



CMD 26-H110-Ref1

Date: 2026-08-06

**Reference from
Bruce Power**

**Référence de
Bruce Power**

In the matter of

À l'égard du

Bruce Power

Application to change the lutetium-177
production process at Bruce A and B
Nuclear Generating Stations

Bruce Power

Demande visant à modifier le processus de
production de lutécium 177 aux centrales
nucléaires de Bruce A et B

Hearing in Writing

Audience par écrit

July 2026

Juillet 2026

From: [Maury Burton \[Regulatory, Environment and Sustainability\]](#)
To: [Registry / Greffe \(CNSC/CCSN\)](#); _____;
Cc: [Salmon, Candace \(CNSC/CCSN\)](#); [Samson, Jude \(CNSC/CCSN\)](#); [Taylor, Michelle \(CNSC/CCSN\)](#); [Forester, Henry \(CNSC/CCSN\)](#)
Subject: RE: Record of Decision on Bruce Power's 2nd Request for Confidentiality in relation to CMD 26-H110
Date: August 6, 2026 9:01:20 AM
Attachments: [image001.png](#)

Thank you Ms. McAleer,

Bruce Power has reviewed the Record of Decision and the document that was deemed to not meet requirements for disclosure. Upon review, Bruce Power has no concerns with the documents noted in the Record of Decision being included in the public record.

Please let me know if this email is a sufficient response or you would like formal correspondence to document this.

Regards,

Maury Burton | Senior Director, Regulatory Affairs | **Bruce Power**

**Attachment A:
Proposed Revision to Licence Conditions Handbook Section 7**

Bruce Power is proposing the following revisions to Licence Conditions Handbook, Section 7.1, Radiation Protection, in red, to address the impacts of the hot cell.

Compliance Verification Criteria:

Licensee Documents that Require Notification of Change		
Document Title	Document #	Prior Notification
Radiation Protection Program	BP-PROG-12.05*	Yes
ALARA Program	BP-RPP-00044	No
Dosimetry Requirements	BP-PROC-00280	Yes
Dose Limits and Exposure Control	BP-RPP-00009	Yes
Management of Central Maintenance Facility Hot Cell	BP-PROC-15043	No

Revision to Table 7.1:

Table 7.1: Bruce Power Action Levels					
Description	Bruce A and B	CSF	CMLE CMF and Class II Nuclear Facility	Nuclear Substances and Radiation Devices	Notes
Unplanned External Exposure	2 mSv (200 mrem) or more above planned dose	0.5 mSv (50 mrem) or more above planned dose	Class II: 250µSv (25 mrem) or more above planned dose CMF: 0.5mSv (50 mrem) or more above planned dose	2 mSv (200 mrem) or more above planned dose	Unplanned external exposure is per shift and above the value of the Dose Control Device backout level. For an individual that is not working on a Radiation Exposure Permit (i.e., a backout limit has not been established), the back-out level is considered to be 0 millisievert (0 millirem).

Table 7.1: Bruce Power Action Levels

Description	Bruce A and B	CSF	CMLF CMF and Class II Nuclear Facility	Nuclear Substances and Radiation Devices	Notes
Unplanned Internal Exposure – Tritium	Unplanned committed effective dose* of 2 mSv (200 mrem) or more	Unplanned committed effective dose* of 0.5 mSv (50 mrem or more)	N/A	N/A	Unplanned internal exposure from Tritium is per shift and above the planned tritium dose level. For an individual that is not working on a Radiation Exposure Permit, the planned dose level is considered to be 0 millisievert (0 millirem).
Unplanned Internal Exposure – Non-Tritium	Unplanned committed effective dose* of 2 mSv (200 mrem) or more	Unplanned committed effective dose* of 0.5 mSv (50 mrem) or more	N/A	N/A	Internal exposure – Non-Tritium encompasses all other nuclear substances (e.g., fission products, activation products, transuranics) taken into the body that result in committed effective doses above the recordable level. Unplanned internal exposure – Non-Tritium is the total dose above an approved planned level during a 1 year dosimetry period. If a planned dose is not established in an approved Radiation Exposure Permit, then the back-out level is considered to be 0 millisievert (0 millirem). Both unplanned acute and unplanned chronic low level uptakes that exceed 2 mSv/y (0.5mSv/y for CSF) above an approved planned level are considered AL exceedances (e.g., four unplanned exceedances within a calendar year with a committed effective dose assignment 0.5 mSv/each would be considered an AL exceedance).
Accumulated Dose	Exceeding an ADL without prior approval				Accumulated doses that are to be compared with the ADLs include doses received at all places of employment during the dose period as defined in the table below. ADLs are defined in the Bruce Power document BP-RPP00009, Dose Limits and Exposure Control.

Table 7.1: Bruce Power Action Levels

Description	Bruce A and B	CSF	CMLF CMF and Class II Nuclear Facility	Nuclear Substances and Radiation Devices	Notes
Beta-Gamma surface Contamination in Zone 1	Total: Greater than 3.7 Bq/cm ²	N/A	N/A	N/A	Beta-gamma contamination that exceeds 3.7 Bq/cm ² normally calculated over a 100 cm ² reference area on any surface in those areas deemed equivalent to the public domain (e.g., Zone 1) within the licensed facility.
Beta–Gamma Discrete Radioactive Particle in Public Domain	Greater than 100 nCi (3700 Bq)	N/A	N/A	N/A	Detected by portal monitors with alarm setpoint ≤ 100 nCi (3700 Bq) Cs-137. Action Level for Discrete Radioactive Particles (DRP) are defined in [1].
Alpha Surface Contamination in Zone 1	Total: Greater than 0.05 Bq/cm ²	N/A	N/A	N/A	Alpha contamination that exceeds 0.05 Bq/cm ² (300 dpm/100 cm ²) normally calculated over a 100 cm ² reference area on any surface in those areas deemed equivalent to the public domain (e.g., Zone 1) within the licensed facility.

*Committed Effective Dose is calculated from the time of intake.

Attachment B:
Proposed Revision to Licence Conditions Handbook Section 15.10

Bruce Power is proposing the following revisions to the Preamble and Compliance Verification Criteria sections of Licence Conditions Handbook, Section 15.10, Cobalt-60 and Lutetium-177. Requested changes are detailed below in red.

Requested revisions to “Preamble” section:

Bruce Power is limited to nuclear substances production at the following locations:

- Cobalt-60 at Bruce B
- Lutetium-177 at Bruce B, Unit 7

Bruce Power harvests Cobalt-60 during the removal of Cobalt adjusters from each of the Bruce B reactors. These cobalt rods are processed into cobalt bundles that are placed in sealed containers and transported to Nordion Inc. who reprocess the bundles into sealed sources. Due to decay, Cobalt-60 sealed sources cannot be used for commercial use after many years and are shipped to Bruce Power. The sealed sources are stored in the Secondary Irradiated Fuel Bay at Bruce B NGS and upon decommissioning; they will be placed in permanent dry storage.

An Isotope Production System (IPS) in Bruce B Unit 7 is used to produce Lutetium-177 (Lu-177) from Ytterbium-176 (Yb-176) oxide powder. The powder is encapsulated in a target consisting of a sealed quartz ampule and aluminum **or titanium** carrier. Two zircaloy target finger tube (TFT) assemblies have been installed via vacated vertical flux detector guide tube assemblies. Using a pneumatic system, targets in their aluminum **or titanium** carriers are inserted into and retrieved from the reactor through the TFT assemblies. The aluminum **or titanium** carriers (irradiated targets) are then discharged to **shielded containers for transportation to the Central Maintenance Facility (CMF) to have the target carriers removed in a hot cell, and then the ampules are packaged into** transport containers and shipped to processing facilities. **If target carrier removal is taking place off-site, irradiated targets are discharged directly to transport containers.** Bruce Power is authorized to use the IPS for the production of Lu-177 at Unit 7 only.

Requested revisions to Compliance Verification Criteria:

Licensee Documents that Require Notification of Change		
Document Title	Document #	Prior Notification
Cobalt Handling	BP-PROC-00003	Yes
Irradiation Services	BP-PROG-18.01	No
Management of Lutetium-177 Production	BP-PROC-01120	No

LC 15.10 provides the basis for regulatory oversight related to the licensed activity associated with the radioisotopes production program. The Bruce Power licence authorizes through the licensing basis the production and possession of Cobalt-60 in both sealed and unsealed forms at the Bruce B nuclear facility. Bruce Power shall ensure that handling, processing and accounting of Cobalt is in accordance with Bruce Power’s procedure for Cobalt Handling.

The receipt of any Cobalt-60 sealed sources shall be reported to the CNSC via the Sealed Source Tracking System and in accordance with CNSC regulatory document REGDOC-3.1.1.

The Bruce Power licence authorizes through the licensing basis the production, possession, transfer, packaging, managing and storing of Lutetium-177. Furthermore, the licence also authorizes the possession, transfer, use, packaging, managing and storage of nuclear substances associated with the production of Lutetium-177: radioactive ytterbium oxide (Yb_2O_3) targets. Bruce Power will require up to 300 unirradiated targets in ampules containing Yb-169, with additional radionuclides having significantly lower activities. Bruce Power is authorized to receive ampules of up to the manufacturer's specification of 600 MBq/ampule, which is greater than the Exemption Quantity (EQ).

As part of the Lutetium-177 program, Bruce Power will use the CMF hot cell for target carrier removal of the aluminum or titanium carrier from the quartz ampule. The safety and control measures for the hot cell are implemented through BP-PROC-15043, Management of Central Maintenance Facility Hot Cell, which is cited in section 7.1 of the LCH.