGS ROR.</p> <p>CNSC staff request that the Commission close this request.</p>
<p>[RIB 17557].</p> <p>Following the 2018 PNGS licence renewal hearing, the Commission requested CNSC staff to provide annual updates regarding several additional matters of interest pertaining to the Pickering site [2]:</p> <ul style="list-style-type: none"> (i) CNSC staff's regulatory oversight of OPG's progress and performance with respect to the PNGS integrated implementation plan (IIP) activities (ii) whole-site PSA methodology and progress for the PNGS site (iii) joint fuel machine reliability project (iv) decision made by ECCC on the nomination to include radionuclides as chemicals of mutual concern (COMCs) (via memo) 	<p>As a follow-up to the licence renewal for Pickering Nuclear Generating Station (PNGS) CNSC staff</p> <ul style="list-style-type: none"> (i) provided an update of the status of the IIP in section 3.2.0 (ii) described the methodology and progress for whole site probabilistic safety assessment (PSA) in section 3.2.4 (iii) provided an update on the joint fuel machine reliability project in section 2.6 <p>For item (iv), CNSC staff intend to submit a memo to the Secretariat.</p> <p>CNSC staff recommend that this request remain open.</p>

<p>[RIB 17525]</p> <p>Following the 2018 PNGS licence renewal hearing, the Commission requested CNSC staff to provide annual updates regarding OPG's progress on the implementation of the following REGDOCs and CSA Group standards [2]: CNSC REGDOC-2.2.4, <i>Fitness for Duty: Managing Worker Fatigue</i></p> <ul style="list-style-type: none"> (i) CNSC REGDOC-2.2.4, <i>Fitness for Duty, Managing Worker Fatigue</i> (ii) CNSC REGDOC-2.2.4, <i>Fitness for Duty, Volume II: Managing Alcohol and Drug Use</i> (iii) CNSC REGDOC-2.4.1, <i>Deterministic Safety Analysis</i> (iv) CSA N285.4-14, <i>Periodic Inspection of CANDU Nuclear Power Plant Components</i> (v) CSA N284.4-13 (per paragraph 331 of [2], but this is believed to be a typographical error; it is assumed that the standard of interest was actually CSA N285.5-13, <i>Periodic inspection of CANDU nuclear power plant containment components</i>) 	<p>Implementation of the new documents for PNGS was discussed in the 2018 NPGS ROR, as follows:</p> <ul style="list-style-type: none"> (i) REGDOC-2.2.4 (managing worker fatigue) is addressed in section 2.2. (ii) REGDOC-2.2.4 (Volume II) is addressed in section 2.2. (iii) REGDOC-2.4.1 is addressed in section 3.2.4. (iv) N285.4-14 is addressed in section 3.2.6. (v) CSA N285.5-13, <i>Periodic inspection of CANDU nuclear power plant containment components</i> – is not covered in the ROR. However, in 2019, CNSC staff accepted OPG's proposed alternative for its periodic inspection program to address N285.5. OPG will comply with certain clauses of the 2013 version of N285.5, while maintaining general compliance with the 2008 version (including Update 1). <p>CNSC staff request that the Commission close all parts of this request.</p>
<p>[RIB 17522]</p> <p>Following the 2018 PNGS licence renewal hearing, the Commission requested CNSC staff to provide annual updates related to emergency management and emergency preparedness at the PNGS [2]:</p> <ul style="list-style-type: none"> (i) 2017 Ontario Provincial Nuclear Emergency Response Plan (PNERP) and the PNGS implementation plan (ii) results from the PNERP technical 	<p>These topics were discussed in the 2018 NPGS ROR, as follows:</p> <ul style="list-style-type: none"> (i) 2017 PNERP is addressed in section 2.10; the implementation plan for PNGS for the 2017 PNERP is addressed in section 3.2.10. (ii) Results from the technical study for the 2017 PNERP are not available from the Province of Ontario.

<p>study</p> <p>(iii) Province of Ontario's unified transport management plan</p> <p>(iv) OPG's review and revision of the PNGS PIDP in regard to emergency preparedness and the provision of information to populations beyond the detailed planning zone</p>	<p>(iii) Ontario's unified transport management plan is addressed in section 2.10.</p> <p>(iv) OPG has reported that it will continue to work with the Province, Durham Region and local levels of government to educate residents outside of the detailed planning zone. In 2019, there was collaborative efforts through social media and face-to-face communications. OPG will also implement strategies agreed upon as members of the Nuclear Public Education Subcommittee and the K1 working group. CNSC staff will track this action through normal regulatory oversight.</p> <p>CNSC staff request that the Commission close parts (i), (ii), and (iv) of this request, CNSC staff recommend that parts (iii) and (v) of this request remain open</p>
<p>[RIB 16516]</p> <p>Following the 2018 PNGS licence renewal hearing, the Commission requested CNSC staff to provide annual updates related to fish and fisheries in the vicinity of Pickering [2]:</p> <ul style="list-style-type: none"> (i) fish impingement and effectiveness of fish diversion system (FDS) (ii) results of OPG's thermal plume monitoring (iii) effectiveness of offset measures (iv) OPG's compliance with <i>Fisheries Act</i> (FA) authorization (v) Indigenous groups' involvement in 	<p>Information on items (i), (ii), and (iii) was not available at the time the 2018 NPGS ROR was written. However, updates on those items are provided here. Items (iv) and (v) were discussed in the 2018 NPGS ROR, as noted below.</p> <ul style="list-style-type: none"> (i) CNSC and Fisheries and Oceans Canada (FOC) staff reviewed the PNGS 2018 Fish Impingement Monitoring Report. In 2018, the combined biomass of all species and ages impinged was 5616 kg. A condition of the <i>Fisheries Act</i> Authorization requires that, should the annual reported biomass of fish impinged have two consecutive years where the annual average weight of fish is

<p><i>Fisheries Act</i> (FA) Authorization-related activities</p>	<p>above 3619 kg, OPG shall engage FOC in discussions to determine potential follow up requirements. OPG notified FOC in July 2019 of the potential exceedance over the two year threshold (based on the 2018 fish impingement results and the preliminary impingement monitoring data from January to June 2019). OPG has identified measures to improve FDS performance. CNSC staff provided recommendations to OPG regarding their proposed FDS improvements and recommended consideration of other impingement mitigation measures.</p> <p>(ii) OPG has committed to conduct two additional years of thermal plume monitoring (2018/19 and 2019/20) to reassess and confirm findings and reassess the thermal risk to fish. CNSC will assess the study results upon completion.</p> <p>(iii) OPG has submitted the offset monitoring reports for 2018 as required by its <i>Fisheries Act</i> authorization. CNSC staff and FOC are reviewing these submissions. DFOC, as the point of contact for offset reports, will communicate results of reviews to OPG</p> <p>(iv) CNSC staff concluded that, in 2018, OPG met the reporting requirements under the <i>Fisheries Act</i> authorization, which is issued by FOC. CNSC staff continue to monitor compliance with the authorization.</p> <p>(v) The involvement of Indigenous groups in activities related to the <i>Fisheries Act</i> authorization is</p>
---	---

	<p>addressed in section 2.15.</p> <p>CNSC staff recommend that this request remain open.</p>
<p>[RIB 15153]</p> <p>During the Nov 8, 2018 Commission Meeting to discuss the 2017 NPGS ROR [6], the Commission enquired if there were any lessons learned after the process safety failure at an oil refinery in New Brunswick in October 2018 that could be applicable to the nuclear industry.</p> <p>CNSC staff committed to provide additional information on the provinces' practices for sharing information, including after action reports, for real emergencies and nuclear emergency exercises ([7], paragraph 37).</p>	<p>The provinces' process to share information for real emergencies and nuclear emergency exercises is addressed in Appendix I of the 2018 NPGS ROR.</p> <p>CNSC staff request that the Commission close this request.</p>
<p>[RIB 14777]</p> <p>Following the update to the Commission on Aug 12/13, 2018 on the internal contamination event at the DNGS refurbishment Retube Waste Processing Building, the Commission requested updates on the licensees' efforts to address lessons learned from the event and on CNSC staff's "increased regulatory vigilance and compliance verification of licensee's conservative radiation protection practices." ([9], paragraph 22).</p>	<p>Actions taken to address the alpha contamination event are addressed in section 2.7 of the 2018 NPGS ROR.</p> <p>CNSC staff request that the Commission close this request.</p>
<p>[RIB 14776]</p> <p>Following the 2018 Bruce A and B licence renewal hearing, the Commission requested annual updates on Bruce Power's compliance with the <i>Nuclear Liability and Compensation Act</i> (NLCA), which came into force on January 1, 2017 ([10], paragraphs 433 and 434).</p>	<p>Bruce Power's compliance with the NLCA is addressed in section 2.15 of the 2018 NPGS ROR.</p> <p>CNSC staff request that the Commission close this request.</p>

<p>[RIB 14763]</p> <p>Following the 2018 Bruce A and B licence renewal hearing, the Commission expressed its expectation for Bruce Power to address equipment performance issues that had occurred during the licence period. The Commission requested CNSC staff to monitor and report annually on Bruce Power's progress ([10], paragraphs 192 - 194).]</p>	<p>Corrective actions for the equipment performance issues are addressed in section 3.3.5 of the 2018 NPGS ROR.</p> <p>CNSC staff request that the Commission close this request.</p>
<p>[RIB 14762]</p> <p>Following the 2018 Bruce A and B licence renewal hearing, the Commission requested updates on Bruce Power's work to address fire protection system non-conformances (historical, design related non-conformances with respect to modern codes and standards), per the schedule provided during the hearing ([10], paragraphs 181 and 187).</p>	<p>The ongoing work to address the non-conformances is described in section 3.3.5 of the 2018 NPGS ROR. CNSC staff will continue to monitor the work to address the non conformances through the IIP.</p> <p>CNSC staff request that the Commission close this request.</p>
<p>[RIB 14761]</p> <p>Following the 2018 Bruce A and B licence renewal hearing, the Commission requested CNSC staff to monitor Bruce Power's continual enhancements to bring internal fire risk to below the safety goal target for the Bruce A units ([10], paragraph 146).</p>	<p>The ongoing enhancements to reduce the risk due to internal fire is addressed in section 3.3.4 of the 2018 NPGS ROR. CNSC staff intends to continue to update the Commission in future RORs on the progress of the enhancements to bring internal fire risk to below the safety goal target for the Bruce A Units.</p> <p>CNSC staff recommend that this request remain open.</p>
<p>[RIB 14760]</p> <p>Following the 2018 Bruce A and B licence renewal hearing, the Commission directed Bruce Power to continue to develop a site-wide probabilistic safety assessment (PSA) methodology for the Bruce NGS site and include it in the PSA, before the next expected licence renewal application in 2028. It further requested CNSC staff to monitor Bruce Power's progress ([10],</p>	<p>Bruce Power's development of a site-wide PSA is addressed in section 3.3.4 of the 2018 NPGS ROR. CNSC intends to continue updating the Commission in future RORs on the progress in developing a site-wide PSA for the Bruce site.</p> <p>CNSC staff recommend that this request remain open.</p>

<p>paragraphs 145 and 163).</p>	
<p>[RIB 14758]</p> <p>Following the 2018 Bruce A and B licence renewal hearing, the Commission directed CNSC staff to work with the Saugeen Ojibway Nation (SON) to establish a formal arrangement for collaboration in respect of the operation of Bruce NGS. The Commission requested periodic updates in this regard and a status update in the annual NPGS ROR ([10], paragraph 452).]</p>	<p>CNSC staff's ongoing work with SON is addressed in section 2.15 of the 2018 NPGS ROR. CNSC intends to continue update the Commission on Indigenous consultation and engagement in future RORs.</p> <p>CNSC staff request that the Commission close this request.</p>
<p>[RIB 14757].</p> <p>Following the 2018 Bruce A and B licence renewal hearing, the Commission directed CNSC staff to provide an update on Bruce Power's pressure tube fracture toughness model and to report on the maximum equivalent hydrogen (Heq) in the pressure tubes in NPP Status Reports, as well as the NPGS ROR ([10], paragraphs 216, 231, and 449).</p>	<p>The work on developing new models for pressure tube fracture toughness and the Heq content in pressure tubes at Bruce A and B is addressed in section 3.3.6 of the 2018 NPGS ROR. CNSC staff intend to continue updating the Commission on these topics in future RORs.</p> <p>CNSC staff recommend that this request remain open.</p>
<p>[RIB 14755]</p> <p>Following the 2018 Bruce A and B licence renewal hearing, the Commission directed CNSC staff to report annually on the implementation of electronic data transfer without human intervention (transition to the fully automated DLAN system) from Bruce NGS to the CNSC emergency operations centre ([10], paragraphs 331 to 334).</p>	<p>Bruce Power's ongoing work to implement fully-automated data transfer to the CNSC is addressed in section 3.3.10 of the 2018 NPGS ROR. CNSC staff intend to continue updating the Commission in future RORs.</p> <p>CNSC staff recommend that this request remain open.</p>
<p>[RIB 14753]</p> <p>Following the 2018 Bruce A and B licence renewal hearing, the Commission requested updates from CNSC staff on the status of the major component replacement (MCR) in NPP Status Reports, as well as the NPGS ROR. In addition, the Commission requested to be informed of</p>	<p>Progress toward the MCR is addressed in section 3.3.0 of the 2018 NPGS ROR. Currently, CNSC staff are overseeing the pre-outage activities, such as contractor management, supply chain, and engineering change control to confirm that Bruce Power is meeting the regulatory requirements. CNSC staff are</p>

<p>any significant changes to the plans, schedules, or any other work related to the MCR - should it occur before or after October 31, 2019 ([10], paragraphs 43, 50, and 454).</p>	<p>continuing their oversight of the MCR and intend to update the Commission through on the project through the Status Report on Power Reactors.</p> <p>Recently, CNSC staff conducted two MCR inspections and found several issues with the management of contractors and records management. CNSC staff found Bruce Power's corrective action plan, which should be fully implemented by April 2020, to be acceptable.</p> <p>CNSC staff recommend that this request remain open</p>
<p>[RIB 8504]</p> <p>As a result of a presentation by NPP licensees on PSA, the Commission expects CNSC staff to establish a proposed regulatory position on risk aggregation ([11], paragraph 49).</p>	<p>Work toward a regulatory position on risk aggregation is addressed in section 2.4 of the 2018 NPGS ROR. CNSC staff intend to continue updating the Commission in future NPGS RORs.</p> <p>CNSC staff recommend that this request remain open</p>

4. LIST OF LICENCE CONDITIONS HANDBOOKS CHANGES

The following table lists the LCHs for each facility covered by the regulatory oversight report and indicates if they were revised in 2018. For those that were revised in 2018, the details are provided below.

Facility	LCH #	Revision # as of December 31, 2018	Revised in 2018?
DNGS	LCH-PR-13.00/2025	R002	Issued R002 on February 28, 2018
DWMF	LCH-W4-355.01/2023	R000	No
PNGS	LCH-PR-48.00/2028	R001	Issued R001 on December 21, 2018
PWMF	LCH-W4-350.00/2028	R000	No
Bruce A and B	LCH-PR-18.00/2028	R000	No
WWMF	LCH-W4-314.00/2027	R000	No
Point Lepreau	LCH-PR-17.00/2022	R000	No

Gentilly-2	MCP-GENTILLY-2	R000	No
------------	----------------	------	----

Revisions to LCH for Darlington Nuclear Generating Station

On February 28, 2018, CNSC staff made a number of general, administrative changes in revision R002 of the DNGS LCH. These included:

- changes to the numbering and effective date of the LCH
- the correction of minor errors (typographical, formatting and cross-references)
- correction of information in tables in the appendices
- the additions of OPG correspondence numbers and the additions of CNSC's document repository (e-Access) references to implementation plans/regulatory concessions
- changes to the numbers and titles of OPG documents

CNSC staff also made several changes in Revision R002 that were relevant to specific licence conditions (LCs) – they are listed in the following table. Most revisions were relevant to the compliance verification criteria (CVC) for the LCs.

LC(s)	Sub-section	Change
G.3	CVC	Added requirement to notify CNSC of changes to OPG's agreement with the Municipality of Clarington that ensures safe public access to the waterfront trail across the Darlington site
3.1	CVC	Changed OPG's status from "transitioning to" to "complying with" CNSC REGDOC-2.3.2, <i>Accident Management: Severe Accident Management Programs for Nuclear Reactors</i>
3.4	Guidance	Added reference to CNSC REGDOC-1.1.3, <i>Licence Application Guide: Licence to Operate a Nuclear Power Plant</i> for purposes of preparing the subsequent licence application
4.1	CVC	Updated implementation strategy for CNSC REGDOC-2.4.1, <i>Deterministic Safety Analysis</i> for the safety analyses to be completed in 2014-2017
4.1, 10.2, 11.1	CVC	Added requirement for change notification to the CNSC (prior to the change being made) for OPG documents associated with analysis and operation of the Retube Waste Processing Building
5.1, 15.2	CVC	Added requirement for change notification (prior to the change being made) for OPG document on the design modification process
6.1	CVC	Changed OPG's status from "transitioning to" to "complying with" CNSC REGDOC-2.6.3, <i>Aging Management</i>
8.1	CVC	Added applicable editions of the <i>National Building Code of</i>

LC(s)	Sub-section	Change
		<i>Canada and the National Fire Code of Canada</i>
9.1	CVC	Changed requirements for change notification from “prior to” to “at the time of” the change for OPG program document on environmental management and OPG process document on environmental monitoring programs
10.1	CVC	Removed transitional provisions related to implementation (effective in 2017) of CNSC REGDOC-2.10.1, <i>Nuclear Emergency Preparedness and Response</i>
10.2	CVC	Described instances where CNSC staff concurred with OPG requests for alternate means to achieve compliance with requirements in CSA N293, <i>Fire Protection for CANDU Nuclear Power Plants</i> for the purposes of the refurbishment
15.1	CVC	Noted that OPG was planning to provide an update on its decision to extend the life of the Tritium Removal Facility by October 2018
15.2	Guidance	Added a reference to CNSC REGDOC-2.3.1, <i>Conduct of Licensed Activities: Construction and Commissioning Programs</i> for the purposes of the commissioning and return to service of Unit 2
15.2, 15.4	Guidance	Added references to the Return to Service Protocol, which details the administrative process the CNSC and OPG will use to manage regulatory interactions, including removal of hold points, related to return-to-service following refurbishment
15.5	Preamble and CVC	In 2017, the Commission had amended the PROLs for the DNGS (and PNGS), adding a new licence condition (LC 15.5 in the case of the DNGS) pertaining to the import and export of nuclear substances for the purposes of managing contaminated laundry. In 2018, CNSC staff added LC 15.5 to the LCH and provided a preamble and CVC to explain the basis for compliance with the new LC. The CVC identified two OPG program documents (radioactive material transportation and radiation protection) that required change notification (the latter notification was required prior to the change). The CVC also identified the maximum quantity limits for the import and export of 58 specific nuclear substances. Full details were provided in the CMD for the licence amendments [CMD-17-H109].

Revisions to LCH for Pickering Nuclear Generating Station

For the PNGS licence renewal in 2018, CNSC staff developed a new LCH [CMD 18-H6 and CMD 18-H6.B]. The following does not attempt to describe any of the content in the new LCH that was different from content in the LCH before the licence renewal. However, the following table describes changes made by CNSC staff in Revision R001 of the PNGS LCH on December 21, 2018 (after the renewal). In addition to the changes listed, CNSC staff corrected the numbers or titles of OPG governance documents under various LCs and in Appendix C.

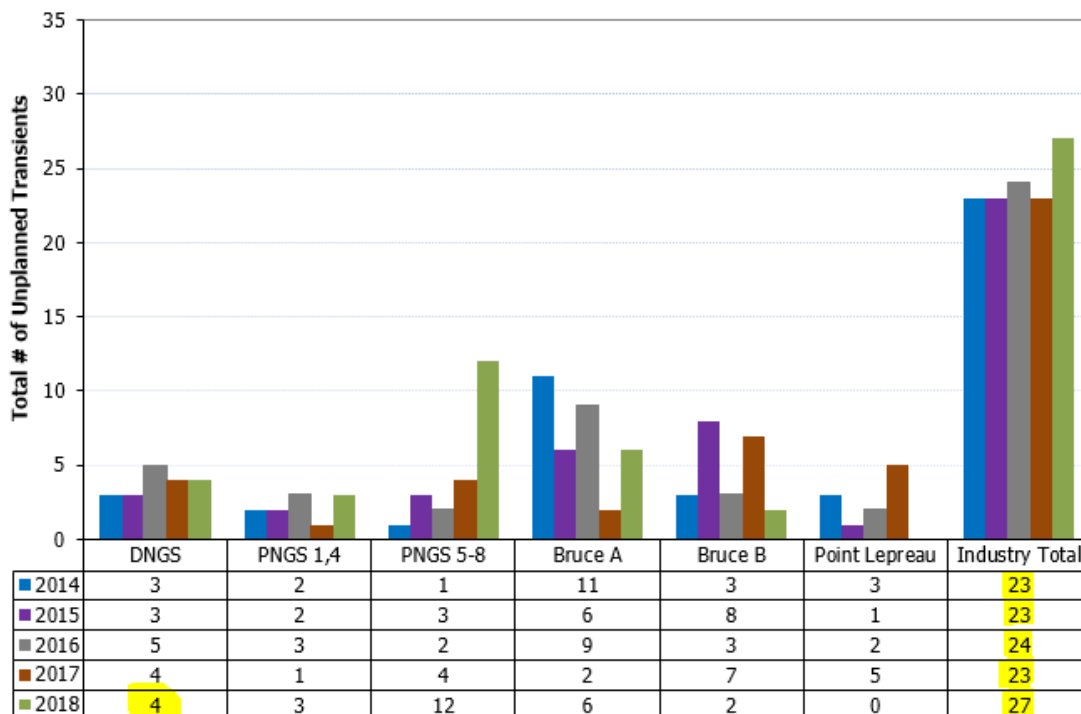
LC(s)	Sub-section	Change
1.1, 10.1	CVC	Removed references to OPG program document for its nuclear pandemic plan, which was superseded (its requirements are covered in another OPG document listed in the LCH)
3.1	CVC	Updated OPG's trip set points for neutron overpower protection
3.3	Guidance	Added reference to latest version of CNSC staff's interpretation document for CNSC REGDOC-3.1.1, <i>Reporting Requirements for Nuclear Power Plants</i>
4.1	CVC	Updated implementation strategy for CNSC REGDOC-2.4.1, <i>Deterministic Safety Analysis</i> for the safety analyses to be completed in 2018-2021
5.1	CVC	Removed OPG document with the list of significant technical changes from OPG's code-over-code review" from the table of documents requiring change notification to CNSC Removed outdated CVC specifying what to include in annual reliability report as it was inconsistent with CNSC REGDOC-3.1.1, <i>Reporting Requirements for Nuclear Power Plants</i>
5.2	CVC	Exempted the requirement for fire protection system fittings that are certified by the Underwriters Laboratory of Canada (cUL/UCL) to have a Canadian registration number
6.1	CVC	Reflected the latest leak rate test schedule for Units 5 to 8 Noted CNSC's acceptance of OPG's use of COG-07-4089 R2, <i>Fitness-for-Service Guidelines for Steam Generator and Preheater Tubes</i> and removed LCH restrictions relating to certain sections of the document. Updated CVC to reflect CNSC acceptance of OPG's disposition of compliance gaps with CSA N285.4-14, <i>Periodic Inspection of CANDU Nuclear Power Plant Components</i>
9.1	CVC	Updated OPG's derived release limits and environmental

LC(s)	Sub-section	Change
		action limits
9.1	CVC	Removed redundant requirement to provide an annual report on fish impingement monitoring as this requirement is captured under the <i>Fisheries Act</i> authorization
13.1	Guidance	Acknowledged OPG's gap analysis and implementation plan for CNSC REGDOC-2.13.1, <i>Safeguards and Nuclear Material Accountancy</i>
15.6	CVC	Corrected title of Table 1

5. ERRATA

Some minor errors in the 2018 NPGS ROR were identified through the review of CNSC staff, licensees and interveners. Prior to publication, the following errors will be corrected in the report:

- On page 19, fourth paragraph of section 1.4.3, the number of reportable events for the WMFs should be 9 (not 13).
- On pages 19 and 20, table 5 and 6, the units in the tables are missing. They should be indicated as “person-days”. Also the total effort for all NPPs should be 17,932 person-days instead of 16,187 person-days.
- On page 32, figure 2, the industry total numbers of unplanned transients are incorrect. Also, the 2018 data for DNGS incorrectly indicated 7 transients instead of 4. The correct numbers are indicated in the figure below. To align with this correction, the text above the figure will be revised accordingly:
 “The number of unplanned transients in 2018 was higher than the numbers from previous years, mostly due to the increased number for PNGS Units 5–8 and for DNGS.”



- Data for deferrals of preventive maintenance at PNGS in years prior to 2018 were reported incorrectly. Consequently, on page 48, table 11, the industry values of deferrals of preventive maintenance in 2016 and 2017 should be 26 and 16, respectively (rather than 38 and 30). Also, on page 140 in table 23, the values of deferrals of preventive maintenance for PNGS in 2016 and 2017 should be 50 and 46, respectively (rather than 110 and 81). These changes do not affect the observations and conclusions in the ROR.
- On page 47 in figure 4, the industry totals for the number of missed tests are wrong for years prior to 2018. They should be
 - 2014 17
 - 2015 10
 - 2016 5
 - 2017 5
- On page 60 in table 13, the units in the table are missing. They should be indicated as “mSv”.
- On page 88, table 15, the Conventional Health and Safety rating for the DWMF (SA²) has an undefined note. The note that should appear should be note 1, not note 2. (SA¹)
- On page 107, section 3.1.6, the second paragraph under the specific area Chemistry control for DNGS describes an instance when iodine-131 concentrations were out of specification in 2018. This instance was not actually

associated with a reportable event, so the association with reportable events will be deleted.

- On page 108, the first sentence under the specific area Application of ALARA for DNGS in Section 3.1.7 should read:
“CNSC staff determined that OPG implemented **an effective** and well-documented program, based on industry best practices, to keep doses to persons as low as reasonably achievable (ALARA) at the DNGS and the DWMF.”
- On page 138, the last sentence under the specific area Severe accident analysis for PNGS in Section 3.2.4 should read:
“UPDATE: CNSC staff completed the review of the severe accident analysis submission and will provide the results to OPG.”
- On page 166, the report refers to table 22. The correct table that should be referred to is table 25.
- On page 212, section 3.5.3, CNSC staff inadvertently omitted a description of the closure of an issue, identified previously, related to procedural adherence by NB Power staff at Point Lepreau. The following will be added at the end of the discussion of the specific area procedures:

In July 2018, CNSC staff concluded that NB Power completed corrective actions, to staff’s satisfaction, to address previously identified weaknesses in the areas of procedural adequacy and adherence.

UPDATE: In March 2019, NB Power followed up on CNSC staff’s request to submit its review of the effectiveness of the corrective actions. CNSC staff were satisfied with the submission.

- On page 238, section 3.6.8, “section (XX)” of the inspection report was mentioned. The correct reference is section 4.1, but the CMD does not, as a rule, cite individual sections when referring to inspection reports. Therefore, the reference to the inspection report section number will be deleted before publication.
- On page 274, Appendix H, the example shows how 1,260,000 can be expressed in scientific notation. The rounded number above should be 1.3×10^6 , instead of the 1.2×10^6 that appears in the report.

6. CONCLUSION

This CMD provides CNSC staff responses to interventions received on the 2018 NPGS ROR, as well as identifies errors in the 2018 NPGS ROR.

Further, this CMD summarizes the status of the Commission information requests to CNSC staff that are or will be addressed through the 2018 NPGS ROR and CNSC staff's presentation at the November 2018 Commission Meeting. CNSC staff have provided responses to twenty-one and recommend the closure of eleven Action Items for information as requested by the Commission. CNSC staff will provide updates on the remaining Action Item in future RORs.

REFERENCES

1. Record of Decision on Application by OPG to Renew the Nuclear Power Reactor Operating License for the Pickering Nuclear Generating Station, April 4, 2018 and June 24-29, 2018, e-Doc 5718117.
2. Record of Decision on Application by OPG for Renewal of Licence for Pickering Waste Management Facility, February 6, 2018, e-Doc 5345395
3. Response to RIB action 17560 to include contactor data as part of the TRIFR in 2018 NPGS ROR, CMD 19-M15, e-Doc 5864115.
4. Minutes of the Canadian Nuclear Safety Commission (CNSC) Meeting held on May 15, 2019, e-Doc 5910107.
5. Submission from CNSC staff on Regulatory Oversight Report for Canadian Nuclear Power Generating Sites: 2018, CMD 19-M30, e-Doc 5977745.
6. CMD 18-M39, "Regulatory Oversight Report for Canadian Nuclear Power Generating Sites: 2017", e-Doc 5628442
7. Minutes of the Canadian Nuclear Safety Commission (CNSC) Meeting held on Nov 8, 2018, e-Doc 5718133.
8. Minutes of the Canadian Nuclear Safety Commission (CNSC) Meeting held on December 12-13, 2018, [e-Doc 5766454](#)], paragraph 72
9. Minutes of the Canadian Nuclear Safety Commission (CNSC) Meeting held on August 22-23, 2018, e-Doc 5653650.
10. Record of Decision on Application by Bruce Power Inc. to Renew the Power Reactor Operating License for Bruce A and Bruce B Nuclear Generating Station, March 14, 2018 and May 28-31, 2018, e-Doc 5624480.
11. Minutes of the Canadian Nuclear Safety Commission (CNSC) Meeting held on March 27, 2014, e-Doc 4431644.

ANNEX A

PLAIN LANGUAGE SUMMARY [RIB 18711]

The Canadian Nuclear Safety Commission (CNSC) conducts regulatory oversight and safety performance assessments at Canada's nuclear power generating sites, which consist of nuclear power plants (NPPs) and adjacent waste management facilities (WMFs). This regulatory oversight report – the second to cover both NPPs and WMFs – describes regulatory oversight and safety performance at these sites in 2018. For issues of significant interest, updates on developments in 2019 are also provided.

The following are the facilities at each site covered in this report. The facilities listed together are located at the same site and governed by a single CNSC licence. As a result, they are assessed together in this report.

- Darlington Nuclear Generating Station (DNFS) and Tritium Removal Facility
- Darlington Waste Management Facility (DWMF), including the Retube Waste Storage Building
- Pickering Nuclear Generating Station (PNGS)
- Pickering Waste Management Facility (PWMF)
- Point Lepreau Nuclear Generating Station (PLNGS) and Solid Radioactive Waste Management Facility (SRWMF)
- Bruce A Nuclear Generating Station and Bruce B Nuclear Generating Station
- Western Waste Management Facility (WWMF) and Radioactive Waste Operations Site 1
- Gentilly-2 Facilities

The CNSC completed substantial regulatory work for NPPs and WMFs in 2018. It conducted NPP and WMF licence renewal activities in addition to compliance verification exercises, such as inspections, desktop reviews, surveillance and monitoring. Guided by the licensing decisions and compliance activities, CNSC staff monitored the follow-up activities, findings and corrective actions throughout 2018. Staff continue to follow up on the developments and corrective actions that were incomplete at the end of 2018.

CNSC staff confirmed that licensing and compliance activities were carried out in accordance with robust regulatory requirements, including those in CNSC regulatory documents and CSA Group standards. These documents continued to evolve in 2018 as both organizations published new and revised documents. NPP and WMF licensees were in the process of implementing various new requirements in 2018, and CNSC staff were satisfied with the overall progress.

CNSC staff determined that the NPPs and WMFs operated safely in 2018 and that the licensees fulfilled their responsibility to maintain safety and promote a healthy safety culture. This conclusion is based on detailed staff assessments of the findings from compliance verification activities in each of the 14 CNSC safety and control areas

(SCAs) for each facility, and it is supported by safety performance measures and other observations.

Some important findings were made based on these performance measures and observations, as follows.

- The NPP and WMF licensees followed approved procedures and took appropriate corrective action for all events reported to the CNSC.
- The NPPs and WMFs operated within the boundaries of their operating policies and principles.
- There were no serious process failures at the NPPs. The number of unplanned transients and trips in the reactors was low and acceptable to CNSC staff. All of these unplanned transients were properly controlled and adequately managed.
- Radiation doses to the public were well below the regulatory limits.
- Radiation doses to workers at the NPPs and WMFs were also below the regulatory limits.
- The number of non-radiological injuries to workers was very small and the severity of these injuries was low.
- No radiological releases to the environment from the NPPs and WMFs exceeded the regulatory limits.
- Licensees met the applicable requirements, fulfilling Canada's international obligations; safeguards inspection results were acceptable to the IAEA.

CNSC staff assessments of the SCAs for the NPPs and WMFs are summarized in the following rating tables. Note that separate ratings are provided for Bruce A and Bruce B – although they are governed by the same licence and they share programs, differences in the way those programs are implemented at the two stations warrant separate assessments. These acronyms summarize the results of the assessments:

FS	fully satisfactory
SA	satisfactory
BE	below expectations
UA	unacceptable
NR	not rated

Canadian NPP safety performance ratings for 2018

Safety and control area	DNGS	PNGS	Bruce A	Bruce B	Point Lepreau	Gentilly-2
Management system	SA	SA	SA	SA	SA	SA
Human performance management	SA	SA	SA	SA	SA	SA
Operating performance	FS	FS	FS	FS	FS	SA
Safety analysis	FS	FS	FS	FS	FS	NR
Physical design	SA	SA	SA	SA	SA	SA
Fitness for service	SA	SA	SA	SA	SA	SA
Radiation protection	SA	SA	FS	FS	SA	SA
Conventional health and safety	FS	FS	FS	FS	FS	SA
Environmental protection	SA	SA	SA	SA	SA	SA
Emergency management and fire protection	SA	SA	SA	SA	SA	SA
Waste management	SA	SA	SA	SA	SA	SA
Security	SA	SA	SA	SA	SA	SA
Safeguards and non-proliferation	SA	SA	SA	SA	SA	SA
Packaging and transport	SA	SA	SA	SA	SA	SA

Canadian WMF safety performance ratings for 2018

Safety and control area	DWMF	PWMF	WWMF
Management system	SA	SA	SA
Human performance management	SA	SA	SA
Operating performance	SA	SA	SA
Safety analysis	SA	SA	SA
Physical design	SA	SA	SA
Fitness for service	SA	SA	SA
Radiation protection	SA	SA	SA
Conventional health and safety	SA	SA	SA
Environmental protection	SA	SA	SA
Emergency management and fire protection	SA	SA	SA
Waste management	SA	SA	SA
Security	SA	SA	SA
Safeguards and non-proliferation	SA	SA	SA
Packaging and transport	SA	SA	SA