



Date: 2022-09-06

File / dossier : 6.02.04

Edocs pdf : 6865960

Event Initial Report

Rapport initial d'événement

Bruce Power

Discovery and inadequate control of suspect items, Bruce B Unit 6 Major Component Replacement

Bruce Power

Découverte et contrôle inadéquat d'articles suspects, travaux de réfection à la tranche 6 de la centrale de Bruce-B

Commission Meeting

Réunion de la Commission

September 15, 2022

Le 15 septembre 2022

EVENT INITIAL REPORT (EIR)

e-Doc #6859354

EIR: Bruce B Unit 6, Major Component Replacement, Inadequate control of quarantined items	
Prepared by: Directorate of Power Reactor Regulation, Bruce Regulatory Program Division	
Licensee: Bruce Power	Location: Bruce site, B07 North Warehouse
Date Event was Discovered: 2022-07-27	Have Regulatory Reporting Requirements been met? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Proactive Disclosure: Licensee: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> CNSC: Yes <input type="checkbox"/> No <input type="checkbox"/>
Overview	
Reporting Criteria: Events that the Director General (DG) judged to have potential for repercussions outside the CNSC and of which the DG believes the Commission should be informed.	
<p>Description: On July 25, 2022, Bruce Power was informed by a material supplier (Company 1) for its Unit 6 Major Component Replacement (MCR) project that they had received an anonymous tip regarding the Certified Material Test Results (CMTR) submitted by the supplier of end fitting forgings (Company 2) to Company 1. Company 1 informed Bruce Power that the CMTR for 70 end fittings in-stock at Bruce Power did not include the results of failed tests as required by CSA N285.6.8-12, <i>Martensitic stainless steel for fuel-channel end fittings</i> and Bruce Power Technical Specification, B-TS-31120-00001, <i>Technical Specification for Stainless Steel Blanks for Bruce MCR End Fitting Bodies</i>. As such, Bruce Power made the determination on July 27, 2022 that the 70 in-stock end fittings were suspect (falling into a category which is commonly referred to as counterfeit, fraudulent or suspect items (CFSI)).</p> <p>On August 3, 2022 Bruce Power submitted a REGDOC-3.1.1 report to the CNSC. In the REGDOC-3.1.1 report, Bruce Power indicated that Company 1 had taken immediate action to identify the extent of condition and form an action plan to ensure that the suspect end fittings meet technical requirements. Bruce Power reported that, following the discovery of the issue, it was determined that six (6) suspect end fittings had already been installed on the reactor, three (3) suspect end fittings had been made into sub-assemblies and were ready for installation on the reactor, and that the remaining in-stock suspect end fittings had been quarantined.</p> <p><u>Loss of control of quarantined items</u></p> <p>On August 16, 2022, Bruce Power notified CNSC staff that, despite the quarantine of the suspect end fittings, the contractor performing MCR work relating to end fittings had installed one of the suspect end fittings on the reactor and had made a second suspect end fitting into a sub-assembly ready for installation. Bruce Power explained that the installation of suspect end fittings in the reactor and sub-assembly was caused by a human performance issue and the inadequate control of quarantined items. Specifically, the quarantine that had been implemented by the contractor was to create a list of suspect end fittings and place Hold Tags on crates containing suspect end fittings, including their serial number(s). Despite these controls, a worker employed by the contractor accessed a crate that contained both suspect and conforming end fittings and retrieved a suspect end fitting for installation on two separate occasions.</p> <p>As part of the August 16, 2022 notification, Bruce Power indicated that the contractor was taking further preventive actions including additional checks of the end fitting serial numbers prior to selection for installation. CNSC staff enquired whether the suspect end fittings had been physically segregated from conforming end fittings. Bruce Power responded that segregation had not been done and that it would be carried out within several days.</p> <p>On August 22, 2022, CNSC staff conducted a reactive field inspection of the B07 North Warehouse on the Bruce Power site to confirm that the suspect end fittings had been segregated from the conforming end fittings. CNSC staff observed that, although suspect end fitting serial numbers were labelled on the outside of the crates, no physical segregation of the end fittings was carried out, with the exception of end fittings that had been made into sub-assemblies, which were also labeled. As such, CNSC staff concluded that Bruce Power was not compliant with licence condition 1.1 of its Power Reactor Operating Licence PROL 18.02/2028 which states that "The licensee shall implement and maintain a management system." Section 1.1 of the associated Licence Conditions Handbook LCH-PR-18.02/2028-R003 provides criteria used to verify that a licence condition is being met including the requirement that Bruce Power comply with CSA N286-12, <i>Management system requirements for nuclear facilities</i>, with clause 7.6.9 specifying that "Items that do not conform to specified requirements shall be identified as problems and segregated to prevent inadvertent installation or use."</p> <p>Later on August 22, 2022 following the reactive field inspection, CNSC staff provided the inspection report to, and met with, Bruce Power to discuss the findings. At this meeting, Bruce Power staff stated that the segregation of the suspect end fittings had been considered following their inadvertent installation that was reported on August 16, 2022. However, a decision was made by Bruce Power on August 19, 2022 to not segregate the suspect end fittings due to the anticipated positive results from Company 1's investigation and a concession application for the end fittings. During this meeting, CNSC staff noted that</p>	

EVENT INITIAL REPORT (EIR)

e-Doc #6859354

EIR: Bruce B Unit 6, Major Component Replacement, Inadequate control of quarantined items

the decision to not segregate the suspect end fittings from conformant end fittings amounted to Bruce Power electing to remain out of compliance with licensing requirements. At the end of the meeting, CNSC staff indicated to Bruce Power that CNSC staff was considering further regulatory steps in response to Bruce Power electing to not meet licensing requirements.

On August 23, 2022, CNSC staff sent a letter to Bruce Power (via email) indicating that, as a result of the deliberate non-compliance with requirements and to prevent recurrence of inadvertent use of suspect end fittings, CNSC staff were requesting that Bruce Power stop work on all fuel channel installation activities involving end fittings until either

1. The suspect end fittings were determined to conform to requirements; or
2. All suspect end fittings were segregated as required.

CNSC staff also requested that Bruce Power provide justification as to why it was acceptable to continue with fuel channel installation. CNSC staff requested a response within five (5) days and raised an action item to track Bruce Power's response.

Immediately following its receipt of the letter on August 23, 2022, Bruce Power advised the CNSC that it had stopped work on all fuel channel activities involving end fittings and implemented barriers to prevent work from occurring.

Later on August 23, 2022, Bruce Power informed the CNSC that the concession application had been accepted by Bruce Power and that the suspect end fittings were found to conform to the requirements of CSA N285.6.8-12. As such, Bruce Power indicated that it had met condition 1 of the August 23, 2022 CNSC letter. Work on fuel channel installation involving end fittings resumed at 10h00 on August 24, 2022. CNSC staff will independently review the concession application to ensure that licensing requirements were met.

CFSI issue

In regard to the CFSI issue, Company 1 determined that, although CSA N285.6.8-12 and B-TS-31120-00001 require that the CMTR shall include the original test results as well as any retest results that were required to determine material conformance, Company 2 did not provide the original failed test results, only the passing material results. Upon being informed of this potential issue with the CMTR, Company 1 engaged Company 2 to obtain access to the original laboratory test results from the accredited laboratory (Company 3) that was subcontracted to conduct the certified material testing of the end fitting forgings. Company 1 also started an investigation into Company 2's actions to determine, amongst various issues, why the full material test results (failed and passing results) were not reported and whether there could be an impact on the materials produced for the MCR of other Bruce units and projects at other nuclear generating stations (NGS). This investigation is ongoing.

On August 24, 2022, Bruce Power sent the CNSC a letter providing a preliminary response to the CNSC's August 23, 2022 letter, information about the concession application, the end fitting material test results from Company 3 and an interpretation of the CSA N285.6.8-12 standard. In its review of the information submitted, CNSC staff noted that Bruce Power's requirements on re-tests were deemed to meet the CSA N285.6.8-12 standard but not Bruce Power's technical specification B-TS-31120-00001. CNSC staff is engaging with Bruce Power on this issue.

On September 1, 2022, Bruce Power submitted a letter providing a detailed response to the CNSC's August 23, 2022 letter. This response included a timeline of the event and Bruce Power's decision making rationale. CNSC staff are assessing Bruce Power's response and next steps.

Cause(s): Inadequate contractor oversight leading to loss of control of quarantined items; non-compliance with licensing requirements (CSA N286-12) and Bruce Power procedures. Human performance errors.

Impact of the Event

On People:

How many workers have been (or may be) affected? None

How many members of the public have been (or may be) affected by the event? None

How were they affected?

n/a

On the Environment: None

Other Implications: Following receipt of the REGDOC-3.1.1 report from Bruce Power, CNSC staff informed Ontario Power Generation (OPG) of the issue in order for them to assess the potential impact Darlington NGS refurbishment project. OPG has indicated to CNSC staff that it is reviewing the issue and whether there are any implications on its operations.

EVENT INITIAL REPORT (EIR)

e-Doc #6859354

EIR: Bruce B Unit 6, Major Component Replacement, Inadequate control of quarantined items	
Licensee Actions	
<p>Taken or in Progress: Following the receipt of CNSC staff's August 23, 2022 letter, Bruce Power stopped all work on fuel channel installation involving end fittings. In Bruce Power's August 24, 2022 response letter, Bruce Power indicated that the suspect end fittings were assessed as conforming to the requirements of CSA N285.6.8-12 requirements. Bruce Power restarted work with end fittings at 10h00 on the same day. Additional steps taken or being taken by Bruce Power include identifying gaps, conducting an Event Review Board (ERB) and the implementation of shorter-term and longer-term corrective actions.</p> <p>Planned: In the September 1, 2022 letter, Bruce Power provided several corrective actions that were being taken including</p> <ul style="list-style-type: none"> • Ensuring adequate implementation of the vendor's (contractor's) quality program • Communications protocol and issues tracking • Finalize ERB feedback to ensure that gaps, drivers and corrective actions are established with quality to prevent recurrence <p>Bruce Power has also reported that it is carrying out a review of Company 2's actions to confirm that any materials previously-supplied by Company 2 meet required specifications.</p>	
CNSC Actions	
<p>Taken or in Progress: CNSC staff engaged Bruce Power in respect of the suspect end fittings after the submission of the REGDOC-3.1.1 report on August 3, 2022. After Bruce Power reported, on August 16, 2022, the loss of control of quarantined end fittings, CNSC staff conducted a reactive field inspection on August 22, 2022 to confirm suspect item segregation that Bruce Power indicated it was going to carry out and as required by CSA N286-12, clause 7.6.9.</p> <p>When inadequate segregation of suspect end fittings was observed during the inspection, CNSC staff provided Bruce Power with a preliminary field inspection report and met with Bruce Power to discuss the results on the same day. Following this discussion, CNSC staff were of the view that additional regulatory action was required to ensure that suspect material was not inadvertently used and requested that Bruce Power stop work on fuel channel installation involving end fittings on August 23, 2022.</p> <p>On September 1, 2022, a CNSC Designated Officer issued a Notice of Violation and Administrative Monetary Penalty 2022-AMP-01 to Bruce Power in response to the licensee's non-compliance with licence condition 1.1 of its licence.</p> <p>Planned: Through existing processes, CNSC staff continue to assess with Bruce Power's response in respect of its investigation into the actions taken by Company 2, as well as Bruce Power's actions after the discovery of the suspect end fittings, through existing processes. CNSC staff are continuing to communicate with Bruce Power regarding the material testing results and concession application submitted as part of the August 24, 2022 letter.</p> <p>CNSC staff will assess the outcomes of Bruce Power's and other NGS licensees reviews on the impact that the actions of Company 2 may have on other NGS projects and previously-submitted materials test results.</p> <p>Additional reporting to the Commission Members anticipated:</p> <p><input type="checkbox"/> Yes</p> <p><input checked="" type="checkbox"/> No</p> <p>If Yes, provide method of reporting: n/a</p>	
Name and Title	Signature
<p>Alexandre Viktorov</p> <p>Directorate of Power Reactor Regulation</p>	<p>Viktorov, Alexandre</p> <p>Director General</p> <p style="text-align: right;">Date</p>

Digitally signed by Viktorov, Alexandre
 DN: C=CA, O=GC, OU=CNSC-CCSN, CN="Viktorov, Alexandre"
 Reason: I am approving this document
 Location: your signing location here
 Date: 2022-09-06 15:19:40
 Foxit PhantomPDF Version: 9.7.1