

***In the text that follows, the initials CNSC, BP-EA, BP-MON and BP-SAUG will be used to refer to passages quoted from the following documents.***

**Bruce Power Environmental Assessment Study Report,  
Bruce A Refurbishment – Volume 1: Main Report**

**[BP-EA] December 2005**

Available at <http://www.brucepower.com/uc/GetDocument.aspx?docid=2199>

**Canadian Nuclear Safety Commission Screening Report on  
Environmental Assessment of the Bruce A Refurbishment**

**[CNSC] March 2006**

Available at <http://www.brucepower.com/uc/GetDocument.aspx?docid=2226>

**Proposed Work Plan / Bruce A Refurbishment  
Follow-Up Monitoring Program**

**[BP-MON] September 2007**

Available at <http://www.brucepower.com/uc/GetDocument.aspx?docid=2497>

**Bruce Power's Presentation to the Joint Council of the  
Saugeen Ojibway Nations**

**[BP-SAUG] April 2005**

Available at <http://www.brucepower.com/uc/GetDocument.aspx?docid=2176>

**Point #1: Old steam generators are a form of radioactive waste.**

**CNSC Page 24 [verbatim]**

*Both phases of the Project will produce radioactive waste. For the purposes of the assessment, “low level waste (LLW)”* consists of industrial items that have become slightly contaminated with radioactivity and are of no further use, but also *include the steam generators*, feeder pipes and insulation wastes.

**BP-EA Page 3-31 [verbatim – with parenthetical explanation of acronyms]**

As noted, *refurbishment activities are expected to generate LLW [low level waste] and ILW [intermediate level waste] including* pressure tubes and calandria tubes, *the old steam generators* and miscellaneous components.

**BP-EA Page 3-29 [verbatim – with parenthetical explanation of acronyms]**

The *steam generator replacement will generate LLW [low level waste] and ILW [intermediate level waste], including the steam generators themselves.....*

**CNSC Page 101 [verbatim]**

**Issue:** At what point during the refurbishment will the steam generators be removed?

**Response:** *The steam generators* will be removed about halfway through the refurbishment activities. These *are considered low level waste*.

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**Point #2: Old steam generators are to be stored on-site at WWMF.**

**NOTE: In the first two verbatim quotations cited here, the exact same wording appears in both the Bruce Power Environmental Assessment document and the CNSC Staff Screening Report cited above. Evidently the CNSC staff used a “cut and paste” approach to these portions of the text.**

**BP-EA Page 3-17**  
**[box 2 in middle column]**

**CNSC Page 25**  
**[box 2 in right column]**

The **steam generators will be processed and prepared** to meet OPG’s requirements **for acceptance at the WWMF.**

**BP-EA Page 3-17**  
**[box 4 in middle column]**

**CNSC Page 25**  
**[box 4 in right column]**

The **steam generators will be sealed and transferred to the WWMF....**

**BP-EA Pages 3-28 & 3-29**

Following removal, the **steam generators will be temporarily stored on-site**, prepared to ensure that they meet OPG’s requirements for acceptance at the WWMF, lifted onto transporters with a temporary gantry system **and then transferred to the OPG’s WWMF....**

**BP-EA page 3-30**

**Waste Handling:** This includes **preparation of removed steam generators for transportation . . . loading of old steam generators onto multi-wheeled transporters; and transportation of steam generators to OPG’s WWMF. There will be 16 old steam generators in total from Units 1 and 2 refurbishment and another 16 from Units 3 and 4 refurbishment. These will be transported and stored at the WWMF following removal....**

## BP-EA page 3-31

### 3.4.5 Refurbishment Waste Management

As noted, refurbishment activities are expected to generate LLL [Low Level Wastes] and ILW [Intermediate Level Wastes] including pressure tubes and calandria tubes, *the old steam generators*, and miscellaneous components.

*All radioactive wastes will be transferred to OPG's WWMF following assurance that they meet OPG's acceptance criteris. Transfer to the WWMF will occur entirely within the Bruce Power site and not require the use of public roads."*

## BP-EA page 3-32

*The old steam generators* will be placed on the defined temporary lay-down area, where they *will be prepared and then loaded onto a multi-wheeled transporter for transferring to the WWMF.*

## BP-MON page 11-21

Does the EA consider long-term storage of the wastes? (Sections 3.4.5. and 3.5.9)

The EA for the project considers the *production of the wastes and transfer of the wastes to the WWMF until 2043*. OPG is currently undertaking a separate EA to expand the WWMF for interim storage of low and intermediate level wastes. For more information refer to their project website at [www.opg.com/wwmf.asp](http://www.opg.com/wwmf.asp)

The long-term management of these wastes is an aspect of the Deep Geological Repository Proposal . . . under study by OPG and the Municipality of Kincardine.

## BP-MON page 11-21

Is there room at the WWMF for the refurbishment wastes now, or will Bruce Power need to wait for the expansion? (Sections 3.4.5 and 3.5.9)

The WWMF is a licensed facility for the *storage of nuclear wastes from Ontario nuclear generating stations*. The WWMF is planning to build additional storage structures within its licensed boundary to accommodate the waste from the Project, *along with the wastes from other nuclear generating station refurbishment projects in the future.*

**Point #3: Old steam generators are potential sources of exposure.**

**From CNSC Page 31**

Radiological Malfunctions and Accidents . . . are ***events that involve radioactive components*** (i.e. processing, handling and storing nuclear wastes; ***removal and preparation of steam generators for transportation***) and the ***potential for release of radioactivity***.

**BP-EA Page 3-37**

**Accident Scenario:** ***A transportation-related accident during the transfer of . . . the old steam generators*** between Bruce A and the WWMF may occur ***leading to a radiological contamination that could reach on-site workers and members of the public.... Materials present as a gas or as very fine powders are more likely to escape....***

**BP-EA Page 3-38**

**Screening of Postulated Radiological Malfunctions and Accidents**

***Steam generators will not be moved*** over sensitive buildings/equipment. ***Activities will not be carried out during inclement weather (i.e. gusty wind conditions)....***

Although ***the steam generator is a potential source for release of some radioactivity*** due to a seal rupture, several factors limit the amount of radioactivity that would be released. Since there will be no volume reduction step, ***the majority of radioactivity will remain in a tightly sealed adherent film, which is spread out over the internal surfaces***. Therefore, the size of the steam generator will limit the amount of radioactivity that would be released if a seal fails.

## CNSC Page 101

**Issue:** How will you minimize the amount of *contamination released to the environment when the steam generators are removed?*

**Response:** ... the removal of steam generators will be *completely segregated from the ongoing operations*.....

**BP-EA Page 3-18**  
*[box 3 in middle column]*

**CNSC Page 25**  
*[box 6 in right column]*

Based on the screening of possible conventional malfunction and accident scenarios, it was determined that two events are credible, namely a *steam generator drop* and a refurbishment waste container drop, both during loading/uploading operations.... *Other postulated potential accidents are found to have very limited potential to result in radiological consequences*....

*[from CNSC page 32 : containers “are designed to survive a 4 metre drop with minimal loss of contents”; question: are the steam generators also designed to withstand a 4 metre drop? Or more?]*

*[from CNSC page 65 : these are the ONLY two malfunctions or accident scenarios “involving nuclear materials” that are credible during the entire refurbishment – dropping a container or a steam generator]*

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## **Point #4: Old steam generators cannot be recycled.**

### **BP-EA Page 3-17**

*Non-radioactive wastes will be re-used or recycled* to the degree possible....  
The *steam generators will be sealed and transferred to the WWMF.*

### **BP-EA Page 4-55**

*Radioactive wastes from Bruce A are transferred to WWMF..... All non-radioactive, non-hazardous solid waste is transported to the on-site conventional waste landfill for disposal or off-site for recycling, processing and/or disposal* at facilities licensed to handle such materials.

### **CNSC Page 75**

Some of the waste is directly recyclable; however, the largest waste quantities are associated with the pressure-tube/calandria-tube replacement and *steam generator replacement, since the replaced components cannot be recycled and must be disposed of at the WWMF....*

### **BP-SAUG Page 4**

Will the wastes produced by the restarted units be recycled?

Bruce Power is committed to reducing, reusing and recycling wastes produced at the Bruce Power site to the extent possible. For example *scrap metals which are proven not to be radioactive are recycled. However much of the waste, and particularly low and intermediate level waste containing radioactivity cannot be recycled for safety and environmental reasons.* This waste is transferred to OPG's *Western Waste Management Facility where it is processed to reduce its volume* prior to be *[sic]* placed in storage.