



Status Report on Power Reactors

Rapport d'étape sur les centrales nucléaires

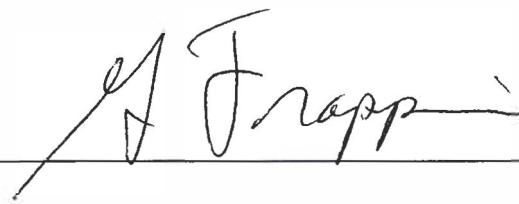
Commission Meeting
November 8, 2018

Réunion de la Commission
Le 8 novembre 2018

This document summarizes the status of the
Power Reactor facilities as of October 29,
2018.

Ce rapport résume le rapport d'étape sur les
centrales nucléaires en date du 29 Octobre
2018.

Signed on / Signé le
2018-10-31



Gerry Frappier, P.Eng.
Director General, Directorate of Power Reactor Regulation
Directeur général, Direction de la réglementation des centrales nucléaires

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1. Power Reactors Status as of October 29th, 2018

1.1 Bruce A and B

Operational Status
Unit 1 is at Full Power
Unit 2 is at Full Power
Unit 3 is at Full Power
Unit 4 is Guaranteed Shutdown State
Unit 5 is at Full Power
Unit 6 is at Full Power
Unit 7 is at Full Power
Unit 8 is in Guaranteed Shutdown State
Licensing
Power Reactor Operating Licence expires on August 31, 2028.
Comments
<p>On October 25, 2018, Unit 4 was safely shutdown due to a leaking control valve in the Reactor Regulating System. Repairs are currently in progress, and the unit is expected to return to service in two weeks. This event is of low safety significance as the Reactor Regulating System was capable of performing its intended control functions.</p> <p>On October 10, 2018, a worker was working in a change room in the Bruce A Amenities building and contacted their leg with a laundry cart while moving it. As a result, the worker's right ankle was fractured. Reporting to the Ministry of Labor (MOL) and the CNSC was performed, and no follow-up actions were deemed required.</p> <p>On October 15, 2018, during welding activities, a maintainer received an electrical shock. The worker was assessed by Bruce Power's Emergency Protective Services team and then transported to the Kincardine hospital for medical treatment. The worker was released the same day. A report was submitted to the MOL and the CNSC, and investigation (by the CNSC and MOL) into the cause of the event is currently on-going. CNSC staff will provide an update in the next status report on power reactors.</p>
Event Notifications and Updates
None.
Actions from <u>previous</u> Commission <u>meetings</u>
None.

1.2 Darlington

Operational Status
Unit 1 is at Full Power
Unit 2 is Shutdown for Refurbishment
Unit 3 is at Full Power
Unit 4 is at Full Power
Licensing
Power Reactor Operating Licence expires on November 30, 2025.
Comments
Unit 2 Calandria tube install continues to be the focus. Insertion of all 480 tubes is 100% complete. Fuel channel installation will follow shortly after Calandria tube rolls and leak tests are completed.
Event Notifications and Updates
None.
Actions from previous Commission meetings
None.

1.3 Pickering

Operational Status
Unit 1 is at 89% of Full Power
Unit 2 is in a Safe Storage State
Unit 3 is in a Safe Storage State
Unit 4 is at Full Power
Unit 5 is at Full Power
Unit 6 is at Full Power
Unit 7 is at Full Power
Unit 8 is in Guaranteed Shutdown State
Licensing
Power Reactor Operating License expires on August 31, 2028.
Comments
Unit 1 is derated due to fuelling machine unavailability. There is no impact on the safety of workers, the public or the environment as a result of the fuelling machine unavailability.
Unit 8 is currently in Outage (P1881). Return to service date is tentatively scheduled for end of November.
Event Notifications and Updates
None.
Actions from previous Commission meetings
See Appendix A, B, C for Pickering NGS Digital Control Computer (DCC) Stall and Unit 4 Shutdown – Update.

1.4 Point Lepreau

Operational Status
Unit is 99.9% of at Full Power
Licensing
Power Reactor Operating Licence expires on June 30, 2022.
Comments
None.
Event Notifications and Updates
None.
Actions from previous Commission meetings
None.

1.5 Other

APPENDIX A - RE: Pickering NGS DCC Stall and Unit 4 Shutdown – Update

APPENDIX B - Digital Control Computer 1 (DCC1) & Digital Control Computer 2 (DCC2) Control Panel

APPENDIX C - OPG Corrective Actions

APPENDIX A**RE: Pickering NGS DCC Stall and Unit 4 Shutdown – Update****RIB Action # 14315**

At the June, 2018 Commission Meeting, CNSC staff informed the Commission that an issue with the Digital Control Computers (DCC) on June 22, 2018 resulted in Pickering Unit 4 being safely shut down. CNSC staff committed to providing the Commission results of the event analysis following the completion of the investigation by OPG. CNSC staff have now completed a review of the OPG's Incident Investigation Report and Corrective Action Plan.

Summary of the event:

On June 22, 2018 at approximately 10:20 hrs, while Pickering Unit 4 was low power critical at restart after a planned outage, Unit 4 experienced a dual loss of Digital Control Computers (DCCs).

At the time of the event, Digital Control Computer 2 (DCC2) was out of service for planned maintenance. Digital Control Computer 1 was operational.

A planned maintenance supporting task was to place DCC2 in "Running Stalled Mode" whereby the duty Authorized Nuclear Operator (ANO) was required, per procedure, to depress "START" push button on Channel 2 for DCC2.

The ANO incorrectly depressed the "STOP/STALL" push button on Digital Control Computer 1(DCC1) – see Appendix B image. This resulted in stalling of the controlling DCC1. With DCC2 already off-line for maintenance, the stalling of DCC1 led to dual loss of both DCCs.

Following loss of both DCCs, OPG staff responded as per the Power Reduction Action Guide (PRAG) and the Dual Loss of DCC Abnormal Incident Manual (AIM). The reactor was manually tripped according to the procedure, thus resulting in an unplanned Unit 4 shutdown. As part of the response to this event, OPG tested and restarted both DCCs to confirm both DCCs were operating correctly and available for service.

OPG reported the Event to CNSC as per RegDoc 3.1.1.

The safety significance of dual loss of DCCs was characterized by the following considerations:

- Power ascension of the reactor during start up activities was interrupted.
- The functionality provided by the digital control computer was lost. The reactor was safely shutdown manually.
- The event transient was of a short duration (less than 5 hours).
- The non-compliance was of a localized nature.
- There was no impact on workers or the public or the environment.

OPG completed an Incident Investigation Report which identified:

Direct Cause: Operator incorrectly depressing “stall button” on DCC1 while supporting maintenance on DCC2.

Root Cause: The pre-job brief did not include discussion of peer checker requirement. There was no written pre-job brief. Control Room supervision did not ensure that standards and expectations were consistently and adequately reinforced during preparation and execution of DCC related work.

OPG issued Operator Flash Report to OPG Pickering and OPEX was shared with OPG fleet. OPG Operations Manager issued a memorandum to Shift Managers and Control Room Supervisors regarding: Leadership; Main Control Room (MCR) Standards & Conduct; Supervisor Intrusiveness; and use of 2nd party verification.

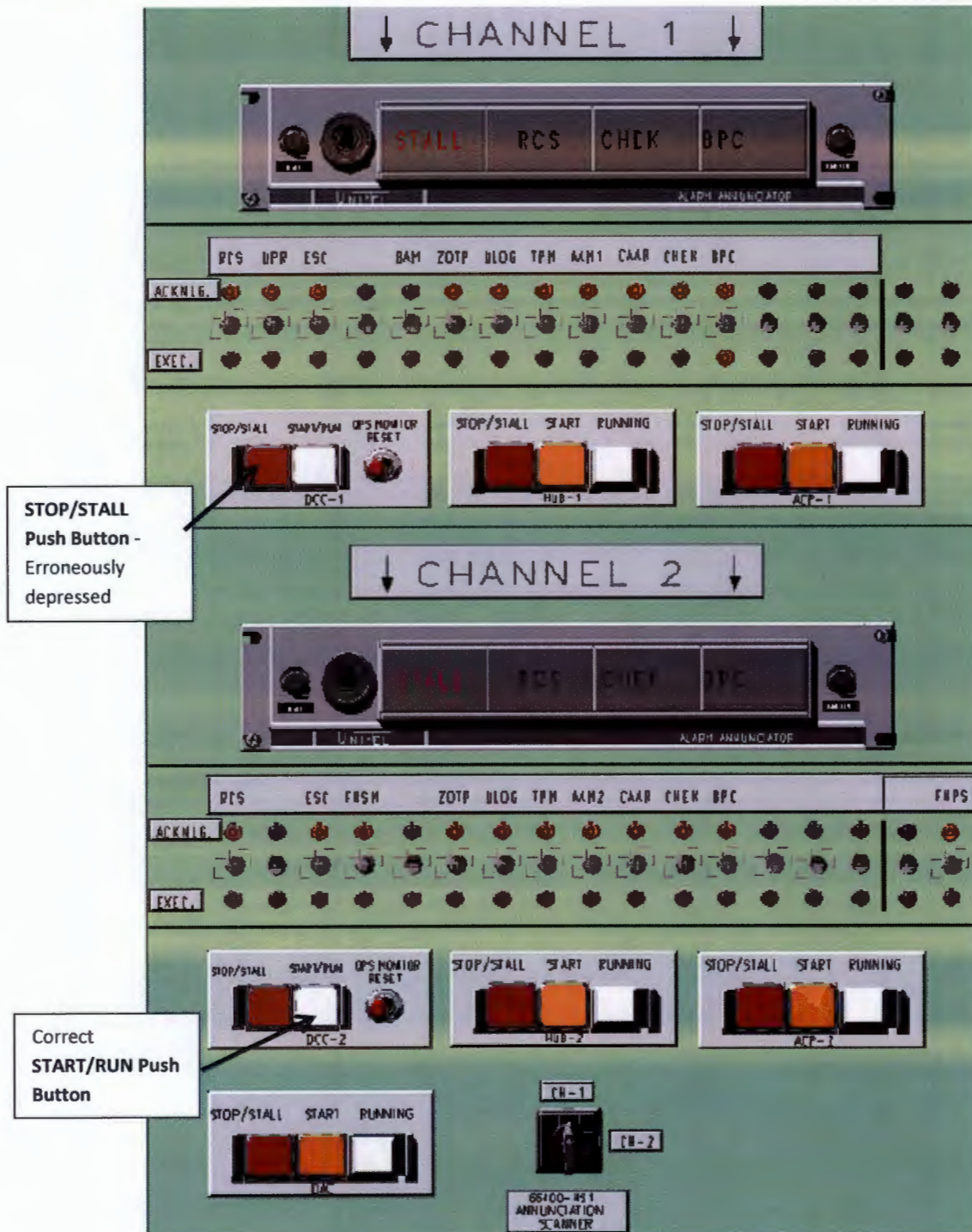
OPG's Incident Investigation Report included a Corrective Action Plan (see Appendix C).

CNSC staff reviewed OPG's response to the event and are satisfied with OPG actions taken, OPG Incident Investigation Report, and OPG Corrective Action Plan.

CNSC staff continues to monitor OPG progress with the Corrective Action Plan.

APPENDIX B

Digital Control Computer 1 (DCC1) & Digital Control Computer 2 (DCC2) Control Panel



APPENDIX C**OPG Corrective Actions**

Action: Perform Shift Manager/Control Room Shift Supervisors (CRSS) paired Observations & Coaching (O&C) focused on behaviours related to applications of Operations Manager Expectations in the Main Control Room (MCR). Target Completion Date: 2018/11/30.

Action: Perform Control Room Shift Supervisors (CRSS) / Authorized Nuclear Operators (ANOs) Observations & Coaching (O&C) focused on behaviours related to applications of Operations Manager Expectations in the Main Control Room (MCR). Target Completion Date: 2018/11/30.

Action: Implement a plan to provide mentorship to Control Room Shift Supervisors on areas around enhanced reinforcement of application of standards.
Target Completion Date: 2018/12/20.

Action: Implement a requirement to ensure that different sections of the Operations Manager Expectations are reviewed every two weeks with the Shift Crews to ensure expectations are understood and discussions around application of the expectations can be performed.
Target Completion Date: 2019/02/28.

Action: Provide training to reinforce OPS Manager Expectations during Performance Mode & Training Mode Events with an additional focus on error prevention tools: Peer Checks; Stop Think Act Review (STAR); 2nd Party Verification Practices; and Pre-Job Briefing requirements. Target Completion Date: 2019/02/28.

Action: Conduct a Pre-Effectiveness Check of Corrective Action Plan(s) with Site Performance Improvement Manager. Target Completion Date: 2019/01/31.

Action: Perform an Evaluating Organization Effectiveness Review.
Target Completion Date: 2019/06/28.