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Supplementary Information

Oral presentation

Presentation from
Paul Sedran, RESD Inc.

In the Matter of the

Ontario Power Generation Inc.

Application to extend the operation of Pickering Nuclear Generating Station Units 5 to 8 until December 31, 2026

Commission Public Hearing

June 2024

Renseignements supplémentaires

Exposé oral

Présentation de
Paul Sedran, RESD Inc.

À l'égard d'

Ontario Power Generation Inc.

Demande visant à prolonger l'exploitation des tranches 5 à 8 de la centrale nucléaire de Pickering jusqu'au 31 décembre 2026

Audience publique de la Commission

Juin 2024

Canada

Review of Public Hearing Submissions on the Operation of the Pickering Nuclear Generating Station to 2026

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June 19th, 2024

Presentation Contents

1. Introduction – Historical Background
2. Main Finding from the Review of the PNGS Documents: Partial Nip-Up in the PNGS Fuel Channels

2.1 Ovalisation of the Calandria Tube at Spacer Locations

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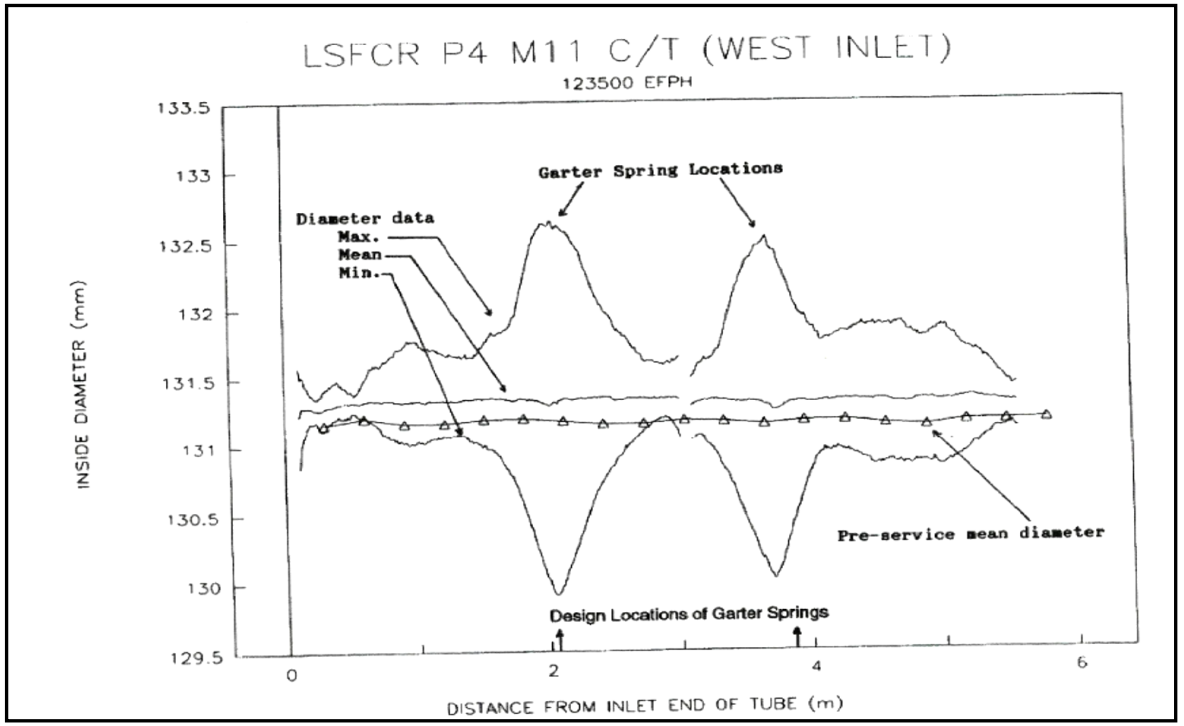
2.3 Onset of Partial Nip-Up

3. Conclusions

1. Introduction – Historical Background

2.0 Partial Nip-Up in the PNGS Fuel Channels
2.1 Ovalisation of the Calandria Tube

CT ID Profiles from the Gauging Measurements of The CT Removed from Fuel Channel P4M11



CT ID = 131.2 -0.0105 **t**

where CT ID is in mm and **t** is the time in-service in kEFPH.

2.0 Partial Nip-Up in the PNGS Fuel Channels
2.2 Diametral Expansion of the Pressure Tube and Spacer

Inner Diameter Profile of a Pressure Tube From PNGS

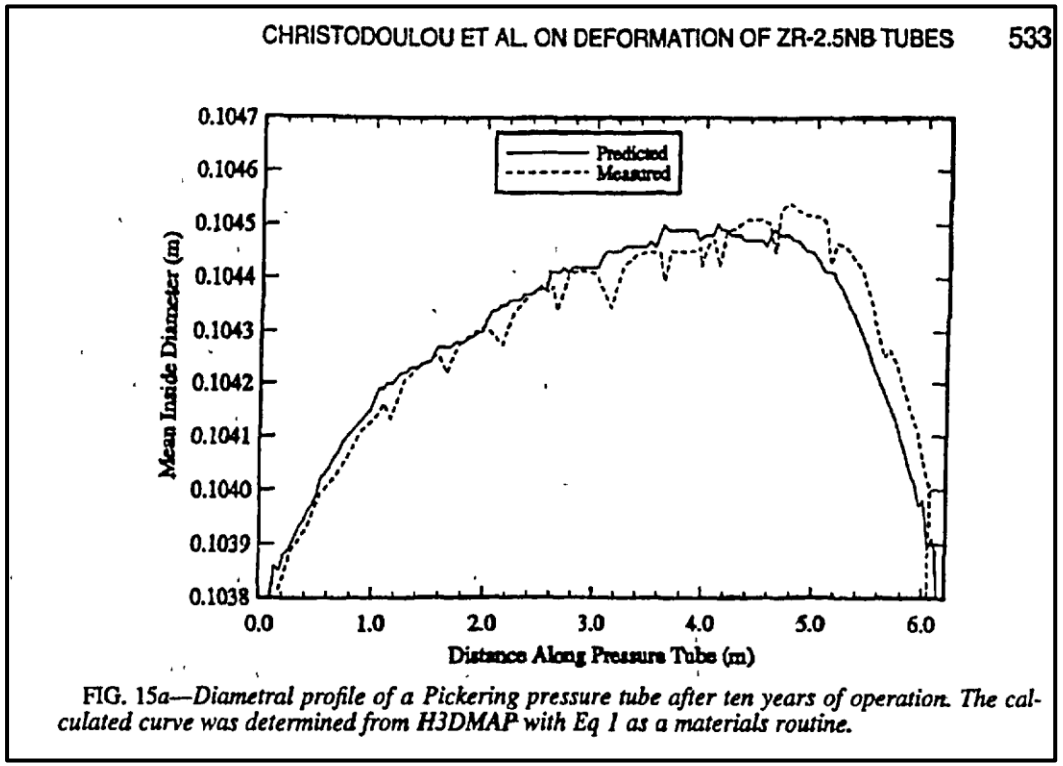
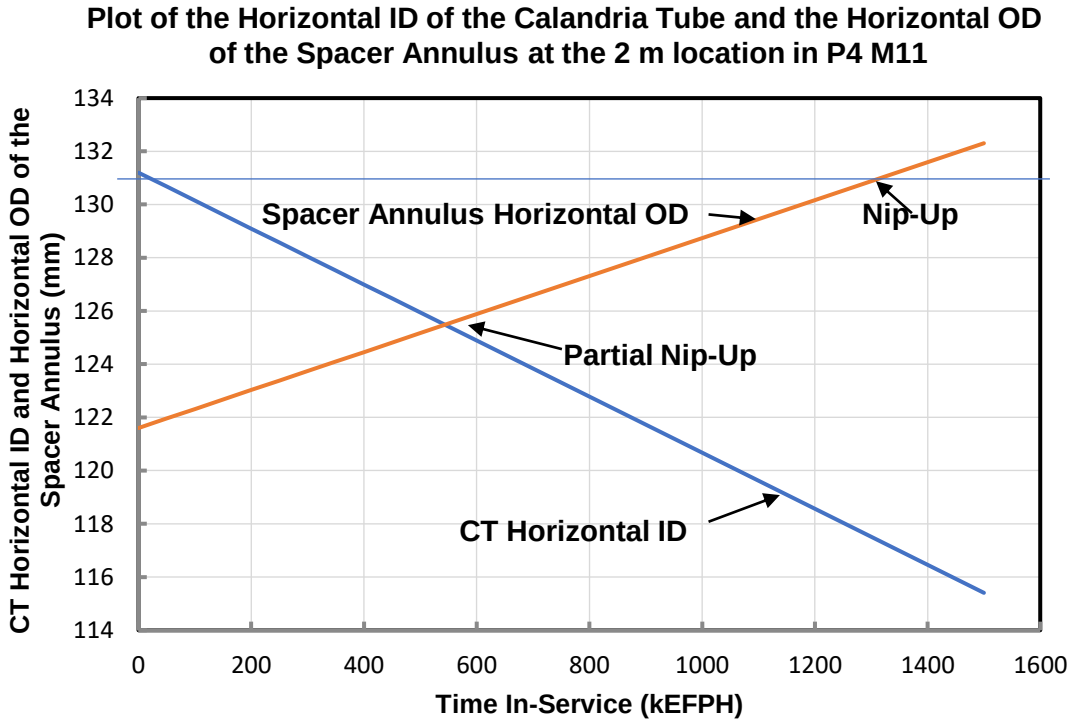


FIG. 15a—*Diametral profile of a Pickering pressure tube after ten years of operation. The calculated curve was determined from H3DMAP with Eq 1 as a materials routine.*

Spacer OD = 121.6 + 0.007 **t**

where Spacer OD is in mm and **t** is the time in-service in kEFPH.

2.0 Partial Nip-Up in the PNGS Fuel Channels
2.3 Onset of Partial Nip-Up



3. Conclusions

1. Based on an independent review, the author concurs that the PNGS Fuel Channels are fit-for-service for operation to the end of 2026.

2. With ovalisation of the CT at spacer locations, with time in-service, Partial Nip-Up of the spacer and CT will occur earlier than Nip-Up, but is not expected to be an issue for Fuel Channel fitness-for-service.

3. The Partial Nip-Up condition is not in the Pickering Fuel Channel Stress Report, but, CT stresses during Nip-Up, from a detailed finite element Nip-Up simulation, are expected to bound the stresses from Partial Nip-Up.