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OPG Proprietary

CD# W-CORR-00531-01028

Ms. Karine Glenn
Director
Wastes and Decommissioning Division
Canadian Nuclear Safety Commission
280 Slater Street
P.O. Box 1046, Station B
OTTAWA, Ontario
K1P 5S9

Dear Ms. Glenn:

Letter of Intent to Renew Western Waste Management Facility Waste Facility Operating Licence WFOL-W4-314.03/2017

References:
1. Ontario Hydro, "Bruce Used Fuel Dry Storage Project (BUFDSP) Updated Environmental Assessment Submission," December 1997, CD# 01098-CORR-00531-{300186}.

2. OPG letter, K. E. Nash to G. Riverin, "Environmental Study Report - Western Waste Management Facility Refurbishment Waste Storage Project," October 21, 2005, CD# W-CORR-00531-00210.

The purpose of this letter is to inform the Canadian Nuclear Safety Commission (CNSC) of Ontario Power Generation Inc.'s (OPG's) intent to renew the Western Waste Management Facility (WWMF) Waste Facility Operating Licence (WOFL), in accordance with Subsection 24(2) of the *Nuclear Safety and Control Act*, and Section 5 of the *General Nuclear Safety and Control Regulations*. OPG requests a *Canadian Environmental Assessment Act, 2012* (CEAA 2012) determination for the expansion of the licensed area and the new activities to be incorporated in the licence renewal. OPG also requests CNSC's expectations for the information to be included in the licence renewal application, including a list of new Regulatory Documents and/or CSA Standards that the CNSC is considering introducing into the renewed licence, and confirmation of the required schedule for submission of the application.

The current WWMF WFOL W4-314.03/2017 expires on May 31, 2017. A renewal of the WWMF WFOL would allow OPG to continue with the safe interim storage of used fuel, as well as low and intermediate level radioactive waste.

OPG will be requesting another ten year licence term of the WWMF WFOL from June 1, 2017, to May 31, 2027. Over the requested licence term, OPG remains committed to the safe operation of the WWMF in a manner that poses minimal risk to the public, to the employees and to the environment, and will continue to comply with Canada's international nuclear obligations.

Attachment 1 describes the activities that will be included in the request for renewal. OPG will be requesting the currently approved construction and operation of five (5) Storage Buildings for Low and Intermediate Level Waste (L&ILW SBs), 54 In-Ground Containers (IC-18s) and 20 In-Ground Containers for Heat Exchangers (IC-HXs) be carried over into the new licence.

In addition, OPG will also be requesting approval to allow the construction of an additional four (4) Storage Buildings for Used Dry Fuel (UFDSBs), six (6) L&ILW SBs, an additional 54 IC-18s, a Large Object Processing Building and a Waste Sorting Building. A description of the activities that will be requested in the licence renewal is provided in Attachment #1.

Should you have any questions or requests for further information, please contact Ms. Leslie Mitchell, Manager, Regulatory Programs, Strategy and Support (905) 839-6746 extension 5198.

Sincerely,

Laurie Swami
Senior Vice President
Decommissioning and Nuclear Waste Management

cc: Shirley Oue -CNSC (Ottawa)

ATTACHMENT 1

Description of the Activities to be Licensed

Attachment 1 - Description of the Activities to be Licensed

1.0 EXISTING WESTERN WASTE MANAGEMENT FACILITY

The Western Waste Management Facility (WWMF) site is defined by the parcel of land designated for the management of Ontario Power Generation’s (OPG’s) radioactive waste, and licensed for such use by the Canadian Nuclear Safety Commission (CNSC). This 19.0-hectare area currently contains the Low & Intermediate Level Waste (L&ILW) storage area and the Used Fuel Dry Storage (UFDS) area.

The WWMF is part of the larger Bruce Nuclear site (formerly Bruce Nuclear Power Development (BNPD) site). The location of the WWMF within the Bruce Nuclear site is shown in Figure 1.

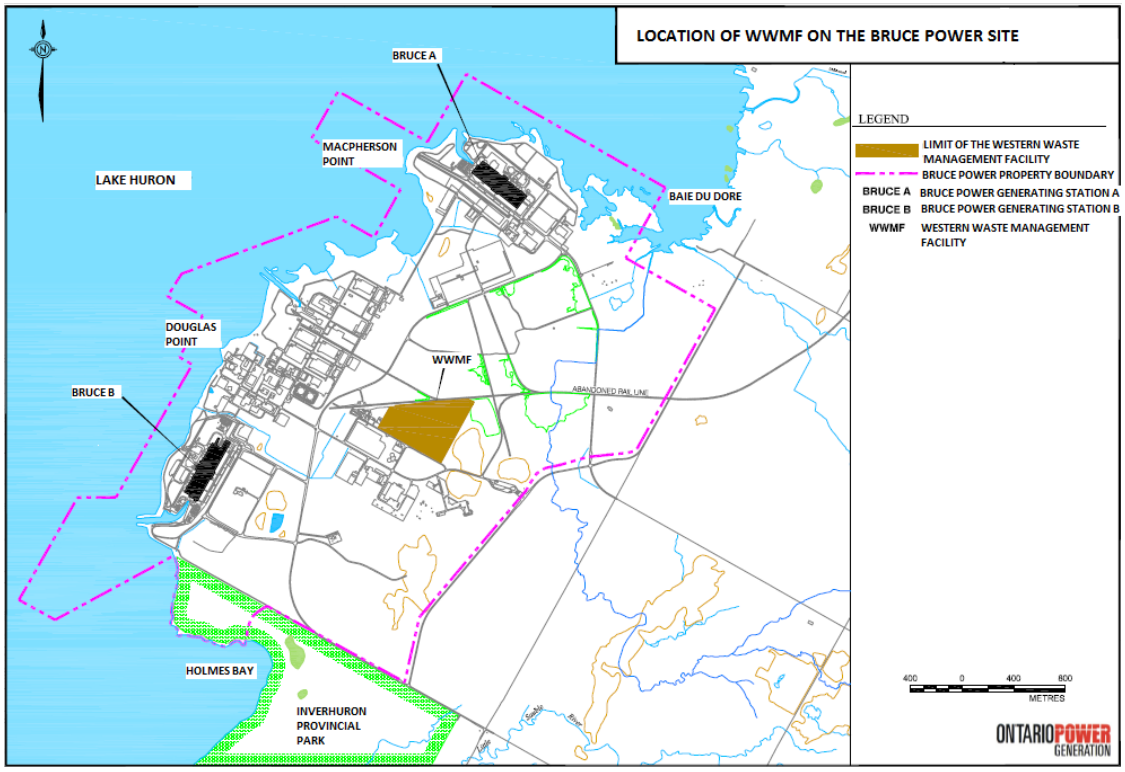

Figure 1: Bruce Nuclear Site

The WWMF site has undergone an orderly development in stages, as additional Low and Intermediate Level Waste Storage Buildings (L&ILW SBs) or Used Fuel Dry Storage Buildings (UFDSBs) are constructed when required. The current layout of WWMF is shown on Figure 2.

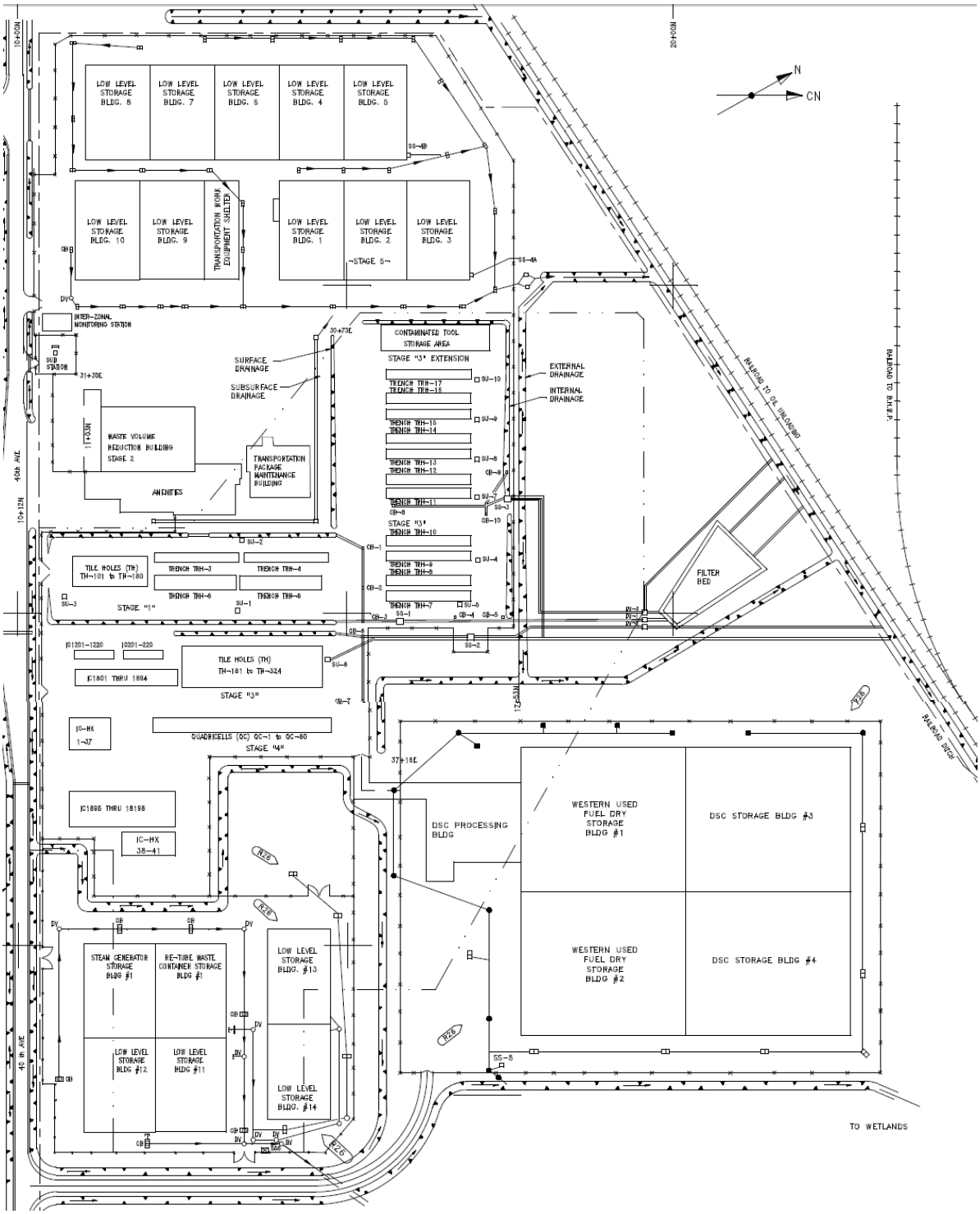

Figure 2: Current Layout of Western Waste Management Facility Site

1.1.1 Existing Low and Intermediate Level Waste Storage Area Description

The L&ILW Storage Area is enclosed by a fence. The area consists of various structures primarily used for storage and processing of L&ILW from Pickering Nuclear Generating Station (NGS), Darlington NGS and Bruce Power NGS. These structures are as follows:

- Low-Level Storage Buildings (LLSBs): The LLSBs are warehouse-like buildings. The LLSB structural design utilizes prefabricated, pre-stressed concrete. Shielding is provided as required to limit radiation fields. LLSBs provide storage for Type 1[1] and Type 2[2] Low Level Wastes (LLWs), which consist of minimally radioactive materials such as mop heads, rags, paper towels, floor sweepings and protective clothing. The LLWs are placed in varying types of containers that are stacked in the LLSBs. There are currently 14 LLSBs built on the WWMF site.
- Steam Generator Storage Building (SGSB): The SGSB structural design utilizes prefabricated, pre-stressed concrete. Shielding is provided as required to limit radiation fields. The SGSB provides storage space for 24 steam generators.
- Retube Component Storage Building (RCSB): RCSB structural design utilizes prefabricated, pre-stressed concrete. It provides storage capacity for retube component waste containers from the refurbishment of reactor units. Additional suitably packaged L&ILW from reactor refurbishment or operation may also be stored in the building.
- Waste Volume Reduction Building (WVRB): The WVRB provides for the management of LLWs, such as waste receiving and handling, compaction, and incineration prior to storage. The WVRB houses an incinerator unit and a compactor unit designed for processing LLWs. The WVRB also incorporates a truck unloading area, electrical and control rooms, and other service areas that support the waste processing function of the facility.
- Transportation Package Maintenance Building (TPMB): The TPMB houses a main shop area for the maintenance and decontamination of transportation packaging used for the transfer of radioactive materials between generating stations and waste management sites. The building also houses an active ventilation room, a smaller machine shop to service equipment for other portions of the WWMF site, a control maintenance shop for managing ongoing maintenance work, as well as a mechanical/electrical room, test room, vestibule, and washroom.
- Quadricells, trenches, and tile holes: These structures were built to store a variety of solid radioactive wastes. For example, above-ground quadricells provide storage capacity for bulk resin and reactor core components; in-ground trenches provide storage capacity for Type 1 and 2 radioactive wastes. Tile holes are an early design for the storage of Type 3[3] wastes. They can be used for any wastes with dimensions compatible with tile holes.

[1] Type 1 solid wastes are those with a contact dose rate less than or equal to 2 mSv/h.
[2] Type 2 solid wastes are those with a contact dose rate less than or equal to 0.15 Sv/h but greater than 2 mSv/h.
[3] Type 3 solid wastes are those with a contact dose rate greater than 0.15 Sv/h.

- The In-ground Containers (ICs): These containers provide storage capacity for Type 2 and Type 3 radioactive wastes. The diameter and depth of the containers can be altered to suit any special waste storage needs.
- In-ground heat exchanger containers (IC-HX): These containers provide storage for waste heat exchangers from moderator, primary heat transport and auxiliary systems from OPG owned NGSs. These tube bundles are Type 1 or Type 2 radioactive waste, with contact fields up to 0.1 Sv/h. The diameter and depth of the augured holes can be altered to suit the various sized containers. More than one scrap radioactive heat exchanger tube bundle container may be stored in a single IC-HX.
- Amenities Building: The Amenities Building is a building providing entry space, office space, locker and shower facilities, and lunchroom facilities for the WWMF staff.

1.1.2 Existing Used Fuel Storage Area Description

- The Used Fuel Storage Area is a security protected area, located northeast of the L&ILW storage area. It currently consists of the Dry Storage Containers (DSCs) processing building, and four Used Fuel Dry Storage Buildings (UFDSBs) where used fuel is stored. The DSC processing building provides a facility for the receipt, inspection, preparation for use of empty DSCs, seal welding of loaded DSCs, and office space for personnel. Each DSC storage building is designed to house up to a maximum of 500 DSCs. There are currently four (4) UFDSBs on the WWMF site.

2.0 CARRY-OVER OF ACTIVITIES FROM CURRENT LICENCE

OPG constructs storage buildings as the need arises. The following buildings have already received environmental approvals and are included in the current Waste Facility Operating Licence (WFOL), but have not yet been constructed. OPG is requesting the approval for construction and operation of these buildings to be carried over into the next licensing period.

- 5 Storage Buildings (SBs) for L&ILW
- 54 - 18m^3 In-Ground Containers (IC-18s)
- 20 Heat Exchanger In-Ground Containers (IC-HXs)

The same activities will occur in these buildings as allowed under the current licence. No significant changes are anticipated in the designs that have been previously approved for similar structures on site. These structures will be located inside the current licensed area.

3.0 NEW ACTIVITIES TO BE LICENSED

Requested new buildings and structures to be constructed within the next licensing period include:

- 4 SBs for used fuel
  - No previous EA Approval
- 6 SBs for L&ILW
  - 2 have EA Approval [R1] and 4 have no previous EA Approval
- 54 – 18m^3 In-Ground Containers (IC-18s)
  - All have EA Approval [R1]
- Large Object Processing Building (LOPB)
  - No previous EA Approval
- Waste Sorting Building (WSB)
  - No previous EA Approval

There is not sufficient land space in the current licensed area to accommodate all these new activities (buildings). Therefore, the licensed area will need to be expanded to allow some of the new activities to be located outside of the existing licensed area, creating a larger licensed area within the Site Study Area as shown in Figure 3.

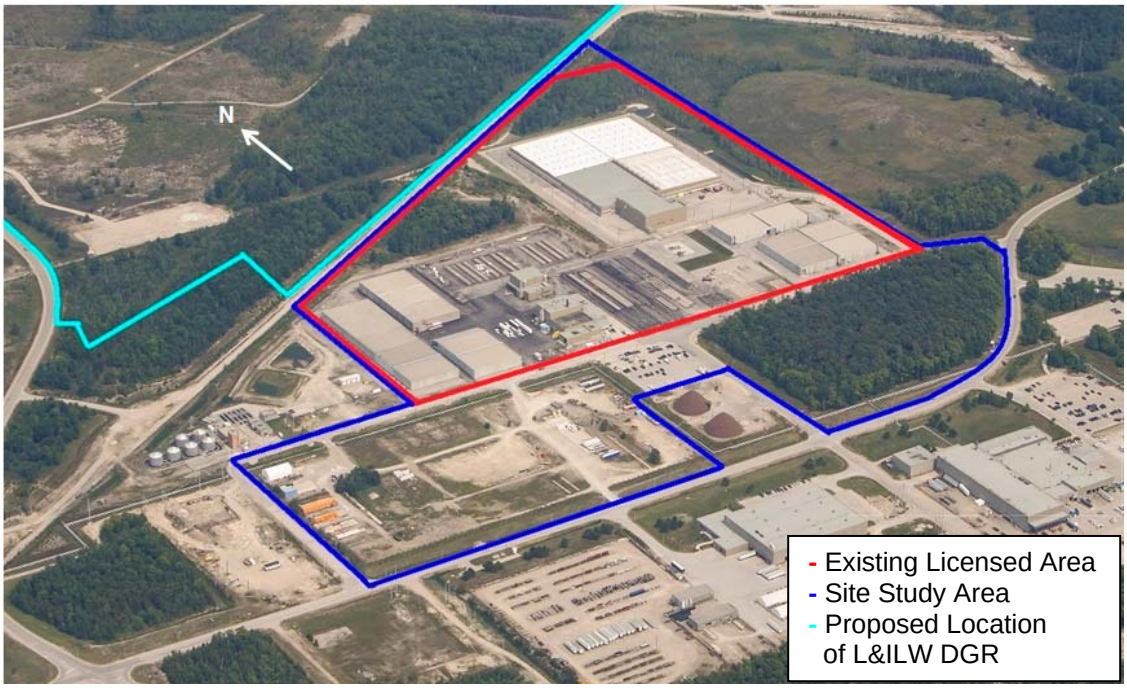

Figure 3: Existing Licensed Area and Site Study Area for Expansion

3.1.1 Storage Buildings for Used Fuel (UFDSBs) and Low & Intermediate Level Waste (L&ILW SBs)

The UFDSBs and L&ILW SBs will be very similar to those currently licensed on site. The same activities will occur in these buildings, and no significant design changes are anticipated. The dimensions of individual buildings will be adjusted to fit the spaces available within the WWMF.

The new UFDSBs and L&ILW SBs will likely be located outside of the current licensed area (Figure 3). In this case, the licensed area will be expanded to accommodate these buildings.

3.1.2 18m^3 In-Ground Containers (IC-18s)

The IC-18s will be very similar to those currently licensed on site. They will contain the same waste volumes and radioactivity as the current IC-18s on site. No significant design changes are anticipated.

The new IC-18s will be located in the geologically approved area inside of the current licensed area (Figure 3).

3.1.3 Large Object Processing Building (LOPB)

The scope of project includes construction and operation of a Large Object Processing Building (LOPB) for the processing of large metallic components such as steam generators or large heat exchangers. The LOPB will be a single-story structure with a robust floor capable of supporting a rail-mounted gantry crane. Conceptually the processing facility will utilize prefabricated pre-stressed concrete, similar to the existing L&ILW SBs. Operations within the building will include segmenting activities such as cutting and grinding as well as packaging activities [R2].

The primary function of the LOPB is to safely process the steam generators and other large components into segments, and to be able to eventually place these segments in the Deep Geological Repository (DGR) [R2]. The segments will meet the DGR waste acceptance criteria [R3]. Secondary functions are to treat and process for disposal any secondary waste [R2].

The indicative location of the new LOPB is inside the current licensed area (Figure 3).

3.1.4 Waste Sorting Building (WSB)

The existing WWMF licence allows for retrieval and reprocessing of L&ILW, including sorting, processing and/or diversion to conventional disposal or free release, subject to meeting the established clearance level. OPG is planning on constructing and operating a building specifically for this purpose in order to lower the volume of L&ILW stored on site. The building will be approximately 2,500 m^2 [R4].

The indicative location of the new WSB is inside of the current licensed area (Figure 3).

4.0 FEDERAL AUTHORIZATIONS REQUIRED

Environmental Assessment (EA) approval has previously been obtained for 23 L&ILW SBs, 4 UFDSBs, 378 IC-18s and 30 IC-HXs in the current licensed area [R1][R5]. Environmental studies are underway for the remaining 4 additional L&ILW SBs, 4 UFDSBs, the LOPB and the WSB.

The expansion of the WWMF is not listed in the *Regulations Designating Physical Activities*, and therefore, OPG considers that an environmental assessment under CEAA, 2012 is not required based on the following rationale:

- Section 34 does not apply as this facility does not process, separate or manufacture radioactive isotopes;
- Section 37 does not apply as this is an expansion of an existing facility, not construction of a new facility; and,
- Section 38 does not apply as this is the expansion of a facility for interim storage, not long-term management or disposal of irradiated fuel or nuclear waste.

OPG is in the process of preparing an Environmental Risk Assessment (ERA) for the WWMF to update the baseline conditions. A Predictive Effects Assessment (PEA) is also being prepared in order to determine the effects of the expansion on the environment and any monitoring and/or mitigation that may be required.

At this time, OPG has not identified any other federal authorizations that may be required for the WWMF expansion. However, should there be any they will be identified through further definition of the expansion activities and consideration of the Description of the Activities to be Licensed by federal authorities.

An item of note is the presence of Species at Risk (SAR) located in a woodlot to the southeast of the WWMF licensed area. In 2014, two (2) species listed as Endangered under Schedule 1 of the federal *Species at Risk Act* (SARA) were confirmed in this woodlot. They are the little brown myotis (bat) and butternut tree.

It is OPG's understanding that the SARA does not apply to this woodlot for the following reasons:

- Expansion of the WWMF is not a "project" (s.79 (1) SARA). A "project" is defined as a designated project as defined in subsection 2(1) of the *Canadian Environmental Assessment Act, 2012* or a project as defined in section 66 of that Act;
- Bruce Nuclear site is not located on federal land (s.2(1) and 34(1) SARA);
- The SARA generally applies to migratory bird species (listed under the Migratory Birds Convention Act, 1994) and aquatic species (s.34(1) SARA); and,
- A protection order by the Minister is not currently in place for butternut or little brown myotis.

The little brown myotis (bat) and butternut tree are also listed as Endangered under the provincial *Endangered Species Act* (ESA). The northern myotis (bat) and eastern small-footed myotis (bat) are two (2) additional species listed as Endangered under the provincial ESA that may occur within the woodlot. The eastern wood pewee, which is

a species listed as Special Concern under the provincial ESA, was confirmed in the woodlot.

OPG intends to engage the Ministry of Natural Resources and Forestry to discuss endangered species in the woodlot.

5.0 REFERENCES

[R1] OPG letter, K. E. Nash to G. Riverin, “Environmental Study Report - Western Waste Management Facility Refurbishment Waste Storage Project”, October 21, 2005, CD# W-CORR-00531-00210.

[R2] Ontario Power Generation, “WWMF Refurbishment Waste Storage Project Processing of Steam Generators,” July 2006, CD # 01098-REP-79137-0185255.

[R3] Ontario Power Generation, “OPG’s Deep Geologic Repository for L&ILW – Preliminary Waste Acceptance Criteria,” July 16, 2010, CD# W-PROC-WM-0085, R001.

[R4] Ontario Power Generation, “Study of Enhanced Processing, Packaging and Storage Facility Options at the Western Waste Management Facility,” August. 2002, CD# 05386-REP-03462-0015197.

[R5] OPG letter, K. E. Nash to K. Klassen, “Bruce Radioactive Waste Operations Site 2 (RWOS2) – Submission of Environmental Assessment for Additional Storage of Low and Intermediate Level Waste”, September 14, 2000, CD# 0125-CORR-00531-00081.