Joint Review Panel
Bruce Power New Nuclear Power Plant Project

March 11, 2009

Mr. Duncan Hawthorne
President and Chief Executive Officer
Bruce Power
177 Tie Road, P.O. Box 1540, B10
Tiverton, Ontario N0G 2T0

Subject: Bruce Power New Nuclear Power Plant Project – Review of the Environmental Impact Statement (EIS) and Application for a Licence to Prepare a Site (LTPS)

Dear Mr. Hawthorne:

Further to the content of my letter to you on February 4, 2009, the Joint Review Panel (the Panel) has determined that there are additional gaps in the information that has been provided by Bruce Power in its EIS and in its Application for an LTPS. The information gaps have been identified by the Panel in its review of these documents and through the Panel's analysis of proposed information requests by some federal authorities. The details of this are attached to this letter in two separate tables which comprise the Panel's second information request to you.

The Panel requests that Bruce Power address these additional information gaps in a complete and timely manner. The end of the review and comment period on the EIS and the Application for an LTPS documents will continue to be extended for a period equal to the time it takes for Bruce Power to adequately respond to the information requests that the Panel has made to date. You are reminded that the Panel has requested a schedule for the anticipated provision of the additional information.

As always, you may contact either of the Panel Co-Managers for the project should you have any questions concerning this process. Kelly McGee may be reached at (613) 947-3710 and Debra Myles may be reached at (613) 957-0626

Yours truly,

<Original signed by>

Louis LaPierre, PhD
Chair, Joint Review Panel

c.c.: Mr. André Harvey; Dr. Moyra McDill

(Enclosures)

Bruce Power Joint Review Panel - Information request #2

IR #	EIS Guidelines Section and Subject Heading	EIS Section	Information Request	Rationale
1	10.1.1 GEOLOGY AND GEOMORPHOLOGY 10.1.3 GROUNDWATER 11.4.3 GROUNDWATER	1.3.1.3	Hydrogeology Provide information regarding the onsite conventional landfill including the geology, hydrogeology, landfill design, monitoring, and any other measures to detect or prevent potential impacts.	Although it is recognized that a provincial Certificate of Approval exists for the conventional landfill onsite, no information about it is provided. The landfill is reported to be located within an abandoned gravel pit, which do not always make suitable locations for landfills. However, the purpose of the request is not to question the legitimacy of the landfill, but to understand the likelihood of any impacts and how they might interact cumulatively with other impacts generated by the Project and the existing facilities on site.
2	10.1.2 SURFACE WATER 11.4.2 SURFACE WATER 5.3 INTERNATIONAL AGREEMENTS	1.4.5.3	Water Quantity Provide information necessary for the determination on the potential for the Project to result in a change in the natural level of Lake Huron at the International Boundary and/or the outflow from Lake Huron into the St. Clair River.	As reported, the Cooling Tower option would make a net withdrawal of 3.7 cubic metres per second (equivalent to 3,700 litres/second or 319.7 million litres per day) of water from Lake Huron. This water would evaporate and not be returned directly to the lake. The Department of Foreign Affairs and International Trade, with the technical assistance of Environment Canada, must make a determination as to whether or not a permit is required under the International Boundary Waters Treaty Act to permit this withdrawal if it would have an effect on flows and levels at the international border. The Project is one component of potential multi-site nuclear developments including similar projects on Lake Erie and Lake Ontario and therefore there is a potential for cumulative effects on downstream Lakes (St. Clair, Erie, and Ontario) and Rivers (Detroit, Niagara, and St. Lawrence). As a component of this, total existing consumptive use estimates by lake basin, including Lakes Superior and Michigan, should be provided.
3	11.2 MITIGATION MEASURES 11.4.7 ATMOSPHERE	1.3.1.2	Greenhouse Gases The proponent should identify potential opportunities to use waste heat from the reactors to generate steam needed elsewhere on site, or for “district heating” either on or off site.	Any heat that can be devoted to these other areas would reduce heat that would be discharged into Lake Huron, or to cooling towers, or other cooling options. It is unclear as to why the Bruce Steam Plant uses Bunker C fuel to generate steam considering the potential to use waste heat from the reactors. Reduced reliance upon fossil fuel combustion to operate the Bruce Steam Plant would mean lower emissions of air pollutants, as well.

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4	7.3 Alternative means of carrying out the project	2.2.1.1, 4.8	Alternative Project Scenarios The EIS should be revised to incorporate a more logical and intuitive structure and nomenclature for Alternative Project Scenarios.	The nomenclature for the various Alternataive Project Scenarios (APSs) is not intuitive and is creating unnecessary difficulty in the review. Instead of referring to the alternatives as Alternative Project Scenario #1 (or #2, #3, etc.), it would be more intuitive if they used descriptive wording that identifies directly what the alternative is. It is proving difficult for reviewers to instantly recollect that APS #1 is the Air-Insulated Switchyard and so it is difficult to follow the text especially when multiple APSs are being discussed/compared (and results in constant cross-checking to recall what each specific APS is). The general public, First Nations, and other stakeholders reviewing the EIS will undoubdtedly face the same difficulties and the confusion that arises. Furthermore, the alternatives should be structured according to the different components of the new facility for which alternatives are being assessed (e.g. reactor siting, cooling options, cooling facility siting, used fuel waste management options, Low-Level Waste/Intermediate-Level Waste management options, switchyard options, etc.). Also, to some extent, members of the public may confuse the use of lettering (A,B,C,etc.) with the Bruce A and Bruce B facility nomenclature. The use of lettering should therefore be avoided. An example of a possible naming convention would be: Alternative Reactor Site "INSERT NAME/NUMBER" Alternative Switchyard - Air Insulated

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5	9.1 Spatial Boundaries and Scale 10.1.2 Surface Water 11.4.2 Surface Water SRG 5.1: Baseline Surface Water Quality and Sediment Quality	EIS Vol. 1: Figure 2.5.3.2-1 Section 7.2.3-1 (Site Study Area) Figure 7.2.3-1 (Generic Site Study Area) Hydrology and Water Quality TSD: Sections; 2.5.3.2, 4.4.2.2, 4.5.5.2, 8.3.5.1, 8.3.5.2 Tables: 2.5.10-2, 4.4.2.2-1, 4.4.5.5-1, 4.5.5.2-1 Figure: 5.3.3.7-2	Provide more detailed water quality and sediment quality sampling locations and analytical results as detailed below for liquid contaminants of potential concern (COPCs) (as listed in Table 5.3.3.7-2 of the EIS) not screened out in the EIS for further consideration in areas where they are known to occur or have the potential to occur due to past releases or future Project releases. The above data requested, should include but not limited to sampling methodologies, sampling locations and frequencies, media sampled and parameters analyzed.	As stated in Section 9.1 of the EIS Guidelines, the EIS must consider the physical extent of the proposed project and the extent of aquatic and terrestrial ecosystems potentially affected by the project. This definition includes discharges to the immediate receiving environment of Lake Huron of those contaminants in the EIS not screened out for further consideration. As stated in Section 10.1.2 of the EIS Guidelines, the EIS must include a delineation of drainage basins, a description of hydrological data and hydrological regimes of all surface waters, provide a description of sampling protocols and analytical methods, and provide maps and figures where appropriate.As stated in Section 11.4.2 of the EIS Guidelines, the EIS must identify and characterize all liquid emissions, including but not limited to maximum emissions from point source, fugitive releases, discharges to surface water from the deposition of airborne particulates, or surface runoff, which are expected to be generated during any phases of the project. A summary of EIS water quality and sediment quality characterization is presented below. Water Quality - As part of a targeted field program to collect data on water temperature and quality, water quality samples were collected during three seasonal sampling events in 2007. Water quality analysis included physicochemical parameters and the following inorganic chemicals:aluminum, barium, calcium, magnesium, mercury, potassium, silicon, sodium, strontium, sulphur, uranium and zinc. Sampling was collected at 10 locations at a depth of 1 m (surface) with the exception of L10 and L13, which were collected at a depth of 15 m. Based on this program alone, the baseline effect of discharged contaminants on aquatic habitat is not sufficiently characterized. For example, Baie du Doré is represented by a single sampling location, L05, which is located outside of the mixing zone of discharge and thus is insufficient to characterize discharged contaminants within this aquatic habitat. Sediment Quality - Sediment data was not collected as part of the above targeted water quality field program. As stated in EIS Section 8.3.5.2, Local Study Area sediment quality refers to theRegional Study Area sediment quality data. As stated in EIS Section 8.3.5.2, Regional Study Area sediment quality was investigated in 2001 for metals and PCBs in the discharge channel and in depositional zones at the head of Baie du Doréwith characterization for copper, lead and zinc and a comparison is made to Lake Huron deep basinsediment background levels. In summary, the EIS does not consolidate all relevant water quality and sediment quality sampling data associated with the Study Areas as collected for prior Bruce Nuclear Power Plant EAs, as well as data collected as part of CNSC environmental monitoring licensing requirements andOntario Ministry of the Environment monitoring requirements for the current Bruce Nuclear Power Plant operations. Expectations would be that the proponent would provide within the EIS all available water quality and sediment quality field data collected in the Site Study Area. Expectations regarding water and sediment sampling locations within the Site Study Area waterbodies includes:Stream C; MacPherson Bay; and, the immediate shoreline of Lake Huron including where existing discharges associated with current nuclear power plant activities occur (see Figure 2.3.2-3) and where future discharges are proposed as per the EIS. Expectations include laboratory analysis for liquid COPCs (as listed in Table 5.3.3.7-2 of the EIS) not screened out in the EIS for further consideration in areas where they are known to occur or have the potential to occur due to past releases or future Project releases. Expectations for the adequacy of spatial coverage within the Site Study Area include an evaluation of whether sample numbers are adequate to represent baseline water and sediment conditions. Without environmental baseline information conclusions of the EIS cannot be confirmed.

IR #	EIS Guidelines Section and Subject Heading	EIS Section	Information Request	Rationale
6	9.3. SRG 3.1: Baseline Terrestrial Quality	EIS section 2.2.2	Provide justification for selection of the Northern Leopard Frog and Black-Crowned Night Heron as indicator species (for air quality and noise respectively), and the identification and explanation of those wildlife VECs that are intended as surrogates for additional species.	A rationale is required to explain the indicators that have been assigned to certain VECs. For example, the Northern Leopard Frog is identified as the VEC which is an indicator of air quality effects. The supporting information should be presented to illustrate why this assignment was made. It should also be outlined in the EIS where a selected VEC is intended as being representative of a guild, or a surrogate for additional species. The use of an individual species as a surrogate for other species should be considered when determining criteria for assessing the significance of effects. For example, effects to Northern Leopard Frogs from air quality may be extended to all amphibians, and should therefore influence the significance of a predicted effect (e.g., species-specific significance criteria may not be appropriate and need to be discussed).
7	10.1.4. SRG 3.1: Baseline Terrestrial Quality	EIS sections 2.2.3, 8.4, Terrestrial TSD: 4.1.4, App G	Provide further information on wildlife population status/size as determined from field surveys and existing data, as well as a description of uncertainty and limitations associated with the field survey program and results for each wildlife VEC.	Wildlife population size and status are referred to in the EIS as a basis for assessing impacts (i.e., 2.3.4.2, 2.3.4.3). Field surveys should be used to determine population metrics that can be applied for these purposes (e.g., population size, trends, variability, critical habitats, etc.). For example, the Terrestrial TSD reports that local populations have not been established for the Northern Leopard Frog and Midland Painted Turtle. However, the second screening indicates there is potential for measurable changes to populations of these species. Currently, this can not be verified given the data that is provided. Uncertainty and limitations associated with the field survey program and results should be described (e.g. with respect to timing of surveys, coverage, existing data gaps, natural baseline variability, etc.).
8	10.1.4 TERRESTRIAL ENVIRONMENT 11.4.4 TERRESTRIAL ENVIRONMENT 10.1.5 AQUATIC ENVIRONMENT 11.4.5 AQUATIC ENVIRONMENT 9.3 VALUED ECOSYSTEM COMPONENTS 11.1 EFFECTS PREDICTION	2.2.2 and section 8 (generally)	Terrestrial Environment The EIS should provide an exhaustive characterization of potential VECs to ensure that all important biological components of ecosystems are represented.	EC recognizes that there may be reasons why specific species should be excluded from an assessment (e.g. the lack of ecotoxicological data with which to derive a measure of effect, or redundancy in a particular species' role in the community (i.e., many species fulfilling a similar role). However, the defensibility of the VEC selection will depend greatly on how thoroughly the site was investigated; if potential VECs are ignored during the problem formulation, the VECs selected for the risk modelling may not adequately represent all of the trophic levels, dietary behaviors, and ecological niches of plants and animals that live in a particular habitat. Thus, the VEC identification should be exhaustive to ensure that (1) the food web structure for a particular habitat is appropriately represented and (2) the VECs selected for the risk modelling represent all of the VECs identified in the areas of interest (e.g., various habitats located around the site). If the VEC identification is inadequate, then the selection of VECs may not represent all of the critical ecological components. EC recommends that the ERA include a full list of the VECs using the biological survey data, indicating what specific habitats they belong to, and use that information to ensure that appropriate VECs are selected (e.g., keystone species) for th habitats of interest. (NOTE: Although the comment is identified here under "Terrestrial", the comment is equally applicable to aquatic biota and ecosystems).

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9	10.1.5 AQUATIC ENVIRONMENT 11.4.5 AQUATIC ENVIRONMENT 13 CUMULATIVE EFFECTS	3.8.2 and Table 3.8.2-1 and Question #4	Aquatic Environment A description and assessment of other potential lake-wide effects should be provided.	This section only considered thermal inputs as a potential lake-wide effect. Population level effects to various fish species and other aquatic biota are also plausible but are not discussed.
10	7.3 ALTERNATIVE MEANS OF CARRYING OUT THE PROJECT 11.2 MITIGATION MEASURES	4.8.3 and BPETSD - 2.3.2	Alternative Project Scenarios The EIS should evaluate a broader range of thermal mitigation alternatives, provide a balanced (pro and con) assessment, and the specific reasons for the alternatives chosen for the Project.	The EIS (Section 4.8.3; and BPETSD - Section 2.3.2) evaluates only the once-through cooling water option and the evaporative mechanical draft cooling tower systems. Though the EIS does mention that other thermal mitigation alternatives were considered, the 2006 CNSC research series report # RSP-202 entitled “Review of Thermal Mitigation Technologies for Nuclear Generating Stations” identified several thermal mitigation technologies for condenser cooling water including, natural draft wet and dry cooling towers, cooling basins and hybrid systems. Quenching water (i.e. mixing additional cooling water with the condenser cooling water prior to discharge to the lake) is another option that could be considered. It would be useful to present an examination of the various thermal mitigation alternatives considered for the EIS and any viable combinations for the management of the thermal discharge to Lake Huron.
11	7.3 Alternative means of carrying out the project	4.5	Alternatives The Technical Support Documents should incorporate all relevant information pertaining to the description or assessment of all four siting options (Reference Project, Site B, Site C, Site D).	The main EIS documents assess four siting options, however the TSDs do not. Considering that the TSDs are intended to contain more detailed information, the failure to incorporate the information regarding Alternative Project Scenario 6 (Site D) is an omission that needs to be corrected.
12	10.1.5 AQUATIC ENVIRONMENT	4.8.2.1	Aquatic Environment Information should be provided to substantiate the claim that whitefish spawning on Loscombe Bank is limited.	An accurate representation of the situation is that there appears to be less whitefish spawning in the vicinity of Douglas Point relative to the Fishing Islands. The Fishing Islands area is considered to be a major whitefish spawning ground on the Canadian side of Lake Huron. The Douglas Point area is a viable whitefish spawning area and lake whitefish is the most important fish species in the area. How important the overall area and Loscombe Bank specifically is, has not been adequately assessed. It is important to recognize also that spawning/feeding habitats can come and go out of favour for reasons not totally understood. If for some reason the Fishing Islands goes out of favour or successful reproduction is reduced in the area, then other areas such as Douglas Point become all the more important. Suitable whitefish spawning locations in the area should be protected.

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13	10.1.5, 11.4.5, 15 SRG 7.1: Baseline Aquatic Flora, Fauna and Protected Species SRG 7.2: Aquatic Baseline Food Chain	4.2.2.2	Provide more detailed information on baseline benthic macroinvertebrates or provide a rationale for its exclusion. Information is lacking or too sparse for Baie du Dore, Stream C and Nearshore Lake Huron, particularly in terms of spatial and temporal scale for community metrics and individual-level density and percent species composition of sensitive benthic macroinvertebrate species such as crayfish, bivalves.	Residual adverse effects are predicted in MacPherson Bay and Stream C [Aquatic TSD:170]. The benthic invertebrate community is an indicator of quality of fish habitat since this is the food base for many fish species. These species are seen as indicators of environmental health. Relevant population data should be presented individually along with benthic community indices to detect existing impacts to the aquatic ecosystem. Benthos information cited in Aquatic Environment TSD: 65 Ref[297] is for Lake Ontario, so it is not relevant to this site. Baseline benthic sampling contained in the EIS had inadequate spatial and temporal replication to characterize variability to make reliable predictions and to later test against for potential effects of the project. Overall, sampling is needed at several locations (spatial replication) and over time (temporal replication). Some specific examples of where more baseline data are needed for confident interpretation of future effects are: the effects of increased silt and contaminant loading from Stream C from spills and construction Site C cooling towers [Hydrology and Water Quality TSD: 140], restoration during or after construction of the coffer dam Site A, site preparation cooling towers site C [Aquatic Environment TSD: 4.2.2.2:84]; and lake dumping of excavated material and turbidity plumes [Aquatic Environment TSD: 124].
14	8.1 GENERAL INFORMATION AND DESIGN DESCRIPTION 8.4 OPERATION AND MAINTENANCE	BPETSD 2.2.6.3 and EIS 5.3.3.7	Bounding Plant Envelope Chemicals that will be used as detergents should be identified and the projected quantities used should be added to the information in EIS Table 5.3.3.7-2.	BPETSD – Table 2.2.6.3-1 lists “detergents” as one of a group of chemicals that will be used during operations of the project. However the specific chemicals are not identified in either the BPETSD or the EIS.
15	8.1 GENERAL INFORMATION AND DESIGN DESCRIPTION 8.4 OPERATION AND MAINTENANCE	5.3.3.7 and Table 5.3.3.7-2	Bounding Plant Envelope The proponent should discuss pollution prevention options (including potential chemical substitution) for Hydrazine.	EIS Table 5.3.3.7-2 identifies Hydrazine (CAS # 302-01-2) as one of the chemicals used for the existing facilities and also proposed to be used for the project. Hydrazine is currently being used to control corrosion in the Turbine Generator and Feedwater system. Environment Canada and Health Canada have proposed Hydrazine as one of the chemicals to be categorized as part of the Chemical Management Plan (CMP) under CEPA for toxicity risk to the environment and human health and as such may require pollution prevention strategies to further control its use and release in the future (this should be noted in the EIS).

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16	8.2 SITE PREPARATION 8.4 OPERATION AND MAINTENANCE	5.3 (generally) and HWQTSD – 3.1, 3.2 and 8.1.2 (generally)	Stormwater Management A detailed design of the stormwater management plan, and the Best Management Practices (BMPs) that will be implemented, should be provided for review. Designs should be provided for both the site preparation/construction phase, and for the operating phase. Spills prevention planning should be integrated into the stormwater management design and BMPs.	information on site hydrology and site drainage is fragmented, incomplete, and often cites other reports that are not readily available to technical reviewers. At present, there is little information on the final design of stormwater management or flood protection in the EIS or the TSDs, nor any information on the BMPs that will be implemented. This information, along with the supporting hydrological modelling, should be provided in light of the following main concerns: • Site flooding is a concern for the various buildings onsite (e.g. waste management, waste treatment facilities, reactor buildings, etc.). • Stormwater quality and the potential discharge of pollutants to surface waters such as Stream C (with particular concern for the freshwater habitat and various trout species noted to inhabit Stream C) and Lake Huron. • Historical stormwater management spills at the Bruce site: • October 2003 – soil runoff to stream during construction – insufficient controls • August 2004 – sediment/gravel runoff to ditch (fish habitat) – insufficient controls • June 2005 - sediment/gravel runoff to ditch (fish habitat) – heavy rains • September 2007 - sediment/gravel It is necessary to review this information during the EA phase in order to validate impact predictions and ensure optimal design that minimizes impacts. EC notes that the Ontario Stormwater Management Planning and Design Manual is currently under review with concerns about climate change effects on stormwater management (however, see the climate predictions cited in the Information Request below).

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17	9.1 Spatial Boundaries and Scale 10.1.2 Surface Water SRG 5.1: Baseline Surface Water Quality and Sediment Quality	EIS Vol. 1: 5.3.2.1 Site Preparation and Excavation Figure 5.3.2.1-1 Figure 8.5.2.2-1 8.5.2.2-2	Provide sediment quality and benthic data to support and validate aquatic habitat mapping as presented in Figure 8.5.2.2-1 (General Aquatic Habitat Features Site Study Area) and in order to determine potential risks posed to ecological receptors due to dredging of MacPherson Bay sediment habitat (as presented in Figure 8.5.2.2-2) as part of the Reference Project and temporary access channel construction.	As stated in Section 9.1 of the EIS Guidelines, the EIS must consider the physical extent of the proposed project and the extent of aquatic and terrestrial ecosystems potentially affected by the project. As stated in Section 10.1.2 of the EIS Guidelines, the EIS must describe surface water quality, hydrology and sediment quality at the site, local and regional study areas, provide a description of sampling protocols and analytical methods, and provide maps and figures where appropriate. Cofferdam construction within MacPherson Bay involves building a cofferdam and subsequent dewatering of the enclosure in preparation for excavation of approximately 1.9 million cubic meters in preparation for construction of the power block and for the dock and temporary access channel. During this activity, a sediment barrier will be used to minimize sediment loading to Lake Huron during the construction of the cofferdam. Knowledge of sediment chemistry within the 8.3 hectares of MacPherson Bay that will be dredged is important to determine what effects, if any, could potentially occur due to this activity. Expectations include the addition of sediment chemistry data (where available) and benthic invertebrate data (where available) in areas of aquatic habitat features (Figure 8.5.2.2-1) and within MacPherson Bay (General Aquatic Habitat Features Site Study Area) and (Figure 8.5.2.2-2), with a greater emphasis of data requirements with respect to the 8.3 hectares of MacPherson Bay Habitat that will be dredged and the proposed disposal locations within Lake Huron. Expectations would be that all available sediment quality and benthic community field data collected in the Site Study Area is presented in the EIS. Expectations include laboratory analysis for liquid COPCs (as listed in Table 5.3.3.7-2 of the EIS) not screened out in the EIS for further consideration in areas where they are known to occur or have the potential to occur due to past releases or future Project releases. Expectations for the adequacy of spatial coverage within the Site Study Area include an evaluation of whether sample numbers are adequate to represent baseline water and sediment conditions. Without this environmental baseline information conclusions of the EIS cannot be confirmed.

IR #	EIS Guidelines Section and Subject Heading	EIS Section	Information Request	Rationale
18	10.1.2 Surface Water SRG 5.1: Baseline Surface Water Quality and Sediment Quality	EIS Vol. 1: Section 5.3.3 Description of the Operations and Maintenance Phase Works and Activities, Environmental Policies and Monitoring	Describe the water quality and sediment quality environmental baseline information within the Site Study Area as presented in EIS reference [408]11.	As stated in Section 10.1.2 of the EIS Guidelines, the EIS must describe surface water quality, hydrology and sediment quality at the site, local and regional study areas, provide a description of sampling protocols and analytical methods, and provide maps and figures where appropriate. Bruce Power currently has comprehensive programs for monitoring radiation in diverse environmental compartments (e.g., air, well water, lake water, and foodstuffs). The results of this monitoring program are reported annually in the Annual Summary and Assessment of Environmental Radiological Data Report [408]11. EIS reference [408] contains sediment quality sampling conducted within the Site Study Area. For example, sediment sampling data collected as part of this activity includes 3 samples in the vicinity of Bruce A, 3 samples in the vicinity of Bruce B, and 12 samples in the vicinity of Baie du Doré. As such, any water quality and sediment quality data contained within EIS reference [408] should be presented in the EIS. Expectations would be that the proponent would provide within the EIS all or a summary of available water quality and sediment quality collected in the Site Study Area including information contained within EIS reference [408]. If this information is not provided, a rationale for its exclusion is expected. Without this environmental baseline information conclusions of the EIS cannot be confirmed.
19	10.1.2 Surface Water SRG 5.1: Baseline Surface Water Quality and Sediment Quality	EIS Vol. 1: Section 5.3.3 Description of the Operations and Maintenance Phase Works and Activities, Environmental Policies and Monitoring	Describe water quality and sediment quality environmental baseline information within the Site Study Area as presented in EIS reference [803]12.	As stated in Section 10.1.2 of the EIS Guidelines, the EIS must describe surface water quality, hydrology and sediment quality at the site, local and regional study areas, provide a description of sampling protocols and analytical methods, and provide maps and figures where appropriate. As such, as part of the EIS the baseline environmental data (water quality and sediment quality) within the Site Study Area, as presented within EIS reference [803]12, should be provided. This would include the information contained in reference [803] as was presented in Section 5.2 of the 2007 Annual Summary and Assessment of Environmental Radiological Data Report [408]11: “It is a requirement of Bruce Power’s Radiological Environmental Monitoring Program (REMP) to periodically conduct a site specific survey of the area surrounding the Bruce Power site with the frequency specified in BP-PROC-00076, Management of the Off-Site Radiological Environmental Monitoring Program [R10]. The survey encompasses information regarding community and land usage, population distribution, meteorology, hydrology, water sources, water uses and food sources in the area surrounding the Bruce Power site. The data from the 2007 Site Survey have been analyzed and B-REP-03443-00007, 2007 Site Specific Survey Report for the Bruce Power Site [R11] prepared.” Note: [R11] is the same reference as [803] within the EIS. Expectations would be that the proponent would provide within the EIS all or a summary of available water quality collected in the Site Study Area including information contained within EIS reference [803]. If this information is not provided, a rationale for its exclusion is expected. Without this environmental baseline information conclusions of the EIS cannot be confirmed.

IR #	EIS Guidelines Section and Subject Heading	EIS Section	Information Request	Rationale
20	10.1.2 Surface Water and 11.4.2 Surface Water SRG 5.1: Baseline Surface Water Quality and Sediment Quality	EIS Vol. 1: Section 5.3.3 Description of the Operations and Maintenance Phase Works and Activities, Environmental Policies and Monitoring Figure 5.3.3.7-2 Section 8.3.4 Water Quality and Site Drainage	Describe all baseline liquid emissions environmental data within the Site Study Area, including but not limited to Bruce A/B Municipal/Industrial Strategy for Abatement (MISA) data, as well as available water quality data for liquid COPCs (as listed in Table 5.3.3.7-2 of the EIS) not screened out in the EIS for further consideration in areas where they are known to occur or have the potential to occur due to past releases or future Project releases.	As stated in Section 10.1.2 of the EIS Guidelines, the EIS must describe surface water quality, hydrology and sediment quality at the site, local and regional study areas, provide a description of sampling protocols and analytical methods, and provide maps and figures where appropriate. As stated in Section 11.4.2 of the EIS Guidelines, the EIS must identify and characterize all liquid emissions, including but not limited to maximum emissions from point source, fugitive releases, discharges to surface water from the deposition of airborne particulates, or surface runoff, which are expected to be generated during any phases of the project. Under Ontario's MISA program, Bruce Power monitors non-radioactive aqueous effluents at Bruce A and Bruce B to ensure compliance with MISA limits and system-specific Certificate of Approval from the Ontario Ministry of the Environment. Current MISA limits at Bruce A and B are limited to a Daily and Monthly Average Concentration Limit for three (3) constituents: Total Suspended Solids (70 / 25 mg/L), Aluminum (13.0 / 4.5), and Iron (2.5 / 1.0). Section 8.3.4 of the EIS states: "Liquid effluents from Bruce B have been in compliance with MISA (Municipal/Industrial Strategy for Abatement) criteria with the exception of a small number of noted excursions, the causes of which have been identified and remedied". In summary, the EIS does not consolidate all relevant baseline liquid emissions environmental data associated with the Study Areas. Expectations would be that the proponent would provide a summary of Bruce A/B MISA information in the EIS along with other available baseline liquid emissions environmental data. Expectations include laboratory analysis for liquid COPCs (as listed in Table 5.3.3.7-2 of the EIS) not screened out in the EIS for further consideration in areas where they are known to occur or have the potential to occur due to past releases or future Project releases. If this information is not provided, a rationale for its exclusion is expected. Without this environmental baseline information conclusions of the EIS cannot be confirmed.
21	11.4.7 ATMOSPHERE	5.3.3.5	Greenhouse Gases The EIS should quantify potential annual losses of SF_6, indicate its CO_2 equivalence, and also indicate what Leak Detection and Repair it will implement to minimize losses (if warranted by the magnitude of its greenhouse gas emissions).	SF6 is a very powerful greenhouse gas with a potency that is approximately 22,200 times greater than CO2. Even small releases can substantially affect the GHG potential attributed to the Project.
22	10.1.1 Geology and Geomorphology;	EIS, Vol 1., s. 6.6.1.2	External Flooding The hazard from seiche (combined with wave) is not addressed. The hazard from tsunami (combined with wave) is not addressed. The minimum freeboard required to assure safety should also be provided.	None of the designs can resist a flood level above the plant grade (p.34). The assessment of "Probable Maximum Flood" on lake levels is necessary but not sufficient. The 100-year water gauges show maximal levels only 2 m above average (p.34). Grade level for Bruce A is about 11 m above average lake level. Grade level for the proposed new-build sites are not stated.

IR #	EIS Guidelines Section and Subject Heading	EIS Section	Information Request	Rationale
23	10.1.1 Geology and Geomorphology; 11.4.9 Effects of the Environment on the Project	EIS Vol 1. section 6.6.1.5	Geophysical Hazards Surface faulting and coseismic rupture should be addressed.	Table 6.6-1 says they are considered in the Geology and Hydrology TSD (and in section 6.6.1.5), but they are not.
24	11.4.2 SURFACE WATER 11.4.9 EFFECTS OF THE ENVIRONMENT ON THE PROJECT	6.6.1.2	Stormwater Management A flood risk assessment for Stream C (to determine level and extent of flood potential and to determine safe building elevations) should be provided as part of the environmental assessment. The hydrological modelling that is used as the basis for the stormwater management plan should be provided for review. The best available information regarding the design storm based on existing climatic conditions, and accounting for future conditions predicted as a result of climate change, should also be provided. A risk analysis to determine an appropriate return period for the design storm event should be provided.	Surface flooding during extreme rainfall or combined rainfall/snowmelt events could impact on the project. The EIS includes the recommendation to do a flood risk assessment and design storm analysis, but the proponent has proposed to defer these until after the Environmental Assessment (EA) process. EC expects that such analyses would be completed and included as part of the environmental assessment since they address important potential impacts of the environment on the project. Reserving such analyses until after the completion of the EA reduces transparency and the ability of external agencies and the public to comment on the credibility of such analyses. These analyses should make use of the best available information and methods to account for the potential impacts (and associated uncertainty) of a changing climate on extreme rainfall intensity over the lifetime of the project. Design storm events are important since they are used to determine the design of the onsite stormwater management system. Climate modelling experiments point to a potential increase in the frequency and intensity of extreme precipitation events under a changed clim Changes in Temperature and Precipitation Extremes in the IPCC Ensemble of Global Coupled Model Simulations. Journal of Climate, Vol. 20, pp. 1419-1444). Increases in the intensity of precipitation extremes have been found to exceed changes in mean precipitation patterns. This study found that 20-year return period rainfalls (24-hour) would increase in intensity by 10-20% by 2081-2100.
25	11.4.9 EFFECTS OF THE ENVIRONMENT ON THE PROJECT	6.6.2.2	Effects of the Environment (including Climate Change) on the Project The EIS should provide evaluations of the potential impacts of climate change on Lake Huron water levels based on a review of the most credible studies in the peer reviewed literature as well as reports for recognized institutions such as the International Joint Commission.	EC disagrees with the conclusion that net lake levels for Lake Huron will remain virtually unchanged in the presence of climate change. Section 6.6.2.2 suggests that the potential increase in evaporative losses is “generally considered” to be offset by the cumulative increase in predicted precipitation and that “it is not expected that a net effect on lake levels due to potential increased evaporation in summer could be accurately measured.” Assessments of projected lake levels typically evaluate the contribution of several parameters including rainfall, evaporation and basin water supply and outflows to arrive at a net impact on water levels. However, no estimates of evaporation, infiltration or basin runoff were included in this section to substantiate the claim that inputs and outputs will remain in balance. To the contrary, scientific projections for Lake Huron indicate a drop in lake levels of 30-120 cm from the base case by 2050 (Mortsch et al. Great Lakes Coastal Wetland Communities: Vulnerabilities to Climate Change and Response to Adaptation Strategies, 2006, p. 13-15).

IR #	EIS Guidelines Section and Subject Heading	EIS Section	Information Request	Rationale
26	9.2, 10.1.5, 11.4.5 SRG 7.1: Baseline Aquatic Flora, Fauna and Protected Species SRG 7.2: Aquatic Baseline Food Chain SRG 7.3: Baseline Aquatic Habitat	7.3	The analysis of present environmental conditions should include summary of key aspects based on all available historic aquatic habitat and species data up to and including 2007, not just for 2007 alone. This would be tailored to the habitats and VECs associated with the nine residual adverse aquatic effects (e.g. Stream C brook trout, Baie du Dore aquatic macrophytes, benthos and fish VECs, Nearshore Lake Huron benthos, fish)	Historic temporal trends before 2007 the project would indicate the stability and seasonal variations of VECs, habitats and food web functions and structure. Such information would define the variability in each of the VECs and allow the reliable prediction of environmental effects. In addition, estimates of natural variability are needed to scope and design a statistically-valid, follow-up monitoring program for effects that require a statistical test.
27	9.3, 10.1.5., 11.4.5 SRG 7.1: Baseline Aquatic Flora, Fauna and Protected Species	7.4, 8.5.1, Valued Ecosystem Component	Add freshwater bivalves (e.g. sphaerids) as a VEC	Bivalves are very sensitive to environmental contaminants. Several bivalves that could occur in the study area have been identified as species at risk and/or potential species at risk. Actual occurrence or absence could not be confirmed due to the sparseness of baseline sampling in potential habitat areas of Baie du Dore (See IR #2.19). Aquatic species at risk were included in the preliminary list of VECs in the EIS guidelines. Expectations are that the abundance of bivalves present in the portions of the study area that could be directly affected by the project would be quantified, and their conservation status ascertained.
28	9.3, 10.1.5, 11.4.5 SRG 7.1: Baseline Aquatic Flora, Fauna and Protected Species	7.4, 8.5.1, Valued Ecosystem Component	Add the Fish Community as VEC	There are individual fish species VECs but none for the overall community. The overall fish community has been an important environmental issue since the start of fisheries studies in the 1960's when the initial pre-Bruce A and B fish community baseline gillnetting was performed by the University of Toronto (Boddington and Fry 1977)1 and updated with a fish community index in 1999 (OHN 1999)2. The ambient fish community is undergoing major changes as the exotic alewife is being supplanted by native species of emerald shiner and lake herring (American Fisheries Society Annual Meeting 20083; Schaeffer et al 20084). These trends need to be understood relative to local responses to Bruce Nuclear Power Development. The CEAA guide on biodiversity and EA states VEC selection should take into account all levels of biological organization including species, communities and ecosystems (CEAA 1996).
29	10.1.5 AQUATIC ENVIRONMENT 9.3 VALUED ECOSYSTEM COMPONENTS	7.4 and 8.5.1	Aquatic Environment Round whitefish should be added as a VEC.	Past OPG studies have suggested that round whitefish eggs may be equally or more sensitive to thermal impacts than are lake whitefish eggs. As such, they would be an appropriate additional VEC for evaluating the effects of the thermal plumes. The EIS should therefore document: a) the occurrences of all life stages of round whitefish in the vicinity of the Project; and b) the acceptable thermal conditions for the survival and development of round whitefish (e.g. thermal preferences, tolerances and limitations for the different life stages of round whitefish including eggs).

IR #	EIS Guidelines Section and Subject Heading	EIS Section	Information Request	Rationale
30	10.1.5, 11.4.4, 11.4.5, 15 SRG 7.1: Baseline Aquatic Flora, Fauna and Protected Species SRG 7.2: Aquatic Baseline Food Chain SRG 7.3: Baseline Aquatic Habitat	7.2, 8.5.2, 15	Identify the location of reference sites and summarize relevant associated data for the different VECs in a single table for easy reference.	The identification of a reference site(s) should ideally be outside of the area where there is potential for cumulative effects. The site(s) should be relevant to the assessment of any direct or indirect effect on the VECs. This information is useful for documenting variation in populations due to random natural factors or due to progressive climate change that could occur independently of influence of the project. Use of several reference sites to account for confounding due natural spatial variability can be very important to discrimination of localized project effects versus VEC responses that are occurring as part of regional background.
31	15, 4th par. SRG 7.1: Baseline Aquatic Flora, Fauna and Protected Species SRG 7.2: Aquatic Baseline Food Chain SRG 7.3: Baseline Aquatic Habitat	7.0, 8.0, 9.0, 10, 12, 14, 15 [Aquatic TSD:170]	A statistical design for “Before-After-Control-Impact” verification of effects predictions should be included to the fullest extent practical (Kilgour et al. 2007)17 in the baseline characterization for the nine residual adverse effects of the Project on the Aquatic Environment, or provide a rationale for its exclusion based on the preliminary scope of the follow-up monitoring program.	Information on statistical variability of natural environment data for VECs and habitat is generally lacking (water temperature is an exception). The predictive uncertainty and the follow-up monitoring plan for all VECs cannot be fully evaluated without information on the variability in the data. Statistical design is needed for quantitative validation of those environmental effects predictions that are suited to statistical testing. Rarely was quantitative information and information on variability provided to support the conclusions in the EIS.
32	Section 4.1 - Scope of the Project, Decommissioning Phase, Section 7.3 Alternative Means of Carrying out the Project; Section 8.5 Decommissioning and Abandonment	Section 8.6, Volume 1 EIS; Radioactive Waste Management; page 8-117	1. The EIS indicates that existing waste management areas on the Bruce Nuclear site will be used to store radioactive waste from the operations in the short-term (at least 10 years). The EIS specifies that the proposed deep geologic repository will be used for longer term disposal. HC suggests that the EIS describes the measures that will be used to ensure that temporary or long term storage (or any other alternatives approaches being considered) of radioactive waste are protective of human health.	Such a description of the waste storage measures (for current or alternative approaches) will provide HC with a better understanding of any potential human health implications of temporary and long term storage of radioactive waste. In addition, details about the temporary storage capacity will enable further evaluation of the potential human health implications of exceeding capacity.
33	Section 8.2 Site Preparation	Section 8.2.6 Soil Quality ; Volume 1 EIS ; page 8-11	1. The EIS indicates that soil contaminated with copper, nickel and zinc has been identified at the Bruce site. Petroleum hydrocarbon contamination has also been identified in the shallow groundwater in several locations on the Bruce site. Please clarify whether or not project activities may occur on sites identified as contaminated in Vol. 1, Section 8.2.6 Soil Quality.	There may be potential for release or mobilization of contaminants if project activities occur in areas of soil and groundwater contamination. Such a release or mobilization could contribute to human health risks.

IR #	EIS Guidelines Section and Subject Heading	EIS Section	Information Request	Rationale
34	8.4 OPERATION AND MAINTENANCE 11.1 EFFECTS PREDICTION	8.6.9.3	Radiological Provide more detailed information on the pathways of radiological exposure for biota, and the radiological dose calculations that biota would receive as a result of the operation of all reactors (Bruce A and B, and the New Build reactors). These calculations should factor potential emissions arising from the use of LVRF fuel at Bruce A and B.	The EIS refers to the "Bruce A Refurbishment for Life Extension and Continued Operations Project EA Study Report, 2005" for the dose estimates following the restart of Bruce A 1 and 2. These estimates were based on the "relative biological effectiveness and organically bound tritium". Although elsewhere in that EA, additional calculations were made to account for background radiation which included naturally occurring tritium, Carbon-14, and Potassium-40, the dose estimates presented in the Bruce New Build EIS does not indicate whether other radioactive products related to the Project were accounted. Tables 8.6.2.5-1 and 8.6.2.5-3 of the EIS show that there are substantial releases of Tritium oxide, Noble gases, Iodine-131, Radioactive Particulates and Carbon-14 in gaseous effluent, and Tritium oxide, Carbon-14 and Gross beta-gamma activity in liquid effluents.. Also, there is no consideration for potentially increased radiological doses associated with the use of LVRF fuel (see Information Request re EIS – 8.6.2.4).
35	8.4 OPERATION AND MAINTENANCE	8.6.2.5 and BPETSD - Table 4.7.2-1	Radiological The proponent should provide gaseous effluent information for the new reactors that is consistent with the gaseous effluent data for the existing operations.	Table 4.7.2-1 of the BPETSD provides data for Gross gamma-beta aerosol activity for all of the reactor designs being considered. However, the data provided in EIS Table 8.6.2.5-1 for Bruce A and B is for Radioactive Particulates instead of Gross gamma-beta aerosol activity. Though all data presented in the EIS in reference to the operation of Bruce A and B refer to radioactive particulates in atmospheric/gaseous emissions, the Bounding Plant Envelope TSD does not present radioactive particulates as one of the gaseous parameters for the competing reactor designs. This presents an inconsistency and a lack of clarity associated with gaseous/atmospheric radioactive effluent as presented for the new reactor designs.
36	10.1.1 Geology and Geomorphology;	EIS, Section 8.2.8	Provide an updated and corrected version of Figure 8.2.8-1. The turquoise dot at 46.5N 78.5W should also be explained.	This is not a map, as the vertical scale is squashed relative to the horizontal (1 degree north has been made equal to 1 degree west). The kilometre scale is not applicable. At best it can be considered an "illustration".
37	10.1.1 Geology and Geomorphology; 11.4.9 Effects of the Environment on the Project	EIS Vol 1, 8.2.8	Seismicity The probabilistic seismic hazard uniform hazard spectra (UHS) for 1/10,000 years should be presented, together with a comparison between UHS and design levels.	This analysis needs to be provided to demonstrate the margin of safety. The proponent might choose to compare the hazard and design level to spectral values used in the National Building Code for standard buildings

IR #	EIS Guidelines Section and Subject Heading	EIS Section	Information Request	Rationale
38	10.1.1 Geology and Geomorphology	8.2	Please substantiate “the geotechnical properties of the site are appropriate for this type of Project.”	The EIS guidelines request that the proponent describe the geomechanics for the region and the area that will be disturbed by the project. Geotechnical properties of the overburdern, including shear strength and the liquefaction potential, were also requested from the proponent to allow the assessment of slope stability and bearing capacity of foundations under both static and dynamic conditions. In its EIS, the proponent states that geotechnical studies were not undertaken as part of this EA and that “appropriate detailed information concerning the geomechanics and geotechnical properties of the overburden will be provided on the Site Preparation License Application once the siting location for the Project is determined.” This information is requested as part of the environmental assessment and since exact project siting is not known at this time, the information presented should be representative of the region and the proposed areas to be disturbed by the project. At a minimum, the proponent should present geomechanical and geotechnical data from past studies that were used to support the development of the existing structures on the site, and explain how that information can be applied to characterize the geotechnical properties of the sites that may be impacted by the project and its alternatives. Should the proponent disagree with providing this information, justification for excluding this information must be provided. This information is required in order to properly identify and assess the potential environmental effects of the project.
39	10.1.2 Surface Water SRG 5.1: Baseline Surface Water Quality and Sediment Quality	EIS Vol. 1: Section 8.3.4 Water Quality and Site Drainage 8.3.4.1 Regional and Local Study Area	Describe the water quality data as presented in EIS reference [266]10, which contains water quality sampling conducted in 2004 within the Site Study Area.	As stated in Section 10.1.2 of the EIS Guidelines, the EIS must describe surface water quality, hydrology and sediment quality at the site, local and regional study areas, provide a description of sampling protocols and analytical methods, and provide maps and figures where appropriate. EIS reference [266]10 contains water quality sampling data collected in 2004 within the Site Study Area. As such, this data should be presented in the EIS. Expectations would be that the proponent would provide within the EIS all or a summary of available water quality collected in the Site Study Area including information contained within EIS reference [266]. If this information is not provided, a rationale for its exclusion is expected. Without this environmental baseline information conclusions of the EIS cannot be confirmed.

IR #	EIS Guidelines Section and Subject Heading	EIS Section	Information Request	Rationale
40	Section 10.1.2 Surface Water	Section 8.3 Hydrology and Water Quality Section 8.6.4 Radioactivity in Surface Water	1. As the EIS states that there is recreational water in the project area, it is advisable to identify the location of all recreational water sources in the project study area and determine if there may be any impacts. Recreational use is defined as any activity involving intentional or incidental immersion in natural waters (e.g. swimming, wading). If potential impact to recreational water quality is identified, HC suggests that the EIS describe measures to be employed to inform users of that water source, and to mitigate any risk to human health (e.g. measures to eliminate/reduce predicted changes, restrict access, post signs, education, etc). 2. The EIS states that "recreational use of the Lake Huron beach waters in the study areas and during the study period do not pose a health risk to the public." HC suggests that data be provided to support this conclusion.	This information will contribute to HC's understanding of potential health implications of the project on recreational water quality and, the need for, and appropriateness of, any proposed mitigative measures. Supporting evidence would help HC verify the conclusion and provide advice on potential human health impacts associated with recreational water.
41	10.1.2 SURFACE WATER 11.4.2 SURFACE WATER	8.3.4.1 and HWQTSD - 4.4.2.2	Water Quality The proponent should provide Total Reactive Chlorine data as baseline for all of the sampling sites indicated in HWQTSD Table 4.4.2.2-1.	The EIS states that Total Residual Chlorine (TRC) is the main water quality parameter of concern, which results from the addition of Chlorine to control dreissenid mussel growth at both Bruce A and B plants. Previous environmental assessments (Bruce A 1&2 Refurbishment EA) indicated that both Bruce A and B met their Ontario Certificate of Approval limit of 2 µg/L for TRC, consistently. It should be noted, however, that the Canadian Water Quality Guidelines for the protection of aquatic life for Reactive Chlorine Species is 0.5ug/L and therefore TRC levels remain a potential concern. Table 4.4.2.2-1 of the HWQTSD provides Chlorine data from the 2007 water quality study (which included the Bruce A and B discharge channels), however it seems that this study did not measure TRC but rather only free Chlorine. Furthermore, it is not clear whether free Chlorine is meant to be free available Chlorine. In any case, it appears the study did not measure all reactive species of Chlorine. With the potential addition of another once-through CCW system for the new build project which will likely discharge additional reactive Chlorine species to Lake Huron, a presentation of accurate measures of baseline TRC data is necessary.

IR #	EIS Guidelines Section and Subject Heading	EIS Section	Information Request	Rationale
42	10.1.2 SURFACE WATER 11.4.2 SURFACE WATER	8.3.4.1 and HWQTSD - 4.4.2.2	Water Quality Additional information should be provided regarding the potential adverse effects of Hydrazine on Smallmouth Bass and other biota in the discharge channels, and for biota in Lake Huron.	The Hydrazine levels indicated in Table 4.4.2.2-1 of the HWQTSD were below the detection limit of 0.005 mg/L for all sampling stations. The NOEL (No Observed Effects Level) reported in literature (World Health Organization, 1987) is 0.001 mg/L for Fat Head Minnow eggs. The reported LOEL (Lowest Observed Effects Level) for several species occured at levels from greater than or equal to 0.1 mg/L. Previous assessment of Hydrazine in the Bruce A 1&2 Refurbishment EA indicated that the NOEL and LOEL for Hydrazine levels may occasionally be exceeded in the discharge channel under conditions involving scheduled or emergency shutdowns when cooling water volumes would normally be reduced (and dilution therefore decreased). During the shutdowns, there could be effects on sensitive aquatic biota; such as smallmouth bass (SMB) spawning and early larval development due to Hydrazine. However, the EIS and relevant TSD's do not discuss Hydrazine with any detail.

IR #	EIS Guidelines Section and Subject Heading	EIS Section	Information Request	Rationale
43	Section 10.1.3 Groundwater	Section 8.6.5.3, Volume 1 EIS; Background Sources of Radioactivity; page 8-78	1. This section of the EIS states that "The tritium concentration in groundwater from wells at Bruce A and B are several orders of magnitude below the screening benchmark of 3x10 6 Bq/L for non-potable groundwater." This screening benchmark is not familiar to HC. Therefore, HC suggests that the EIS describe the basis of this particular screening benchmark and its implication for human health. Further, for the purpose of understanding any implication for human health, it would be helpful if Bruce Power could provide HC with the report to which the screening benchmark is attributed (Bruce Power. DRAFT Annual Summary and Assessment of Environmental Radiological Data for 2006. April 2007.).	This information would assist HC in its review to ensure that standards are being applied and interpreted appropriately in a human health context.
		Section 1.2.3 Land Use Page 1-4	The EIS states that "local communities rely on both water withdrawn from Lake Huron and groundwater wells for their drinking water needs." Given that groundwater wells provide a source of potable water in the Site Study Area, HC suggests that it would be more appropriate to compare monitored tritium levels to drinking water Standards/guidelines.	Reporting groundwater monitoring data in context of potable water standards would provide an indicator of groundwater quality from a human health perspective and assist HC in providing advice on water quality.
		Section 8.11.2.4 Exposure to Environmental Agents Page 8-144	2. The EIS states that "the shallow wells north of the Bruce Power site exhibit the highest levels of tritium; however, these levels of tritium are due to precipitation events and not releases from Bruce Power facilities to the Lake." HC suggests that data be provided to support this conclusion.	Attributing levels of tritium in monitoring wells to precipitation events and not releases from Bruce Power facilities may lead to an underestimate of the project's contribution to levels of radioactivity in well water and as a result, may underestimate any associated human health risk.

IR #	EIS Guidelines Section and Subject Heading	EIS Section	Information Request	Rationale
44	10.1.4 – Terrestrial Environment	8.4 and Terrestrial Environment TSD	Please substantiate how baseline data was determined with regards to estimates of population sizes, habitat suitability, etc. by fully explaining the methodologies and analyses used for any inventories, surveys and other field studies.	The EIS guidelines state that "field surveys must be described in terms of representativeness of the target populations the design for allocation of samples in space and time, measurement methods and results." Methods for various terrestrial environment field surveys are not fully described. Information on how some of the surveys were conducted is lacking as well as what the sample sizes were for statistical analyses. For example, how was the "field work …conducted to refine the existing mapping of plant communities and to compile community-specific inventories of the vascular plants" The conclusions drawn from field surveys to describe the baseline environment are not fully explained. For example the information provided in the baseline regarding the muskrat (a VEC) is limited. Information on the white-tailed deer population is provided but the methodologies are not.
45	10.1.4, 11.4.4. SRG 3.1: Baseline Terrestrial Quality	Terrestrial Environment TSD and 8.4 and 8.4.5	Please identify the critical habitat for any species at risk that occurs at the site and within the local and regional study areas. Provide information (e.g., discussion of critical habitat, foraging areas, etc.) for all wildlife species with special conservation status that have been identified in the region during the breeding season and provide a revised assessment of the Red-headed Woodpecker.	The EIS Guidelines state "Any biological species of natural conservation status at a federal, provincial, regional or local level and their critical habitats must be identified." If critical habitat exists on the Bruce site this should be identified and protected from project related effects. Critical habitat for those species that are considered rare, endangered, etc. has not been adequately identified. For example, the only information provided on habitat for the black-crowned night-heron is that it "is believed to nest in the vicinity of the mouth of the Saugeen River". Any other species at risk should also have its critical habitat identified, such as the least weasel. All species with special conservation status that have been identified in the region (during the breeding season) should be discussed (e.g., discussion of critical habitat, foraging areas, etc.). The assessment of Red-headed Woodpecker in the study area should be revised (p. 8-44). The most recent Ontario Breeding Bird Atlas (2001-2005) has identified the Red-Headed Woodpecker as a possible breeder in the area of the BNPD and a confirmed breeder at MacGregor Point Provincia Park. An assessment of this species should be included in the EIS, along with information on critical habita
46	10.1.4 TERRESTRIAL ENVIRONMENT	8.4.5.1, p. 8-44, paragraph 5 and 6	Terrestrial Environment Separate sub-sections devoted to a) avian species of conservation status, and b) non-avian SARA-listed species, should be provided.	This is an important aspect of the site assessment. Avian species of conservation status should include SARA-listed species, Bird Conservation Region 13 priority species, and any other area sensitive species. In particular, commentary should focus on the SARA federally-listed avian species that have been found in the Local and Regional Study Area, and why they would not be expected to breed in the Site Study Area. A similar analysis should be conducted for non-avian SARA-listed species (EIS, Sec. 8.4.5.1, p. 8-43) such as Eastern Fox Snake (Endangered), and Snapping Turtle (designated as a species of Special Concern in November 2008). Assessment of all SARA listed species is required under the Canadian Environmental Assessment Act.

IR #	EIS Guidelines Section and Subject Heading	EIS Section	Information Request	Rationale
47	Section 10.1.4 Terrestrial Environment	Section 8.6.7, Volume 1 EIS; Radioactivity in the Terrestrial Environment; page 8-81	1. In order to assess soil quality, the EIS indicates that soil sampling for radionuclides has been undertaken to a depth of 12 inches. HC suggests soil sampling to a depth of only 6 inches. Otherwise, please explain the rationale for sampling to a depth of 12 inches.	Generally, soil is a good adsorber of most radionuclides on its surface due to ion exchange and physical adsorption mechanisms. Hence, in most soils, radionuclides will not move to deeper layers and soil sampling is undertaken to a depth of 6 inches (15 cm). If deeper sampling is undertaken, the results may be less representative of the concentrations of radionuclides present in the surface soil (i.e. diluted). The resulting interpretation of the sampling data may then underestimate the concentrations of radionuclides and estimate health risks.
48	Section 10.1.6 Ambient Radioactivity	Section 8.6.2, Volume 1 EIS; Background Sources of Radioactivity; pages 8.67-8-82	1. In many cases, the EIS attributes slightly elevated levels of radionuclides in water, soil and fish in the Site Study Area to fallout of radioactivity from weapons testing. HC suggests that data be provided to support this conclusion.	There is evidence to suggest that fallout levels of radioactivity in the environment have declined considerably since 19638 (when such testing was stopped under the Nuclear Test Ban Treaty). Radioactive cesium isotopes may be emitted from nuclear power generating stations9. In particular, cesium-137 and cesium-134 have been measured in water, soil and fish within the Site Study Area. Almost all of these media show slightly elevated levels when compared with background levels. Attributing slightly elevated levels of radioactivity in the environment to radioactive fallout from historic weapons testing may lead to an underestimate of the project's contribution to levels of radioactivity and as a result, may underestimate any associated human health risk.

IR #	EIS Guidelines Section and Subject Heading	EIS Section	Information Request	Rationale
49	Section 10.1.6 Ambient Radioactivity	Section 8.6.2, Volume 1 EIS; Background Sources of Radioactivity; pages 8.67 – 8.69	1. The EIS reports water quality monitoring data from Canadian studies for different radionuclides in reference to background levels. The data show that observed levels of tritium are slightly higher than Canadian environmental background levels. It would be helpful for the report to compare these data to tritium levels contained in the Ontario Drinking Water Standard, O. Reg. 169/035 and HC's Maximum Acceptable Concentrations6. 2. The Ontario Drinking Water Advisory Council is reviewing the Ontario Drinking Water Standard for tritium7. Also HC is currently revising its drinking water guidelines, Radiological Characteristics of Drinking Water for 84 natural and artificial radionuclides10. HC suggests that the EIS acknowledge and monitor the progress of the review and revisions to ensure that the results are reflected in project activities accordingly. 3. For tritium emissions, HC understands that Ontario Power Generation (OPG) has a voluntary objective of 100 Bq/L near drinking water intakes. Please indicate whether or not Bruce Power has a similar voluntary objective.	Comparing the monitored tritium levels to the current drinking water standards and guidelines would help put the data into perspective with regard to regulatory standards and human health. It is important to acknowledge current drinking water guidelines for radionuclides and ensure that the project does not exceed these or any new guidelines. Such a comparison helps to foster greater understanding about the project's potential health impacts. It is helpful for the EIS to identify any voluntary objectives or best practices to which the proponent commits for the protection of drinking water and human health.
50	10.1.7 CLIMATE, WEATHER CONDITIONS AND AIR QUALITY 11.1 EFFECTS PREDICTION	8.7.3.2	Air Quality The EIS should incorporate PM2.5 data observed at Tiverton, use this as the background/baseline for the Local Study Area, and use the data to ground truth the reliability of the baseline air quality modelling.	PM2.5 monitoring data are available for Tiverton, which is located within the Local Study Area. In 2006, the mean hourly PM2.5 concentration was 5.6 µg/m3 and the maximum 24-hour value was 28 µg/m3 (Ontario Ministry of the Environment). Air Quality in Ontario: 2006 Report p. A-11). Data on Tiverton PM2.5 concentrations was even presented in Table 4.2.1.2-9 of the Air Quality and Noise TSD but was not mentioned in the EIS. The data should be added to Table 8.7.3.2-2 of the EIS.
51	10.1.7 CLIMATE, WEATHER CONDITIONS AND AIR QUALITY 11.1 EFFECTS PREDICTION	8.7.3.2	Air Quality The EIS should provide a comparison between the modelled baseline data (for other than PM2.5 – see above IR) in Table 8.7.3.2-2 and the most representative observational data in southern Ontario. 90th percentile background concentrations should be identified for each pollutant and averaging time period assessed for air quality impacts.	The modelling approach used for the EIS will not capture the impact of regional and transboundary transport of pollutants. Expert judgment should be used to adjust and revise the baseline values, if warranted, to account for the regional transport of air pollutants that cannot be captured in the maximum predicted baseline concentrations derived solely from Bruce Power emissions. The 90th percentile concentrations are viewed as suitably conservative concentrations to be combined with the dispersion modelling output to produce a worst-case, cumulative air quality impact for offsite receptors.

IR #	EIS Guidelines Section and Subject Heading	EIS Section	Information Request	Rationale
52	10.1.7 SRG 1.4: Atmospheric – Baseline – Ambient Air Quality	8 of the EIS	Include shoreline fumigation in the air quality modeling to determine the concentrations at ground level and the effect to the environment.	The air quality modeling is conducted using AERMOD. However, shoreline fumigation that could occur near a lake during the spring and summer months when the temperature of lake water is colder than the air, especially during the day time, is not considered. This would result in temperature inversion and thereby causing the air to be very stable. This creates less dispersion/dilution causing the pollutant concentrations to rise.
53	Section 10.1.8 Noise ; Section 10.4.8 Noise and Vibrations ; Section 11.5.6 Human Health	Section 2.3.4.6, Air Quality and Noise Technical Support Document; page 24, and Section 8.11.2.4 Volume 1 EIS; pages 8-146-8-147,	1. Given the extensive baseline noise monitoring described, no further measurements are being suggested. However, HC suggests that the EIS clearly show how percentage of exposed population that could be highly annoyed (%HA) was derived from the baseline data presented in the EA. Please include the method used to convert the data to average sound level over 24 hours (Leq24) and percentage of time that a sound level exceeds night time levels (Ln) and thereby %HA. 2. From the presented data, it appears that the receptors R1-R3 are in quiet rural areas. HC suggests that the report clearly indicate which receptors are located in quiet rural areas and provide a rationale for any receptors not considered to be in a quiet rural area. Please note that HC suggests the application of the maximum 10 dBA adjustment to the Rating Level recommended in CAN/CSA:2005 (ISO 1996-1:2003) to calculate %HA in quiet rural areas. 3. The 2005 HC document referenced on page 8-146 (Noise Impact Assessment Orientation Document for Projects Triggering the Canadian Environmental Assessment Act, Draft Version) does not refer to an impact or impulse level, but refers to limits of unadjusted noise. Therefore, HC suggests that the EIS provides a clear explanation of methodology used to obtain the results in Table 8.11.2.4-4, “Noise Effects on Site Neighbour Receptors.” HC also suggests that a sample calculation be provided in the EIS to show the method used to derive these data.	It is important for noise assessments to clearly show how %HA was derived in order for HC to provide advice on potential health impacts associated with noise from the project. It is important to understand whether baseline sampling data was obtained from quiet rural areas as this may affect the methodology and results of the noise assessment for human health. To help HC provide advice on noise, it would be helpful for the report to clearly state if CAN/CSA:2005 (ISO 1996-1:2003) was used to calculate %HA. The interpretation and human health implications of the data in Table 8.11.2.4-4 are unclear. It would be helpful for the EIS to add further information, as suggested, to clarify the implications of HCII (dBA) for the health impacts of noise. Further, a sample calculation would also be helpful to allow HC to verify that the calculations were completed correctly.
54	10.2.3 –Aboriginal Land, Aquatic Area and Resource Use	8.12.1, 8.12.2	Please describe any Metis and First Nation current traditional hunting, gathering and fishing activities that occur within site and local areas.	The EIS guidelines require that the EIS describe land use (with emphasis on current use of lands) at the site and within the local and regional study area. The proponent describes only general hunting, gathering and fishing activities of Metis people without specifically identifying any sites within the project area these activities may occur. Slightly more information is provided for the First Nations, but not a sufficient amount to determine current use of the site for traditional purposes.

IR #	EIS Guidelines Section and Subject Heading	EIS Section	Information Request	Rationale
55	Section 11.4.6 Radiological Conditions	Section 8.6.2, Volume 1 EIS; Background Sources of Radioactivity; page 8-82	1. The EIS indicates that a variety of environmental media (e.g., vegetation, milk and soil) are monitored within the Site Study Area for radionuclides, the levels of which are compared with Canadian background levels. HC suggests that additional rationale be provided to explain why the particular media are tested and whether there are any health benchmarks (thresholds) against which results can be compared.	The monitoring results reported in the EIS demonstrate that radioactivity in media located in the Site Study Area is typically higher than background levels. Additional context for these results as they relate to human health would assist HC's understanding of the implications of these findings.
56	13 CUMULATIVE EFFECTS 8.4 OPERATION AND MAINTENANCE	8.6.2.4	Radiological Since the proponent has indicated it will be using Low-Void Reactivity Fuel (LVRF) at both the Bruce A and Bruce B units, the EIS should provide information about how this may impact upon the generation and release of tritium, Noble gases, Radioactive Particulates, Iodine-131, Carbon-14, and gross beta-gamma activity. These emissions should be factored into the assessment of radiological cumulative effects.	This information will be necessary to present a conservative estimation of the baseline conditions before the New Build reactors are commissioned. In a previous EA concerning the use of Slightly Enriched Uranium (SEU) fuel (entitled "New Fuel Project for Bruce B – EA Study Report, 2004"), the proponent stated in section 4.2.4 of that report that increased production of Tritium would be a potential change resulting from the usage of SEU. Since the operation of Bruce A and B would be concurrent with the operation of the New Build reactors, emissions arising from the use of LVRF in the existing reactors should be factored into the radiological component of the cumulative effects assessment in section 12 of the EIS (and wherever else emissions need to be factored such as in dose assessments).
57		Section 8.6.2, Volume 1 EIS; Background Sources of Radioactivity; page 8-68	1. The EIS provides monitoring data for potassium-40, a naturally occurring radionuclide that is not part of the uranium nuclear fuel cycle. Please clarify the rationale for the inclusion of potassium-40 in the EIS.	The inclusion of potassium-40 in the EIS is unclear and not usual in this context and this information would assist HC's understanding of any potential implications to human health.
58	8.2 SITE PREPARATION 10.1.2 SURFACE WATER 10.1.3 GROUNDWATER 11.4.1 GEOLOGY AND GEOMORPHOLOGY 11.4.2 SURFACE WATER 11.4.3 GROUNDWATER	9.3.1.1	Stormwater Management The proponent should explain whether it will undertake efforts to prevent soil compaction, whether soil decompaction will be necessary in construction areas for habitat rehabilitation, or whether soil compaction has been factored into stormwater modeling or groundwater modeling.	Heavy machinery traffic during site preparation and construction can induce significant soil compaction, affecting the viability of that land to be successfully revegetated, particularly if habitat restoration is attempted. Construction laydown areas can experience similar effects depending on what gets stored on the land and for how long. In either case, compacted soils will result in increased stormwater runoff and decreased infiltration of water into groundwater. Furthermore, the justification that any predicted changes are "less than the annual and/or seasonal variations" does not reflect the fact that the predicted changes may alter the normal range of those variations.

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59	8.4 OPERATION AND MAINTENANCE	9.3.5.1	Radiological Provide additional information regarding the incremental contribution of the Project to the contaminant releases from the Western Waste Management Facility (WWMF) and the Central Maintenance and Laundry Facility (CMLF).	Although the WWMF and the CMLF are existing facilities at the Bruce site, they will be used to manage waste for the Project. Any incremental release of contaminants as a result of Project waste should be attributed to the Project and included in all dose calculations for the Project.
60	8.4 OPERATION AND MAINTENANCE	9.3.5.2 and Table 9.3.5.2-1 and Table 9.3.5.2-2	Radiological Additional information (or a discussion of information presented elsewhere) should be provided to explain the large increases in radioactive releases reflected in these tables.	Self-explanatory.
61	8.4 OPERATION AND MAINTENANCE 10.1.6 AMBIENT RADIOACTIVITY 11.1 EFFECTS PREDICTION	9.3.5.2-10	Additional information (or a discussion of information presented elsewhere) should be provided to explain: a) why Cesium-137 values are 3-4 times higher at Site 5 than at Site 2; and b) why, considering the baseline concentrations at Site 5, is there such a small increase in radionuclide concentrations as a result of the Project.	Considering that Site 5 has relatively lower values for Cobalt-60 and Cesium-134 relative to Site 2, the fact that Cesium-137 values are higher at Site 5 appears anomalous and should be explained. Baseline concentrations are much higher than the increases expected from the Project. At first glance, one would expect a higher contribution considering that the new reactors will make up one-third of the reactors onsite. There may be valid reasons for the relatively small contribution of the new reactors but there is no explanation of this. It will be important to validate the predictions of radionuclide concentrations in various environmental media (air, water, land, biota) since dose calculations (to humans or to biota) will be predicated upon them.
62	10.1.1 GEOLOGY AND GEOMORPHOLOGY 10.1.2 SURFACE WATER 11.4.2 SURFACE WATER 11.4.3 GROUNDWATER	9.3.1.2	Hydrogeology Information regarding groundwater recharge to Stream C should be provided, including an assessment of potential impacts to the recharge arising from the Project.	Stream C is also a receiving body for groundwater, although this is not reflected here in the EIS. The relative importance of groundwater as “baseflow” into Stream C should be provided as this may inform what additional measures are required to protect the ecological function and quality of Stream C. This information is even more critical if any of the facility footprint or construction activities/laydown areas are situated within the watershed of Stream C

IR #	EIS Guidelines Section and Subject Heading	EIS Section	Information Request	Rationale
63	10.1.1 GEOLOGY AND GEOMORPHOLOGY 10.1.2 SURFACE WATER 10.1.4 TERRESTRIAL ENVIRONMENT 11.4.2 SURFACE WATER 11.4.3 GROUNDWATER	9.3.3.2	Hydrogeology Information regarding groundwater recharge to the Baie du Dore Wetlands, including an assessment of potential impacts to the recharge arising from the Project.	No information has been provided regarding the relative importance of groundwater in maintaining the ecological function of the Baie du Dore Wetlands. As such, there is no way to evaluate the risks that the Reference Project or the various Alternatives may pose to the groundwater recharge.
64	10.1.2 SURFACE WATER 11.4.2 SURFACE WATER 13 CUMULATIVE EFFECTS	9.3.2.1 and 9.3.4.1	Water Quality Provide an assessment of the eutrophication potential of all nutrient loadings arising from the combined operations of the Project and all other facilities at the Bruce site, factoring any additional potential arising from thermal discharges to Lake Huron.	Heavy machinery traffic during site preparation and construction can induce significant soil compaction, affecting the viability of that land to be successfully revegetated, particularly if habitat restoration is attempted. Construction laydown areas can experience similar effects depending on what gets stored on the land and for how long. In either case, compacted soils will result in increased stormwater runoff and decreased infiltration of water into groundwater. Furthermore, the justification that any predicted changes are “less than the annual and/or seasonal variations” does not reflect the fact that the predicted changes may alter the normal range of those variations. Nutrients will be discharged to Lake Huron from the once-through cooling water, the sewage treatment plant, and from stormwater runoff. The cumulative eutrophication potential of these discharges has not been assessed. Higher water temperatures associated with the thermal plume may accelerate eutrophication.
65	10.1.5 AQUATIC ENVIRONMENT	9.3.2.1	Aquatic Environment For those areas where lake sediment may be disturbed as a result of site preparation, construction, or operation of the facility, information regarding baseline sediment quality should be provided.	This will ensure that sediment quality is within guidelines and that no special measures need to be taken to deal with contaminated sediments.
66	10.1.5, 11.4.5, 15 SRG 7.1: Baseline Aquatic Flora, Fauna and Protected Species	9.3.4, Page 9-81 to 9-85 9.4.4.4. page 9-189	Provide a quantitative analysis of the Maximum Weekly Average Temperature (MWAT) and its impacts on hatching success of round whitefish in the nearshore zone at 1-8 m depth	The lake whitefish VEC does not represent the bounding case for thermal effects on this fish guild. Round whitefish egg hatching is more sensitive to elevated temperature than lake whitefish (Holmes et al 2002)13. Round whitefish has reproductive habitat in the nearshore zone of high exposure to cumulative effects of thermal effluent, silt, sewage effluent and stormwater runoff. Exposures and hazards are higher here than the offshore shoals (e.g., Lascombe Bank) used in the MWAT analysis.

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67	11.1 EFFECTS PREDICTION 10.1.2 SURFACE WATER 11.4.2 SURFACE WATER	9.3.4.2	Thermal Plume Modelling Provide detailed information in regards to the temperature variability (including frequency and duration) that will be experienced in the Baie du Dore as a result of the thermal plume behaviour and the "effects of air temperature and weather conditions on the bay".	Additional information about how these various interactions have been factored into the thermal plume modelling should be provided. As per other Information Requests by EC, the modelling needs to be improved and then run again.
68	11.2 MITIGATION MEASURES 11.4.4 TERRESTRIAL ENVIRONMENT	9.4.3.1, p. 9-183	Terrestrial Environment A planting plan for the "conservation offset" program (proposed with the Saugeen Valley Conservation Authority) should be provided for comment. The planting plan should also outline the rationale for choosing restoration sites.	The proponent states that there are plans "… to look at the potential for accelerating some wildlife habitat restoration in these off-site locations to compensate for the habitat losses during the Reference Project construction" (TETSD - 6.3.3, p. 104, para. 6). EC believes that habitat restoration would be more successfully achieved through multi-species tree/shrub plantings using ecological restoration principles, rather than planting on a monoculture basis. Furthermore, in order to maximize the benefits, these plantings should be located in strategic areas that will create an increase in interior forest habitat in the long term. EC recommends that annual monitoring reports, including supplementary planting recommendations for the following spring (if required), should be submitted for five years as part of the Follow-up Program.
69	11.4.2 SURFACE WATER	9.3.2.1	Water Quality The proponent should provide information to demonstrate that effluents will be in compliance with the Fisheries Act.	The Fisheries Act does not allow for "mixing zones". Un-diluted effluent must pass toxicity testing to be in compliance.
70	7.3 Alternative means of carrying out the project	10.0 (generally)	Alternative Project Scenarios Thermal plume modelling should be conducted to evaluate the potential pros/cons of siting the new reactors at Site B or Site D relative to Site A (Reference Project). The large differences between the sizes of the thermal plumes from Bruce A and Bruce B should be explained.	The Bruce A plume is reported be 4 – 24 times larger than the Bruce B plume (Golder, 2008; Aquatic Envir. TSD, pg. 74). There would appear to be some benefit to moving the thermal discharge of the new reactors further away from Bruce A by siting the reactors to Site B or Site D. The benefit, if any, can only be determined by conducting plume modelling for those sites. An analysis of different discharge locations in relation to reactor site options should be conducted in order to justify the selected location of the new reactors. Also, the large differences in plume size between Bruce A and Bruce B needs to be explained considering that the thermal outputs from the two facilities are comparable. By understanding the reason for these differences, better decisions can be made in regards to siting the discharge location of the new reactors and/or the siting of the new reactors.
71	7.3 Alternative means of carrying out the project	10.0 (generally)	Alternative Project Scenarios Alternative locations for the cooling tower option need to be evaluated for each of the reactor building locations (i.e. Sites A,B,D).	Only one site was evaluated for the cooling tower option, as it pertained to the reactor buildings at Site A (Reference Project). Other options may exist that reduce environmental impacts/risks (e.g. cooling towers located at Site C pose a higher risk to Stream C, and the trout species that inhabit it, than other options might). The Bruce site is large and appears to provide opportunities for alternative siting. Similarly, options for the siting of cooling towers associated with reactor buildings at Site B and Site D should be evaluated, since these are very real possibilities for the final location of the new reactors.

IR #	EIS Guidelines Section and Subject Heading	EIS Section	Information Request	Rationale
72	7.3 Alternatives means of carrying out the project	10.0 (generally)	Alternative Project Scenarios Various errors in the maps should be corrected. Additional maps should be provided to denote the layouts for the various Alternative Project Scenarios.	Various omissions in the mapping need to be corrected. For example, in Figure 10.1.3.2-1 of the EIS, the Reference Project Switchyard and APS 2 appear in the map legend, but not on the map. While the Reference Project Power Block is clearly highlighted, the rest of the reference project layout is not. Furthermore, the construction areas are not differentiated for each of the APSs. Also, the outlines of the cooling towers for APS 5 (Site C) are overlain on forest cover, without showing the overall footprint, which makes the potential impact harder to understand. Therefore, for better clarity, separate maps should denote the project layouts for the various APSs, in the same manner as the Reference Project is shown in Fig. 5.3.2-2 of the EIS.
73	10.1.7 SRG 1.4: Atmospheric – Baseline – Ambient Air Quality	10 of EIS	Provide additional information to justify the conclusion that the air emissions for alternative scenarios 1 through 4 are bounded by the reference project.	The proponent indicates that, with the exception of alternative scenario 5, all air emissions are bounded by the reference project. The measurable air emissions are not presented for all alternative scenarios and, therefore, the analysis is qualitative. For example, section 5 of the EIS discusses alternative project scenario 3 where Bruce Power intends to operate an incinerator. No baseline information has been provided on such an incinerator, and no further mention is made in section 10.3.6.2 when effects are discussed.
74	11.1 EFFECTS PREDICTION	10.5.5.2	Radiological Provide additional information about the implications to biota (aquatic and terrestrial) of the 100-fold increase in radionuclides in the waters of Baie du Dore.	A 100-fold increase is reported, but the effects are not evaluated or described in this section (and the cross-reference to other sections has not been provided). The increase is large enough that the effects warrant explanation.
75	11.1 EFFECTS PREDICTION	10.5.5.2	Radiological Provide the additional dose to terrestrial biota from sources of gamma radiation.	Dose calculations should factor all sources of radiation. Gamma radiation will be emitted from various onsite facilities including reactor buildings, the Western Waste Management Facility, the Dry Storage Facility, etc.). The gamma dose from these facilities does not appear to have been included in the dose calculations.

IR #	EIS Guidelines Section and Subject Heading	EIS Section	Information Request	Rationale
76	11.4.9 EFFECTS OF THE ENVIRONMENT ON THE PROJECT	11.2 (generally)	Effects of the Environment (including Climate Change) on the Project Section 11.2 “Effects of Climate Change on VECs (and relevant sections of the TSDs) should be substantially revised to incorporate the best available climate change impacts information for the project area.	The analysis in this section is very limited and, in several circumstances, the rationale and conclusions have not been substantiated (see Table 11.2.1-1) or do not address the issue at hand (see rationale/conclusions for lake levels and lake water temperature in Table 11.2.2-1). In most cases no local data have been referenced and no climate change impact studies or modelling results have been cited to support the rationale and conclusions (in particular, EC draws attention to the conclusions reached for groundwater recharge, nearshore Lake Huron, lake water temperature, lake water level, Baie du Dore, Loscombe Bank and Macpherson Bay --- see specific Information Requests below). In EC’s opinion, these analyses fail to meet the standard established in the EIS Guidelines in that they do not make use of the “best available information and methods” and they do not provide scientific substantiation for their conclusions (EIS Guidelines p. 8). The recommendation for every potential effect on a VEC is that no changes to the EA conclusions are warranted. These conclusions were reached even though some credible Ontario climate change impact studies have found that there could be some important changes over the lifetime of the project including: an increase in the intensity of extreme precipitation (Kharin et al., 2007; see comments concerning section 6.6.1.2); a decline in the levels of Lake Huron of 0.3 to 1.2 m by the 2050s (Mortsch et al., 2006; see comments concerning section 6.6.2.2); and an increase in the temperature of Lake Huron’s surface mixed layers of perhaps 3-6 ˚C by the end of the century (J. Lehman. 2002. Mixing Patterns and Plankton Biomass of the St. Lawrence Great Lakes under Climate Change Scenarios. Journal of Great Lakes Research, Vol. 28(4): 583-596). It is not expected that complex, original climate impacts studies would be conducted for the local area. However, this EA should incorporate the findings from the most credible existing sources concerning climate change impacts in Ontario. Important sources would include peer reviewed literature, the Ontario or Great Lakes portions of national assessments and reports for recognized bodies such as the International Joint Commission. EC can provide references that could serve as a starting point. An excellent survey of climate impacts across Ontario may be found in the Ontario chapter of the Canadian climate impacts report (Chiotti Q. and Lavender B.: Ontario; in From Impacts to Adaptation: Canada in a Changing Climate. 2007). It would be appropriate to focus on the potential changes to the environmental variables that could have the greatest impact on the project (Lake Huron water levels and temperatures, extreme precipitation intensity, etc.). It would be helpful to start section 11.2 with a summary of the anticipated range of climate change impacts for key parameters. These impacts could then be referenced in the subsequent Potential Effects tables.

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77	11.4.9 EFFECTS OF THE ENVIRONMENT ON THE PROJECT	Table 11.2.1-1	Effects of the Environment (including Climate Change) on the Project Provide information to substantiate the conclusions made regarding groundwater recharge.	The EIS states “Any adverse effects to recharge due to increased temperature may be considered to be largely offset by the increases in precipitation predicted”…”Changes to the groundwater recharge regime are determined to be negligible.” No analysis or substantiation has been provided to support this rationale and conclusion. Although the results of efforts to model climate change impacts on groundwater have been mixed, on balance, decreases in groundwater flow are expected for the Great Lakes (Mortsch L., Alden M., and Scheraga J. 2003. Climate Change and Water Quality in the Great Lakes Region – report to the IJC. pp. 44-45). “Evaporative losses due to climate change are expected to be well within the seasonal variation of evaporation…” This statement also has not been substantiated. A statement like this would need to be supported by a comparison between estimated evaporative losses under climate change and the current levels of evaporation. Many climate change impact studies expect important increases in evaporation under a changed climate. Similar statements about the range of evaporative losses and the balance between recharge losses and precipitation increases were made for the local overburden geology and local bedrock geology VECs.
78	11.4.9 EFFECTS OF THE ENVIRONMENT ON THE PROJECT	Table 11.2.2-1	Effects of the Environment (including Climate Change) on the Project Provide information to substantiate the conclusions made regarding Nearshore Lake Huron.	The “Changes to EA Conclusion” box indicates that “predicted changes to annual precipitation amounts and atmospheric temperatures are relatively small over the life of the project.” This statement has not been substantiated. GCM simulations of temperature and precipitation for the bounded climate change studies (warm & dry, not as warm & wet, etc.) for the Lake Ontario St. Lawrence River Study (Mortsch et al. Development of Climate Change Scenarios for Impact and Adaptation Studies in the Great Lakes – St. Lawrence Basin – report for the International Joint Commission, 2005) show a difference of 2˚ – 4˚ C in mean annual air temperature change by 2050 relative to 1961-1990 climate normals. Chiotti and Lavender (2007) shows an increase above baseline of 3˚ to 6˚ C for southern and eastern Ontario by the 2080s. These do not constitute “relatively small” changes.
79	11.4.9 EFFECTS OF THE ENVIRONMENT ON THE PROJECT	Table 11.2.2-1	Effects of the Environment (including Climate Change) on the Project Provide information to substantiate the conclusions made regarding lake water temperature.	The rationale box notes that “Any adverse affects of climate change resulting in significant increases in lake water temperature could affect the ability of the Project to operate within regulatory requirements.” This is an important vulnerability. However, no evidence relating to potential impacts of climate change on Lake Huron water temperatures has been presented. Lehman (2002 – see IR re: section 11.2) has noted potential increases in Lake Huron surface mixed layer temperatures of 3˚ – 6˚ C by the end of the century.

IR #	EIS Guidelines Section and Subject Heading	EIS Section	Information Request	Rationale
80	11.4.9 EFFECTS OF THE ENVIRONMENT ON THE PROJECT	Table 11.2.4-1	Effects of the Environment (including Climate Change) on the Project Provide information to substantiate the conclusions made regarding Baie du Doré, Loscombe Bank and MacPherson Bay.	The rationale sections note that reduced water levels may produce vulnerabilities for all three of these areas. However the point at which water level drops would become problematic have not been specified. The response in all three areas is that "predicted changes to annual precipitation amounts and atmospheric temperatures are relatively small over the life of the Project. These changes are not likely to result in notable changes to aquatic habitat." These conclusions have not been substantiated. As noted in comments about Table 11.2.2, substantial water level changes have been projected for 2050. EC recommends that the problematic water level changes for these three areas be specified and compared to the potential range of water level changes anticipated under climate change over the life of the project. The rest of Table 11.2.4 outlines several other aquatic environment effects that could result from changes to air temperatures, water temperatures and lake water levels. These potential changes would affect benthic invertebrates, lake whitefish and aquatic macrophytes. The same response/conclusion has been provided for each of VECs as was provided for the three nearshore areas above. As noted in our response for Table 11.2.2-1, substantial changes have been projected to Lake Huron surface water temperatures and lake levels under a changed climate which appears to contradict the responses/conclusions in the Table.
81	11.4.9 EFFECTS OF THE ENVIRONMENT ON THE PROJECT	Table 11.2.2-1	Effects of the Environment (including Climate Change) on the Project Provide information to substantiate the conclusions made regarding lake water level.	The rationale box notes that "Any adverse effects of climate change on the lake water budget significantly affecting lake water levels could effect the operation of the cooling water intake and discharge structures." This could constitute another important project vulnerability but no evidence relating to the potential impacts of climate change on Lake Huron water levels has been presented here. Mortsch et al. (Great Lakes Coastal Wetland Communities: Vulnerabilities to Climate Change and Response to Adaptation Strategies, 2006, p. 13-15) projected changes in Lake Huron water levels of 0.3 to 1.2 m by 2050.
82	10.1.7 CLIMATE, WEATHER CONDITIONS AND AIR QUALITY 11.4.7 ATMOSPHERE	12.5.5.1	Air Quality Provide information regarding air emissions from the Bruce Energy Centre (BEC).	No information has been provided that would support the proponent's conclusion that these emissions would not be important to cumulative effects to air quality. For example, a commercial alcohols facility operates at the BEC. Commercial alcohol facilities may be important sources of Particulate Matter (PM). Information about the largest sources from the BEC should be provided.
83	13 CUMULATIVE EFFECTS	12.3	Cumulative Effects Clarify whether projects that are not subject to an Environmental Assessment have been factored into the list of planned/future projects.	For various reasons, many large-scale projects are not subject to provincial and/or federal environmental assessments. Excluding such projects from the cumulative effects assessment undermines that assessment. Such projects should be incorporated into the cumulative effects assessment.

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84	11.3 SIGNIFICANCE OF RESIDUAL EFFECTS	14.2.2 and Table 14.2.2-1	Environmental Effects Evaluation Criteria The proponent needs to justify the evaluation criteria it is using to weigh residual adverse effects.	EC feels that the evaluation criteria as defined, or as applied, are inadequate to characterize residual adverse effects: • The definition of the criteria or application of the criteria excludes important factors. For example, "Timing and Duration" is defined according to what phase the Project is in, such as Site Preparation, Construction, Commissioning, etc. However, for many VECs, what is most important is the timing and duration of the effect as it coincides with critical life-stages (e.g. hatching, reproduction, etc.). • The criteria cannot be universally applied across all VECs. The definition of what constitutes a "low", "moderate", or "high" will often be dependant upon the VEC. For example, for the "Probability of Occurrence and Frequency" 1-2 events/year may be more generally appropriate as a "low" for some VECs as opposed to several times per year. Several times per month may rate as a "high" for many VECs, as opposed to the "moderate" rating that has been defined. • Interpretation based on expert judgement needs to be vetted. For example, one can argue that in a situation where baseline contaminant levels are low in the environment, the ecological context suggests that any inputs of contaminants into that clean environment should be deemed of "high" significance rather than "low". A concrete example from the EIS document can be found on page 14-10, Table 14.2.3-1, 1st Row, where the "Probability of Occurrence and Frequency" for a permanent loss of habitat is deemed to be "low" despite the fact that it will occur with 100% certainty; arguably this should be rated as a "high". • Significance levels (low, moderate, high) should be assigned on the residual effects of mitigation that have been committed to by the proponent, not the residual effect of a hypothetical mitigation. For example, for the "Degree of Reversibility", one can only assign a lower level of significance for habitat loss if there is a commitment to undertake habitat restoration. In other words, while the potential for reversibility exists, if no habitat restoration efforts are undertaken the habitat loss arising from the Project may be permanent and should have a higher significance rating.
85	10.1.1 Geology and Geomorphology; 11.4.9 Effects of the Environment on the Project	EIS Vol 3. section E.3.2.3, Geology and Hydrology TSD ss. 4.6, 8.1.3	Earthquake In addition to peak ground acceleration and velocity, the spectral acceleration values should also be provided. Specifically, the 1/10,000 spectral values should be plotted on Figure E3.2.3-1.	This figure needs to be provided to demonstrate the margin of safety.
86	10.1.1 Geology and Geomorphology; 11.4.9 Effects of the Environment on the Project	EIS Vol 3, section E4.2.4.4.2.3	Where the document references the "Bruce (design basis earthquake) of 0.3g PGA", it should clarify the source of this value. Where the document indicates "exceeding 0.5g", specify what type of ground motion	We are looking for clarification on where the Bruce design basis earthquake (DBE) was established. It is our understanding that the DBE was a design property of the reactor, not of the site. We expect that the type of ground motion is PGA, but this should be clarified.

IR #	EIS Guidelines Section and Subject Heading	EIS Section	Information Request	Rationale
87	10.1.1 Geology and Geomorphology; 11.4.9 Effects of the Environment on the Project	EIS Vol 3, section E3.2.3 Earthquake	With reference to the statement that “building foundations will be placed directly on the bedrock, thereby allowing the best seismic resistance possible” (emphasis added) we note that building on bedrock does not provide improved seismic resistance; however it does reduce the amplitude of the earthquake shaking from that on soil.	We expect that “least seismic amplification possible” was meant, but this should be clarified
88	10.1.1 Geology and Geomorphology; 11.4.9 Effects of the Environment on the Project	EIS Vol 3, section E4.3.4.3.3 Seismic events	Within the statement in the EIS indicating that the "seismic margin assessment investigated the margin incorporated into the design of the US-EPR . . .(which) corresponds to an earthquake magnitude of 1.3 g in the 2-10 Hz range", the word “magnitude” is incorrect. The proponent should explain what was intended.	We suggest that “5% damped spectral acceleration” is possibly correct, but this should be confirmed by the proponent.

IR #	EIS Guidelines Section and Subject Heading	EIS Section	Information Request	Rationale
89	11.1 EFFECTS PREDICTION 10.1.2 SURFACE WATER 11.4.2 SURFACE WATER	HWQTSD – Appendix E	Thermal Plume Modelling The baseline data used to support the thermal plume modelling is deficient and requires the following improvements: • additional data and information about currents, including monitoring during the Fall-Winter-Spring periods; • additional bottom temperature monitoring locations, including monitoring during the Fall-Winter-Spring periods.	EC's rationale for the above requests is as follows: Currents: Only one Acoustic Doppler Current Profiler (ADCP) was deployed for four months in 2007. Because this was a 600 KHz ADCP deployed at the bottom, it is incapable of providing data regarding near-bottom currents. This is an important gap since there is no basis to assume that currents are uniform over the entire depth (i.e. from surface to bottom). Historical data presented at Bruce B is close to the ADCP that was deployed in 2007, but no information has been provided as to the depth of those deployed current monitors; additional information about the previous monitoring studies should be provided. Furthermore, there are a number of studies in the literature that should be reviewed as these studies have important findings that are relevant to understanding currents in the vicinity of the Project. In one study that is particularly relevant (Murthy and Dunbar. 1981. Journal of Physical Oceanography, Vol 11, 1567-1577), several current meters were deployed off of Douglas Point in a coastal chain. More recently, this region was modelled using 3D hydrodynamic and thermal models. Quite a bit of diffusion work using drogues and dyes was done in this area in the 1970s (a literature list can be provided by EC). In summary, the various studies demonstrate that shore parallel currents are quite common in this region. These studies consistently show the complicated nature of current climatology from nearshore to offshore regions, with shore parallel currents adjusting to the local bottom and shoreline. In light of the complicated nature of currents in the vicinity of the Project, the single current meter deployed in 2007 is insufficient to describe the spatial and temporal structure of coastal circulation in this area. In regards to temporal structure, it is important that monitoring be conducted to be able to explain some of the seasonal variability associated with storms in Fall and Spring and general currents in the Winter in this area; the 2007 monitoring only covers the Summer period. Temperature: Overall monitoring is very limited for a very brief period (in summer) with a limited number of monitoring locations. This is not sufficient as it provides no information on how seasonal variability affects the plume configuration and associated impacts in the nearshore zone. Only three stations measured bottom temperatures. To get a density profile one has to have temperature data at other depths. It is important to establish the thermocline. Knowledge about the thermocline is particularly important if a diffuser is used for the discharge, but the report does not demonstrate where the thermocline is located at different times. It should be noted that the thermocline can vary as much as 10-30 m during changeovers from rapid upwelling and downwelling. It is difficult to see the variability associated with inertial oscillations in the thermocline because only daily averaged temperatures were used. Oscillations in the range of several metres and many degrees of centigrade is quite common over a typical period of approximately 17 hours. This will have an important influence on how the plume is mixing and transported away from the nearshore zone. Substantial variability of the surface mixed layer is also observed from day to night, which will also have an important influence on how the thermal plume behaves in this area.

IR #	EIS Guidelines Section and Subject Heading	EIS Section	Information Request	Rationale
90	11.1 EFFECTS PREDICTION 10.1.2 SURFACE WATER 11.4.2 SURFACE WATER	HWQTSD – Appendix E	Thermal Plume Modelling The near-field plume modelling requires the following improvements and/or should be conducted based on the recommendations described in the rationale.	If the UM model of Visual Plumes was used (not clearly indicated in the report), then the model is not appropriate not only at zero and near zero current values, but also when the currents are not perpendicular to the diffuser. This needs to be acknowledged and accordingly other assessments have to be made. From the literature and data presented in the reports, there are periodic instances where currents are sub-parallel to the diffuser such as when the bottom currents are towards the shoreline (upwelling scenarios) or bottom currents move away from the shoreline (downwelling scenarios). In order to address these issues, the proponent should clearly demonstrate that their choice of current ranges and directions are appropriate for this study. Also, how far away exactly is the ADCP location with respect to the proposed diffuser? Although bottom currents tend to follow the alongshore bathymetry in the Great Lakes, some differences are observed in cross-shore components within a one km radius. It is recommended that the modelling be conducted with the ADCP currents rotated with respect to the shoreline or depth contour to assess the frequency distribution of onshore/offshore components and provide the frequency distributions. The Visual Plumes model now has the capability of treating unsteady currents as well as density stratification. Initial dilution calculations with time series of actual measured currents and temperatures should be conducted. This will be critical for understanding the unsteady nature of thermal plumes. Furthermore, from an environmental perspective it is important that events and extremes are modelled, not just the typical or mean values. Some extreme events (10 year or more return periods) should be simulated.
91	11.1 EFFECTS PREDICTION 11.4.2 SURFACE WATER	HWQTSD – Appendix E	Thermal Plume Modelling The far-field plume modelling requires the following improvements and/or should be conducted based on the recommendations described in the rationale.	Regarding model calibration, currents are not independently verified with a station that is different from the boundary forcing. The model is forced with boundary conditions that are interior within the domain and compared again with the same data sets. This is generally not an acceptable calibration or verification. A proper calibration should have consisted of providing open boundary conditions either from a lake-wide model or rigorous field measurements. The most important aspects in this hydrodynamic application should be obtaining good stratification and near shore current data. As noted in EC's comment regarding baseline temperature data, there is insufficient temperature data to describe stratification; furthermore, daily averages are shown whereas thermal plumes mix at higher frequencies (playing an important role in advection and dispersion of the plume.)

IR #	EIS Guidelines Section and Subject Heading	EIS Section	Information Request	Rationale
92	11.1 EFFECTS PREDICTION 11.4.2 SURFACE WATER	HWQTSD – Appendix E	The proponent should evaluate alternative discharge depths (preferably at greater depths) and model plume behaviour at those depths.	Under the assumption of a 2 m drop in the future level of Lake Huron, the model appears to have produced only 2.6-3.0 dilutions with the proposed location of the diffuser. This raises the fundamental question of the effectiveness of the diffuser at this location. Modelling should have been conducted at different depths with detailed temperature structure and currents before suggesting the location for this outfall. It should also be noted that a 2 m drop in water depth will also result in higher ambient water temperatures, particularly in the nearshore; it does not appear that this was factored into the above model scenario.
93	11.1 EFFECTS PREDICTION	HWQTSD – Appendix E	Thermal Plume Modelling The modelling design inputs and data outputs should be provided for review.	There are many modelling inputs that are not discussed in the report. For example, it is unclear as to whether uniform density was selected in the density specification for the Visual Plumes model. The report should also discuss whether Visual Plumes has the capability of treating the 4oC related effects of freshwater because the Visual Plumes density calculations are based on seawater density equations for temperatures greater than 4oC. For the RAM-10 model, only the salinity transport modelling equation is shown. No information is provided regarding the temperature and thermal energy balance equations. How is the density obtained in the momentum equation and continuity equations? What are the values of eddy diffusivities used in the model? Is the bathymetry data up-to-the date, what is the resolution, and can it resolve the coastal details? These are examples of the type of information that is required in order to conduct a proper review of the thermal plume modelling.
94	11.1 EFFECTS PREDICTION 11.4.2 SURFACE WATER	HWQTSD - Appendix E	Thermal Plume Modelling Estimates of the periods of time during which sinking plumes would occur in the vicinity of Loscombe Bank and Baie du Dore.	In conjunction with historical periods of ice cover in the vicinity of Bruce A (see Information Request re “AETSD – 4.1 (generally) and HWQTSD Appendix E”), the proponent should estimate the maximum periods of time in terms of dates and duration during which lake-bottom thermal plumes are expected to occur in the vicinity of Bruce A and the areal extent of benthic water temperatures greater than 6˚ C to the 25th and 75th percentile. This information is necessary to understanding the potential thermal effects upon fish eggs (particularly whitefish) in these areas.
95	11.1 EFFECTS PREDICTION 11.4.2 SURFACE WATER	HWQTSD Appendix E	Thermal Plume Modelling All figures/maps that illustrate the results of thermal plume modelling should clearly identify Loscombe Bank (and other important fish habitat) on the figure/map.	This information will facilitate the interpretation of the modelling results as it pertains to potential thermal impacts upon Loscombe Bank and other important fish habitat.

IR #	EIS Guidelines Section and Subject Heading	EIS Section	Information Request	Rationale
96	11.4.2 Surface Water SRG 5.1: Baseline Surface Water Quality and Sediment Quality	EIS Vol. 3: Appendix F Table F-4 Significance Levels For Magnitude For The Aquatic Environment	Include federal and provincial water quality and sediment values protective of aquatic life (CCME 200714; MOE 199915; MOE 200816) as part of the 'Effects Level Definition' (as presented in Table F-4 of Appendix F of the EIS for aquatic environment waterbody VECs Baie du Doré, MacPherson Bay, and Stream 'C').	As stated in Section 11.4.2 of the EIS Guidelines, the EIS must provide a description of how liquid emissions could affect surface water quality and an indication of what will be done to avoid or mitigate negative effects must be provided. Baie du Doré, MacPherson Bay, and Stream 'C' are identified as aquatic environment VECs in Table F-4. The Effects Level Definition for Baie du Doré and MacPherson Bay use provincial (MOE 1999) 15 surface water values protective of aquatic life. The effects Level Definition for Stream 'C' does not use surface water values protective of aquatic life. The Effects Level Definition for all these three waterbody VECs does not use sediment quality guidelines protective of aquatic life The Effects Level Definition for all these three waterbody VECs should utilize both provincial (MOE 1999) and federal (CCME 2007) 14 guidance surface water quality values protective of aquatic life and provincial (MOE 2008) 16 and federal (CCME 2007) sediment quality guidelines protective of aquatic life.
97	Section 10.1.7 Climate, Weather Conditions and Air Quality; Section 10.2.6 Human Health; Section 11.4.7 Atmosphere; Section 11.5.3 Aboriginal Traditional Land Use	Section 4.2 Existing Air Quality; Air Quality and Noise Technical Supporting Document, page 86	1. In addition to the identification of project activities that may be a source of radionuclides, HC suggests that the Environmental Impact Statement (EIS) also identify project activities that may be sources of non-radionuclide contaminants such as polycyclic aromatic hydrocarbons (PAHs) volatile organic compounds (VOCs), nitrous oxide (NOx), Persistent Organic Pollutants (POPs), petroleum hydrocarbons, and metals. Identification of sources of NOx and VOCs would be particularly important as they are considered precursors for ground-level ozone and Tiverton's ambient air quality monitoring station data show that ozone levels at some times, particularly during summer months, exceed the Canada Wide Standard (CWS, 2000)1.	Although it is recognized that radionuclide contamination of air and country foods (e.g. foods harvested by hunting, fishing, small-scale farming) is of primary concern for nuclear power plant operation, other non-radionuclide contaminants may also be a potential human health issue if present at elevated levels. The identification of sources of non-radionuclide contaminants (e.g. fossil fuel operated equipment) and their potential contribution to air quality and country foods contamination would assist HC's understanding of any potential human health implications. Non-Nonradionuclide contaminants may be associated with many human health outcomes such as respiratory illness, premature death (e.g. ozone 2,3) and cancer (e.g. diesel engine exhaust is designated as a probable human carcinogen by the International Agency for Research on Cancer4).

IR #	EIS Guidelines Section and Subject Heading	EIS Section	Information Request	Rationale
98	11.4.9 EFFECTS OF THE ENVIRONMENT ON THE PROJECT 11.1 EFFECTS PREDICTION	AQNTSD 4.1.2	Effects of the Environment (including Climate Change) on the Project If the proponent chooses to use climate change scenario applications to assess climate change impacts then the proponent should demonstrate that the scenarios have been constructed following guidance from the most credible sources including the Intergovernmental Panel on Climate Change (IPCC-TGICA, 2007: General Guidelines on the Use of Scenario Data for Climate Impact Assessment) and/or the Canadian Climate Change Scenarios Network (CCCSN).	The climate change scenarios reported in the EIS and TSDs were based on runs from a single General Circulation Model (GCM). This is a departure from the guidance of the Intergovernmental Panel on Climate Change and Canadian Climate Change Scenarios Network. These groups recommend that practitioners use at least two (but preferably more) GCMs and multiple emissions scenarios. The use of a single GCM for this project may result in a failure to capture the range of uncertainty in projections of future states of the climate. Guidance about scenario construction is available on the CCCSN web site http://www.climatechangescenarios.ca/The_Network/The_Network-e.html In particular it is recommended that multiple GCMs and multiple emission scenarios be employed in an attempt to reflect and bound the range of uncertainty in climate projections for the parameters and time periods of interest. If only a small number of scenarios are used, then they should be selected to represent the extreme range of changes projected for the region. However, as noted in the comments pertaining to section 11.2 of the EIS, it is expected that climate change impacts guidance in the EA would be primarily drawn from the most credible sources from the existing climate change literature.
99	11.4.9 EFFECTS OF THE ENVIRONMENT ON THE PROJECT	AQNTSD - 8.3	Effects of the Environment (including Climate Change) on the Project Provide information to substantiate the conclusion that climate change will result in reduced road and fugitive dust emissions.	The second “rationale” box in a Table 8.3-1 indicates that increased precipitation will result in reduced road and fugitive dust emissions. However, no data or references have been provided to substantiate this conclusion. EC suggests that the conclusion that climate change will result in reduced road and fugitive dust emissions cannot be supported and indeed runs counter to the results of several Canadian climate change impact studies. Most Canadian climate change studies involving water resources have concluded that overall moisture availability will decline over much of North America despite increasing total precipitation. For example, Natural Resources Canada reported that “regional projections include declining Great Lakes water levels, decreasing soil moisture in southern Canada and a reduction in wetlands in the prairies” (Natural Resources Canada, Lemmen, D. and Warren F. ed. 2004. Climate Change Impacts and Adaptation: A Canadian Perspective. p.38).
100	11.4.9 EFFECTS OF THE ENVIRONMENT ON THE PROJECT 11.1 EFFECTS PREDICTION	AQNTSD – Appendix F – F3	Effects of the Environment (including Climate Change) on the Project Provide the full reference (and a URL if possible) for the document on evaluating climate change for northern Canada environmental assessments that was used as the basis for selecting climate change scenarios for this EA (reference 920 – missing from EIS chapter 17 - References).	Self-explanatory.

IR #	EIS Guidelines Section and Subject Heading	EIS Section	Information Request	Rationale
101	9.3, 10.1.5, 11.4.5, 15 SRG 7.1: Baseline Aquatic Flora, Fauna and Protected Species SRG 7.2: Aquatic Baseline Food Chain SRG 7.3: Baseline Aquatic Habitat	Aquatic Environment TSD Figure 4.1.2-1; section 4.1.3	Summarize baseline information on the ecological context for fish habitat use of the nearshore Douglas Point area as a potential critical larval migration corridor for the lake ecosystem.	The potential adverse effect of thermal discharge jets on transport of larval fish [Aquatic Environment TSD sec 4.1.3] has been noted in past work at the Bruce site (OHN 1999:6-256). The Douglas Point headland juts out 3.1 km into lake. The existing discharges disrupt the nearshore area and there are intake suction fields associated with Bruce A&B, along with effects from a diffuser. A total of 5 discharges plus 4 intakes are planned to be operating in the future. The non-surface intakes and diffuser can cause mortality because not all fish larvae drift on the surface (Hook et al 2006)6. Given the lake bathymetry and lake currents in the Douglas Point area of Lake Huron, this could be a bottleneck area for a larval transportation corridor. Also, the future expectation is that lake levels will drop another two metres [Hydrology and Water Quality TSD: Table E9]. This could make an existing migration corridor narrower and potential thermal/physical barrier effect worse.
102	10.1.2 Surface Water SRG 5.1: Baseline Surface Water Quality and Sediment Quality	Aquatic Environment TSD: Section 2.5.3.1 (Data Sources)	Describe the water quality environmental baseline information in Stream 'C' within the Site Study Area as presented in EIS reference [108]9.	As stated in Section 10.1.2 of the EIS Guidelines, the EIS must describe surface water quality, hydrology and sediment quality at the site, local and regional study areas, provide a description of sampling protocols and analytical methods, and provide maps and figures where appropriate. As such, any water quality and sediment quality data for in Stream 'C' contained within EIS reference [1089] should be presented in the EIS. Expectations would be that the proponent would provide within the EIS all or a summary of available water quality and sediment quality collected in Stream 'C' including information contained within EIS reference [108]. If this information is not provided, a rationale for its exclusion is expected. Without this environmental baseline information conclusions of the EIS cannot be confirmed.
103	10.1.2 SURFACE WATER 11.4.2 SURFACE WATER	AETSD - 4.1.5.3	Water Quality Additional information should be provided regarding the potential for Morpholine to be transported to the Baie du Dore where it may accumulate and potentially have an effect on aquatic biota.	Section 4.1.5.3 mentions Morpholine as one of the chemicals discharged via cooling water that may affect water quality. Table 4.4.2.2-1 of the HWQTSD indicates that there were exceedances at both the Bruce A and B discharge of the interim Provincial Water Quality Objectives (PWQO) of 4 ug/l (reported data ranged from 4 to 6 ug/l). The AETSD also states that Morpholine's effects on water quality are largely limited to the Bruce A and Bruce B discharge channels despite the fact that Morpholine concentrations at Baie du Dore were near the PWQO at 2 and 3 ug/l. The finding of measurable levels of Morpholine slightly less than the levels measured in the discharge channels raises the question of whether the chemical is being transported to the Baie du Dore where, due to its moderately persistent characteristics, it may accumulate.

IR #	EIS Guidelines Section and Subject Heading	EIS Section	Information Request	Rationale
104	10.1.5 AQUATIC ENVIRONMENT 11.4.5 AQUATIC ENVIRONMENT 11.1 EFFECTS PREDICTION	AETSD – 4.1.4	Aquatic Environment More thermal surveys are required for the lake bottom waters in the vicinity of Loscombe Bank during the winter.	These additional surveys are required because the critical issue for the whitefish spawning shoals of Loscombe Bank is the temperature of the lake bottom waters during the winter months (since temperature may be deleterious to the over-wintering eggs). As part of the follow-up program for the refurbishment of Bruce A, a survey was conducted in 2004 to validate the predicted temperatures on the lake bottom for Loscombe Bank with the two units of Bruce A currently in operation. However, the survey was conducted with limited success because of the loss of a substantial number of temperature recorders due to hostile weather conditions. Whereas, there is a plethora of surface water surveys for thermal conditions in the summer, the lack of winter surveys of lake bottom conditions does not allow for an accurate estimate of annual variability during full operation of Bruce A or a solid validation of current models to accurately predict winter conditions. Worst case conditions for the winter months should be modelled, including the 25th percentile of isotherms expected on the lake bottom. Studies will also be required once all four units of Bruce B are in full operation in order to verify therm plume modeling predictions.
105	10.1.5 AQUATIC ENVIRONMENT	AETSD - 4.2.2.3	Aquatic Environment Adult whitefish surveys should be continued in vicinity of Bruce Power during their spawning season in the fall.	Previous surveys have found adult whitefish in the vicinity of Gunn Point and Loscombe Bank during the pre-spawning season (Golder, 2005; AE TSD, pg. 62), however, the presence of "running ripe females" was not confirmed. Surveys should be continued in an attempt to determine spawning condition of the whitefish population during baseline work. Female whitefish should be examined to determine if they are gravid, ripe and running or spent, and likewise, males should be examined to determine spawning condition with water temperatures, dates, fish lengths and weights recorded.
106	10.1.5 AQUATIC ENVIRONMENT 11.4.5 AQUATIC ENVIRONMENT 11.1 EFFECTS PREDICTION	AETSD – 4.1 (generally) and HWQTSD Appendix E	Aquatic Environment Provide a historical perspective of periods of time and areal extent of ice cover along the shoreline in the vicinity of Loscombe Bank and Baie du Dore.	The modelling of thermal plume behaviour should factor in baseline data for ice cover. Normally under conditions of ice cover, successful whitefish egg development increases due to lower variability in thermal conditions due to less wind and wave action and more stable water temperatures. However, on calm winter days and under ice cover, the thermal plume at Bruce A tends to sink and move under the denser ambient water and can become trapped on the lake bottom because of insufficient vertical mixing (Golder, 2005; AETSD, pg 30). This may also occur with the thermal plume of the Project. The susceptibility of whitefish eggs to excessive temperatures would be at a maximum under such conditions.
107	10.1.5 AQUATIC ENVIRONMENT	AETSD – 4.2.2.3	Aquatic Environment Tows for whitefish larvae should be continued at appropriate depths in area of MacPherson Bay and along the shoreline further north, encompassing Loscombe Bank and Baie du Dore	Golder (2005) "Bruce A Refurbishment for life Extension and Continued Operations Project Environmental Assessment, Aquatic Environment Technical Support Document; August 2005" states that whitefish larvae feed on zooplankton in shallow protected bays during the spring for an initial two months prior to moving into the lake. Therefore, locations of larval tows should include Baie du Dore and the inner recesses of MacPherson Bay within the two-month window of opportunity after final hatch.

IR #	EIS Guidelines Section and Subject Heading	EIS Section	Information Request	Rationale
108	10.1.5 AQUATIC ENVIRONMENT	AETSD – 4.2.2.3	Aquatic Environment Additional baseline monitoring of Stream C should be undertaken on a periodic basis over a one year period.	The AETSD (pg. 93) reports that brook trout, rainbow trout and brown trout spawn in Stream C. Water quality should be characterized (including dissolved oxygen levels and temperature) periodically throughout the year at selected locations. Winter monitoring is important since the trout eggs will overwinter prior to hatch, and because brook trout are reported to be permanent (year-round) residents. A baseline inventory of submergent and floating vegetation should also be undertaken. Submergent vegetation is important since it provides cover. Floating vegetation, if present, helps to keep the stream cool enough for the trout species that inhabit Stream C. Stream vegetation should be added as an indicator of effects on Stream C (HWQTSD, Table 2.3.4-1). It is important to establish this baseline information so that any impacts that may occur over the duration of the Project can be identified and rectified.
109	10.1.5, 11.4.5, 15 SRG 7.1: Baseline Aquatic Flora, Fauna and Protected Species	Aquatic Environment TSD 4.2.2.1	Provide more detailed spatial and temporal presentation of aquatic macrophyte baseline data for Baie du Dore.	A residual adverse effect is predicted to aquatic macrophytes due to decreased Stream C water quality and may be expected due to the predicted level of thermal effects in Baie du Dore. To validate subsequent conclusion of no significant effects baseline quantitative information on Baie du Dore aquatic macrophytes is needed. Macrophytes provide important fish habitat. The last quantitative survey was done in 1979 [Aquatic Environment TSD: 65] and no survey suitable for change detection has been done since [4.2.2.1:81]. Past site literature summaries have not been presented (OHN 1999: 6-89).
110	8.1 GENERAL INFORMATION AND DESIGN DESCRIPTION 8.4 OPERATION AND MAINTENANCE	BPETSD – 2.5	Bounding Plant Envelope A clearer and more descriptive presentation of the Service Water and Cooling Water systems should be provided for the various reactor designs (see also the related Information Requests that follow in 112 and 113) which can be treated as a subset of this Information Request).	The descriptions for the competing reactor designs are presented with minimal detail. This is problematic since Service Water and Cooling Water systems are components of nuclear generating stations that directly interact with the environment. It is important to fully understand how these systems are designed and how they function for each of the reactor designs. The information regarding recycling and discharging is incomplete and, at times, confusing. For example, the section describes essential service water and cooling water systems as well as plant service water and plant cooling water systems for the ACR1000 and further states that all four divisions operate simultaneously under normal and accident conditions but does not clearly state what “divisions” refers to. Do the four divisions refer to the four independent quadrants of the essential service and cooling water systems or does it refer to the two essential systems and the two plant systems? For each of the reactor technologies it also is not clear how the various water systems are connected and where the discharges/recycling may occur. Diagrams showing the water system specific to each reactor technology should also be provided. The above information is important since water conditioning chemicals and/or activation products such as tritium and fission products may exist in these water systems under certain conditions.

IR #	EIS Guidelines Section and Subject Heading	EIS Section	Information Request	Rationale
111	8.1 GENERAL INFORMATION AND DESIGN DESCRIPTION 8.4 OPERATION AND MAINTENANCE	BPETSD 2.2.7 and Table 2.2.7-1	Bounding Plant Envelope Provide comprehensive information about the specific release pathways, and the fission and activation products released, in the existing Candu systems and the competing reactor technologies. Provide information about the type of radiation (alpha, beta, gamma) associated with the radionuclides that are released.	Although the potential release to the environment of some of the radionuclides is mentioned in various sections of the BPETSD, comprehensive information indicating the specific pathways of radionuclide releases to the environment is not provided in either the EIS or the TSD. It would be useful to know where in the reactor system the releases of various fission and activation products occur. As for the types of radiation emitted (alpha, beta, gamma), although this information may be available elsewhere it would be helpful if the information was tabled with the pathways information requested.
112	8.1 GENERAL INFORMATION AND DESIGN DESCRIPTION 8.4 OPERATION AND MAINTENANCE	BPETSD - 2.2.3.4	Bounding Plant Envelope Additional information should be provided to explain the design flow rates for the Once-Through Condenser Coolant Water for the various reactor technologies.	The BPETSD (Section 2.2.3.4 and Table 2.2.3.5-1) describe the different Condenser Coolant Water (CCW) systems of the competing reactor designs. Table 4.5.3-2 in the TSD specifies the water flow rate for the CCW systems of the competing designs which show that while the ACR1000 requires a CCW flow rate of 0.026m3/s per MWth of heat load to Lake Huron, the AP1000, EPR and the ESBWR designs all require slightly less than 0.024m3/s. Despite this difference in flowrate per unit heat load to Lake Huron, all reactor designs propose to comply with the maximum water discharge temperature of 32.2˚C. The additional information requested should explain why the ACR1000 reactors require a higher flowrate than the other reactor designs for once-through CCW and whether the reported flowrates will result in comparable discharge temperatures and, if not, what the differences will be and what effect this may have on Lake Huron.
113	8.1 GENERAL INFORMATION AND DESIGN DESCRIPTION 8.4 OPERATION AND MAINTENANCE	BPETSD-2.2.3.3 & 4.3.3	Additional information should be provided regarding the turbine generator and feedwater systems for all of the reactor designs, specifically in relation to steam generator blowdown (and its treatment) for the discharge of feedwater chemicals to the environment.	This information is necessary to allow for the review of the bounding value. The information provided (BPETSD -2.2.3.3 & 4.3.3) is incomplete and confusing, as described below. The BPETSD indicates that blowdown of the steam generators remove about 1% of the feedwater volume to remove impurities. Additionally, Table 4.8.2-1 of the BPETSD lists discharge rates of non-radioactive chemicals in liquid effluent but does not include discharge rates for feedwater chemicals. Although Table 4.3.5-1 provides steam generator blowdown rates and feedwater concentrations for hydrazine and morpholine for each reactor design, the total volume of steam generator blowdown water per unit time or the frequency and duration of blowdowns are not given, hence it is not possible to know how much steam generator blowdown water needs to be treated. Furthermore, Table 4.3.5-1 shows that all reactor designs except EC6, will have zero discharge rates of feedwater blowdown discharge to the environment. However in section 2.2.3.3, the proponent indicates that the EPR and the AP1000 may discharge blowdown water for waste water treatment and discharge to the environment if the demineralized water was overly contaminated. The BPETSD should provide a mor accurate presentation that includes the potential for discharge of blowdown water to the environment that accounts for situations when the water is still not recyclable after demineralization.
114	10.2.7 SRG 17.1: Physical and Cultural Heritage - Baseline	2.3.4; 4.0 of Cultural and Heritage TSD	Describe aquatic cultural and heritage resources in the site study area or provide a rationale for excluding the need for this baseline information.	No mention is made of aquatic cultural or physical heritage resources and/or a rationale for their exclusion. Therefore, unable to validate effects analysis and conclusions on significance of physical and cultural resources effects.

IR #	EIS Guidelines Section and Subject Heading	EIS Section	Information Request	Rationale
115	Section 10.1.3 – Baseline environment, Groundwater Environment.	Geology and Hydrogeology TSD, section, 4.3.3.	The description of the groundwater environment needs to be updated to include more and better hydrogeological data, figures, maps and interpretation. This should include: • compilations of historical water level and hydraulic conductivity data; • graphs showing groundwater level fluctuations in monitors; • water level maps with numerical data points; and, • delineation of recharge and discharge areas and; discussion of groundwater interactions with surface water. A description and diagram of the conceptual hydrogeologic model would be very helpful for most readers to understand, in a simplified manner, the local and site groundwater flow systems.	Several elements of the description are insufficient. In particular, few hydrogeologic data are presented and the characterization of hydrogeologic units is inadequate. Despite the large number of monitoring wells and extensive historical data sets, there are no compilations of historical water level and hydraulic conductivity data. Even the new monitors installed specifically for this study do not have reported hydraulic conductivity testing data and results or water level data. There are no graphs showing groundwater level fluctuations in monitors (to assess temporal patterns of fluctuations); water level maps do not show numerical data points (and these data do not appear as tables in the report). Recharge and discharge areas are not delineated and there is little discussion of groundwater interactions with surface water.
116	Section 10.1.3 – Baseline environment, Groundwater Environment.	Geology and Hydrogeology TSD, section, 4.3.3.	Figures 4.3.3-1 and 4.3.3-2 show maps of the water level contours for the water table and shallow bedrock at the site scale. These maps are insufficiently documented. The groundwater flow paths are problematic in the vicinity of the WWMF; there is an inferred groundwater divide yet there is an inferred groundwater flow direction (arrow) that crosses adjacent to that divide (starting near the 182.5 m contour and passing next to the 185 m contour). These figures/maps should be updated and, if possible, delineate the areas draining to various surface waters (e.g. areas draining directly to the lake vs. those draining to stream "C"). It would be useful to comment on whether most of the groundwater flow from the upland portion of the watershed (i.e. above the Algonquin bluff) discharges to wetlands and stream "C" or directly to the lake.	It is not clear which wells were used to make each map, the numerical values of the water levels at each well, and the date(s) of the water level measurements. The presence (and extent) of a groundwater divide within the Douglas Point Promontory is significant. In effect, it may demonstrate the presence of a localized groundwater flow system on the Douglas Point Promontory that is separate from the groundwater flow system arising from the headwaters of the regional and local watersheds.
117	Section 10.1.3 – Baseline environment, Groundwater Environment.	Geology and Hydrogeology TSD, section 4.1.1	An anticipated environmental effect of construction is that the change in the ground surface will ultimately affect groundwater recharge. The explanation presented for the assessments of this effect is: "The net reduction in infiltration to groundwater would be well within the range of seasonal variations, and therefore not measurable in isolation from other variations. Accordingly, the effect on the localized groundwater flow regime (i.e. water levels and flow directions) and groundwater recharge would also be expected to be well within the range of seasonal variations". This explanation does not seem rational and needs to be clarified.	The hardened surfaces will effectively eliminate groundwater recharge in some areas causing deflections in the groundwater flow directions (towards these low/no recharge areas). There will likely be small water level variations in these areas. Furthermore, the comparison to "the range of seasonal variations" is meaningless to the reader since these have not been described or quantified in the TSD. The assessment of this effect is qualitative and should be both explained more clearly and considered more quantitatively.

IR #	EIS Guidelines Section and Subject Heading	EIS Section	Information Request	Rationale
118		Geology and Hydrogeology TSD, section, 6.2.2.3	The equation, assumptions, data input and calculations to support the assessment of the lowering of the groundwater table should be provided. Is this equation is based on an equivalent porous media approach? Would that apply to the bedrock aquifer? No data on fracture porosity were presented in the TSD. Were there any previous pump tests performed on the site? Are there any relevant reports related to dewatering that presumably would have been necessary for the construction of Bruce A and Bruce B?	One of the anticipated environmental effects is lowering of the groundwater table related to the dewatering during the Construction Phase. The assessment of the impact states that an analytical dewatering equation was used to estimate a zone of influence of approximately 400 m. However, the equation, assumptions, data input and calculations to support this prediction are not provided. Data on fracture porosity would be relevant to the potential impacts of dewatering.
119	10.1.2 Surface Water SRG 5.1: Baseline Surface Water Quality and Sediment Quality	Hydrology and Water Quality TSD: Section 4.4.1.2 Site Study Area Drainage	Describe the site drainage (flow paths, runoff quantity and quality) for all catchments within the Site Study Area, including Site Study Area information as presented in EIS references [195]7 and [196]8.	As stated in Section 10.1.2 of the EIS Guidelines, the EIS must include a delineation of drainage basins, a description of hydrological data and hydrological regimes of all surface waters, provide a description of sampling protocols and analytical methods, and provide maps and figures where appropriate. Section 4.4.1.2 of the Hydrology and Water Quality TSD states: "Site drainage (flow paths, runoff quantity and quality) for all catchments within the Site Study Area was investigated and documented [1957, 1968]." Expectations would be that the proponent would provide within the EIS all or a summary of site drainage water quality data collected in the Site Study Area including information contained within EIS references [195] and [196]. If this information is not provided, a rationale for its exclusion is expected. Without this environmental baseline information conclusions of the EIS cannot be confirmed.
120	10.2.4 SRG 16.1: Land Use and Values Baseline	6.3.2 of the Land Use and Resources TSD.	Provide information on the baseline transportation network and elements (i.e., level of service) in the local study area, or provide a rationale for its exclusion.	The baseline description and subsequent analysis for the transportation network was restricted to the Site Study Area, due to the greatest effects occurring at this scale. However, the analysis showed that the existing (pre-project) and future conditions in the Site Study Area would result in a number of adverse effects (i.e., unacceptable Level of Service (LOS) at many intersections) that required mitigation (e.g., intersection improvements) to reduce the effect severity. As such, there seems to be the potential for adverse effects outside of the site study area, based on LOS adverse effects criteria (i.e., large changes in LOS or unacceptable LOS).
121	8.4 OPERATION AND MAINTENANCE	RTSD – 4.8.1 and Table 4.8.1-1	Radiological The proponent should describe how the baseline emission predictions (assuming the operation of all reactor units at Bruce A and B) were determined and clarify the baseline data being used.	Although the Radioactivity TSD states that the estimation is based on 1991-1996 data, there is little description on how the radioactive emissions (RTSD - Table 4.8.1-1), after Bruce A 1&2 are restarted, was determined. Furthermore, though the EIS states that baseline conditions were set as those found at the end of 2006, the data presented in the table is for 2004.

IR #	EIS Guidelines Section and Subject Heading	EIS Section	Information Request	Rationale
122	10.2.2 SRG 16.1: Land Use and Values Baseline	4.2.7 of the Socio-economic TSD	Describe the charter boat fishery in the section on the commercial fishery. If not specifically addressed in TSD.	The salmon charter boat fishery operates out of Kincardine, Southampton and Port Elgin within the spatial area of influence of the existing reactor site, yet there is no mention of it in the baseline description of commercial fisheries.
123	10.1.1. SRG 3.1: Baseline Terrestrial Quality	Terrestrial TSD: 4.1.3.2	Describe the physical and chemical properties of all soil samples collected within or surrounding the Bruce site, and at relevant reference sites.	Demonstrate that the number and location of the soil samples included in the EIS have been selected based on one or more of the following: ensuring spatial coverage of the site, supplementing existing data, and/or providing baseline data for future monitoring. The proponent should demonstrate that the physical/chemical soil property data is sufficient to locate/characterize existing soil contamination, and can be used for verifying environmental effect predictions in a potential follow-up program.
124	10.1.1. SRG 3.1: Baseline Terrestrial Quality	Terrestrial TSD: 2.3.4	Provide justification for the absence of a soil quality indicator (e.g., a soil-based biological community or organism) as a VEC.	A soil quality VEC which considers biological indicators of effects would allow for the consideration of potential impairment of soil quality either via accidents (i.e. spills) or aerial deposition of radionuclides or other contaminants.
125	10.1.4 TERRESTRIAL ENVIRONMENT	TETSD - 2.6, Fig. 2.5.3.2-1	Terrestrial Environment Breeding bird survey data should be presented by individual stations.	Breeding bird stationary point count locations are mapped but the survey data obtained at the individual stations has not been provided. It appears that the results from individual point count stations were rolled-up for comparison with historical data (which is contained in TETSD, App. G, Table G.2, p. G2-2). The data would be much more informative if presented by individual station, as this would indicate which breeding birds reside within the footprints of the various Alternative Project Scenarios (APSs).
126	11.4.9 Effects of the Environment on the Project	General	Climate change The recent conclusions of Lewis et al. (“Dry climate disconnected the Laurentian Great Lakes” Eos, Transactions, American Geophysical Union 23 December 2008 p. 541-542) that Lake Huron’s level dropped by 20 m due to past climate change should be mentioned and addressed.	Changes in water level have a potential to impact cooling water supply.
127	Section 11.5.3 Aboriginal Traditional Land Use	Volume 1 EIS Baseline General	If not supplied in the Aboriginal TSD, provide information on country foods consumption (e.g. data concerning the types and quantities of country foods consumed in the project area).	This information will contribute to HC’s understanding of consumption of food sources in the study area, and the potential health implications if country foods are contaminated.

Bruce Power Joint Review Panel Information Request #2 (LTPS)

IR #	Review Guide Title	Regulatory Requirement / EIS Guidelines – Appendix 3	Section # in Application for LTPS	Information Request	Technical Rationale
1	RG-2.01-SP-11NNN-031 Preliminary Decommissioning Plan and Financial Guarantee Criteria for a Licence to Prepare Site	Class I 3(k)	2.11	Additional detail is required on the Preliminary Decommissioning Plan. Information is requested which: - fully describes the state and condition of the site at the end of the licence to prepare site; - explains the preferred decommissioning strategy and states the end-state objectives of decommissioning; -describes the various decommissioning envelopes (steps); what is included in each envelope; the hazards of and technical approach for each envelope; the major disassembly and remediation activities; description of type, quantity and disposition of wastes; general strategies for protecting workers and the environment; and the conceptual duration and sequencing of each step of the process.	If, during the site preparation phase, it is decided not to continue to proceed with the project, the site needs to be put in a state such that workers and the environment are protected. This "end-state" needs to be identified, the rationale for its choice described, and the strategy to achieve it articulated. The proponent's choice of end-state will determine the depth and breadth of the necessary remediation measures. This information has not been provided.
2	RG-2.01-SP-11NNN-031 Preliminary Decommissioning Plan and Financial Guarantee Criteria for a Licence to Prepare Site	GNSC 3(1)(l)	1.12	Information is requested on the Financial Guarantee, more specifically: • the escalation factors used and the time over which they apply; • the proponents costs of administration (taxes, leases, insurance, utilities, maintenance, training, implementation, etc.) associated with decommissioning; • cost estimates must be reasonably conservative estimates for labour, materials, environmental assessment, monitoring, administration, etc. They should reflect local rates and assume that work is completed by independent contractors.	In order to assure site decommissioning/remediation could occur should a licensee be unable to carry it out, a financial guarantee is required. Information provided on the financial guarantee is not sufficient to permit independent verification of it validity. The description of the vehicle for the financial guarantee has not been provided.

IR #	Review Guide Title	Regulatory Requirement / EIS Guidelines – Appendix 3	Section # in Application for LTPS	Information Request	Technical Rationale
				• the contingency allowances used and information that supports what is chosen; • the justification supporting the reference site as the worst-case scenario for estimating; • the form of the financial guarantee (cash funds, letter of credit, bonds, insurance, government commitments); • the estimated licensing and regulatory cost recovery fees incurred if the site were to be decommissioned; • the structure of the funding vehicle to ensure that it: – is maintained on a continuing basis; – will be separate from other assets of the applicant; – will ensure withdrawals are used for approved purpose of funding decommissioning activities or to refund excess monies to the licensee; – provides for automatic renewal, advance notification of termination or intent to not renew, and payment of the instrument to an acceptable trustee if a replacement is not provided within 10 days of receipt of notification of cancellation. For more guidance on the information required for the independent verification of the adequacy of financial guarantee see Regulatory Guide G-206 – Financial Guarantees for the Decommissioning of Licensed Activities.	