



Supplementary Information

Presentation from Eugene Bourgeois and Anna Tilman

In the Matter of

Bruce Power Inc. – Bruce A and B Nuclear Generating Station

Request for a ten-year renewal of its Nuclear Power Reactor Operating Licence for the Bruce A and B Nuclear Generating Station

Commission Public Hearing – Part 2

May 28-31, 2018

Renseignements supplémentaires

Présentation d'Eugene Bourgeois et Anna Tilman

À l'égard de

Bruce Power Inc. - Centrale nucléaire de Bruce A et Bruce B

Demande de renouvellement, pour une période de dix ans, de son permis d'exploitation d'un réacteur nucléaire de puissance à la centrale nucléaire de Bruce A et Bruce B

**Audience publique de la Commission –
Partie 2**

28-31 mai 2018

Presentation to the Canadian Nuclear Safety Commission (CNSC)

Bruce Power's Application re:

**Renewal of its Operating Licence for Stations A
and B for a 10-year Period**

Impact on Community

May 31 2018

Eugene Bourgeois and Anna Tilman

Introductory Comments

Impact of Bruce Power Operations on Inverhuron Residents -

How can Bruce Power's Operations be considered safe when so many people are exposed to chronic and persistent doses of radioactivity?

Eugene Bourgeois

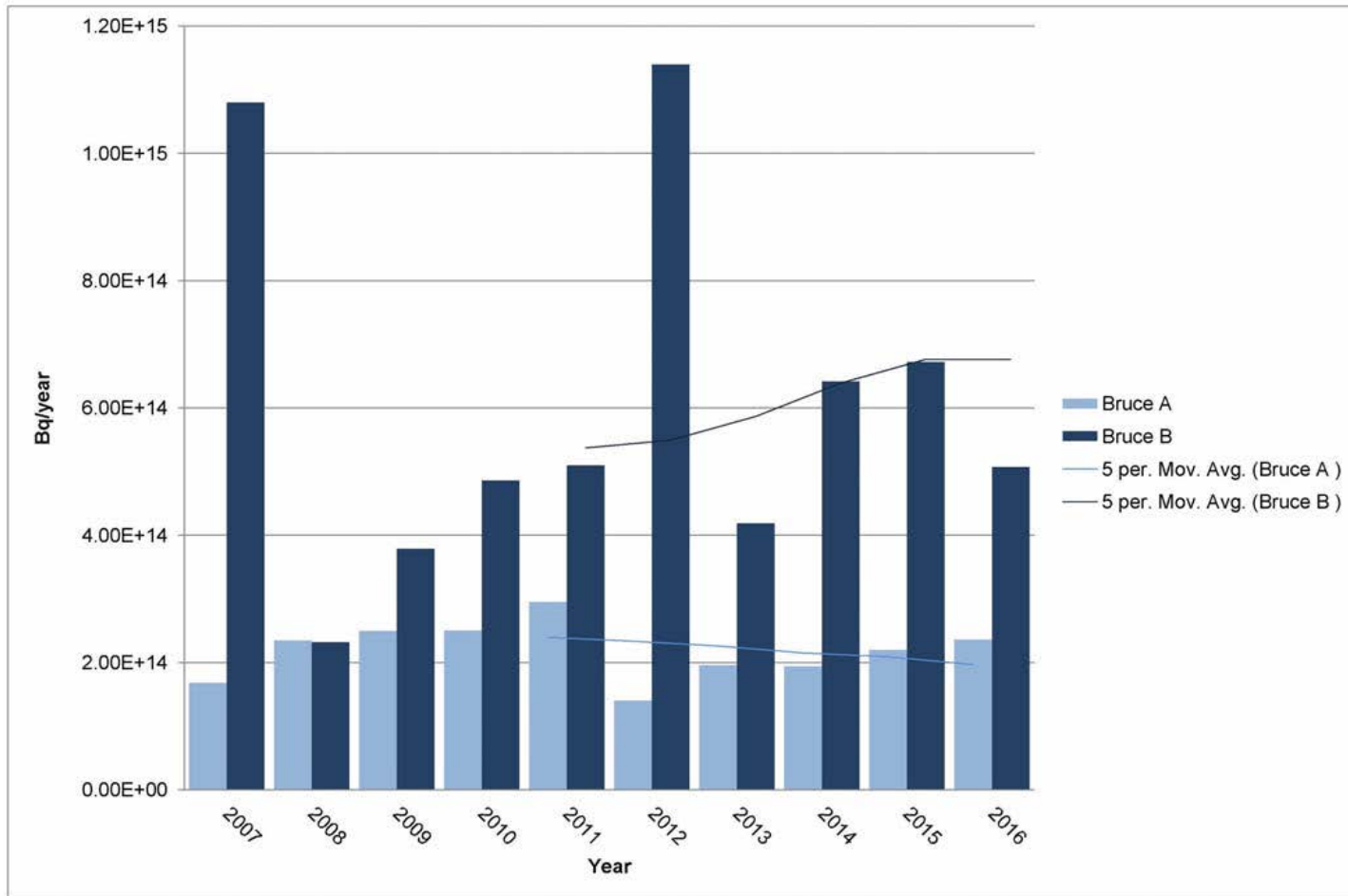
Emergency Planning and Preparedness

- **Overview**
 - Oversight
- **Bruce Power's Emergency Plan**
- **The nature and diversity of the community**
- **The Implementation Plan**
- **Evacuation and Sheltering**
- **Meteorological Conditions**

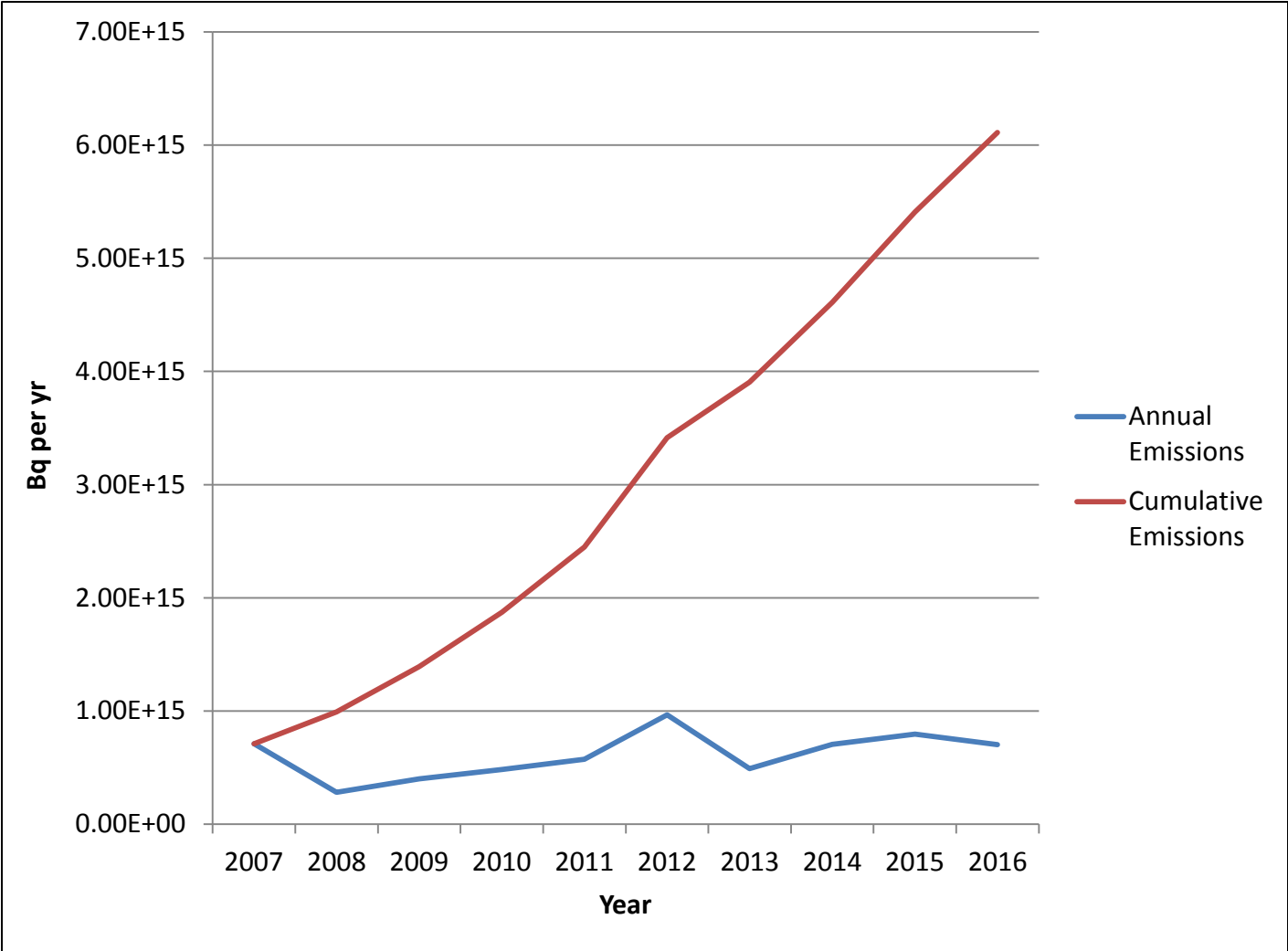
Radiological Effluent Data

- **Airborne and Water effluent emissions:**
Bruce A & B, the Laundry Facility, and the WWMF:
 - Species of radionuclides monitored & reported
- **Tritium:**
 - Cumulative emissions
 - Foundation Drainage (Units 3 and 4)
- **Derived Release Limits & Action Levels – Effectiveness?**

Tritium – Historical Waterborne Emissions (Bq/yr)



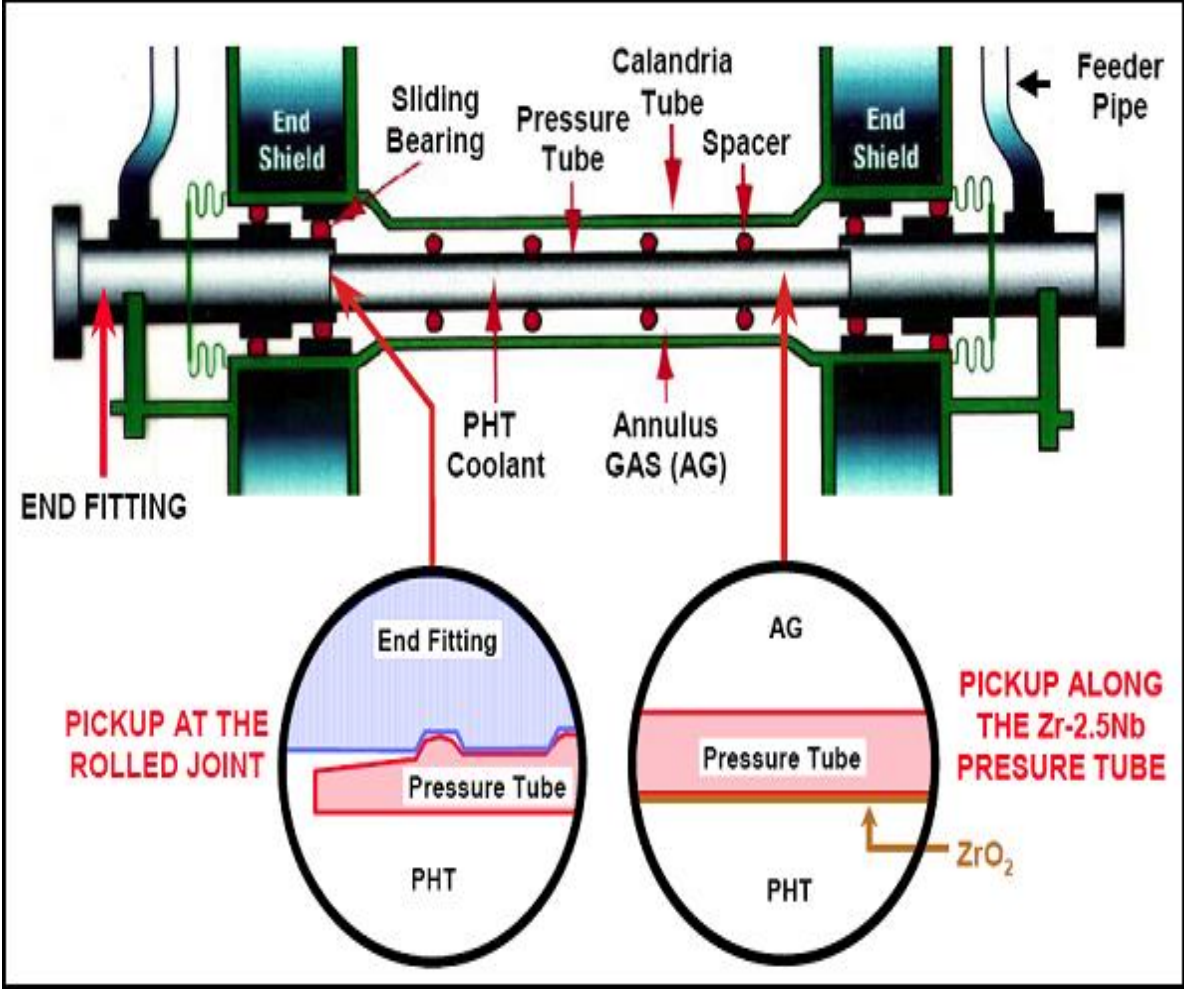
Cumulative Waterborne Emissions of Tritium (Bruce A + Bruce B)



Operational, Aging Issues

- **Fuel Channel Components**
 - Pressure Tubes: Hydride Formation, Deuterium Ingress (Heq), Material wear and fretting
 - Calandria Tubes, Feeder Pipes, Annulus Gas System
- **Outage Schedule**
- **Fitness for Service**
 - EFPH:
 - Operation beyond 247,000 EFPH
 - Units 3 and 4 Historic Performance
 - Hot Hours
- **Models and Tests – Effectiveness**
- **Safety Analysis - Methodology**

Sources of Deuterium Uptake



Reference: Technical Update Fuel Channel Fitness for Service – CNSC staff report January 23, 2018, CMD 18-M4

Fitness for Service

- **Six units (3-8) have been operating for ~ 30 - 34 years. Spills and leaks have occurred chronically and acutely, releasing very hazardous radiological and non-radiological substances into the environment.**
- **The Pressure Tubes of some Units will exceed their current EFPH of 247,000 by the planned outage dates. Extending the EFPH to 300,000 is uncharted territory and cannot be demonstrated as safe!**
- **No baseline data exists to assess the cumulative health and environmental effects of these facilities.**

Health & Safety

- **Cumulative Effects – Overview**
- **Human Health Concerns - Radionuclides**
- **Tritium – Health Effects**
- **Worker Health and Safety**
- **Accidents and Events Reporting - Public Accountability ?**
- **Inspections at Nuclear Facilities - inadequacy?**

“Safety Culture”

Numerous accidents, especially the “alpha incident”, and other issues, exemplify institutional failure – and a “degraded” safety culture.

A strong safety culture ensures that:

- All operations are in sound working order;
- The workforce is well-informed as to their required tasks and associated risks;
- Oversight is uppermost - Inspections/investigations by CNSC are thorough (e.g., Type I inspections)
- The protection of workers and the public is always at an all-time high; and

Bruce Power and the CNSC would demonstrate that they are truly concerned about the impact on their operations on the health and environment of the community.

Radioactive Waste

- **Throughout the operational and life-extension periods, radioactive waste from refurbishment, continuing operations. After shutdown, “safe storage” operations and decommissioning waste will have to be dealt with.**
- **Neither Bruce Power nor the CNSC have provided a waste inventory of estimates of the quantities and activities of the radionuclides in the waste streams from all these phases.**
- **Such information is essential and must be a component of Bruce Power’s licence application.**

Community Health Survey

No baseline database is available to assess the health effects on the community and workers that may have resulted from decades of operations at the Bruce Power Nuclear Generating Station. Thus there is no base to assess the impact of Bruce Power's proposed refurbishment and continuing operation of the Station on the community.

- Conducting a health survey is a means of gaining an understanding of the local environment and its effect on individual health. It will document the health status of the community and the contaminants to which they are exposed.**
- By voicing concerns about health issues identified, community members can report on and suggest some possible causes and means by which the health and environment of their community could be improved.**

Conclusion

There is no justification to proceed with a 10-year licence period. Such a long licence period is unacceptable, unnecessary, risky, and is a serious impediment to public scrutiny.

Recommendations

- **Bruce Power be granted a renewal of its operating licence for a maximum period of 5 -7 years. This would enable a full public review of its MCR work to date, the Heq of the units, and a re-assessment of any future work that should or should not be continued.**
- **During this period, Bruce Power must also be required to develop a detailed plan for decommissioning all of its eight reactors that would be subject to public scrutiny and consultation.**

Recommendations (cont'd)

Bruce Power's licence to operate these reactors is also contingent on it being able to demonstrate conclusively that it is concerned about the impacts on public health from its operations and that it is prepared to take all steps necessary to prevent harm and support the undertaking of a community health survey.