Pointe du Bois Spillway Replacement Project
Federal Comments on Environmental Impact Statement
and Associated Documents – August 2011

Source	Comment	Proponent's Response
CEAA-1 Aboriginal	The Concordance Table indicates that Aboriginal and local knowledge is not addressed in the EIS. This is a serious deficiency and needs to be rectified. This information is needed in order to complete the federal EA.	
CEAA-2 Aboriginal	The Concordance Table indicates that Aboriginal resource use is not addressed in the EIS. This is a serious deficiency and needs to be rectified. This information is needed in order to complete the federal EA.	
CEAA-3 FAs	Section 4.2. Aboriginal Affairs and Northern Development Canada should be added to the list of FAs that have indicated that they may be in possession of specialist or expert information.	
CEAA-4 VECs	Section 6.9. Aboriginal land use should be included as a socio-economic environment VEC.	
CEAA-5 Significance	Table 6.5 Why were frequency, reversibility and uncertainty not factored into the determination of significance?	
CEAA-6 Existing Environment	Section 7.4.4.4. Olichochaeta should be Oligochaeta.	
CEAA-7 Wetlands	Section 7.5.1.2. Pond #7 and Pond #8 are not mentioned.	
CEAA-8 Birds	Section 7.5.5.1. Why was the Olive-sided Flycatcher not included as a VEC?	
CEAA-9 Birds	Section 7.5.5.6. Why was the Common Nighthawk not included as a VEC?	
CEAA-10 Trapping	Section 7.6.7.2. It is not clear what the status is of trapping in RTLs 22, 24 and 25 and whether any contact has been made with trappers operating these traplines. Are any of the trappers Aboriginal?	
CEAA-11 Construction	Section 8.4.4.1. Two stages of construction are identified in this section. However, there was no mention of stages in Chapter 3.0 Project Description. Which construction phases	

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	described in Chapter 3.0 occur during the two stages mentioned in section 8.4.4.1?	
CEAA-12 Water Levels	Section 8.4.4.2. It is stated that water levels are not expected to change as a result of the project and that the outer forebay will be controlled within its historical range at or near elevation 299.1 m. However, it is also stated that the forebay would reach the IDF level of 299.7 m. This apparent discrepancy needs to be explained.	
CEAA-13 Flooding	Section 8.5.6.2. It is stated that no new flooding will occur as a result of the project. However, flooding would occur if the forebay reached the IDF level of 299.7 m. According to Figure 3.28, the historic operating range in the forebay has never exceeded 299.2 m. This apparent discrepancy needs to be explained.	
CEAA-14 Mitigation	Section 8.6.4.3. No specific mitigation measures are identified for the potential impacts on Canada Warbler, Olive-sided Flycatcher and Common Nighthawk.	
CEAA-15 Compensation	Section 8.7.6.1. What arrangements have been made to compensate the trapper(s)?	
CEAA-16 Aboriginal Resource Use	Section 8. No assessment of the effects of the project on Aboriginal resource use is provided. This is a serious deficiency and needs to be rectified. This information is needed in order to complete the federal EA.	
EC-1 Wetlands	Page 8.47. The Environmental Impact Statement (EIS) states: "Localized wetland habitats located at inland and shoreline sites on both the east and west side of the Winnipeg River near Pointe du Bois have the potential to be adversely affected by construction and operation of ancillary features associated with the Project including concrete batch plant(s), equipment staging, access roads, borrow sites,	

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	barge landings and management of aggregate and impervious materials. Construction will result in the loss of approximately 0.2 ha of inland wetlands (loss of three small ponds #4, #5, #6 to the east of the existing spillway)". EC requests clarification from the Proponent as to whether ancillary features will result in any additional loss of wetlands.	
EC-2 Wetlands	Page 8.49. EC reminds the Proponent of the *Federal Policy on Wetland Conservation,* which promotes the wise use of wetlands and protection through adequate consideration of wetland concerns in environmental assessments of development projects. The objective of the Policy is to promote the conservation of Canada's wetlands to sustain their ecological and socio-economic functions, now and into the future. The Policy goals promote the maintenance of the functions and values derived from wetlands throughout Canada, recognition of wetland functions in resource planning and economic decisions, enhancement and rehabilitation of wetlands in areas where continuing loss or degradation of wetlands or their functions have reached critical levels, and utilization of wetlands in a manner that enhances prospects for their sustained and productive use by future generations. Wetlands do not operate in isolation and adjacent upland habitats play an integral part in the maintenance of the functions of wetlands. EC notes that the Proponent has committed to avoid wetlands during clearing and construction where practicable. EC recommends that the Proponent take all reasonable measures to avoid wetlands, where feasible, irrespective of	

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	whether they are wet or dry, and that buffers or setbacks originate from the one in one hundred year high water mark. Minimum one hundred metre setbacks should be utilized from the edge of the proposed development or associated feature (e.g. access route).	
EC-3 Wetlands	For those wetlands where avoidance is not possible, EC recommends that the Proponent should be consistent with the objectives of the *Federal Policy on Wetland Conservation.*	
EC-4 Wetlands	Page 8.49. EC acknowledges that, where avoidance is not possible, the Proponent has committed to implement a revegetation and rehabilitation plan to ensure no net loss of wetland habitat, and to utilize native plant species for revegetation of wetlands. EC recommends that the reclamation of wetland areas restore the function, type and area of wetlands lost directly as a result of this project.	
EC-5 Wetlands	EC recommends monitoring of affected wetland areas within the project area to detect any impacts from weeds and any changes to wetland area and wetland function that may result from this project.	
EC-6 Migratory Birds	EC's mandate includes the protection of migratory birds and their habitat. Regulations pursuant to the *Migratory Birds Convention Act* (MBCA) provide for the conservation of migratory birds and the protection of their nests and eggs. Section 6 of the Regulations prohibits the disturbance, destruction, or taking of a nest, egg or nest shelter of a migratory bird. Possession of a migratory bird, nest or egg without lawful excuse is also prohibited. Section 5.1 of the *Migratory Birds Convention Act* prohibits the deposition of substances harmful to migratory birds in waters or areas	

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	frequented by migratory birds or in a place from which the substance may enter such waters or such an area. EC provides timing restrictions as general guidelines for industry to protect the great majority of migratory birds while realizing the practicalities of development activities on the landscape. However the onus remains with the Proponent to comply with the legislation. To minimize disturbance to breeding migratory birds in the northern Parkland and Boreal ecozones of Alberta, Saskatchewan and Manitoba, in areas where migratory birds may be nesting, Environment Canada recommends: a. Habitat destruction activities (e.g., vegetation clearing, construction, flooding, dewatering, etc.) for areas greater than 50 hectares (such as this project) should avoid, at minimum, the period between April 1 and August 31, to minimize population level effects to breeding birds. b. If an individual has a priori knowledge of an active nest, at any time during the year, it must be protected with a suitable species-appropriate buffer until the young have fledged. c. Wetlands attractive to breeding migratory birds (e.g., those containing water) should not be cleared/destroyed at minimum between April 1 and August 31. Canada Geese and Mallards may nest early and broods of waterfowl and waterbird species are dependent upon wetlands throughout August and beyond. d. Raptors and upland game birds are provincially-mandated species and are not protected under the MBCA; therefore Proponents are first advised to	

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	consult provincial wildlife authorities for appropriate buffers before consulting the Canadian Wildlife Service. e. Federal-listed species at risk and COSEWIC listed species may have species-specific timing restrictions which additionally need to be observed.	
EC-7 Migratory Birds	In addition, EC notes that one Great Blue Heron rookery was observed during the 2007 winter aerial survey, but was found to be abandoned during 2007 summer field surveys (p. 7.57); another Heron colony was also reported in the project area, but was not confirmed (Table 7.4). Environment Canada recommends that these areas be (re)surveyed prior to project commencement. If a rookery shows signs of recent/current use, Environment Canada recommends that no activity occur within a 250m buffer from the perimeter of the nesting colony during the period of peak use (May 1 – June 30).	
EC-8 Species at Risk	The *Species at Risk Act* (SARA) is directed towards preventing wildlife species from becoming extinct or lost from the wild, helping in the recovery of species that are at risk as a result of human activities, and promoting stewardship. The Act prohibits the killing, harming or harassing of listed species; the damage and destruction of their residences; and the destruction of critical habitat. The prohibitions apply to all Threatened, Endangered and Extirpated species listed on Schedule 1 of SARA on federal lands. On lands that are not federal lands, prohibitions apply to all migratory birds (under the *Migratory Birds Convention Act*) and aquatic species (under the *Fisheries Act*). During the 2007, 2008 and 2010 surveys, Canada Warbler,	

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	Common Nighthawk, Northern Leopard Frog, Olive-sided Flycatcher, Snapping Turtle and Piping Plover were observed in the project area (p. 7.52 - 7.57). The potential for Monarch Butterfly, Whip-poor-will, Peregrine Falcon, Golden-winged Warbler, Red-headed Woodpecker, Yellow Rail, Rusty Blackbird, Short-eared Owl, and Horned Grebe to be present in the area was also noted (Table 7.4). While historical records indicate that boreal Woodland Caribou are known to have been present in the study area as recently as the mid-1950s, there are no indications of recent or current use of the area (p. 7.58). Further to the information reported in the EIS, EC notes that Chimney Swift may also be present in the project area. Environment Canada requests clarification from the Proponent regarding the surveys conducted for Yellow Rail, in particular, whether the surveys were specifically designed to optimize the detectability of Yellow Rail.	
EC-9 Species at Risk	With respect to species listed as Schedule 1 under SARA, EC reminds the Proponent of their obligations under section 79(1) and 79(2) of SARA. 79(1) "Every person who is required by or under an Act of Parliament to ensure that an assessment of the environmental effects of a project is conducted must, without delay, notify the competent minister or ministers in writing of the project if it is likely to affect a listed wildlife species or its critical habitat." 79(2) "The person must identify the adverse effects of the project on the listed wildlife species and its critical habitat and, if the project is carried out, must ensure that measures are taken to avoid or lessen those effects and to monitor	

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	them. The measures must be taken in a way that is consistent with any applicable recovery strategy and actions plans." Environment Canada recommends that an environmental monitor, knowledgeable in the identification of all species at risk that may occur in the project area, is present on site during project construction activities. In the event that species at risk are encountered during the project, EC refers the Proponent to the *Petroleum Industry Activity Guidelines for Wildlife Species at Risk in the Prairie and Northern Region* (attached) for species-at-risk-specific setback distances and timing restrictions.	
EC-10 Species at Risk	EC notes the Proponent's plans, to the extent practicable, to conduct construction activities within, and in the immediate vicinity of, wetlands during the winter months so as to avoid effects on Northern Leopard Frog breeding activity (p. 8.53). Environment Canada recommends a 400 meter buffer zone for high intensity activities year-round with respect to Northern Leopard Frog breeding pond and wintering sites.	
EC-11 Species at Risk	Environment Canada recommends that this project and its ancillary features (e.g., borrow locations) specifically avoid wetlands where Northern Leopard Frogs are present and that project areas nearby be frog-proofed and monitored, and construction and traffic restricted. Where wetlands that do not provide wintering or breeding habitat cannot be avoided, frogs should be relocated to suitable wetlands nearby using sterile handling techniques under permit from provincial wildlife authorities.	
EC-12 Species at Risk	In addition to the setbacks described in the *Petroleum Industry Activity Guidelines for Wildlife Species at Risk in*	

<table>
<tr><th>Source</th><th>Comment</th><th>Proponent's Response</th></tr>
<tr><td></td><td>the Prairie and Northern Region document, Environment Canada recommends the following minimum setback distances from nests (unless otherwise indicated) for high intensity activities:

<table>
<tr><th>Species</th><th>Dates</th><th>Setback</th></tr>
<tr><td>Canada Warbler</td><td>May 1 to July 31</td><td>300 m</td></tr>
<tr><td>Chimney Swift</td><td>April 1 to August 31</td><td>100 m</td></tr>
<tr><td>Common Nighthawk</td><td>May 1 to August 31</td><td>200 m</td></tr>
<tr><td>Golden-winged Warbler</td><td>May 1 to August 31</td><td>300 m</td></tr>
<tr><td>Horned Grebe</td><td>April 1 to August 31</td><td>100 m from the high water mark of the wetland or waterbody containing the nest</td></tr>
<tr><td>Olive-sided Flycatcher</td><td>May 1 to August 31</td><td>300 m</td></tr>
<tr><td>Rusty Blackbird</td><td>May 1 to July 31</td><td>300 m</td></tr>
<tr><td>Whip-poor-will</td><td>May 1 to August 31</td><td>100 m</td></tr>
<tr><td>Snapping Turtle</td><td>Year round</td><td>400 m from potential nesting and wintering sites</td></tr>
<tr><td>Monarch Butterfly</td><td>June 1 to Sept 30</td><td>30 m from occupied host plants</td></tr>
</table></td><td></td></tr>
<tr><td>EC-13
Species at Risk</td><td>Page 7.51. EC notes that, while the potential for Monarch Butterfly has been identified, no field surveys were conducted for arthropods.

Environment Canada recommends that suitable habitat within the project area be assessed for the presence of Monarch and that the recommended setback is applied if Monarch Butterflies are found.</td><td></td></tr>
<tr><td>EC-14
Species at Risk</td><td>Page 8.55. EC notes the Proponent's plans to avoid clearing during "critical nesting periods (generally May 1 – July 31)".</td><td></td></tr>
</table>

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	Environment Canada recommends that habitat destruction activities, including, any vegetation clearing, construction, flooding, infilling of ponds, dewatering, etc. avoid the period from April 1- August 31, to reduce the impacts on species at risk and migratory birds.	
EC-15 Invasive Species	Page 7.50. Invasive species spread readily along disturbance corridors and once established are virtually impossible to eradicate. Multiple species of noxious weed (including common milkweed)[1] (*Asclepias syriaca*), shepherd's purse (*Capsella bursa-pastoris*), lamb's-quarters (*Chenopodium album*), Canada thistle *(Cirsium arvense)*, wild buckwheat (*Polygonum convolvulus*), biennial campion (*Silene cserei*), dandelion (*Taraxacum officinale*), and quackgrass (*Agropyron repens*)), and invasive or weedy species were observed in the study area during field surveys. Development of the project may provide additional opportunities for invasive species to establish, through dispersal of weed seeds on equipment, or in reclamation materials brought to the site. Page 8.49. EC acknowledges the Proponent's commitment in the EIS to wash all equipment prior to working in the Project area to reduce the spread of non-natives. Environment Canada recommends that all areas containing noxious weeds be clearly marked, so that equipment operators can easily recognize when passing through weed infested areas, and so that the spread of species from these	

[1] EC also notes that while milkweed is one of the species listed as noxious in Manitoba, it provides habitat and food for the SARA-listed Monarch butterfly.

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	areas can be monitored.	
EC-16 Invasive Species	Environment Canada recommends that equipment and vehicles are thoroughly cleaned after passing through these areas in order to avoid transporting seed to other areas.	
EC-17 Invasive Species	Environment Canada recommends that the Proponent monitor and control the spread of both invasive and noxious species in the project area, and include details in the Terrestrial Effects Monitoring Plan.	
EC-18 Reclamation	Page 8.49. EC acknowledges the Proponent's commitment to implement a re-vegetation and rehabilitation plan for terrestrial sites that are disturbed or lost. Environment Canada recommends that reclamation should mimic native vegetation communities in the surrounding area, and that the species used in reclamation are locally sourced, certified and inspected to be free of invasive and noxious weed materials.	
EC-19 Monitoring	Page 11.4 EC notes that the Proponent has committed to develop a Terrestrial Effects Monitoring Plan which will outline "monitoring for the effects on terrestrial environmental components such as birds, amphibians, wildlife, plants and terrestrial habitat". Environment Canada requests the opportunity to review this monitoring plan and subsequent monitoring reports. EC has a particular interest in the effects on migratory birds and species at risk, the progress of reclamation with native species in the project area, and the success in preventing the incursion of invasive species.	
EC-20 Settling Ponds and Tanks	The following portions of the Project relate to treatment and release of effluent: • Section 3.4.6 - Concrete Batch Plants and Crushing	

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	Operations (p. 3.12), states that concrete wash water will be directed into settling ponds or tanks for treatment until it is suitable to discharge into the river in accordance with the *Manitoba Surface Water Quality Objectives and Guidelines*. • Section 3.4.11.6 - Settling Ponds or Tanks (p. 3.17) states that concrete wash water will be treated for alkalinity and turbidity before it can be released into a natural water course. • Section 3.5.5 - Cofferdams (pp. 3.22 to 3.24) describes how seepage through the cofferdams will be collected and pumped to a settling pond / tank for treatment prior to discharge. • Section 8.5.1.1 - Water Quality – Dissolved Oxygen (pp. 8.22 to 8.25) states that there is a potential for ANFO residues to be introduced to the Winnipeg River in areas where ANFOs are used and subsequently exposed to surface water. • Section 8.5.1.1 - Water Quality – pH and Alkalinity (pp. 8.22 to 8.25) states that the use of rock material may have the potential to generate acid leachate (which could subsequently enter the local surface water environment, acidify local waters and adversely affect aquatic biota). • Section 8.5.1.1 - Water Quality – Hydrocarbons and Hazardous Substances (pp. 8.22 to 8.25) outlines that hydrocarbons and other contaminants may be	

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	introduced to surface water through site drainage, cofferdam seepage, and/or accidental spills and releases. Environment Canada advises the Proponent that any release of effluent from settling ponds, tanks and construction activates must comply with applicable federal and provincial legislation, including Section 36(3) of the *Fisheries Act* and should strive to meet the CCME *Canadian Environmental Quality Guidelines*.	
EC-21 Settling Ponds and Tanks	Environment Canada recommends that the Proponent develop monitoring plans to test effluent prior to release, as well as contingency plans in the event that the effluent does not meet legislative requirements and/or guidelines. Section 3.4.11.6 states that Manitoba Hydro, as well as the contractor, will be responsible for designing and locating the ponds/tanks. Please note that best practices recommend placing a petroleum storage tank a minimum of 30 meters from water courses and a sewage holding tank a minimum of 10 meters from water courses. If a contractor is in doubt as to what would be considered an appropriate separation, they are strongly urged to contact the local health region before installation.	
EC-22 Site Run-off Control	Section 3.4.12 - Stormwater Management Ponds (p. 3.17) states that ponds would collect runoff water from the work areas during storm events to ensure that potentially contaminated runoff water does not freely discharge into the river. Environment Canada recommends that the Proponent develop monitoring plans to test effluent prior to release, as	

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	well as contingency plans in the event that the effluent does not meet legislative requirements and/or guidelines.	
EC-23 Site Run-off Control	Section 3.5.5 - Cofferdams (pp. 3.22 to 3.24) outlines that the equipment used during construction of the coffer dams will include trucks, bulldozers, backhoes, and clamshell excavators, all of which operate on hydrocarbons and pose a potential risk of contaminating surface water. Environment Canada requests that the Proponent provide more details regarding measures that will be put in place to ensure hydrocarbons do not contaminate dewatering water as a result of surface runoff?	
EC-24 Wastewater Treatment	Section 3.4.11.4 - Wastewater (p. 3.16) states that sewage from project related facilities will be stored in above ground tanks and disposed via haulage to an approved off-site existing sewage treatment facility. Environment Canada requests that the Proponent provide more information regarding the standards or certification to which these above ground tanks operated and maintained. Section 3.4.11.4 also mentions that, as an alternative, project related sewage may be sent to the existing Pointe du Bois wastewater collection system, which has a capacity of 110 m^3/day. EC would like to make the Proponent aware of the proposed Wastewater System Effluent Regulation which is in the process of finalization. This regulation has been developed under the *Fisheries Act* and would fulfill a commitment under the Canadian Council of Ministers of the Environment (CCME) Strategy for the establishment of national effluent quality standards. These standards represent a secondary level of wastewater treatment or	

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	equivalent. The proposed Regulations specify the conditions to be met in order to deposit effluent containing deleterious substances, such as requirements concerning toxicity, effluent monitoring, monitoring of the receiving environment and record-keeping and reporting. The deleterious substances specified under the proposed Regulations include biochemical oxygen demanding (BOD) matter, suspended solids (SS), total residual chlorine and un-ionized ammonia. The proposed Regulations would apply to any wastewater system that deposits a deleterious substance to surface water. An owner or operator of a wastewater system depositing effluent not meeting the national effluent quality standards would be able to apply for a transitional authorization. It would establish the conditions under which such a system may continue to operate and would set the risk-based timeline to meet the national effluent quality standards. Wastewater systems posing a high risk would be required to meet the effluent quality standards within 10 years; those posing a medium risk, within 20 years; and those posing low risk, within 30 years. The proposed Regulations would come into force through a phased approach. Effluent monitoring requirements, record-keeping and reporting requirements, and the provisions allowing for temporary or transitional authorizations to be applied for and issued would come into force on the day on which the proposed Regulations are registered. The requirement to meet the effluent quality standards would come into force 24 months following the registration of the	

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	proposed Regulations, with the exception of the standard for total residual chlorine, which would come fully into force over three years.	
EC-25 Waste Management Plan	EC is very supportive of efforts to reduce the generation of solid waste resulting from the Spillway Replacement Project and encourages the Proponent to promote waste avoidance and diversion by developing a waste management plan prior to project launch. In general, waste management plans should include the following: • analysis of the expected nature and quantities of the various wastes generated by the project and expected materials surpluses; • specific waste management objectives of the project; • estimates of waste management costs; • a sub-plan covering any demolition works; • allocation of roles and responsibilities for waste management and plan implementation; • education of the workforce with respect to the waste management plan; • methods proposed for waste prevention, re-use and recycling; • materials handling procedures; • record keeping procedures; and • waste plan auditing and other implementation-verification methods. The following two documents may assist in developing a waste management plan: • *Let's Climb Another Molehill: An Examination of Construction, Demolition and Renovation (CRD) Waste*	

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	Diversion in Canada and Associated Greenhouse Gas Emission Impacts (The Recycling Council of Ontario; July 2005) https://www.rco.on.ca/climb_another_molehill and; • CCA 81: *A Best Practices Guide to Solid Waste Reduction* (Canadian Construction Association, 2001) http://www.cca-acc.com/documents/electronic/download_e.asp Information regarding provincial waste reduction and prevention legislation and programs is available from the Government of Manitoba website: http://www.gov.mb.ca/conservation/pollutionprevention/waste/index.html	
EC-26 Waste Minimization Strategies	The following waste minimization strategies and tools are recommended for consideration: • review waste generation practices to determine which waste minimization procedures could be undertaken; • require consultants, contractors and sub-contractors to incorporate waste minimization in their plans; • consider a product's solid waste and toxicity production, recycled content, packaging, resource use, and ultimate disposal before purchasing. The EcoLogo program can assist in the selection of products and services that meet specific environmental standards (www.ecologo.org); • identify markets/programs for recycled materials; • Identify potential users of salvaged materials; • design and build with dismantling in mind; and • segregate the waste stream from construction and demolition sites to permit a wider range of waste management alternatives to be employed.	

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	The following on-site material handling procedures are recommended to reduce waste generation: • prefabricate common elements at centrals locations; • optimize construction scheduling; • minimize off-cuts; • encourage on-site reuse of cut-offs; • provide clear and dry storage areas for building materials; • separate recyclable materials; • place recycling and salvage bins as close as possible to the location of generation; • place waste bins in a less convenient location; and clearly label bins to encourage segregation of waste streams.	
EC-27 Decommissioning	Section 3.3.6 - Phase 6 – Decommissioning - Existing Structure Removal and Rehabilitation of Disturbed Areas (pp. 3.8 to 3.9) states that the existing spillways, sluiceways, rockfill dam, east gravity dam and curved spillway, pedestrian bridge and other support components will be decommissioned. This section also outlines that the temporary facilities set up to support the construction activities will be removed. These facilities include temporary offices and service buildings, work areas, and temporary roadways. Environment Canada encourages the Proponent to adopt industry best practices for the management of decommissioning wastes. The Canadian Construction Association document *CCA 81: A Best Practices Guide to Solid Waste Reduction* (2001) is a practical resource: http://www.cca-acc.com/documents/electronic/download_e.asp	

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	Environment Canada requests information regarding whether the mentioned temporary infrastructure will be reused in the future or at a different facility.	
EC-28 Woody Debris	Section 3.4.1 - Site Preparation (p. 3.9) states that: (1) merchantable timber will be salvaged for utilization, if required, and (2) scrub and brush will be stockpiled and disposed of by burning in a manner approved by Manitoba Conservation. EC is very supportive of efforts to salvage timber. Careful felling, cutting and storage will ensure that quality and commercial value are preserved. However, EC encourages the Proponent to explore options of managing scrub and brush by methods other than burning. Alternatives could include processing woody material by chipping and mulching, producing a re-useable and potentially marketable product. Where appropriate, when only a limited amount of timber and vegetation is encountered, scrub and brush might be left in-situ to encourage fauna and flora habitats. Please consult Manitoba Conservation's *Brush Disposal Guidebook* at http://www.gov.mb.ca/conservation/forestry/practices/guidelines.html for best management practices.	
EC-29 Hazardous Wastes	Hazardous wastes should be disposed in approved hazardous waste disposal or treatment facilities which follow the Canadian Council of Ministers of the Environment (CCME) National Guidelines (see http://www.ccme.ca/). If hazardous wastes must be temporarily stored prior to shipment to an approved disposal/treatment facility, the storage site should include the following features:	

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	• an impermeable base; • secondary containment; • security to prevent unauthorized entry; • prominent signage identifying it as a hazardous waste storage facility; • emergency response plan and equipment (e.g. spill response kits with instructions); and • surface water controls to prevent entry of surface water. Please be advised that the Federal Government regulates transboundary movements of hazardous wastes and hazardous recyclable materials. The *Export and Import of Hazardous Waste and Hazardous Recyclable Material Regulations* control and track the movement of hazardous waste and hazardous recyclable material between Canada and other countries, as well as implement the prior informed consent mechanisms for exports, imports and transit of such materials. The *Interprovincial Movement of Hazardous Waste Regulations* control the movements of hazardous waste between provinces and territories by prescribing the use of a tracking system. For more information on these regulations, please consult Environment Canada's website at: http://www.ec.gc.ca/gdd-mw/default.asp?lang=En&n=4379B169-1	
EC-30 Spill Prevention and Response Planning	Section 3.4.15 - Fuel Storage and Transportation (p. 3.19) states that the transportation of fuel to the east side may occur through various methods including barging, the use of helicopter, or piping. Regarding the use of fuel transport via barge and helicopter, E C would like to remind the Proponent that all hazardous substances must be transported in accordance with the *Transpiration of*	

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	Dangerous Goods Act. Please refer to the following information on Transport Canada's website http://www.tc.gc.ca/eng/tdg/clear-menu-497.htm Environment Canada recommends that spill prevention and response plans are developed and implemented for activities including, but not limited to, the following: • land and barge transportation of construction materials and equipment; • fuel storage, transportation and handling; • hazardous and non-hazardous waste storage, transfer, treatment and disposal; • collection and treatment of concrete wash water and cofferdam seepage in settling ponds and tanks; and • sewage collection, storage and transport.	
EC-31 Spill Prevention and Response Planning	Section 8.5.1.3 - Mitigation Measures (p. 8.28) states that refueling and equipment maintenance activities will occur at least 100 m away from a water body, or conducted in a manner to prevent the release of deleterious substances to a water body. Environment Canada recommends the Proponent use an impermeable barrier to contain any releases during refueling and equipment maintenance activities. This barrier should have the following features: • constructed of concrete or clay; • maintains hydraulic conductivity of $1x10^{-6}$ cm/s; • contains curbs; • has no cracks; and • if it has drains, they are able to be plugged during refueling and equipment maintenance activities.	
EC-32	Section 8.5.1.3 - Mitigation Measures (p. 8.28) states that	

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Spill Prevention and Response Planning	emergency response plans, procedures and equipment will be used to address accidental oil, fuel, or hazardous waste spills into the aquatic environment in the vicinity of the Project. Environment Canada recommends that the Proponent also develop response plans for such spills on land.	
EC-33 Spill Prevention and Response Planning	Environment Canada recommends that all storage tanks containing petroleum or allied petroleum products be stored and managed in accordance with Manitoba Conservation's *Storage and Handling of Petroleum Products and Allied Products Regulations, 188/2001.* A copy of these regulations and information regarding Manitoba Conservation's petroleum storage program are available at the following website: http://www.gov.mb.ca/conservation/envprograms/psp/	
EC-34 Aquatic Effects Monitoring Plan	EC recognizes that the Aquatic Effects Monitoring Plan Draft outlines an adaptive management program related to total suspended solids that is linked to exceeded water quality criteria, which then delegates a variety of action plans. Environment Canada recommends that if the modeling indicates that exceedances are likely to occur, then the Proponent should implement secondary sediment control measures in advance.	
EC-35 Aquatic Effects Monitoring Plan	The Aquatic Effects Monitoring Plan Draft appears to lack monitoring criteria and mitigation methods related to the water's level of dissolved oxygen. It is necessary for projects of this nature (Spillways) to consider the issue of dissolved oxygen super-saturation and propose methods to	

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	address this issue. Environment Canada recommends that the Proponent include methods of monitoring levels of dissolved oxygen within the water and related mitigation methods.	
EC-36 Aquatic Effects Monitoring Plan	EC notes that although the Aquatic Effects Monitoring Plan Draft mentions a sampling plan, the plan lacks necessary details, such as the sampling design plan (site-selection, replication, etc) and methods of analysis (types of tests, what statistical power, etc). Environment Canada recommends that the Proponent revise the sampling plan to include the necessary details mentioned above so that its reliability and effectiveness can be better evaluated.	
EC-37 Environmental Occurrences Notification Regulations	EC advises the Proponent that the Release and Environmental Emergency Notification Regulations *and the* Deposit Out of the Normal Course of Events Notification Regulations (collectively referred to as the "Notification Regulations"), apply to verbal notification requirements under the *Canadian Environmental Protection Act, 1999 (*CEPA, 1999) and the *Fisheries Act*, respectively. The Notification Regulations provide the regulated community and the public with the name and telephone number of the 24-hour authorities operating for the respective province or territory to which notifications are to be made, enabling them to receive notifications on behalf of EC. The regulations establish a streamlined notification system for persons required to notify federal and	

Source	Comment	Proponent's Response
	provincial/territorial governments of an environmental emergency or environmental occurrence (spill, release, etc.). An environmental occurrence includes the release, or the likelihood of a release, of a substance into the environment in contravention of regulations referred to in section 95, 169, 179 or 212 of (*CEPA, 1999*), an environmental emergency under section 201 of *CEPA, 1999*, or a deposit of a deleterious substance, in water frequented by fish, out of the normal course of events or a serious and imminent danger thereof under subsection 38(4) of the *Fisheries Act*. The Notification Regulations and related information are available at ECs website:http://www.ec.gc.ca/ee-ue/default.asp?lang=En&n=24B3E0D7-1	
HC-1 Air Quality	Section 8.4.1.1 – Construction (page 8.5). Potential sources of air emissions for the construction phase identified by the proponent include quarrying/borrow pit operations, concrete batching, crushing operations, burning of scrub and brush and construction equipment operation. Section 8.7.3 - Infrastructure and Services (p. 8.59) indicates that during peak construction periods road traffic will increase (approximately 71%), mainly due to heavy equipment. Section 8.4.2 – Noise (p. 8.6) indicates that rock drilling and blasting will be used. No quantitative assessment of baseline or predicted impacts to air quality from these activities is provided. The EIS indicates that an Environmental Protection Plan will be developed to outline practices to minimize emissions and dust. HC advises that an assessment of potential impacts to air	

Source	Comment	Proponent's Response
	quality be provided as indicated our letter to your office of July 22, 2010. The assessment should include baseline information, predicted emissions and mitigation measures as appropriate. For review by HC and other stakeholders, this information should be provided in the EIS as part of a proactive environmental review.	
HC-2 Air Quality	Section 8.4.1.4 – Residual Effects after Mitigation (p. 8.5). The proponent indicates that the residual effects to air quality are small in magnitude and short term in duration. HC advises that the proponent provide a rationale for the determination that the residual effects are small in magnitude as no quantitative and very limited qualitative assessment was provided. HC advises that the proponent provide a rationale for the determination that the effects on air quality during construction will be short term in nature. The proponent indicates that the construction phase will take approximately five years to complete. Five years of potentially impacted air quality would constitute a long term scenario relevant to human health exposures.	
HC-3 Noise Impacts	Subsection 8.4.2.1 – Construction (p.8.6). This section indicates that the construction phase will include noise emitting activities such as heavy truck traffic, barging, rock drilling and blasting. The activities will at times be carried out 24 hours per day and seven days a week over a period of approximately 5 years. For mitigation, drilling and blasting will not take place between 10 pm and 7 am. A complete assessment of the health impacts due to noise is not provided in the EIS.	

Source	Comment	Proponent's Response
	HC advices the proponent undertake a noise assessment including: • a comprehensive identification of human receptors in the project area (including sensitive receptors e.g. schools, day cares, hospitals) with distances to noise emissions • Characterization of baseline noise • Evaluation of construction noise levels • Evaluation of operational noise levels • Assessment of residual impacts after proposed mitigation • Assessment of cumulative effects HC's advice concerning human health effects related to noise exposure is based on internationally recognized standards (WHO, ISO, EPA, etc.), which are predictive of human health impacts. There are reasonable cause-and-effect associations linking noise exposure to health related endpoints including sleep disturbance, interference with speech intelligibility, noise complaints and a high level of annoyance (World Health Organization 1999). When mitigation measures are to be implemented, HC advises that appropriate mitigation strategies based on all applicable guidelines be considered. HC considers the change in % HA as an appropriate indicator of noise-induced human health effects for project operational noise and for long-term construction noise exposure (i.e > 12 months). High annoyance with noise is currently a reliable and widely accepted indicator of human	

Source	Comment	Proponent's Response
	health effects due to environmental noise (Michaud et al. 2008, Hanson et al.2006, CSA 2005, ANSI 2005). Appendix D of the attached HC guidance document presents the equations and methodology used for calculating % HA and outlines how this information could be presented in the EA.	
HC-4 Country Foods (Fish Quality)	Section 7.4.6 – Fish Quality (pp 7.44-7.45) states that "mercury concentrations in the epaxial (dorsal) musculature of eight fish species (Lake Sturgeon, Cisco, Lake Whitefish, Northern Pike, Spottail Shiner, Walleye, Sauger, and Yellow Perch) were determined at Pointe du Bois in 2007 and 2008 to provide a baseline for the assessment of their relationship to habitat changes within the broader geographical and historical context of the Project. Mean length standardized mercury concentration ranged from 0.05 ppm in Lake Whitefish to 0.51 ppm in Northern Pike. Northern pike was the only species that exceeded the 0.5 ppm standard for mercury in commercial fish set by Health Canada. Sauger (0.40 ppm) and walleye (0.33 ppm) had the second and third highest mercury concentrations found. One possible reason why the mercury levels of the two predatory percid species were substantially lower than for Northern Pike is the relatively young age of the Sauger and Walleye available for analysis. It should be noted that the mercury levels in Northern Pike and Walleye were similar to those normally encountered in Manitoba waterbodies that have not been impacted by flooding or point source contamination or that have recovered from the effects of flooding." Residual effects on fish quality are not anticipated by the proponent as flooding will not occur. No monitoring of	

Source	Comment	Proponent's Response
	fish tissue is planned. As reported in the EIS, the mercury concentrations of three fish species in the project area approach or exceed HC's guideline value for total mercury in commercial fish tissue. HC advices the monitoring of edible fish tissues at and/or downstream of the study site to verify that project-related effects (unexpected changes in fish species/size, food chain uptake, sediment disturbance from dredging, blasting etc) has not adversely impacted fish quality. HC also advises that any exceedances of HC's guideline value be reported to local public health officials in a timely manner.	
HC-5 Country Foods (Fish Quality)	Section 7.6.8.1 Lodges & Outfitters (p. 7.76) indicates that several lodges and outfitters provide fishing opportunities in the project area. Section 7.6.8.3 – Fishing (p. 7.77) indicates that 99% of cottage owners and 100% of seasonal campers participate in fishing. The level of subsistence or commercial fishing in the project area is unclear in the EIS. HC suggests that the EIS include additional information on the level of fish consumption at, and downstream of the project to better assess the potential risk of human exposures to contaminants.	
HC-6 Water Quality	Limited information is found in Chapter 7.0 (Existing Environmental Setting) of the EIS regarding area users of surface drinking water. No information is found regarding water intake locations, local treatment processes. Chapter 8 – Potential Environmental Effects provides limited qualitative and no quantitative information regarding potential impacts to drinking waters in the project area (e.g. metals, hydrocarbons, turbidity).	

Source	Comment	Proponent's Response
	HC advises that the EIS provide the following additional information for assessment of the potential impacts on drinking water quality: • The identification of all sources (surface and groundwater) of drinking water in the project area, as well as water within the area of influence of the project. Drinking water sources include water intakes for drinking water treatment facilities and/or sources that are consumed directly (i.e. residential wells and on-site wells for workers • The identification of potential human receptors, considering those who may be exposed to contaminants via drinking water sources. • An examination of the potential impacts on the quality of drinking water sources during all phases of the project, as well as the potential for cumulative effects on the quality of these water sources. It is advisable to also consider impacts on physical parameters that can affect drinking water treatment processes. If any changes to water quality are predicted, HC suggests that the potential effects on drinking water quality and human health be discussed. • An indication of baseline levels of naturally occurring contaminants (e.g. arsenic) in order to assess impacts on drinking water. The level of naturally-occurring contaminants may already be elevated, and may be further influenced by project activities. • If a potential impact on a drinking water source is identified (e.g. on chemical, microbiological, physical parameters), a description of the measures to be employed to inform all potentially affected treatment facilities and/or well owners, and to mitigate risk to	

Source	Comment	Proponent's Response
	human health (measures to eliminate/reduce predicted changes, treatment, use of alternative sources, etc.). • Plans for monitoring drinking and recreational water quality, if applicable.	
NRCan-1 Erosion	Since the project involves the replacement of existing structures without altering the operations of the existing facility and flow regime/water level, NRCan has no major concerns with this project from the perspective of fluvial geomorphology, sedimentation and erosion between the pre-project and post-project periods. Essentially: • The conclusions on the effects of erosion and deposition resulting from the creation/removal of coffer dams and the relocation of the spillway are reasonable. • The evaluation of erosion potential and sedimentation, and woody debris are basically reasonable, not withstanding the comment below requesting a clarification on erosion during a Design Inflow Flood event. • The conclusion that the shoreline erosive impacts associated with the project are residual from the creation of the generating station in the early twentieth century is also reasonable. • The conclusions that there will be no change to the shoreline or riverine erosion processes and that the current (pre-project) erosion rates are representative of future ones are also reasonable.	
NRCan-2 Sediment	NRCan requests a clarification to the following paragraph from Section 8.4.7.2 Operation, p. 8.19:	

Source	Comment	Proponent's Response
	During the most extreme flood event (i.e., the Inflow De spillway bays open), the volume of sediment expected Winnipeg River is comprise of 900 m^3 of clay, and 1000 m^3 o and carried downstream of Eight Foot Falls. Approxima mobilize with settlement above and below Eight Foot Falls gravel will erode and likely settle in the lake sturgeon h spillway. NRCan is unclear how these sediment volumes were determined or from where specifically the sediments will be derived. Please clarify. These volumes appear to contradict the statements in the first paragraph of section 8.4.7.2 (p. 8.18) which indicates that there will be no change to the shoreline or riverine erosion processes as a result of the project. Also, would these volumes be expected to be generated during every occurrence of the Inflow Design Flood event, or only during the occurrence of the first such event?	
NRCan-3 Seismic Issues	NRCan understands that the Canadian Dams Association guidelines of 2007 will be addressed and followed during the construction of the dams. If requested by the responsible authority, NRCan can provide expertise on the seismic aspects if the design of the project is subject to review under the safety considerations. It may be possible for NRCan to comment on how the seismic provisions were included in the design however it is NRCan's understanding that this level of detail for the design of the spillway may occur after the EA has been completed, during the detailed design phase of the project	

Source	Comment	Proponent's Response
NRCan-4 Mercury Issues	The proponent does not seem to have included a statement concerning Hg levels in fish affected by the Pointe du Bois Spillway project; at least NRCan could not find in the documents reviewed. Although it is NRCan's understanding that the project will have no significant effect on fish Hg levels, it would be preferable that the proponent includes a statement explaining specifically its position on the Hg issue. Moreover, NRCan suggests that the Department of Fisheries and Oceans request that the proponent conduct a monitoring program of Hg in fish tissue as this would provide some verification of the generally accepted opinion that Hg levels in fish tissue return to 'background' after over 30 years of reservoir history. Such a monitoring program would also ensure that the local population and public health agencies have access to the Hg data that the proponent has most likely acquired over the last 30 years or so.	
TC-1 Traditional Use Studies	The EIS refers to meetings with Aboriginal groups and indicates that proposed traditional use studies were discussed with some of the Aboriginal groups. Can Manitoba Hydro provide an update on whether any of these studies will be undertaken, the approximate timeline of these studies and the results of these studies, when available.	
TC-2 Aboriginal Group Concerns	Can Manitoba Hydro provide further information on concerns raised by Aboriginal groups, including information on how these concerns, if any, have been addressed.	

Source	Comment	Proponent's Response
AANDC-1 Terminology	Page 3.91. Care should be taken in using the term "Aboriginal Lands" rather than "First Nation Reserves". "Aboriginal Lands" is a much broader concept than a reserve.	
DFO-1 Earthfill Dams	EIS – Section 3.5.7 – Project Description – Earthfill Dams • What is the foundation grouting mentioned on page 3.26? What does it consist of?	
DFO-2 Aboriginal Use	EIS – Concordance Table and Section 5.2.3.3 – Meetings with Aboriginal Groups • It is noted that Aboriginal and local knowledge and Aboriginal resource use were not addressed in the EIS. Are there plans to collect this information in the near future? • Are proposals for traditional use studies still being considered?	
DFO-3 Existing Environment	EIS – Section 7.0 – Existing Environmental Setting • It would be helpful to see the before and after changes to suitability area (m^2) for the various percentile flows in a table format. In other words, the information that is presented in Figures 7.18 a & b, 7-19 a & b, 8.8 a & b, and 8.9 a & b for sturgeon and walleye, but in table format that provides a quantification of the area changes from EE to PP, for a range of percentile flows.	
DFO-4 Erosion and Sedimentation	EIS – Section 8.0 - Potential Environmental Effects and Mitigation – Table 8 • Under the Potential Environmental Effects Column for Erosion and Sedimentation, there are no timing mitigations (i.e. avoiding spawning periods) for reducing the impacts of erosion and sedimentation on fish and fish habitat. Have these been	

Source	Comment	Proponent's Response
	considered?	
DFO-5 Effects on Fish	EIS – Sections 8.3.1, 8.3.2, and 8.5.5.2 – Potential Environmental Effects and Mitigation – Primary Spillway, Secondary Spillway, and Direct Effects • What are the potential dangers to fish being passed through the new spillways? Will there be any potential for injury due to higher velocities in the new spillway than exists with the current spillway? What is the potential for physical injury due to pressure changes, impacts with the rock shelf toe, dissolved gas saturation, etc.?	
DFO-6 Effects on Fish	EIS – Section 8.4.2.2 – Potential Environmental Effects and Mitigation – Operation – Water Velocities, Flow Patterns and Depths • It is indicated on page 8.11 that water depth near the bottom of the spillway shelf will be up to 2.5 m shallower than existing conditions. Will this change be constant or affected by flow size? Will it only occur during spill years? What are the expected impacts from this change on fish use of the area?	
DFO-7 Effects on Fish	EIS – Section 8.4.7.2 – Potential Environmental Effects and Mitigation – Erosion and Sedimentation – Operation • During the most extreme flood event, it is noted that a large amount of clay, silt, and sand would likely erode and be carried downstream, with some settling above and below Eight Foot Falls and some in the Lake Sturgeon habitat below the primary spillway (page 8.19). What would be the size of the impacted areas and what would the effects be on sturgeon use of these habitats? Will impacts from sediment deposition be monitored in these areas? If monitoring shows detrimental impacts, what will be	

Source	Comment	Proponent's Response
	done to mitigated them? • A map showing the locations of the impacted areas would be helpful.	
DFO-8 Mitigation	EIS – Section 8.5.5.4 – Potential Environmental Effects and Mitigation – Residual Effects after Mitigation • It is mentioned on page 8.45 that the Project incorporates spillway design features similar to the existing Slave Falls GS, with the implication that these design features are somehow responsible for the successful Lake Sturgeon spawning below the Slave Falls GS. What are these design features and how do they contribute to successful sturgeon spawning?	
DFO-9 Cumulative Effects	EIS – Section 9.0 – Cumulative Effects Assessment • The potential construction of a new powerhouse was not included in the cumulative effects assessment since there are "no current plans to replace the powerhouse". However a proposal to build a new powerhouse at Pointe du Bois was part of a federal and provincial environmental assessment from 2007-2009 before being cancelled. As the current powerhouse is 100 years old and has many of the same deterioration problems as the current spillway, I think that a proposal to replace or decommission the existing powerhouse can reasonably be expected in the next 20 years (the assessment period) and should therefore be included in the cumulative effects assessment. • Lake sturgeon has not been included in the cumulative effects assessment as a "residual negative effect on Lake Sturgeon is not expected". Part of the reasoning behind this expectation is that	

Source	Comment	Proponent's Response
	there is plenty of sturgeon spawning habitat below the Pointe du Bois GS and that in no-spill years sturgeon can continue to spawn below the existing powerhouse. If a change to the existing powerhouse can be expected in the next 20 years (see reasoning above) then certain impacts from the spillway replacement may become detrimental where they weren't before (i.e. such as the loss of the leakage flows in no-spill years), especially when considered in combination with likely future impacts from a change to the powerhouse (i.e. loss of spawning habitat along the west side of the river below the powerhouse).	
DFO-10 Monitoring Plans	EIS – Section 11.05 – Monitoring and Follow-Up Programs – Environmental Protection Plans • Aside from a Draft Aquatic Effects Monitoring Plan, the complete Environmental Protection Plan, including the Sediment Management Plan, has not been provided. What is the schedule for their development?	
DFO-11 Adaptive Management	HSI Modeling Report, Section 6.3 • Given that the use of the secondary spillway did not improve the HSI scores for any of the flows modeled in the post-project environment, what other adaptive management solutions could be tried if monitoring shows a detrimental effect of the project on sturgeon spawning?	
DFO-12 Sensitivity Analysis	HSI Modeling Report • DFO requested the following in a letter to MB Hydro on April 20, 2011 and was informed that this information would be presented in the HSI modeling	

Source	Comment	Proponent's Response
	report. While results for the five model parameters were provided, a sensitivity analysis, which would allow for comparison of the pre- and post- scenario results and conclusions, was not. An understanding of what parameters drive the model will be necessary for understanding the predictive power of the model. This will not only be important in assessing impacts, but also in developing future monitoring. *Please provide North/South's sensitivity analysis that shows how the five factors (depth, velocity, substrate, flow direction, and distance from barrier) affected the results, in order to see how much each factor actually matters. Could it be that the factors are more important in combination than singly? Has this been considered?*	
DFO-13 Sampling Data	HSI Modeling Report • DFO requested the following in a letter to MB Hydro on April 20, 2011 and was told it would be presented in the HSI modeling report. I have not been able to find an answer to it in the HSI modeling report. *How much of the variability in the data is due to the sampling rather than to a difference in years or flows (or other parameter)?* • How was sampling error controlled?	
DFO-14 Spillway Leakage	HSI Modeling Plan – Section 3.2 – Pointe du Bois GS and Section 6.2 – Relative Importance of Habitat Variables • The amount of leakage that occurs through the stop logs is characterized as a "small amount" in section 3.2. Section 6.2 states spillway leakage flows during no spill years occur at "relatively high velocity" and the amount varies "from year to year". What is the velocity of the leakage flows? As this leakage has	

Source	Comment	Proponent's Response
	been shown to create sturgeon spawning habitat in the area below the spillway shelf in low flow years, such as 2007, when there is no spillage and as the leakage will not occur post-project, the amount of leakage should be quantified and included in the model output in order to quantify the loss of this habitat.	
DFO-15 Habitat Suitability Curves	HSI Modeling Plan – Section 4.1 Model Development and Appendix 2 • In the habitat suitability modeling analysis report, Appendix 2 provides an overview of the derivation of literature habitat suitability curves; however, it would be helpful if more information about how the final suitability index frequency for the various bins values were calculated and the data sources that were used. A numerical example for a particular bin value (i.e. velocity at 0.4 m/s) could be used to illustrate the procedure used to derive the literature suitability index value.	
DFO-16 Egg Deposition Sampling	HSI Modeling Plan – Section 4.1.2 – Lake Sturgeon Egg Deposition and Section 5.1.2.5 – Egg Deposition on Substrates • Egg deposition sampling effort varied by year which makes it difficult to compare the results across years and flows. Presentations of egg deposition data should be presented as CUE or CPUE to make it easier to understand the relative importance of the deposition sites. For example, number of eggs by trap by hour, with each trap identified uniquely (year, date, and location).	
DFO-17 Egg Deposition	HSI Modeling Plan – Section 4.1.2 – Lake Sturgeon Egg Deposition	

Source	Comment	Proponent's Response
Sampling	• Additional egg sampling was conducted as far as 1 km downstream in the area of Eight Foot Falls. What year did this occur? Was it tried in more than one year? Was there sampling between this area and the rest of the egg deposition study area or were the two sampling areas separated by an area of no sampling?	
DFO-18 Egg Traps	HSI Modeling Plan – Table 2 – Frequency of Egg Trap Observations by Year • What is responsible for the variation among years and between sites?	
DFO-19 Velocity Curves	HSI Modeling Plan – Section 5.1.2.1 – Velocity • It seems that in the development of the SI curve for velocity, on-site data was used to include higher velocities in the combined SI curve but on-site data was not used to increase the frequency of lower velocities in the combined SI curve. In fact the lowest velocities on the curve are given an even lower frequency than the literature values. • Was velocity was measured at the egg mat sites and was that velocity used in the SI curve or were model velocities used in the SI curve? • What were the velocities at the leakage sites in 2007?	
DFO-20 Velocity Curves	HSI Modeling Plan – Section 5.1.2.1 – Velocity What figure or table is associated with the last paragraph of this section? Is there a corresponding one for the PP?	
DFO-21 Suitability Index	HSI Modeling Plan – Section 5.1.2.2 – Depth and Figure 17 The Suitability Index (SI) for water depth (Figure 17) shows a frequency of 1 for water depths ranging 1 to 17 meters for the combination of literature and field data, yet separately the literature and field values appear to have much lower	

Source	Comment	Proponent's Response
	frequencies. In contrast, the combination SI curve for velocity (Figure 15) seems to follow the literature values. It would help to understand how the combination frequency curves were derived using the field and literature data (i.e. is it based on judgment, a mathematical relationship or some combination?).	
DFO-22 Flow	HSI Modeling Plan – Section 5.1.2.3 – Direction of Flow The field study referred to in this section, upon which Figure 18 is based, is for the no-spill year 2007. Was this phenomenon also observed in the other sample years?	
DFO-23 Distance	HSI Modeling Plan – Section 5.1.2.4, Figures 22, 51, and 52 – Distance • Given that the spread of eggs was reduced in low flow years and greater in high flow years, is it possible that the distance zone suitability is over-estimating the extent of potential suitable habitat in low flow years and/or under-estimating the extent of intermediate levels of suitability in high flow years? Should the slope shown in Figure 22 decline with higher flow rates to take this into account? • Re-plotting of Figure 22 with different colours for years would enhance the understanding of the effect of flow on distance of egg deposition. • Figure 52 seems to show less eggs deposited in the very high flow year of 2009 as compared to 2008 (Figure 51). Was that because less eggs were deposited or was that a function of the difficulty in sampling egg deposition in high flows? Would sampling further downstream have shown that sturgeon were spawning further downstream because of the very high flows and that the distance boundary should be increased at the highest flows?	

Source	Comment	Proponent's Response
DFO-24 Substrate	HSI Modeling Plan – Section 5.1.2.5 – Substrate (Egg Deposition on Substrates) • Isn't it to be expected that if boulder habitat is sampled most frequently that it would have the highest number of traps with eggs? If you look at Figure 23, it appears as though the boulder substrate type had slightly less traps with eggs (percentage-wise) than did the cobble/gravel substrate type. Presenting the results of this sort of unequally sampled data without giving an indication of the sampling effort can be misleading.	
DFO-25 Flow Scenarios	HSI Modeling Plan – Section 5.2.1 – Flow Scenarios • What were the results of the 12 flow scenarios? What figures/tables are the results presented in? This should be indicated here.	
DFO-26 Flow Scenarios	HSI Modeling Plan – Section 5.2.1 – Flow Scenarios – Table 6 • Some of the scenario acronyms (about six of them) appear to be incorrect. For instance, Scenario 4, EE, standard, 75 is given the acronym PP75-Primary.	
DFO-27 Flows	HSI Modeling Plan – Section 5.2.2.1 – Observed Spawning Periods at Pointe du Bois (Agreement between HSI model results and egg deposition) • It is stated that, "Modeled flows from 2007 and 2010 do not include spillway leakage and therefore HSI model outputs do not predict suitable habitat associated with leakage flows." How then was the suitable spawning habitat below the spillway shelf in low flow years included in the analysis of project impacts to fish habitat? How was the loss of this habitat in the post-project environment measured?	
DFO-28	HSI Modeling Plan – Section 5.2.4 – Post-Project Standard	

Source	Comment	Proponent's Response
Horseshoe Bay	Mode of Operation • Is the loss of Horseshoe Bay spawning habitat included in the habitat losses assessment? Where is this shown?	
DFO-29 Suitable Areas	HSI Modeling Plan – Section 5.2.4 – Post-Project Standard Mode of Operation The results given in the last paragraph on page 17 are very hard to follow. It appears that spillway suitable area PP (shown in Table 10) is being compared to total (i.e. combined spillway and powerhouse) suitable area EE (shown in Table 8?) for the 50th percentile flow. If this is the case, I don't understand how it can be said to increase by 1200 m^2 for the moderate and high categories, as indicated, since the PP spillway suitable area for those categories is 1600 m^{2}and the EE pooled suitable area is 7250 m^2. Perhaps the comparison was meant to be to the spillway suitable habitat EE, which was 400 m^2. It then goes on to indicate that suitable areas for the 75th percentile (spillway? powerhouse? combined?) remain the same, but only provides a PP figure as reference. Are the comparisons not found in Tables 8 and 10? The results in the rest of the paragraph are just as poorly presented. This information on changes to suitable areas PP is important for understanding the impacts of the project and should be presented more clearly with references to the relevant figures and tables.	
DFO-30 Habitat Suitability	HSI Modeling Plan – Section 5.2.5.1 – Comparison of Habitat Suitability for Standard and Modified Modes of Operation • This section should reference Table 11 which gives the actual suitability areas being presented. The scenario numbers should also be provided for reference.	

Source	Comment	Proponent's Response
	• Why weren't the secondary spillway and split flow scenarios presented for the 75th and 85th percentile flows (since they are available in EE scenarios 4 and 5)?	
DFO-31 Habitat Suitability	HSI Modeling Plan – Section 5.2.5.1 – Comparison of Habitat Suitability for Standard and Modified Modes of Operation – Tables 8, 10, and 11 • Why do the suitable areas change below the powerhouse under the various spill flow conditions if the amount of water that flows through the powerhouse remains the same beyond the 35th percentile flow? Does the flow from the spillway affect the area below the powerhouse at the higher flows? • It would be helpful if these tables were cross-referenced to the relevant figures (i.e. Table 8 cross-referenced to Figures 34-37 and vice versa) as it would make flipping back and forth between the numbers and the visuals easier.	
DFO-32 Habitat Suitability	HSI Modeling Plan – Section 5.2.5.1 – Comparison of Habitat Suitability for Standard and Modified Modes of Operation and Section 6.3 – Post-Project Conditions and Adaptive Management Scenarios • What variable (or variables) is responsible for the loss in suitable areas under the secondary and split flow scenarios? Is loss of velocity the primary reason? It would be helpful to understand this better as it is being presented as an adaptive management solution.	
DFO-33 Adaptive Management	HSI Modeling Plan – Section 6.3 – Post-Project Conditions and Adaptive Management Opportunities • The loss of the spillway leakage spawning habitat is	

Source	Comment	Proponent's Response
	mentioned here but does not appear to be quantified in the report. With only two years of no-spill data available to go by, it seems somewhat risky to assume that this habitat is only used by sturgeon in half of the non-spill years. The loss of this habitat must be taken into consideration when characterizing the impacts of this project. • Substrate enhancement is discussed in this section as a potential adaptive management mitigation. What were the results of the substrate enhancement work for sturgeon spawning that was conducted by MB Hydro below the powerhouse? Was spawning success improved by that work? Perhaps if the results of that work were presented here it would enhance the discussion. • Was adaptive management, through the use of the secondary spillway to convey some flow into spillway ponds 2 and 3, considered to mitigate impacts to Longnose Sucker spawning in those ponds?	
DFO-34 Habitat Suitability	HSI Modeling Plan – Section 7.0 – Conclusions • Table 13 seems to show results that are different from those discussed in this section. For example, it is stated that suitable water velocity areas will change little under PP flow scenarios, yet Table 13 shows that the two better categories of suitable velocity area (highly and moderate suitable) decrease PP at most flows and by as much as 18,575 m^2 at the 50^{th} percentile flow. It is also stated here that any losses incurred at higher flows are expected to be offset by gains at lower flows, since they will be available more often. This does not	

Source	Comment	Proponent's Response
	appear to be supported by Table 13. • Table 13 also presents the suitabilities in a different way than previous tables and figures. Instead of using the suitability ranges of 0 to 0.25, 0.25 to 5.0, 5.0 to 0.75, and 0.75 to 1.0, the suitability categories are called "highly suitable", "moderate suitable", and "unsuitable". Which suitability ranges do these correspond to?	
DFO-35 Egg Deposition	HSI Modeling Plan – Figure 12 Figure 12 shows egg deposition for all four years of sampling. DFO would like to see similar maps for each sample year separately, showing presence/absence of eggs, with an overlay of the 25 square meter modeling grids. A similar request was made in a letter to Manitoba Hydro on April 20th, 2011. DFO would like the above information, or something similar, in order to determine the sampling effort associated with each modeling grid.	
DFO-36 Plan Design	Draft Aquatic Effects Monitoring Plan – Section 3.0 – Water Quality • The monitoring plan is too vague. A good plan would cover what Hydro's questions are, where they plan to sample, replication numbers, statistical analysis, trigger levels for action, and the actions they'll take to remedy levels over the triggers.	
DFO-37 Water Quality	Draft Aquatic Effects Monitoring Plan – Section 3.1.1 Water Quality – Monitoring During Construction – Core Water Quality Monitoring • Are the chloride and sulphate salts that are to be monitored something that may leach from new masonry/concrete?	
DFO-38	Draft Aquatic Effects Monitoring Plan – Section 3.2 Water	

Source	Comment	Proponent's Response
Water Quality	Quality – Monitoring During Operation • Why monitor for increases in TSS during extreme high flow events during operation? Is it expected that construction sediments that have settled out may get re-suspended?	
DFO-39 Water Quality	Draft Aquatic Effects Monitoring Plan – Section 3.2.1 Water Quality – Monitoring During Operation – Core Monitoring at Existing Mainstem Sites: Reaches 1-6 – Sampling Frequency and Schedule • Having said in the introduction to this section that effects of project operation on water quality were expected to be restricted partly to increases in TSS under extreme high flow events, no monitoring appears to be scheduled to occur during or after extreme high flow events. Why is that? If none is planned during or after extreme high flow events, how will their effect on water quality be determined?	
DFO-40 Spillway Ponds	Draft Aquatic Effects Monitoring Plan – Section 3.2.2 Water Quality – Monitoring During Operation – Spillway Pond Monitoring – Study Area • Blind Bay is proposed as a reference area for spillway pond monitoring, presumably for temporal consistency. Will values also be compared to pre-project values in the ponds themselves, for spatial consistency? Or is having contemporary samples more important than samples from the same site taken at different times?	
DFO-41 Velocity	Draft Aquatic Effects Monitoring Plan – Section 4.0 – Aquatic Habitat Monitoring • Should include additional surveys of velocity downstream of the new spillway under operation to verify 2D velocity models are correct. This can then	

Source	Comment	Proponent's Response
	be used with the HSI model data to calculate refined Weighted Useable Area output. Surveys should be conducted with a range of spill flows.	
DFO-42 Sturgeon Habitat	Draft Aquatic Effects Monitoring Plan – Section 4.1 Aquatic Habitat Monitoring – Monitoring During Construction and Operation – Monitoring of Lake Sturgeon Spawning Habitat in Reach 3 – Sampling Frequency and Schedule • It is stated that results of the substratum surveys during the period of operation would be most conclusive if high magnitude flow events have passed through the spillway. Will the survey schedule be modified (i.e. lengthened) if there haven't been any high magnitude flow events during the period of operation to include a high magnitude flow event? • Substrate classification during operation should be conducted only after a significant spill event. Preferably a ≥90% exceedence.	
DFO-43 Sturgeon Habitat	Draft Aquatic Effects Monitoring Plan – Section 6.1.1 Fish Community – Monitoring During Construction – Lake Sturgeon Spawning and Recruitment – Rationale, Design, and Monitoring Methodology • Where exactly will the egg mats be deployed? Will they be placed in the same locations as the pre-project surveys? • What sort of physical habitat information will be collected? The collection of physical habitat information is listed as one of the objectives of the lake sturgeon spawning and recruitment monitoring, but there is no description of it in the methodology.	
DFO-44 Blasting	Draft Aquatic Effects Monitoring Plan – Section 6.1.2 Fish Community – Monitoring During Construction – Blasting	

Source	Comment	Proponent's Response
	• It is stated that monitoring will include the use of pressure meters. Will these be used at every blast to determine whether the DFO guidelines for the use of explosives are being met? Or will they only be used at blasts where a pre-determination has been made that the DFO guidelines are not expected to be met?	
DFO-45 Spawning and Recruitment	Draft Aquatic Effects Monitoring Plan – Section 6.2 – Fish Community – Monitoring During Operation • Spawning and recruitment gillnet study during operation. Why not start with a mark recapture index gillnet study rather than transitioning to one. Small mesh index net will still detect recruitment. Add extra small mesh panels if needed at the start of the survey. This will refine the population estimate and make it easier to detect a trend in the population overtime.	
DFO-46 Spawning and Recruitment	Draft Aquatic Effects Monitoring Plan – Section 6.2 – Fish Community – Monitoring During Operation • Spawning and recruitment egg mat study during operation should continue evaluation beyond the four year window if a minimum of a 70% exceedence flow is not observed.	
DFO-47 Spawning and Recruitment	Draft Aquatic Effects Monitoring Plan – Section 6.2.1 Fish Community – Monitoring During Operation – Lake Sturgeon Spawning and Recruitment – Rationale, Design, and Monitoring Methodology • Where exactly will the egg mats be deployed? Will they be placed in the same locations as the pre-project surveys? • What sort of physical habitat information will be collected? The collection of physical habitat information is listed as one of the objectives of the	

Source	Comment	Proponent's Response
	lake sturgeon spawning and recruitment monitoring, but there is no description of it in the methodology.	
DFO-48 Spillway Ponds	Draft Aquatic Effects Monitoring Plan – Section 6.2.1 Fish Community – Monitoring During Operation – Spillway Ponds 2 and 3 • It is stated that monitoring of the spillway ponds will occur during the first year of project operation and following any use of the secondary spillway. However, no schedule is provided for the monitoring, apart from that which will occur following any use of the secondary spillway. What will be the frequency of this monitoring?	
DFO-49 Spillway Ponds	Draft Aquatic Effects Monitoring Plan – Section 6.2.3 – Fish Community – Monitoring During Operation Spillway – Spillway Ponds 2 and 3 • Consider sampling ponds 2 and 3 after a full year of project operation as opposed to or in addition to sampling in the first year of project operation. Possible changes in fish community may only occur after an under ice season.	
DFO-50 Reporting	Draft Aquatic Effects Monitoring Plan – Section 7.0 Reporting and Follow-Up for Regulatory Authorities – Monitoring During Construction • It is stated that, "…reporting of some parameters will occur during specific construction activities on exception and based on water quality results…". Please elaborate and/or reference the relevant sections of the monitoring report.	
DFO-51 Monitoring Phases	Draft Aquatic Effects Monitoring Plan – Section 7.0 Reporting and Follow-Up for Regulatory Authorities – Monitoring During Operation • Phase I and Phase II of the operations phase of the	

Source	Comment	Proponent's Response
	monitoring are mentioned in this section but are not defined. According to Table 2-1, Phase II only includes fish community monitoring; however, in the fish community section (section 6.0) no mention is made of which aspects of the fish community monitoring will occur in Phase II. It would be helpful if these phases were better defined somewhere in the monitoring plan.	
DFO-52 Sediment	Draft Aquatic Effects Monitoring Plan – Section 6 (Fish Community) and Section 9 (Sediment Monitoring) • Are sediment releases during construction and during the opening of the primary spillway expected to occur during the sturgeon spawning period? Will the monitoring plan look for the effects of sediment on sturgeon spawning sites? Will the adaptive action plan be triggered by effects of sediment to sturgeon spawning?	
DFO-53 TSS	Draft Aquatic Effects Monitoring Plan – Section 9.1 Draft Sediment Monitoring and Adaptive Action Plan – Sediment Monitoring Plan – Guidelines • It is anticipated that TSS concentration increases in the fully mixed zone (which is downstream of Eight Foot Falls) will be below the CCME Water Quality Guidelines for the Protection of Aquatic Life. What about in the area between the spillway and Eight Foot Falls?	
DFO-54 Sediment	Draft Aquatic Effects Monitoring Plan – Section 9.2 Draft Sediment Monitoring and Adaptive Action Plan • Where in the river is it anticipated that the bulk of all the excess sediment from the construction activities will settle out? Are there plans to monitor for accumulations of sediment in these areas to	

Source	Comment	Proponent's Response
	determine whether they are detrimental to fish habitat? What mitigative actions would be taken if they were?	
DFO-55 Targets	Draft Aquatic Effects Monitoring Plan – Section 9.2 Draft Sediment Monitoring and Adaptive Action Plan – Adaptive Action Plan – Target Levels • Where do the target levels come from? What are they based on? For example, why is 200 mg/L used as the lower limit for action B in the action plan?	
DFO-56 Action Plans	Draft Aquatic Effects Monitoring Plan – Section 9.2 Draft Sediment Monitoring and Adaptive Action Plan – Adaptive Action Plan – Implementation of Adaptive Action Plan • Why does Action B have less mitigation measures in it than Action A when Action B is triggered by a higher TSS value than Action A? How do these two actions actually differ from one another?	
DFO-57 HSI Data	Aquatic Technical Appendix • Lake Sturgeon spawning HSI curves data is not included in the Aquatic Technical Appendix. Uncertainty of what went into the model makes it impossible to interpret the output. Please provide all HSI data for parameters used in the model results.	
DFO-58 Flow Data	Aquatic Technical Appendix • Figures 4-51 to 4-54. Require flow value for the Winnipeg River and flow though each of the units that were turned on. Would provide useful information for interpreting the observed differences in egg density.	
DFO-59 HSI Output	Aquatic Technical Appendix • HSI output for Lake Sturgeon spawning habitat is not presented with different flows options other than	

Source	Comment	Proponent's Response
	50 and 95 percentile and that presentation is only as a site plan figure. Would like the output numbers for weighted useable area (m^2) of habitat plotted against a range of flows from the minimum to the maximum with HSI output values calculated for either every 5 percentile or every 50 cms in change in flow.	
DFO-60 Habitat Disruptions	Compensation Plan – Section 3.3 – Changes to Fish Habitat and Associated Rick – Temporary Habitat Disruptions • What changes, if any, are expected to sturgeon spawning during construction of the project? Will there be a disruption of spawning during the construction years?	
DFO-61 Habitat Disruptions	Compensation Plan – Section 3.3 – Changes to Fish Habitat and Associated Rick – Temporary Habitat Disruptions • Are there any flow regimes or conditions under which construction will have to be delayed (such as floods of a certain magnitude) and what effect might this have on the length of time the temporary structures (i.e. coffer dams, blast mattresses, landings, etc) will remain in place and/or the length of time that spawning may be disrupted?	

References Cited in Health Canada's Comments

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Canadian Standards Association (CSA). (2005). CAN/CSA-ISO 1996-1:05 (ISO 1996-1:2003) Acoustics – Description, measurement and assessment of environmental noise – Part 1: Basic quantities and assessment procedures.

Hanson, C.E., Towers, D.A. and L.D. Meister. (2006). Transit Noise and Vibration Impact Assessment (Report No. FTA-VA-90-1003-06). United States Federal Transit Administration. Prepared by Harris,

Miller, Miller and Hanson Inc. Burlington, Massachusetts. Available at: www.fta.dot.gov/documents/FTA_Noise_and_Vibration_Manual.pdf

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