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## **Presentation from NB Power**

## **Présentation d'Énergie NB**

### **Hydrogen Equivalent Concentration in Pressure Tubes for Nuclear Power Plants**

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Responses of July 19 and 30, 2021 to request pursuant to Subsection 12(2) of the *General Nuclear Safety and Control Regulations*: Issues Relating to Measurement of Hydrogen Equivalent Concentration in Pressure Tubes

### **Concentration d'hydrogène équivalent dans les tubes de force pour les centrales nucléaires**

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Réponses des 19 et 30 juillet 2021 à la demande en vertu du paragraphe 12(2) du *Règlement général sur la sûreté et la réglementation nucléaires* : Enjeux concernant la mesure de la concentration d'hydrogène équivalent dans les tubes de force

Commission Meeting

Réunion de la Commission

**September 3, 2021**

**Le 3 septembre 2021**



**Énergie NB Power**

# **POINT LEPREAU NUCLEAR GENERATING STATION**

**Issues Relating to Measurements of Hydrogen  
Equivalent Concentration in Pressure Tubes**

**CNSC Commission Meeting  
September 3, 2021**



# BACKGROUND

- July 13, 2021, NB Power received a request from the CNSC pursuant to subsection 12(2) of the *General Nuclear Safety and Control Regulations: Issues Relating to Measurement of Hydrogen Equivalent Concentration in Pressure Tubes*.
- July 19, 2021, NB Power responded to the CNSC confirming that the request would be fully supported.
- July 30, 2021, NB Power provided the CNSC with an Engineering Evaluation assessing the Fitness for Service of Pressure Tubes at PLNGS.

# SUMMARY

- NB Power is committed to maintaining safety as the overriding priority and has worked with industry to analyze the Bruce Power OPEX.
- An evaluation team was assembled, and clear lines of communication remain open between NB Power and industry.
- The analysis completed to date has determined that pressure tube fitness for service is demonstrated for NB Power, and that PLNGS continues to be compliant with the licensing basis as defined under PROL 17.01/2022, License Condition Handbook section 6.1, and continues to ensure high levels of safety to the public.

# PLNGS FITNESS FOR SERVICE

- NB Power has determined that pressure tube fitness for service is demonstrated and PLNGS remains within its licensing basis.
- Conclusions based on highly localized area of interest and late-life initiation of the mechanism causing [Heq] to be above predicted values.
- The time in service for PLNGS pressure tubes is low in comparison to those from the Bruce OPEX. (~66,649 Hot Hours as of July 15, 2021).
- PLNGS has a robust Fuel Channel Management Plan to ensure Pressure Tube and Fuel Channel Health is being monitored. Pressure tube [Heq] and flaw assessments will continue to be closely monitored and tracked under this plan.
- There are significant conservatisms in fitness for service assessments and adequate margins per CSA N285.4 & N285.8 standards.
- The continued safe operation of PLNGS will be assured and supported by robust fitness for service assessments that are accepted by the CNSC.

# PLANNED UPCOMING INSPECTIONS

- As part of the Fuel Channel Management Plan, a [Heq] determination inspection (body of tube and rolled joint scrape campaign) will be conducted during the scheduled 2022 Outage.
  - Data from this campaign will be used to validate the rolled joint deuterium uptake models.
- Volumetric and Dimensional inspections will be conducted during 2024 Outage.

# CONTINUED ANALYSIS

- To support analysis of the deuterium uptake model validity, and as required for compliance with CSA N285.4 and N285.8, NB Power will be conducting hydrogen equivalent determination inspections during the planned maintenance outage in 2022.
- These inspections will also allow for post refurbishment rolled joint data (with front-end outlet installation configuration) to be used to validate the model. NB Power is proposing to incorporate this updated data into the associated report and submit to the Commission by September 30, 2022.



# THANK YOU

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NB Power would welcome any questions which the Commission may have.



**Énergie NB Power**