

Protocol on the End of Commercial Operation of the Gentilly-2 Nuclear Reactor

April 26, 2013
Revision 4

Gentilly Regulatory Program Division (GRPD)
Directorate of Power Reactor Regulation
Canadian Nuclear Safety Commission (CNSC)

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Summary of changes

Version No.	Change
i	Initial version – draft
1	Signed version
2	Alignment of the activities on page 4 with the current licence and the decommissioning licence, with corresponding changes to the appendix
3	Signed version (correction of minor typographical errors)
4	Update to Table 6.1 to indicate the activities that are completed and adjust the target date for other activities

Extent of the protocol

This protocol is strictly administrative in nature. None of the statements in this protocol are to be construed or interpreted as affecting the jurisdiction or discretionary powers of the Canadian Nuclear Safety Commission (CNSC) in its assessments of licence applications made in accordance with the *Nuclear Safety and Control Act* (NSCA) [1]. It is not intended to constitute a deviation to the current operating licences of Gentilly-2 for its nuclear power reactor and radioactive waste facility.

1. Objective

The objective of this protocol is to provide a framework to enable personnel of Hydro-Québec and the CNSC to meet the main regulatory requirements and expectations to transition the Gentilly-2 nuclear reactor from normal operation to a safe state of storage (with spent fuel in a spent fuel pool). This protocol expires when the reactor has been transitioned to a safe state of storage. However, the CNSC's regulatory processes will continue as usual.

2. Introduction

The legal framework for licence renewal is derived from the *Nuclear Safety and Control Act* (NSCA) [1] and its supporting regulations.

Hydro-Québec and CNSC staff will coordinate their efforts to fulfill the mandates and responsibilities of both organizations.

In engaging in this coordinated effort and working responsibly in the public interest, the CNSC maintains its independence as the Canadian nuclear regulator, and Hydro-Québec continues to be solely responsible for the safe operation of the Gentilly-2 reactor.

This protocol sets out the framework within which both organizations will work, and establishes a high-level estimate of the time line. This protocol covers the period from December 2012 to mid-2014, during which the licensee will shut down the reactor in December 2012, carry out reactor stabilization activities and transition the reactor to a safe state of storage.

Hydro-Québec must demonstrate to the CNSC how safety will be maintained with the objective of transitioning the reactor to a safe state of storage, given that the refurbishment project has been cancelled.

3. Schedule

The schedule set out in the statement of work in this protocol considers the December 31, 2012, deadline (licence expiry date) and the lead time notices required by the *Canadian Nuclear Safety Commission Rules of Procedure* [2].

4. Roles and responsibilities

4.1 CNSC governance structure

The CNSC has formed a steering committee for the transition of the Gentilly-2 reactor to a safe state of storage for the commercial operation of Gentilly-2 and to provide strategic-level direction and senior management oversight and support to the program.

The steering committee is chaired by the Executive VP and Chief Regulatory Operations Officer, Regulatory Operations Branch (ROB) and formed by all relevant executive directorates, including:

- Director General of the Directorate of Power Reactors;
- Director General of the Directorate of Assessment and Analysis;
- Director General of the Directorate of Environmental and Radiation Protection and Assessment;
- Director of the Gentilly Regulatory Program Division;
- Project Manager (Secretary); and
- Others, as needed.

The objective of the steering committee is to enable CNSC staff to fulfill its mandate, within the framework of the current licence regarding the shutdown of Gentilly-2. To fulfill this function, the committee must ensure that the Gentilly-2 licensing activities:

- are recognized as a priority;
- have adequate resources;
- respect deadlines;
- respect project management practices;
- contains appropriate audit plans;
- are consistent in their application and requirements; and
- respect approved processes and technical directions.

The steering committee is accountable to the CNSC President through the EVP, ROB.

4.2 Hydro-Québec governance structure

Hydro-Québec has established a management team made up of managers and senior managers to review and approve recommendations:

- General Manager, Nuclear Development and Generation;
- Manager, management office;
- Plant Manager, Gentilly-2;
- Manager, design authority; and
- Others, as needed.

5. Organizational representatives

The organization representatives are responsible for the work under this protocol and raise the matter with their respective governance bodies, should problems arise during the work that may affect the schedule or the scope of the work.

For the purposes of this protocol, the CNSC shall be represented by:

Director, GRPD (acting position to be held by B. Poulet) for matters related to governance and implementation.

Telephone: 613-995-7217
Cellular telephone: 613-292-8514
Fax: 613-992-4572
E-mail: Benoit.Poulet@cnsccsn.gc.ca

For the purposes of this protocol, Hydro-Québec shall be represented by:

Gentilly-2 Plant Manager (position currently held by C. Gélinas) for matters related to governance.

Telephone: 819-298-2943 ext. 7907
Cellular telephone: 819-244-6689
E-mail: Gelin.Claude@hydro.qc.ca

Either party hereto may, by written notice, change any of its appointees named above.

6. Statement of work

This set of high-level tasks and milestones is derived from the process documented in RD/GD-360 version 2 (draft July 2012) [3], Canadian Standards Association (CSA) document N294-09 on decommissioning, CNSC regulatory guide G-219 on financial guarantees, and the expectations of the CNSC expressed during the licence renewal hearing and included in the reasons for decision and in the operating licence.

This chapter includes the information required to develop a high-level plan by specifying the milestones and tasks to be achieved, where these are already known. Appended to this document, for information purposes, is an excerpt from a document submitted to the CNSC Commission members describing the main operations in a longer decommissioning timeframe, up to site abandonment; these steps are not covered by this protocol. They will be covered by a new protocol.

The licensee's main activities are as follows:

- Reactor shutdown, December 28, 2012
- Guaranteed shutdown state, December 29, 2012
- Removal of the fuel from the reactor, to be completed around May 2013
- Transfer of resins and tank repairs, to be completed around April 2014
- Emptying and transfer of heavy water, to be completed around July 2014
- Removal of two pressure tubes, to be completed around August 2014
- Preparations, modifications, removal of systems, during 2013-2014
- Construction of infrastructure required for dry storage
- Safe storage of reactor, to be completed in late 2014
- Transfer of fuel from the pool to dry storage (yearly summer campaign on site)
-

Under the decommissioning licence scheduled to be issued in 2016:

- Construction of infrastructure required for dry storage
- Continuation of the transfer of fuel from the pool to dry storage (yearly summer campaign on site), to be completed around 2020
- Start of transfer to Canadian repository, around 2050
- Reactor demolition, around 2055
- Site restoration, to be completed around 2062

6.1 Technical aspects and deliverables

Activities	Target date	Organization(s) responsible
Bimonthly meetings of the liaison committee and HQ report	In progress	CNSC and HQ
Submission of the Gentilly-2 shutdown plan	October 2012 (completed)	HQ
Comments on the Gentilly-2 shutdown plan	November 30, 2012 (completed)	CNSC
Meeting to update the commitments on the list of information to be provided (LF, GAI, Fukushima)	December 5, 2012 (completed)	HQ and CNSC
Follow-up on comments on the Gentilly-2 shutdown plan and other overall management expectations	Ongoing	CNSC
HQ response to comments on the shutdown plan	December 21, 2012 (completed)	HQ
Human resources plans: Organization, organization chart, staff and functions according to CSA-N286 and to the requirements of CNSC inspectors Determination of requirements for certified staff	January 11, 2013 (completed) January 17, 2014 June 30, 2013	HQ
Work stop or verification points: (to be specified) Shutdown of reactor (GSS) Completion of unloading Completion of heavy water drainage Prerequisites for a safe state of storage declaration		HQ
Comments on human resources plans	February 8, 2013 (completed) February 14, 2014	CNSC
Review of the status of operational systems in transition and review of the OPP appendix on the defueled core state	January 11, 2013 (completed)	HQ, CNSC

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Activities	Target date	Organization(s) responsible
Update of the G2 Licence Conditions Handbook (LCH)	June 30, 2013	CNSC
Commission information (2 different CMDs)	May 15, 2013	CNSC and HQ
Submission of the modified OPP	March 30, 2013 (completed)	HQ
Application to amend the Gentilly-2 operating licence and follow-up	August 2013	HQ, CNSC
Review of the modified OPP (ver. 8)	June 1, 2013 (completed)	CNSC
Review of the processes and procedures of the Gentilly-2 shutdown plan (detailed plans)	Ongoing	CNSC
<p>Determination of the regulatory process for the issuance of the licence in 2016</p> <p>Meetings between HQ and the following directorates, in accordance with the CNSC communication protocol:</p> <ul style="list-style-type: none"> - Directorate of Power Reactor Regulation - Directorate of Nuclear Cycle and Facilities Regulation - Directorate of Environmental and Radiation Protection and Assessment 	First quarter of 2014 and other dates to be determined	CNSC and HQ
Submission of the updated proposed preliminary decommissioning plan (PDP) and financial guarantees	Late 2014	HQ
Review of the modified PDP and financial guarantees	Early 2015	CNSC
Review of other requests for amendments by management (for example, minimum staff, safety, fire protection, PDP requirements)	As needed	CNSC

6.1.1 Other deliverables

Meetings

Working-level meetings

Bimonthly Hydro-Québec/CNSC review meetings will be held to review progress of the work and highlight any major issues or potential disputes. At least one of the following persons shall attend these review meetings:

- Director, CNSC, GRPD
- Plant Manager, Hydro-Québec
- Project Manager or replacement, Hydro-Québec

Technical meetings

Meetings between CNSC and Hydro-Québec technical experts will take place as needed. The organization representatives or their designates will participate in technical meetings to ensure continuity in the Gentilly-2 licence renewal process.

Executive meetings

Telephone calls every three weeks and other meetings as needed.

6.2 Conflict resolution process

CNSC staff and Hydro-Québec staff have agreed to coordinate the work required to renew the operating licence of the Gentilly-2 reactor, in accordance with the NSCA requirements. Disagreements may arise during the execution of the work. A review and dispute resolution mechanism will be used during the review to ensure fairness and timely completion.

Step 1: Identification of the issue and resolution at the staff level

1. Monthly Hydro-Québec and CNSC review meetings will be held to review progress and highlight any major issues or disputes.
2. Government policies on regulatory effectiveness, as well as established licensing requirements, will serve as the framework for decisions on issues to be resolved. This must, however, be agreed upon by both parties.
3. It is the intention of both parties to resolve issues that may arise at these monthly meetings.
4. If an issue cannot be resolved at this level, it will be documented (a brief factual summary of the issue and a paragraph representing the position of each

organization) by the committee within two weeks of failure to resolve. This document is then forwarded to senior management (Step 2).

Step 2: Resolution at the senior management level

1. A copy of all documentation describing the issue will be provided to the Director General, Directorate of Nuclear Cycle and Facilities Regulation (CNSC), the Director General, Assessment and Analysis (CNSC) and the Director, Nuclear Generation Directorate (Hydro-Québec), who shall meet within 14 days following receipt of that documentation to resolve the issue.
The resolution process shall be documented.
2. Issues that cannot be resolved at this level will be referred to the Executive Vice-President and Chief Regulatory Operations Officer (Step 3) within seven days, supported by the original and revised documentation from Step 1.

Step 3: Resolution at the executive level

A copy of the documentation describing the issue not resolved at Step 2 will be sent to the Executive Vice President, Regulatory Operations Branch (CNSC), and the General Manager, Nuclear Development and Generation (Hydro-Québec), who will meet within 14 days following receipt of that documentation to resolve the issue. The resolution process shall be documented.

7. Future revisions of the protocol

Future revisions of the protocol (eDOC 4010061) will be coordinated by representatives of the organizations, and must be approved by the organizations' governance structures.

8. References

- [1] *Nuclear Safety and Control Act*, 1997, ch. 9
- [2] *Canadian Nuclear Safety Commission Rules of Procedure, SOR/2000-211*
- [3] RD/GD-360, *Long-term Operation Management for Nuclear Power Plants*, version 2, (draft, July 2012)

9. Glossary

CNSC	Canadian Nuclear Safety Commission
CMD	Commission Member Document (CNSC)
ROB	Regulatory Operations Branch (CNSC)
GRPD	Gentilly Regulatory Program Division (CNSC)
HQ	Hydro-Québec
OPP	Operating policies and principles (HQ)

Original signed by Louise Pelletier _____ *Signed* April 26, 2103 _____

Louise Pelletier
General Manager
Nuclear Development and Generation
Hydro-Québec

Original signed by R. Jammal _____ *Signed* April 29, 2013 _____

Ramzi Jammal
Executive Vice-President and
Chief Regulatory Operations Officer
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Appendix

