# APPENDIX A

# KEEYASK TRANSMISSION LINE PROJECT DRAFT ENVIRONMENTAL PROTECTION PLAN

# GLOSSARY

**Aboriginal Community:** A community where most of the residents are Aboriginal (i.e., Indian, Métis or Inuit) and that has a separate form of government, provides some level of service to its residents, and has clear community boundaries.

**Aboriginal Peoples:** Individuals who are Aboriginal (i.e., Indian, Inuit or Métis).

**Aboriginal Traditional Knowledge (ATK):** Knowledge that is held by, and unique to Aboriginal peoples. It is a living body of knowledge that is cumulative and dynamic and adapted over time to reflect changes in the social, economic, environmental, spiritual and political spheres of the Aboriginal knowledge holders. It often includes knowledge about the land and its resources, spiritual beliefs, language, mythology, culture, laws, customs and medicines.

**ac:** See **Alternating Current.**

**Access:** The ability to enter an area or reach a particular location.

**Access Road:** A road that affords access into and out of a “construction” area.

**Access Trail:** A trail that affords access into and out of a “construction” area.

**Adaptive Management:** The implementation of new or modified mitigation measures over the construction and operation phases of a project to address unanticipated environmental effects. The need for the implementation of adaptive management measures may be determined through an effective follow-up program.

**Adverse Effects:** Negative effects on the environment and people that may result from a proposed project.

**Alignment:** The vertical and/or horizontal route or direction of a linear physical feature.

**Alternating Current (ac):** Is the oscillating (back and forth) flow of electrical current, whereas dc (Direct Current) is the unidirectional continuous flow of electrical current. ac is the common household electrical current and is used in transmission lines; dc is the form of current produced by a battery (e.g., in a flashlight).

**Amphibian:** Cold-blooded animal of the Class Amphibia that typically lives on land but breeds in water (e.g., frogs, toads, salamanders).

**Aquifer:** A layer of permeable rock, sand, or gravel through which groundwater flows, containing enough water to supply wells and springs.

**ATK:** See **Aboriginal Traditional Knowledge.**

**Bedrock:** The solid rock that underlies soil and the regolith that is exposed at the surface.

**Berm:** An artificial ridge or embankment used to stop vehicle traffic or to block line of sight.

**Blasting:** The act of causing an explosion, consisting of a wave of increased atmospheric pressure followed immediately by a wave of decreased pressure

**Bog:** Wetland ecosystem characterized by an accumulation of peat, acid conditions and a plant community dominated by Sphagnum moss.

**Borrow Pit:** The excavation left by the removal of material (usually sand or gravel) for construction purposes.

**Buffer:** An area of land separating two distinct land uses that acts to soften or mitigate the effects of one land use on the other.

**Buffer Zone:** An area that protects or reduces effects on a natural resource from human activity. Also a strip of land along roads, trails or waterways generally maintained to enhance aesthetic values or ecosystem integrity.

**Built-up Area:** An area characterized by residential, commercial and/or industrial development including roads, infrastructure, services, etc.

**Burning:** The act of setting something on fire.

**Cleaning Up:** The act of collecting and removing equipment, materials, wastes, etc from a "construction" area.

**Clearing:** The act of cutting and removing trees from a "construction" area. Trees may be cut by machine or hand methods.

**Clear-Span Bridge:** Small-scale bridge structure that completely spans a watercourse without altering the stream bed or bank, and that are a maximum of two lanes wide.

**Community Knowledge:** Information held by community members, such as farmers, hunters, fishers and naturalists, who are familiar with the environment in a specific geographic area. Community knowledge may be used in the environmental assessment of a proposed project.

**Compliance Monitoring:** A broad term for a type of monitoring conducted to verify whether a practice or procedure meets the applicable requirements prescribed by legislation, internal policies, accepted industry standards or specific terms and conditions (e.g., in an agreement, lease, permit, license or authorization).

**Conductor:** A material that allows flow of electrical current. In transmission lines, usually a composition of multiple strands of aluminum and steel wires.

**Conductor Stringing:** The process of suspending the conductor from insulators attached to the transmission line towers or structures.

**Conservation:** Any of various efforts to preserve or restore the earth's natural resources, including such measures as: the protection of wildlife, the maintenance of forest or wilderness areas, the control of air and water pollution and the prudent use of farmland, mineral deposits, and energy supplies.

**Construction:** The act or process of constructing, building, erecting or assembling a structure, facility or development project.

**Construction Camp:** The temporary housing and support of workers for the purpose of constructing.

**Contaminant:** As defined by *The Manitoba Dangerous Goods Handling and Transportation Act*; "any solid, liquid, gas, waste, radiation or any combination thereof that is foreign to or in excess of the natural constituents of the environment and that effects the natural, physical, chemical or biological quality of the environment; or that is or is likely to be harmful or damaging to the health or safety of a person."

**Contamination:** The act or process of contaminating or changing the level of a contaminant in the natural environment.

**Cover:** Vegetation such as trees or undergrowth that provides shelter for wildlife. Also, the surface area of a stratum of vegetation as based on the vertical projection on the ground of all above-ground parts of the plant. Also, the material in or over-hanging the wetland area of a lake or stream providing fish with protection from predators or adverse flow conditions, e.g., boulders, deep pools, logs, vegetation.

**Danger Trees:** Danger trees are trees that are tall enough - that if they fell or failed they would pass within the required "air gap" to the wires, or if the wires "blew out" far enough "air gap" would be breached.. (See Hazard Trees).

**Dangerous Goods:** Any product, substance or organism that, by its nature, is able or likely to cause injury, or that is included in any of the classes listed in the Dangerous Goods Handling and Transportation Regulation 55/2003 and Classification Criteria for Products, Substances and Organisms Regulation 282/87.

**Decommissioning:** Planned shut-down, dismantling and removal of a building, equipment, plant and/or other facilities from operation or usage and may include site cleanup and restoration.

**Degradation:** The diminution of biological productivity or diversity.

**Demobilizing:** The removal of personnel, machinery and materials and other support infrastructure and services from a site after construction is complete.

**Development:** *The Environment Act* – Any project, industry, operation or activity, or any alteration or expansion of any project, industry, operation or activity which causes or is likely to cause: a) the emission or discharge of any pollutant to the environment, or b) an effect on any unique, rare or endangered feature of the environment, or c) the creation of by-products, residual or waste products not regulated by *The Dangerous Goods Handling and Transportation Act*, or d) A substantial utilization or alteration of any natural resource in such a way as to pre-empt or interfere with the use or potential use of that resource for any other purpose, or e) A substantial utilization or alteration of any natural resource in such a way as to have an adverse effect on another resource, or f) The utilization of a technology that is concerned with resource utilization and that may induce environmental damage, or g) A significant effect on the environment or will likely lead to a further development which is likely to have a significant effect on the environment, or h) A significant effect on the social, economic, environmental health and cultural conditions that influence the lives of people or a community insofar as they are caused by environmental effects.

**Disturbance:** A disruption in the normal functioning of an organism or system.

**Draining:** The act of making land drier by providing channels for water to flow away.

**Drilling:** The act of boring a hole in something (ground or bedrock) with a device such as a drill.

**Easement:** The permission or right to use a defined area of land for a specific purpose such as transmission line rights-of-way. The easement gives Manitoba Hydro the right of access to the right-of-way to construct, operate and maintain the transmission line.

**Ecosystem:** A dynamic complex of plant, animal and microorganism communities and their non-living environment interacting as a functional unit.

**Ecozone:** An area where organisms and their physical environment endure as a system.

**EA Report:** See **Environmental Assessment ReportAssessment Report.**

**Electric Current:** See **Current**.

**Elevation:** An indication of the vertical distance of a point above or below sea level, expressed in metres.

**EMS:** See **Environmental Management System**.

**Endangered:** As defined by COSEWIC, a species facing imminent expiration (no longer existing in the wild in Canada, but occurring elsewhere) or extinction (no longer existing).

**Energy:** Electrical utilities sell electrical energy to their customers who, in turn, convert this energy into a desirable form - such as work, heat, light or sound. Electrical energy is measured in kilowatt hours (kWh).

**Enhance:** To improve by increasing in number or quality.

**Environment:** The components of the Earth and includes: a) land, water and air, including all layers of the atmosphere, b) all organic and inorganic matter and living organisms, and c) the interacting natural systems that include components referred to in paragraphs a) and b) (*Canadian Environmental Assessment Act*).

**Environmental Assessment:** Process for identifying project and environment interactions, predicting environmental effects, identifying mitigation measures, evaluating significance, reporting and following-up to verify accuracy and effectiveness leading to the production of an environmental assessment report.

**Environmental Component:** Fundamental element of the physical, biological or socio-economic environment, including the air, water, soil, terrain, vegetation, wildlife, fish, birds and land use that may be affected by a proposed project, and may be individually assessed in the environmental assessment.

**Environmental Effect:** In respect of a project, a) any change that the project may cause in the environment, including any change it may cause to a listed wildlife species, its critical habitat or the residences of individuals of that species, as those terms are defined in subsection 2(1) of the *Species at Risk Act*, b) any effect of any change referred to in paragraph a) on i) health and socio-economic conditions, ii) physical and cultural heritage, iii) the current use of lands and resources for traditional purposes by Aboriginal persons, or iv. any structure, site or thing that is of historical, archaeological, paleontological or architectural significance, or any change to the project that may be caused by the environment; whether any such change or effect occurs within or outside Canada *(Canadian Environmental Assessment Act).*

**Environmental Assessment Report (EA Report):** A document that presents the findings of an environmental assessment in response to specific guidelines.

**Environmental Management System (EMS):** Part of an organization's overall management practices related to environmental affairs. It includes organizational structure, planning activities, responsibilities, practices, procedures, processes and resources for developing, implementing, achieving, reviewing and maintaining an environmental policy. This approach is often formally carried out to meet the requirements of the International Organization for Standardization (ISO) 14000 series.

**Environmental Monitoring:** Periodic or continuous surveillance or testing, according to a predetermined schedule, of one or more environmental components. Monitoring is usually conducted to determine the level of compliance with stated requirements, or to observe the status and trends of a particular environmental component over time.

**Environmental Protection Plan (EnvPP):** A 'user-friendly' guide for the contractor and Manitoba Hydro that includes: information such as a brief project description; updated construction schedule; summary identifying environmental sensitivities and mitigation actions; listing of all federal, provincial or municipal approvals, licences, or permits that are required for the project; a description of general corporate practices and specific mitigating actions for the various construction and maintenance activities; emergency response plans, training and information; and environmental/engineering monitoring plans and reporting protocols.

**Environmental Protection Program (EPP):** Provides a framework for delivery, management and monitoring of environmental protection activities in keeping with issues identified in the environmental assessment, regulatory requirements and public expectation.

**Environmentally Sensitive Site (ESS):** Locations, features, areas, activities or facilities that are ecologically, socially, economically or culturally important or sensitive to disturbance and require protection during construction and operation of the project.

**EnvPP:** See **Environmental Protection Plan.**

**Ephemeral Stream:** A channel (usually vegetated) where water flows only during and immediately after rainfall or snowmelt.

**EPP:** See **Environmental Protection Program.**

**Erosion:** The natural breakdown and movement of soil and rock by water, wind or ice. The process may be accelerated by human activities.

**ESS:** See **Environmentally Sensitive Site.**

**Fill:** Natural soils that are manually or mechanically placed; soil or loose rock used to raise a grade.

**Fish Habitat:** Spawning, nursery, rearing, food supply and migration areas upon which fish depend (*Fisheries Act*).

**Follow-up Program:** A program for: a) verifying the accuracy of the environmental assessment of a project, and b) determining the effectiveness of any measures taken to mitigate the adverse environmental effects of the project (*Canadian Environmental Assessment Act).*

**Foundation:** The surface or subsurface base that is in direct contract with the ground and supports a structure.

**Footprint:** The surface area occupied by a structure or activity.

**Generator:** A machine that converts mechanical energy – such as a rotating turbine driven by water, steam, or wind – into electrical energy.

**Grading:** The act of levelling or sloping the ground evenly by mechanical means (i.e., grader).

**Groundwater:** The portion of sub-surface water that is below the water table, in the zone of saturation.

**Grubbing:** The act of removing roots from soil using a root rake, harrow or similar device.

**Guideline:** Non-mandatory, supplemental information about acceptable methods, procedures and standards for implementation of requirements found in legislation, policies and directives.

**Guys or Guy Wires:** Supporting wires that are used to stabilize some transmission line structures.

**Habitat:** The area where a plant or animal lives. The primary attributes that define habitat for a terrestrial plant or animal in the Project area are vegetation, soils, surface water, ground water, permafrost, disturbance regime (e.g. highly variable water fluctuations, frequent large fires) and vegetation age. A combination of similar habitat attributes is similarly referred to as a habitat type.

**Habitat:** The place where an organism lives. Since all natural areas are habitat for something, “habitat” refers to all habitats. Habitat for a particular species is identified with a species prefix (e.g., fish habitat, jack pine habitat, moose habitat).

**Hazard Trees:** Hazard trees are “Danger trees” that are structurally unsound, so that they pose a significant risk of failing and passing thru the conductor “air-gap”.

**Hazardous Substance:** Any substance which, by reason of being explosive, flammable, poisonous, corrosive, oxidizing or otherwise harmful, is likely to cause death or injury.

**Hazardous Waste:** As defined by Manitoba Regulation 175/87: a product, substance or organism that is a source of danger and that meets the criteria set out in the Classification Criteria products, Substances and Organism Regulation, Manitoba Regulation 282/87, and that is intended for treatment or disposal, including recyclable material.

**Hectares (ha):** A metric unit of square measure equal to 10,000 square metres or 2.471 acres.

**Herbicide:** A product used to destroy or inhibit plant growth.

**Heritage Resource:** A heritage site, heritage object and any work or assembly of works of nature or of human endeavour that is of value for its archaeological, paleontological, pre-historic, historic, cultural, natural, scientific or aesthetic features, and may be in the form of sites or objects or a combination thereof (*The Heritage Resources Act 1986*).

**High Water Mark (Ordinary) (HWM):** The visible high water mark of any lake, stream, or other body of water where the presence and action of the water are so common and usual and so long continued in all ordinary years as to mark upon the soil of the bed of the lake, river stream, or other body of water a character distinct from that of the banks, both in vegetation and in the nature of the soil itself. Typical features may include, a natural line or "mark" impressed on the bank or shore, indicated by erosion, shelving, changes in soil characteristics, destruction of terrestrial vegetation, or other distinctive physical characteristics.

**HWM:** See **High Water Mark (Ordinary).**

**Hydrocarbon:** An organic compound that contains only carbon and hydrogen; derived mostly from crude petroleum and also from coal tar and plant sources (diesel fuel, fuel oil, gasoline and lubricating oils are complex mixtures of hydrocarbons); excessive levels may be toxic.

**Ice Bridge:** A temporary crossing of a winter road over a lake or river crossing.

**Impact:** General term referring to the overall effect of a project. Accepted use includes Environmental Assessment Report, Economic Impact and Cumulative Impact.

**Indicators:** Anything that is used to measure the condition of something of interest. Indicators are often used as variables in the modeling of changes in complex environmental systems. In an environmental assessment, indicators are used to predict changes in the environment and to evaluate their significance.

**Infrastructure:** The basic features needed for the operation or construction of a system (e.g. access road, construction camp, construction power, batch plant, etc).

**Insulator:** Any material that resists the passage of electricity.

**Invertebrates:** Animals without a spinal column.

**Kilovolt (kV):** The unit of electromotive force or electrical pressure, equivalent to 1,000 volts (V).

**Km:** Kilometre; the unit measure of length equivalent to 1000 metres; one kilometre = 0.62 miles.

**kV:** See **Kilovolt.**

**m:** Metre, a unit measure of length; one metre = 3.28 ft.

**Marshalling Yard:** An open area used to stock-pile, store and assemble construction materials.

**Mitigation:** The elimination, reduction or control of the adverse environmental effects of the project, and includes restitution for any damage to the environment caused by such effects through replacement, restoration, compensation or any other means *(Canadian Environmental Assessment Act).*

**Monitoring:** Continuing assessment of conditions at and surrounding an activity. This determines if effects occur as predicted or if operations remain within acceptable limits and if mitigation measures are as effective as predicted.

**MW:** See **Megawatt.**

**Ordinary High Water Mark (OHWM):** See **High Water Mark**

**Organic:** Containing plant and animal residues at various stages of decomposition (i.e., organic soil contains decomposing plant fibres).

**Overburden:** The soil (including organic material) or loose material that overlies bedrock.

**Parameters:** Any set of physical, chemical or biological properties, the values of which determine the characteristics or behaviour of a system.

**Permafrost:** A condition where soil temperature remains below 0°C for at least two consecutive years.

**Permeability:** The degree to which fluids or gases can pass through a barrier or material.

**Physical Activity:** Any proposed activity not relating to a physical work. Such an activity is identified as a project for the purposes of the Act if it is explicitly listed in the Inclusion List Regulations.

**Physical Work:** Anything that has been or will be constructed (human-made) and has a fixed location. Examples include a bridge, building or pipeline. Natural water bodies, airplanes and ships at sea are not physical works.

**Policy:** Basic principles and corresponding procedures and standards by which an organization is guided.

**Potable Water:** Water that is suitable for drinking because it contains no harmful elements and which meets drinking quality standards.

**Pre-construction:** Includes all project activities (surveying, staking, mapping) that lead up to but do not include project construction, including all field studies (aquatic, plant, wildlife) and related public liaison activities.

**Preferred Route:** The best balanced choice of route based on public input, biophysical, socio-economic, and cost and technical considerations. Preferred routes are generally identified during a Site Selection and Environmental Assessment process.

**Project Activity:** Elements of a project component that may result in environmental effects or changes. Example project activities include clearing, grubbing, excavating, stockpiling, reclaiming, etc.

**Project Component:** A component of the project that may have an effect on the environment. Example project components include access road, construction camp, wastewater treatment facility, etc.

**Project Footprint:** The surface area directly affected by a project, facility or activity such as clearing, disturbance, etc.

**Project:** In relation to a physical work, any proposed construction, operation, modification, decommissioning, abandonment or other undertaking in relation to that physical work, or any proposed physical activity not relating to a physical work that is prescribed or is within a class of physical activities that is prescribed pursuant to regulations made under paragraph 59(b) (i.e., the Inclusion List Regulations) *(Canadian Environmental Assessment).*

**Protected Area:** As defined by the World Conservation Union, a protected area is: an area of land and/or sea especially dedicated to the protection and maintenance of biological diversity, and of natural and associated cultural resources, and managed through legal or other effective means.

**Protected Species:** Plant and animal species protected under the *Species at Risk Act* (Federal) or *The Endangered Species Act* (Manitoba).

**Quarry:** An open excavation or pit from which stone, gravel or sand is obtained by digging, cutting or blasting.

**Recycling:** Diversion of materials from the waste stream for reprocessing into new products (e.g., newspapers).

**Reduction:** Decrease in waste produced at its source in order to minimize the amount required for off-site treatment or disposal.

**Region:** Any area in which it is suspected or known that effects due to the action under review may interact with effects from other actions. This area typically extends beyond the local study area.

**Regulatory:** Pertaining to legislated requirements (i.e., statues, laws, regulations).

**Rehabilitate:** To restore a disturbed structure, site or land area to good condition, useful operation or productive capacity.

**Remediate:** To return to the state prior to alteration; to remedy.

**Reptiles:** Cold-blooded animals of the Class Reptilia that includes tortoises, turtles, snakes, lizards, alligators and crocodiles.

**Restoration:** The return of an ecosystem or habitat to its original community structure, natural complement of species and natural function.

**Reuse:** Subsequent use without significant treatment of a material remaining after being used in a previous process.

**Re-vegetating:** Adding vegetative cover by planting, seeding or other means on a disturbed site.

**Right-of-Way (RoW):** Area of land controlled or maintained for the development of a road, pipeline or transmission line.

**Riparian:** Along the banks of rivers and streams.

**Riparian Ecosystem:** The ecosystem located between aquatic and terrestrial environments identified by soil characteristics or distinctive vegetation communities that require free or unbound water.

**Risk:** A state of uncertainty where some of the possibilities involve a loss, catastrophe or other undesirable outcome. The greater loss and greater event likelihood result in a greater overall risk.

**RoW:** See **Right-of-Way.**

**SD:** See **Sustainable Development.**

**Sediment:** Material, including soil and organic material that is deposited on the bottom of a waterbody.

**Selective Clearing:** Removal of specific or selected trees and vegetation, rather than all vegetation (e.g., at sensitive sites).

**Setback:** Prescribed distance between a pollution sources or disturbance and a resource or ecosystem that needs protection.

**Shore:** The narrow strip of land in immediate contract with the sea, lake or river.

**Shoreline:** See **Shore.**

**Spawning Habitat:** Areas suitable for the deposition of eggs and the incubation of the eggs.

**Species:** A group of organisms that can interbreed to produce fertile offspring.

***Species at Risk Act* (SARA):** The federal Act which provides for the legal protection for wildlife species listed under 'Schedule 1' of that Act.

**Species at Risk:** An extirpated, endangered or threatened species or a species of special concern (*Species at Risk Act*).

**Stand:** A community of trees sufficiently uniform in species, age, arrangement, or condition to be recognized as a separate group from the forest or other growth in the area.

**Standards:** Descriptions of targets or goals used to measure the success of procedures. They may be general or specific.

**Stewardship:** Refers to general environmental care and protection.

**Stripping:** The act of removing the natural soil and organic covering from an area by mechanical means.

**Study Area:** The geographic limits within which environmental effects are assessed.

**Sullage:** Waste from household sinks, showers and baths.

**Terrestrial:** Living on or in the ground, or related to the ground.

***The Endangered Species Act*:** A Manitoba Act to ensure the protection and survival of endangered and threatened species in the province, enable the reintroduction of extirpated species into the province; and designate species as endangered, threatened, extinct or extirpated.

**Threshold:** A limit or level which if exceeded likely results in a noticeable, detectable or measurable change or environmental effect that may be significant. Example thresholds include water-quality guidelines, acute toxicity levels, critical population levels and wilderness criteria.

**Timber:** The wood of growing trees suitable for structural uses; the body, stem or trunk of a tree.

**Towers:** The transmission line structures which provide support for the conductors to ensure clearance from the ground. Towers are may be either free standing or guyed and are typically a steel lattice design.

**Transmission:** A process of transporting electric energy in bulk form from a source of supply to other parts of the electrical system (e.g., load centres like large communities or major industrial customers).

**Transmission Line:** A linear arrangement of towers and conductors which carries electricity from generating stations and transmission stations to load centres like communities and industries to meet electrical needs.

**Transmission System:** The towers, conductors, substations, and related equipment involved with transporting electricity from generation source to areas for distribution—or to the power systems of out-of-province electrical utilities.

**Understory:** That portion of the trees or other vegetation in a forest stand that is below the main canopy level.

**Velocity:** A measurement of the speed of flow.

**Volt:** The unit of measurement of electric pressure which causes current to flow.

**Voltage:** See **Kilovolt.**

**Waterbird:** A bird commonly associated with water, e.g., waterfowl, terns and gulls.

**Waterbody:** Any location where water flows or is present, whether or not the flow or the presence of water is continuous, intermittent, or occurs only during a flood. This includes, but is not limited to, wetlands and aquifers.

**Watt:** The unit of measurement of electrical power (See kilowatt and kilowatt-hour).

**Wetland:** A land ecosystem where periodic or prolonged water saturation at or near the soil surface is the dominant factor shaping soil attributes and vegetation composition and distribution. Peatlands are wetlands where organic material has accumulated because dead plant material production exceeds decomposition. Relative to many other habitat types,

wetlands make disproportionately high contributions to ecosystem functions such as cleaning water, storing water and storing carbon.

**Wildlife:** Free-ranging animals which live in the wild, natural or undomesticated state.

**Work Camp:** A temporary place to house workers when a construction site is far from their place of residence.

# APPENDIX B

# KEEYASK TRANSMISSION LINE PROJECT DRAFT ENVIRONMENTAL PROTECTION PLAN

# ENVIRONMENTAL PROTECTION LEGISLATION – PROVINCIAL AND FEDERAL

## 1. Introduction

Appendix B identifies provincial and federal environmental legislation applicable to the proposed Keeyask Transmission Project. Environmental protection legislation relevant to Manitoba Hydro projects and operations are provided in: "*Guide to Environmental Legislation Applicable to Manitoba Hydro's Projects and Operations, Sixth Edition*" (Manitoba Hydro 2009). Environmental legislation applicable to the proposed Keeyask Transmission Project is reviewed in the Environmental Assessment Report

Following are lists of the major provincial and federal regulatory requirements identified in the Environmental Assessment Report that would apply to the pre-construction and construction phases of the proposed Keeyask Transmission Project.

## 2. Provincial Legislation

Provincial legislation relevant to the proposed Keeyask Transmission Project includes:

- *The Climate Change and Emissions Reduction Act*
- *The Contaminated Sites Remediation Act*
  - Contaminated Sites Remediation Regulation
- *The Crown Lands Act*
- *The Dangerous Good Handling and Transportation Act*
  - Environment Accident Reporting Regulation
  - Generator Registration and Carrier Licensing Regulation
  - Manifest Regulation
  - Storage and Handling of Petroleum Products and Allied Petroleum Products Regulation
- *The Drinking Water Safety Act*
  - Drinking Water Safety Regulation
  - Drinking Water Quality Standards Regulation
- *The Endangered Species Act*
  - Threatened, Endangered and Extirpated Species Regulation
- *The Environment Act*
  - Litter Regulation
  - Onsite Wastewater Management Systems Regulation
  - Pesticides Regulation
  - Waste Disposal Grounds Regulation
- *The Fires Prevention and Emergency Response Act*
  - Manitoba Fire Code
- *The Forest Act*
  - Designation of Provincial Forests Regulation
  - Forest Use and Management Regulation
- *The Forest Health Protection Act*
  - Forest Health Protection Regulation

- *The Ground Water and Water Wells Act*
  - Well Drilling Regulation
- *The Heritage Resources Act*
  - Heritage Objects Designation Regulation
  - Heritage Resources Forms Regulation
  - Heritage Sites Designation Regulation
- *The Highways and Transportation Act*
  - Construction and Surface Maintenance of Access Crossings to Departmental Roads Regulation
  - Declaration of Provincial Roads (Access Roads) Regulation
  - Highways and Transportation Department Permit Application Fees Regulation
- *The Highways Protection Act*
  - Permits for Location of Structures in Controlled Areas Regulation
  - Limited Access Highways Application Fee Order
  - Control Lines Establishment and Limited Access Designations Regulation
- *The Mines and Minerals Act*
  - Drilling Regulation
  - Quarry Minerals Regulation
- *The Noxious Weeds Act*
  - Noxious Weeds Regulation
- *The Ozone Depleting Substances Act*
  - Ozone Depleting Substances and other Halocarbons Regulation
- *The Pesticides and Fertilizers Control Act*
  - Pesticides and Fertilizers Licence Regulation
  - Prescribed Spraying Equipment and Controlled Products Regulation
- *The Planning Act*
  - Provincial Land Use Policies Regulation
- *The Provincial Parks Act*
  - Parks Activities Regulation
  - Parks Reserves Designation Regulation
  - Provincial Parks Designation Regulations
- *The Public Health Act*
  - Atmospheric Pollution Regulation
  - Collection and Disposal of Wastes Regulation
  - Protection of Water Sources Regulation
  - Water Works, Sewerage and Sewage Disposal Regulation
- *The Sustainable Development Act*
- *The Waste Reduction and Prevention Act*
  - Multi-Materials Stewardship (Interim Measures) Regulation
  - Tire Stewardship Regulation
  - Packaging and Printed Paper Stewardship Regulation
- *The Water Power Act*

  - Crown Lands Withdrawn from Disposal Regulation
  - Water Power Regulation
- *The Water Protection Act*
  - Nutrient Management Regulation
- *The Water Rights Act*
  - Water Rights Regulation
- *The Water Resources Administration Act*
  - Designated Flood Regulation
- *The Wildfires Act*
  - Burning Permit Areas Regulation
- *The Wildlife Act*
  - Use of Wildlife Lands Regulation
  - Woodland Caribou Protection Regulation
- *The Workplace Safety and Health Act*
  - Workplace Safety and Health Regulation

## 3. Federal Legislation

Federal legislation relevant to the proposed Keeyask Transmission Project includes:

- *Canada Wildlife Act*
  - Wildlife Area Regulations
- *Canadian Environmental Assessment Act*
  - Comprehensive Study List Regulations
  - Coordination by Federal Authorities of Environmental Assessment Procedures and Requirements Respecting Regulations
- *Canadian Environmental Protection Act*
  - Environmental Emergency Regulations
  - Ozone-Depleting Substances Regulations
  - PCB Regulations
  - Prohibition of Certain Toxic Substances Regulations
  - Regulations Amending the Ozone-Depleting Substances
  - Solvent Degreasing Regulations
  - Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations
- *Explosives Act*
  - Explosives Regulations
- *Federal Sustainable Development Act*
- *Fisheries Act*
  - Fishery (General) Regulations
  - Manitoba Fishery Regulations
- *Indian Act*

  - Indian Reserve Waste Disposal Regulations
- *Migratory Birds Convention Act*
  - Migratory Birds Regulations
  - Migratory Birds Sanctuary Regulations
- *National Building Code of Canada*
- *National Energy Board Act*
  - National Energy Board Electricity Regulations
  - Power Line Crossing Regulations
- *National Fire Code of Canada*
- *Navigable Waters Protection Act*
  - Navigable Water Works Regulation
- *Species at Risk Act*
- *Telecommunications Act*
- *Transportation of Dangerous Goods Act*
  - Transportation of Dangerous Goods Regulations

# APPENDIX C

# KEEYASK TRANSMISSION LINE PROJECT DRAFT ENVIRONMENTAL PROTECTION PLAN

# ENVIRONMENTAL PROTECTION GUIDANCE – PROVINCIAL AND FEDERAL

# 1. Introduction

Appendix C identifies provincial, federal/national, international guidelines and other best practice documents applicable to the proposed Keeyask Transmission Project. Environmental protection guidelines are provided in: "*Guide to Environmental Legislation Applicable to Manitoba Hydro's Projects and Operations, Sixth Edition"* (Manitoba Hydro 2009). Guidelines related to the proposed Keeyask Transmission Project are reviewed in the Environmental Assessment Report for the Project.

Following are descriptions and lists of provincial, national/federal and international guidelines and best practices identified in the Environmental Assessment Report that would apply to the pre-construction and construction phases of the proposed Keeyask Transmission Project.

# 2. Provincial

## 2.1. Manitoba Conservation and Water Stewardship

Manitoba Conservation and Water Stewardship (formerly Manitoba Environment and including Manitoba Natural Resources) best practices include:

- Recommended Buffer Zones for Protecting Fish Resources in Lakes and Streams in Forest Cutting Areas. Manitoba Natural Resources (1990).
- Guidelines for Various Air Pollutants: Atmospheric Emission Criteria (1991).
- Guidelines for Sound Production (1992).
- Petroleum Storage Tanks Sites: On-Site Risk Management (1993).
- Guideline for Testing Underground Petroleum Storage Tank Systems (1996).
- Objectives and Guidelines for Various Air Pollutants: Ambient Air Quality Criteria (1997).
- Guideline for Designation of Contaminated Sites in Manitoba (1997).
- Summary of the Odour Nuisance Management Strategy (1998).
- Ambient Air Quality Guidelines (1998).
- Guideline for Dismantling and Removal of Underground, Grade and Above Grade Level Petroleum Storage Tank Systems in Manitoba (2000).
- Development of a Nutrient Management Strategy for Surface Waters in Southern Manitoba. 2000 – 02E (2000).
- Forest Damage Appraisal and Valuation Policy. Department of Natural Resources (Manitoba Conservation) (2002).
- Treatment and Disposal of Petroleum Contaminated Soil. Guideline 96-05 (2002).
- Manitoba Water Quality Standards, Objectives and Guidelines (Final Draft) (2002).
- Protection of Softwood Understorey in Mixedwood and Hardwood Forests. Manitoba Conservation Forest Practices Guidebook (2003).
- Brush Disposal: Manitoba Conservation Forest Practices Guidebook. Forestry Branch, Forest Planning and Practices (2005).
- Forestry Road Management: Manitoba Conservation Forest Practices Guidebook. Forestry Branch, Forest Planning and Practices (2005).

- Forest Practices Handbook Brush Disposal (2005).
- Forest Management Guidelines for Riparian Management Areas. Forest Practices Guidebook (2008).
- Forest Management Guidelines for Terrestrial Buffers. Manitoba Conservation Forest Practices Guidebook (2010).
- Guidelines for Public Water Systems, Chlorine Residual Testing, and Bacteriological Water Sampling, Submission and Interpretation (1998).
- Manitoba Stream Crossing Guidelines for the Protection of Fish and Fish Habitat. Manitoba Natural Resources and Department of Fisheries and Oceans Canada (1996).
- Dangerous Goods Handling and Transportation Act, Compliance Guide to Manitoba Hazardous Waste Legislation (1993).Development of a Nutrient Management Strategy for Surface Waters in Southern Manitoba (2000).
- Manitoba Water Stewardship. 2000. Draft Manitoba Water Quality Objectives Manitoba Water Quality Standards, Objectives and Guidelines.

### 2.2. Manitoba Infrastructure and Transportation

Manitoba Infrastructure and Transportation (formerly Manitoba Highways and Transportation) best practices include:

- Geometric Design Criteria for Secondary Arterial Roadways (1988).
- Winter Road Safety Guidelines. Winter Road Safety Committee (1992).
- Manual for the Design and Implementation of Erosion and Sediment Control (2002).

### 2.3. Other Manitoba

Other Manitoba best practices include:

- Manitoba Heavy Construction Association. Environmental Management Manual (1998).
- Winnipeg Construction Association. CCA 27 1997 Guide on Construction Environmental Management Planning (1997).
- Winnipeg Construction Association. CCA 81 Best Practices Guide to Solid Waste Reduction (2001).

### 2.4. Other Provinces

Best practices from other provinces include:

- British Columbia. 1994. Environmental Best Management Practices for Urban and Rural Land Development. Ecosystem Standards and Planning, Biodiversity Branch.
- Alberta. 1995. Environmental Protection Guidelines for Electric Transmission Lines. Conservation and Reclamation Newsletter. C&R/IL/95-2. 6p.
- Ontario. 1992. Class Environmental Assessment for Minor Transmission Facilities. Pursuant to the Environmental Assessment Act. Report. No. 89513.

- Ontario. 1993. Guidelines for the Protection and Management of Aquatic Sediment Quality in Ontario. Ministry of Environment and Energy. 24p.
- Ontario. 1995. Environmental Guidelines for Access Roads and Water Crossings. Ministry of Natural Resources. 64p.
- Ontario. 1997. In-stream Sediment Control Techniques Field Implementation Manual. NEST Field Guide. 93p.
- Ontario. 2001. Guide to Environmental Assessment Requirements for Electricity Projects. Ministry of the Environment, Environmental Assessment and Approvals Branch. PIBS 402e. 78p.
- Saskatchewan. 2003. Saskatchewan Activity Restriction Guidelines for Sensitive Species in Natural Habitats. Saskatchewan Environment and Resource Management. 3p.

## 3. Federal/National

### 3.1. Canadian Council of Ministers of the Environment

Canadian Council of Ministers of the Environment (CCME) best practices include:

- Environmental Code of Practice for Light-Duty Motor Vehicle Emission Inspection and Maintenance Programs. PN 1293. (1998).
- Environmental Code of Practice for the Measurement and Control of Fugitive VOC Emissions from Equipment Leaks. EPC-73E. (1993).
- Environmental Code of Practice for On-Road Heavy-Duty Vehicle Emission Inspection and Maintenance Programs. PN 1328. (2003).
- Environmental Guidelines for Controlling Emissions of Volatile Organic Compounds from Aboveground Storage Tanks (1995).
- A Framework for Ecological Risk Assessment: General Principles. Pub. No. 1195 (1996).
- Provisional Code of Practice for the Management of Post-Use Treated Woods (1996).
- Canadian Environmental Quality Guidelines (1999).
- Canada-Wide Standard for Mercury-Containing Lamps (2001).
- Environmental Code of Practice for Aboveground and Underground Storage Tank Systems Containing Petroleum and Allied Petroleum Products (2003).
- Canadian Water Quality Guidelines for the Protection of Aquatic Life (2005).
- Canada-Wide Standards for Petroleum Hydrocarbons in Soils – User Guidance Pub. No. 1398 (2008).
- Subsurface Assessment Handbook for Contaminated Sites. Pub. No. 1144 (1994).

### 3.2. Canadian Environmental Assessment Agency

Canadian Environmental Assessment Agency best practices include:

- Adaptive Management Measures under the Canadian Environmental Assessment Act. Operational Policy Statement. 11p. (2007).
- Follow-up Programs under the Canadian Environmental Assessment Act. Operational Policy Statement. 6p. (2007).

### 3.3. Canadian Standards Association

Canadian Standards Association best practices include:

- Overhead Systems. Canadian Standards Association CSA C22.3 - No.10
- Design criteria of overhead transmission lines. National Standard of Canada CAN/CSA-C22.3 No. 60826-10.
- Phase 1 Environmental Site Assessment. Pub. No. Z768. (2006).
- Phase 2 Environmental Site Assessment. Pub. No. Z769. (2006).

### 3.4. Department of Fisheries and Oceans

Department of Fisheries and Oceans Manitoba operational statements include:

- Timing Windows. Manitoba Operational Statement v3 (2009).
- Aquatic Vegetation Removal. Manitoba Operational Statement v3 (2009).
- Beaver Dam Removal. Manitoba Operational Statement v3 (2009).
- Bridge Maintenance. Manitoba Operational Statement v3 (2009).
- Clear-Span Bridges. Manitoba Operational Statement v3 (2009).
- Culvert Maintenance. Manitoba Operational Statement v3 (2009).
- Ice Bridges and Snow Fills. Manitoba Operational Statement v3 (2009).
- Isolated or Dry Open-Cut Stream Crossings. Manitoba Operational Statement v3 (2009).
- Maintenance of Riparian Vegetation in Existing Rights-of-Way. Manitoba Operational Statement v3 (2009).
- Overhead Line Construction. Manitoba Operational Statement v3 (2009).
- Punch and Bore Crossings. Manitoba Operational Statement v3 (2009).
- Routine Maintenance Dredging. Manitoba Operational Statement v3 (2009).
- Temporary Stream Crossing. Manitoba Operational Statement v3 (2009).
- Underwater Cables. Manitoba Operational Statement v3 (2009).

Other Department of Fisheries and Oceans best practices include:

- Environmental Protection Guidelines for Resource Road Construction Case, A.B. and D.A. Rowe (1978).
- Guidelines for the Protection of Fish and Fish Habitat During Bridge Maintenance Operations in British Columbia. Canadian Technical Report of Fisheries and Aquatic Sciences. No. 1692. Samis, S.C. 1991.
- Guidelines for the use of Explosives In or Near Canadian Fisheries Waters. Canadian and Technical Report of Fisheries and Aquatic Sciences. G. Hopky and D. Wright. 39p. (1998).
- Guideline for Attaining No Net Loss – Fish Habitat. Conservation and Protection (1999).
- Habitat Conservation and Protection Guidelines. Developed from the 1996 Policy for the Management of Fish Habitat. (1998).

- Practitioners Guide to the Risk Management Framework for DFO Habitat Management Staff. Habitat Management Program, Version 1.0. 25 p. (2007).
- Culverts – Standards and Best Practices for Instream Works. V1.0. Department of Fisheries and Oceans and British Columbia. 14p (nd).

### 3.5. Environment Canada

Environment Canada best practices include:

- Environmental Code of Good Practice for Highways and Railways. Report EPS 1-EC-79-2. Environment Canada (1979).
- Code of Practice for Reduction of Chlorofluorocarbon (CFC) Emissions from Refrigeration and Air Conditioning Systems. Environmental Protection Service Report EPS 1/RA/1 Environment Canada (1996).
- Ambient Air Quality Objectives, Canadian Environmental Protection Act, 1990 – Criteria for National Air Quality Objectives. Environment Canada (1990).
- Environmental Assessment Guideline for Forest habitat of Migratory Birds (R. Milko). Biodiversity Protection Branch, Canadian Wildlife Service (1998).
- Migratory Bird Environmental Assessment Guideline. (R. Milko). Biodiversity Protection Branch, Canadian Wildlife Service. (1998).
- Wetlands Environmental Assessment Guideline (R. Milko). Biodiversity Protection Branch, Canadian Wildlife Service. (1998).
- Environmental Assessment Best Practice Guide for Wildlife at Risk in Canada. Canadian Wildlife Service. 63p. (2004).
- Federal-Provincial-Territorial Committee on Drinking Water. Summary Environmental Quality Guidelines for Drinking Water Quality. (2005).
- Code of Practice for the Environmental Management of Road Salts. Environment Canada. (2004).
- Petroleum Industry Activity Guidelines for Wildlife Species at Risk in the Prairie and Northern Region. Canadian Wildlife Service. Environment Canada, Prairie and Northern Region. Edmonton Alberta. 64p. (2009).
- Activity set-back Distance Guidelines for Prairie Plant Species at Risk. Environment Canada, Prairie and Northern Region, Saskatoon, Saskatchewan. 15p. (2009)

### 3.6. Indian and Northern Affairs Canada

Indian and Northern Affairs Canada best practices include:

- Land Use Guidelines: Access Roads and Trails. Hardy Associates (1978) Ltd. Land Resources, Northern Affairs Program. 49p. (1984).
- Environmental Guidelines: Pits and Quarries. MacLaren Plansearch, Land Resources, Northern Affairs Program. 68p. (1982).

## 4. International

International best practices include:

- EIA Follow-up: International Best Practice Principles. International Association for Impact Assessment Special Publication No. 6. 4p. (2007).
- Environmental, Health and Safety Guidelines for Electric Power Transmission and Distribution. International Finance Corporation. World Bank Group. 23p. (2007).
- IEEE Standard. 524-2003. Guide to the Installation of Overhead Transmission Line Conductors.
- IEEE Standard. 951-1996. Guide to the Assembly and Erection of Metal Transmission Structures.
- IEEE Standard. 977-1991. Guide to the Installation of Foundations for Transmission Line Structures.
- IEEE Standard. 1185-1994. Guide for Installation Methods for Generating Station Cables.
- IEEE Standard. 1307-2004. Standard for Protection of Utility Work.
- Implementing Agreement for Hydropower Technologies and Programmes. Annex VIII Hydropower Good Practices – Environmental Mitigation Measures and Benefits. International Energy Agency. (2006).
- NERC. Reliability Standards for the Bulk Electric Systems of North America. North American Electric Reliability Corporation. Princeton, NJ.
- Principles of Environmental Assessment Best Practice. International Association for Impact Assessment. Special Publication. 4p. (1999).
- Sustainability Guidelines. International Hydropower Association. (2004).

# APPENDIX D

# KEEYASK TRANSMISSION LINE PROJECT DRAFT ENVIRONMENTAL PROTECTION PLAN

# ENVIRONMENTAL PROTECTION GUIDANCE – MANITOBA HYDRO

## 1. Introduction

Appendix D identifies Manitoba Hydro guidelines, best practices and policies applicable to the proposed Keeyask Transmission Project. Environmental protection guidelines are provided in: "*Guide to Environmental Legislation Applicable to Manitoba Hydro's Projects and Operations, Sixth Edition"* (Manitoba Hydro 2009). Environmental guidelines and best practices related to the proposed Keeyask Transmission Project are reviewed in the Environmental Assessment Report for the Project

Following are descriptions and lists of Manitoba Hydro environmental protection guidelines, policies best practices identified in the Environmental Assessment Report for the pre-construction and construction of the proposed Keeyask Transmission Project.

## 2. Guidelines

Following are excerpts from selected Manitoba Hydro guideline documents that reflect best practice guidance for environmental protection:

*Fur, Feathers, Fins and Transmission Lines: How Transmission Lines and Rights of Way Affect Wildlife - Third Edition* (Manitoba Hydro 2010) provides information environmental effects of transmission line construction and operation activities, and measures to mitigate adverse effects. The report also provides general environmental protection measures for the construction, operation and maintenance, and decommissioning of transmission line projects in Manitoba. Specific measures are also provided for urban environments, agricultural lands and boreal wilderness areas.

*Environmental Protection Guidelines for Construction and Decommissioning Manitoba Hydro Work Sites and Facilities* (Manitoba Hydro 1996) provides information to assist Manitoba Hydro employees and contractors carry out their responsibilities for protection of the environment at work sites and facilities. The guideline report lists environmental protection guidelines for various construction, operation and decommissioning activities based on regulatory documentation. The report is intended to be updated from time to time.

*Shorelines, Shorelands and Wetlands: A Guide to Riparian Ecosystem Protection at Manitoba Hydro Facilities* (Manitoba Hydro 2001) provides information on the potential environmental effects of Manitoba Hydro facilities and activities on riparian ecosystems and suggests ways to protect them. The report discusses factors to be considered when evaluating riparian ecosystems, potential effects of Manitoba Hydro activities on riparian ecosystems, measures to reduce these effects and recommended procedures to determine buffer zone size to protect the riparian area.

*Transmission Line and Transmission Station Vegetation Management Strategies (Manitoba Hydro* (2006) provide background information and a general understanding of Manitoba Hydro's

transmission line system vegetation management practices. The report provides information on responsibilities and the methods used to control tree growth on transmission line rights of way.

*Overhead Transmission Line Construction Inspection Manual* (Manitoba Hydro 2008) provides a means for facilitating the inspection of overhead transmission line construction projects. The manual applies to the inspection methods and procedures to be followed during transmission line construction activities and is intended to be used as a reference for field personnel. Quality control techniques to help ensure the successful completion of a project and compliance with all drawings and specifications are also presented.

*Generic Environmental Protection Plan: Transmission Line Construction and Maintenance* (Manitoba Hydro 2008) provides guidance and support to Manitoba Hydro's transmission construction and line maintenance departments. It is the key tool for contractors and their associates to conduct themselves in an environmentally acceptable manner while working on Manitoba Hydro transmission projects. It is a catalogue of environmental protection guidelines that supplement transmission project design, construction, maintenance and operating specifications to prevent or minimize adverse environmental effects. This document is in the process of being updated as *Manitoba Hydro Environmental Best Practices*.

## 3. Environmental Policies

Manitoba Hydro's Corporate Vision (Manitoba Hydro 2010) is:

> "*To be the best utility in North America with respect to safety, rates, reliability, customer satisfaction, and environmental leadership, and to always be considerate of the needs of customers, employees, and stakeholders*".

The corporation's mission is:

> "To provide for the continuance of a supply of energy to meet the needs of the province and to promote economy and efficiency in the development, generation, transmission, distribution, supply and end-use of energy".

Corporate goals are as follows:

1. Improve safety in the workplace.
2. Provide exceptional customer value.
3. Strengthen working relationships with Aboriginal peoples.
4. Maintain fiscal strength.
5. Extend and protect access to North American energy markets and profitable export sales.

6. Attract, develop and retain a highly skilled and motivated workforce that reflects the demographics of Manitoba.
7. Protect the environment in everything we do.
8. Promote cost effective energy, conservation and innovation.
9. Be recognized as an outstanding corporate citizen and a supporter of economic development in Manitoba

Manitoba Hydro's Environmental Management Policy (Manitoba Hydro 2012) states that:

> *"Manitoba Hydro is committed to protecting the environment by:*
> - *preventing or minimizing any adverse impacts, on the environment, and enhancing positive impacts;*
> - *continually improving our Environmental Management System;*
> - *meeting or surpassing regulatory, contractual and voluntary requirements ;*
> - *considering the interests and utilizing the knowledge of our customers, employees, communities, and stakeholders who may be affected by our actions;*
> - *reviewing our environmental objectives and targets annually to ensure improvement in our environmental performance; and*
> - *documenting and reporting our activities and environmental performance."*

"Manitoba Hydro's policy for responding to enforcement actions by regulatory authorities including summons, orders, directions, etc is outlined in Corporate Policy P602 entitled "Processing Legal Documents Served on Manitoba Hydro".

## 4. Best Practices

Manitoba Hydro best practices and policies include:

- Sustainable Development Policy/Principles (1993).
- Code of Practice for Compliance with the Workplace Hazardous Materials Information System in Manitoba Hydro Workplaces, Employee Safety and Health (1994).
- Code of Practice for Storage and Handling of Petroleum Products and Allied Petroleum Products Storage Tank Systems. Engineering Services Division and Employee Safety and Health (2002).
- Code of Practice for the Storage of PCBs at Manitoba Hydro Facilities. Employee Safety and Health (2003).
- Contractor/Non-Employee Safe Practice Guide, Safety Circular 0011/05. Workplace Safety Department, Safety and Occupational Health Division (2005).
- Pesticide Application Requirements for Manitoba Hydro Employees and Contractors (2005).

- Hazardous Materials Management Handbook. Employee Safety and Health (2007).
- Hazardous Waste Management Handbook (2007).
- Pesticide Application Requirements for Manitoba Hydro Employees and Contractors. Workplace Environment and Health (2008).
- Environmental Management Systems Manual. Corporate Environment Department (2009).
- Corporate Safety and Health Rules, Corporate Safety and Health Division (2009).
- Corporate Fire Manual, Corporate Safety and Health Division, Parts 1 and 2 (2009).
- Corporate Strategic Plan (2009).

# APPENDIX E

# KEEYASK TRANSMISSION LINE PROJECT DRAFT ENVIRONMENTAL PROTECTION PLAN

# TIMING WINDOWS

## 1.0 General

Construction activities that may cause excessive ground disturbance in northern Manitoba will be carried out during winter months (November 1st to March 31) under frozen and snow-covered conditions with the exception of the station project components.

## 2.0 Wildlife Reduced Risk Work Windows

Table 1 outlines draft wildlife reduced risk work windows applicable to the Project. These windows are based on federal and provincial regulatory requirements as well as best management practices. Timing periods may be expanded or refined based on further data collection, transmission line final design and regulatory license and work permits to be issued for the project.

The recommended reduced risk work windows are considerate of periods of the year when wildlife species are sensitive to disruptive operations because of a sensitive lifecycle activity such as calving, nesting, and hibernation, etc. Table 1 is intended to assist in scheduling construction activities for the time of year when risks of adverse construction impacts are negligible. Where conflicting timing restraints with construction activities exist in a particular area, appropriate mitigation will be implemented to reduce effects.

## 4.0 Burning

Burning will be authorized between October 1st and November 15th by a burning permit.

Burning between November 16th and March 31st does not require a burning permit; however, the supervising Natural Resources Officer must be advised prior to any burning.

All fires must be completely extinguished by March 31st.

## 5.0 Fish

Fish habitat can be adversely affected by in-stream work that occurs during certain periods in their life history or at certain life stages. Life history periods or life stages susceptible to disturbances from in-stream construction work include the following:

- Spawning and egg incubation
- Movements to or from spawning or overwintering areas;
- Egg and newly hatched fry

Timing works to avoid sensitive life history periods or life stages is an effective means of mitigating adverse effects. All in-stream activities should be conducted during a timing window of at least risk to fish and fish habitat. The table below are general recommended timing windows to avoid during construction.

Table 1 Draft Wildlife Reduced Risk Timing Windows

| Species | Sensitivity | January | Febuary | March | April | May | June | July | August | September | October | November | December |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mammals | Overwinter Den Sites | | | | | | | | | | | | |
| Moose/Elk | Calving Sites | | | | | | | | | | | | |
| Caribou | Calving Sites | | | | | | | | | | | | |
| Amphibians/Reptiles | Breeding and Emergence | | | | | | | | | | | | |
| Bats | Hibernaculum | | | | | | | | | | | | |
| Birds | Breeding and Nesting | | | | | | | | | | | | |

Reduced Risk to Wildlife

Sensitive Time Period for Wildlife (Where construction activities occur during this period, mitigations measures will be prescribed on a site by site basis)

Where applicable, site specific timing windows are prescribed in specific mitigation measures for each feature.

**Table 2. Timing Windows When No In-Water Work Is To Occur To Protect Spawning Fish And Developing Eggs And Fry**

| Region | Spring Spawning Fish | Summer Spawning Fish | Fall Spawning Fish |
|---|---|---|---|
| Northern Manitoba (north of The Pas) | April 15 – June 30 | May 15 – July 15 | September 1 – May 1 |
| Southern Manitoba (south of the Pas) | April 1 – June 15 | May 1 – June 30 | September 15 – April 30 |

*Department of Fisheries and Oceans, Manitoba Operational Statement Timing Windows (2007).

## 7.0 Permafrost

Project activities will be scheduled between November 1 and April 30 under frozen ground conditions to minimize surface disturbance and permafrost degradation except at station project components where some permafrost melting may be required.

# APPENDIX F

# KEEYASK TRANSMISSION LINE PROJECT DRAFT ENVIRONMENTAL PROTECTION PLAN

# BUFFERS AND SETBACKS

## 1.0 Setbacks and Buffers for Wildlife and Anthropogenic Features

Recommended setbacks and buffer distances from sensitive environmental features are provided in Table 1.

These setback and buffers are preliminary and may be expanded or refined based on further data collection, transmission line final design, regulatory license and work permits to be issued for the project.

Setbacks are areas to be maintained from a given environmental feature where no work shall occur.

Buffers are work areas where restricted activities such as low disturbance clearing are permitted.

Where applicable, site-specific setback and buffers are prescribed in specific mitigation measures for each feature.

## 2.0 Riparian Management

Recommended Reserve Zones, Riparian Buffers and Machine Free zones distances from sensitive water features are provided in Table 2.

Reserves Zones are setbacks to be maintained from a defined riparian habitat where no work shall occur.

Riparian Buffers are applied to riparian habitats within the ROW that in which all shrub and herbaceous vegetation will be retained and all trees that do not violate Manitoba Hydro vegetation clearance requirements will be retained.

Machine free zones are work areas where restricted activities such as low disturbance clearing are permitted by reaching into zone with equipment but not entering the zone.

Both Riparian Buffers and Machine Free Zones are measured from the ordinary high water mark (OHWM) and apply to streams that are identified as ESS sites, Reserve zones are measured from OHWM or from a defined riparian boundary as delineated by an Aquatics Specialist.

Where applicable, site specific reserve zones are prescribed in specific mitigation measures for each feature.

| Table 1. Draft Setbacks and Buffers | | | | | | |
|---|---|---|---|---|---|---|
| **Feature** | **Activity** | **Non Frozen Ground Setback Distance (no work allowed)** | **Frozen Ground Setback Distance (no work allowed)** | **Winter Vegetated Buffer Distance (Shrub and Herbaceous Vegetation Retained)** | **Effective Period** | **Rationale** |
| Vegetation | | | | | | |
| Plant Species at Risk | Tower Foundation Siting | 100m | 100m | | | Protect from disturbance |
| | Clearing And Construction | 30m | | 30m | | Protect from disturbance |
| | Maintenance | 30m | | 30m | | Protect from disturbance |
| | Access Trail | 30m | 30m | | | Protect from disturbance |
| Anthropogenic | | | | | | |
| Recreational and Commercial Lots | All | 50-200m | 50-200m | | | Visual and aesthetic screening |
| Trapper's Cabins (Away from water) | All | 50-200m | 50-200m | | | Visual and aesthetic screening |
| Research and Permanent Sample Plots | All | 100m | 100m | | | Maintain integrity of research |
| Heritage and Cultural | All | Varies | Varies | Varies | | Protect from Disturbance |
| Designated Recreational Trails | All | 0-50m | | | | Visual and aesthetic screening |
| Amphibians | | | | | | |
| Northern Leopard Frog * (known breeding pond, watering site) | Tower Foundation Siting | 30m | 30m | | | Protect from disturbance |
| | Clearing And Construction | 30m | | 30m | | Protect from disturbance |
| | Maintenance | 30m | | | | Protect from disturbance |
| | Access Trail | 30m | 30m | | | Protect from disturbance |
| Plains Spadefoot Toad ** (known breeding, living, hibernating ponds) | Tower Foundation Siting | 30m | 30m | | | Protect from disturbance |
| | Clearing And Construction | 30m | | 30m | | Protect from disturbance |
| | Maintenance | 30m | | | | Protect from disturbance |
| | Access Trail | 30m | 30m | | | Protect from disturbance |
| Reptiles | | | | | | |
| Garter Snake Hibernaculum | Tower Foundation Siting | 200m | 200m | | | Protect from disturbance |
| | Clearing And Construction | 200m | | 200m | | Protect from disturbance |
| | Maintenance | 200m | | 200m | | Protect from disturbance |

| Table 1. Draft Setbacks and Buffers | | | | | | |
|---|---|---|---|---|---|---|
| **Feature** | **Activity** | **Non Frozen Ground Setback Distance (no work allowed)** | **Frozen Ground Setback Distance (no work allowed)** | **Winter Vegetated Buffer Distance (Shrub and Herbaceous Vegetation Retained)** | **Effective Period** | **Rationale** |
| | Access Trail | 200m | | | | Protect from disturbance |
| Northern Prairie Skink (burrow) | Tower Foundation Siting | 200m | 200m | | | Protect from disturbance |
| | Clearing And Construction | 100m | | 100m | | Protect from disturbance |
| | Maintenance | 100m | | 100m | | Protect from disturbance |
| | Access Trail | 100m | 100m | | | Protect from disturbance |
| Birds | | | | | | |
| Nests of Eagles, Ospreys and Heron Rookeries | All | 200m | | | April 1 to July 31 | Protect from sensory disturbance during breeding season. |
| Active Large Stick Nests | All | 200m | | | April 1 to July 31 | Protect from sensory disturbance during breeding season. |
| least Bittern | All | 400m | | | May 15 to July 31 | Protect from sensory disturbance during breeding season. |
| yellow rail | All | 350m | | | May 15 to July 31 | Protect from sensory disturbance during breeding season. |
| Burrowing Owl | All | 500m | | | April 15 to Sept 15 | Protect from sensory disturbance during breeding season. |
| Short Eared Owl | All | 500m | | | April 15 to Sept 15 | Protect from sensory disturbance during breeding season. |
| Common Nighthawk | All | 200m | | | June 1st to July 15 | Protect from sensory disturbance during breeding season. |
| Ferringeous Hawk | All | 1000m | | | March 20 to July 15 | Protect from sensory disturbance during breeding season. |
| Golden Winged Warbler | All | 300m | | | May 15 to July 15 | Protect from sensory disturbance during breeding season. |
| Loggerhead Shrike | All | 400m | | | April 20 to July 15 | Protect from sensory disturbance during breeding season. |
| Red Headed Woodpecker | All | 200m | | | May 15 to July 31 | Protect from sensory disturbance during breeding season. |
| Rusty Blackbird | All | 100m | | | May 20 to July 10 | Protect from sensory disturbance during breeding season. |
| Olive-sided flycatcher | All | 300m | | | May 15 to July 15 | Protect from sensory disturbance during breeding season. |

| Table 1. Draft Setbacks and Buffers | | | | | | |
|---|---|---|---|---|---|---|
| **Feature** | **Activity** | **Non Frozen Ground Setback Distance (no work allowed)** | **Frozen Ground Setback Distance (no work allowed)** | **Winter Vegetated Buffer Distance (Shrub and Herbaceous Vegetation Retained)** | **Effective Period** | **Rationale** |
| Sprague's Pipit | All | 250m | | | May 15 to July 15 | Protect from sensory disturbance during breeding season. |
| Whip-poor-will | All | 200m | | | May 15 to July 15 | Protect from sensory disturbance during breeding season. |
| Birds | | | | | | |
| Sharp tailed Grouse Leks | All | 400m | | | March 15 to June 1 | Protect from sensory disturbance during breeding season. |
| Canada Warbler | All | 300m | | | May 20 to July 31 | Protect from sensory disturbance during breeding season. |
| Nesting Colonies | All | 1000m | | | April 1 to July 31 | Protect from sensory disturbance during breeding season. |
| Landforms | | | | | | |
| Wetlands | Tower Foundation Siting | 15m | 15m | | | Protect from disturbance |
| | Clearing And Construction | 30m | | | | Protect from disturbance |
| | Maintenance | 30m | | | | Protect from disturbance |
| | Access Trail | 30m | | | | Protect from disturbance |
| | Hazardous Material Handling/Storage | 100m | | | | Protect from disturbance |
| | Soil Stockpiles | 30m | | | | Protect from disturbance |
| Unique Soil/Terrain Features | All Off ROW activities | 100m | | | | Protect from disturbance |
| Steep or Unstable Slopes | Establishment or use of borrow pits | 100m | | | | Protect from disturbance |
| Mammals | | | | | | |
| Mineral Licks | All | 120m | | 120m | | Protect from disturbance |
| Occupied Mammal Dens | All | 50m | 50m | | | Protect from disturbance |
| Invertebrates | | | | | | |
| Ottoe and Uncas Skippers | All | | | 30m | | Protect habitat |
| | | | | | | |
| | | | | | | |

**All measurements are from edge of feature**

| Table 2. Riparian Buffers and Zones | | | | | |
|---|---|---|---|---|---|
| **Feature** | **Activity** | **Reserve Zone (No Work allowed)** | **Riparian Buffer** | **Machine Free Zone (no machines allowed except at trail crossing)** | **Rationale** |
| Lake/Stream/River | | | | | |
| Waterbodies/Fish Habitat Outside ROW | Clearing and Construction | 15-30m | | | Protect from sedimentation and erosion |
| | Maintenance | 15-30m | | | Protect from sedimentation and erosion |
| | Access Trail | 15-30m | | | Protect from sedimentation and erosion |
| Waterbodies/Fish Habitat Within ROW | Tower Foundation Siting | 15-30m | | | Protect from sedimentation and erosion |
| | Clearing and Construction | | 15-30m | 7m | Protect from sedimentation and erosion |
| | Maintenance | | 15-30m | 7m | Protect from sedimentation and erosion |
| Non Fish habitat ROW Stream Crossings | Tower Foundation Siting | 15m | | | Protect from sedimentation and erosion |
| | Clearing and Construction | | | 7m | Protect from sedimentation and erosion |
| | Maintenance | | | 7m | Protect from sedimentation and erosion |

All zones and buffers are measured from Ordinary High Water Mark or defined riparian area by Aquatic specialist

# APPENDIX G

# KEEYASK TRANSMISSION LINE PROJECT DRAFT ENVIRONMENTAL PROTECTION PLAN

# SAMPLE ENVIRONMENTAL INSPECTION FORMS

## Keeyask Transmission Line Project

## Transmission Line Draft Environmental Protection Plan

Form No.

### Daily Inspection Report Form No. _____

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Name/Title of Inspector: | | | | Date/Time: | | | |
| Location: | | | | Contractor: | | | |
| Project Components/Activities (Check all that apply) | | | | | | | |
| ☐ | Transmission Line | ☐ | Converter Station | ☐ | Ground Electrode | ☐ | Power Supply |
| ☐ | Construction Camp | ☐ | Marshalling Yard | ☐ | Access Road | ☐ | Borrow Pit |
| ☐ | Fuel Storage | ☐ | Stream Crossing | ☐ | Buildings/Facilities | ☐ | Other: |
| ☐ | Blasting | | | ☐ | Erosion/Sediment Control | | |
| ☐ | Burning | | | ☐ | Grading | | |
| ☐ | Clearing | | | ☐ | Grubbing | | |
| ☐ | Demobilizing | | | ☐ | Rehabilitating | | |
| ☐ | Disposing Wastes | | | ☐ | Stripping | | |
| ☐ | Draining | | | ☐ | Surveying | | |
| ☐ | Drilling/Boring | | | ☐ | Other (specify): | | |
| Environmental Protection Measures Applied: | | | | | | | |
| Effectiveness of Measures: | | | | | | | |
| Revisions to Measures: | | | | | | | |
| Non-Compliance Issues Identified: | | | | | | | |
| Follow-up Actions Taken: | | | | | | | |
| Weather Conditions: | | | | | | | |
| Description of Photos/Diagrams Attached: | | | | | | | |
| Notes: | | | | | | Tailboard Complete: | |
| Inspector Signature: | | | | Contractor Signature: | | | |

**Keeyask Transmission Line Project**

**Transmission Line Draft Environmental Protection Plan**

Form No.

**Weekly Summary Report Form No. _____**

| | |
|---|---|
| Name of Inspector: | Title: |
| Report From: (date) | Report To: (date) |
| Project Activity Summary: | |
| Environmental Issues Summary: | |
| Highlights: (non-compliance/incidents) | |
| Follow-up Actions: (required/taken) | |
| Notes: | |
| Signature: | Date: |

**Keeyask Transmission Line Project**

**Transmission Line**

**Draft Environmental Protection Plan**

Form No.

## Monthly Summary Report Form No. _____

| | |
|---|---|
| Name of Inspector: | Title: |
| Report For: (month) | Year: |
| Key Project Activities: | |
| Key Environmental Issues: | |
| List Any Non-Compliance/Incidents Reported: | |
| Non-Compliance/Incident | Reported to: |
| | |
| | |
| | |
| | |
| | |
| Follow-up Actions: (required/taken) | |
| Non-Compliance/Incident | Actions |
| | |
| | |
| | |
| | |
| Notes: | |
| Signature: | Date: |

**Keeyask Transmission Line Project**

**Transmission Line**

**Draft Environmental Protection Plan**

Form No.

## Detailed Inspection Checklist Form

| | | | |
|---|---|---|---|
| Name/Title of Inspector: | | Date: | |
| Location: | | Time: | |
| Contractor: | | Contract No: | |
| Weather Conditions: | Precip in Past 24 hr: mm/cm | Precip in Past week: mm/cm | |
| Project Components: | | | |
| Transmission Line | Converter Station | Ground Electrode | Power Supply |
| Construction Camp | Marshalling Yard | Access Road | Borrow Pit |
| Fuel Storage | Stream Crossing | Buildings/Facilities | Other: |
| | | | |

Inspection Checklists:

| General Site Conditions | NA | Deficiency Observed | Actions Taken | Follow-up Required |
|---|---|---|---|---|
| Access Roads/Trails | | | | |
| Right-of Way | | | | |
| Construction Camp | | | | |
| Borrow Pits | | | | |
| Marshalling Area | | | | |
| Sanitary Facilities | | | | |
| Traffic Control | | | | |
| | | | | |
| **Designated Areas** | **NA** | **Deficiency Observed** | **Actions Taken** | **Follow-up Required** |
| Sanitary Waste | | | | |
| Solid Waste | | | | |
| Hazardous Waste | | | | |
| Fuel Storage | | | | |
| Materials Storage | | | | |
| Equipment Service | | | | |
| Parking | | | | |
| | | | | |
| **Project Activities** | **NA** | **Deficiency Observed** | **Actions Taken** | **Follow-up Required** |
| Blasting | | | | |
| Burning | | | | |
| Clearing | | | | |

| | | | | |
|---|---|---|---|---|
| Demobilizing | | | | |
| Disposing | | | | |
| Draining | | | | |
| Drilling | | | | |
| | | | | |
| **Erosion/Sediment Control** | **NA** | **Deficiency Observed** | **Actions Taken** | **Follow-up Required** |
| Rutting Evident | | | | |
| Erosion Evident | | | | |
| Turbidity Evident | | | | |
| Stockpile Conditions | | | | |
| Drainage Swales | | | | |
| Check Dams | | | | |
| Silt Fences | | | | |
| Erosion Control | | | | |
| | | | | |
| **Re-vegetation** | **NA** | **Deficiency Observed** | **Actions Taken** | **Follow-up Required** |
| Planting success | | | | |
| Seeding success | | | | |
| Invasive Species | | | | |
| Erosion | | | | |
| | | | | |
| **Other Conditions** | **NA** | **Deficiency Observed** | **Actions Taken** | **Follow-up Required** |
| | | | | |
| | | | | |
| | | | | |

| **Deficiencies, Issues, Complaints, Incidents** | **Yes** | **No** | **Comments** |
|---|---|---|---|
| Environmental Issues | | | |
| Health and Safety Issues | | | |
| Regulatory Issues | | | |
| Deficiencies Addressed | | | |
| Complaints | | | |
| Incidents | | | |
| | | | |

| | |
|---|---|
| Description of Photos/Diagrams Attached: | |
| Contacts During Inspection: | |
| Notes: | |
| Inspector Signature: | Contractor Signature: |

**Keeyask Transmission Line Project**
**Transmission Line**
**Draft Environmental Protection Plan**

Form No.

## Environmental Incident Report Form

| | | | | |
|---|---|---|---|---|
| Location of incident | | | Date of incident | Time of incident |
| Project | Line designation/SCI/other | | Department/contractor | |
| Name of Manitoba Hydro person responding to incident | | | Phone no. | |
| Incident reported to | | | | |
| Organization (check) | | Name | Date | Attended to |
| | Manitoba Conservation | | | |
| | Manitoba Hydro, Environmental Inspector | | | |
| | Manitoba Hydro, Licensing and Environmental Assessment | | | |
| | Manitoba Hydro, Construction Supervisor | | | |
| | Manitoba Hydro, Area Spill Response Coordinator | | | |
| | Others (specify) | | | |
| UTM Easting | | UTM Northing | | UTM Zone |
| Description of incident including conditions at the time such as weather: | | | | |
| Description of environmental effects: | | | | |
| Mitigation measures implemented: | | | | |
| Start date | | | Completion date | |
| Status of incident (check) | | Comments | | |
| | Open | | | |
| | Follow-up | | | |
| | Closed | | | |
| Cause of incident and preventative measures to be taken | | | | |
| Photos, diagrams attached (yes/no) | | | | |
| Prepared by | | Phone no. | Fax no. | Date |

# APPENDIX G

# BIOPHYSICAL MONITORING FRAMEWORK


# APPENDIX G

# BIOPHYSICAL MONITORING FRAMEWORK

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# 1.0 Introduction

Part of Manitoba Hydro's commitment to environmental protection includes the development of a comprehensive Environmental Protection Program (EPP) for the Keeyask Transmission Project (the 'Project'). One aspect of this program is monitoring and follow up for biophysical environmental components identified in the Keeyask Transmission Project Environmental Assessment Report (EA Report) and technical reports.

This document provides the Biophysical Monitoring Framework (BMF) which outlines the various monitoring programs that will occur during the phases of Project development (i.e., pre-construction, construction and post construction). It provides the basis for the development of the Biophysical Monitoring Plan that will evolve in greater detail subsequent to regulatory approvals.

The Biophysical Monitoring Framework is intended to provide assurance to regulatory reviewers, environmental organizations, Aboriginal communities and the general public that potential environmental effects caused by the Project will be monitored, evaluated and reported on in a responsible and accountable manner.

# 2.0 Goals, Objectives and Purpose

## 2.1 PURPOSE

During the process of developing the EA Report, several key environmental components that require follow-up monitoring were identified. These include:

- Aquatics
- Soils and Terrain
- Terrestrial Ecosystems and Vegetation
- Reptiles
- Birds
- Mammals

The purpose of the BMF is to provide a conceptual-level overview of the Biophysical Monitoring Plan that will be developed around the abovementioned environmental components and their associated environmental indicators. The intended goal of this framework is to provide confidence that follow-up monitoring associated with the Project will follow best practices for environmental monitoring.

### 2.2 OBJECTIVES

The objectives of the Biophysical Monitoring Framework are as follows:

- To provide a framework for monitoring Project effects and mitigation on biophysical environmental components and their indicators.
- To identify monitoring requirements and a process to develop a Biophysical Monitoring Plan that meets regulatory requirements, industry standards and best practices.

Manitoba Hydro is committed to developing a Biophysical Monitoring Plan that incorporates input from stakeholders including, but not limited to, government agencies and Aboriginal communities. During the process of plan development, opportunities for stakeholder involvement will be identified and described and opportunities that will enable the public to be active participants in the collection and reporting of biological monitoring data will be explored. Biophysical monitoring Information will be shared for learning and improvement through regular reporting to regulators and community presentations.

## 3.0 Monitoring Requirements

### 3.1 OVERVIEW

As defined under Canadian Environmental Assessment Act (CEAA), monitoring and follow up is required to verify the accuracy of the environmental assessment of a project and determine the effectiveness of measures taken to mitigate potential adverse environmental effects (CEAA 2011). Through monitoring and follow up, Environmental Impact Assessment (EIA) outcomes are realized, communicated to stakeholders and managed through refinement and improvement of mitigation strategies.

A number of environmental components were identified in Chapter 7 of the EA Report and associated technical reports as requiring monitoring and follow up. For each environmental component, one or more environmental indicator was selected to focus monitoring and follow up efforts (Table 3-1). Section 3.0 provides the rationale for the inclusion of environmental indicators that will form the basis of the Biophysical Monitoring Plan. General information on how these environmental indicators will be measured is covered in Section 4.

Environmental indicators were selected to represent the five broad environmental components if they had one or more of the following attributes:

- Scientific/regulatory importance (rare/endangered or protected status)
- Cultural importance (important to communities or society as a whole)
- Environmental importance
- Vulnerable and sensitive to change

Table 3-1 provides a list of environmental components and their respective environmental indicators/parameters including the rationale for their inclusion in the Biophysical Monitoring Framework.

**Table 3-1: Environmental Components Requiring Follow-up Monitoring**

| Environmental Component | Environmental Indicator | Parameter | Rationale[1] |
|---|---|---|---|
| Aquatics | Condition of streambeds and banks | Restored to pre-disturbance conditions | Environmental Importance – protection of aquatic life<br>Regulatory Importance – The *Fisheries Act* |
| Terrestrial Ecosystems, Habitat and Plants | Fragmentation | Linear density and core area | Environmental Importance |
| | Ecosystem Diversity | Area of affected habitat | Environmental Importance |
| | Priority Plants | Presence and abundance | Regulatory Importance – MESA; SARA; provincially rare species |
| | Invasive and non-native species | Plant abundance | Environmental Importance |
| Birds | Bird species of concern | Abundance | Regulatory Importance – MESA; SARA; MB CDC |
| | Bird wire collisions | Abundance | Regulatory Importance – MBCA; Manitoba *Wildlife Act* |
| | Colonial bird breeding sites | Colonial bird location and abundance | Regulatory Importance – Manitoba *Wildlife Act* |
| | Raptor nests | Location and abundance | Regulatory Importance – MBCA |
| Mammals | Caribou | Caribou populations and habitat use | Regulatory Importance – SARA |
| | Moose | Mortality | Community Importance |

[1] Manitoba Water Quality Standards, Objectives, and Guidelines (MWQSOG); *Manitoba Endangered Species Act* (MESA); *Species at Risk Act* (SARA); Manitoba Conservation Data Centre (MB CDC); *Migratory Bird Convention Act* (MBCA)

## 3.2 AQUATICS

Construction has the potential to disturb streambed and stream banks. Mitigation measures will restore all disturbed bed and bank sites to or condition comparable to pre-disturbance condition.

## 3.3 TERRESTRIAL ECOSYSTEMS AND HABITAT

### 3.3.1 Priority Plants

Species of conservation concern include species of plants that are protected under the *Manitoba Endangered Species Act* (MESA), the federal *Species at Risk Act* (SARA) or are listed by the Manitoba Conservation Data Centre (MBCDC). These species have not been found in the Project Study Area but could potentially occur. A number of plants and plant communities have been identified as being particularly important to Aboriginal people. These areas are valued for their provision of resources used by Aboriginals including gathering of food and medicines and harvesting plants and trees.

### 3.3.2 Invasive and Non-Native Species

The abundance of non-native or invasive plant species may increase as a result of the Project. Non-native species are plants that grow outside of their normal range while invasive species are plants that out-compete native species when introduced outside of their natural setting.

## 3.4 BIRDS

### 3.4.1 Bird Species of Concern

Species of conservation concern include species of birds that are protected under MESA, SARA, and the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) or are listed as rare by the MBCDC. These species generally exist in low numbers and are sensitive to changes in habitat.

As described under SARA (subsection 79(2)), monitoring of potential adverse effects on SARA-listed wildlife species is required (SARA 2011).

### 3.4.2 Bird-Wire Collisions

Very limited numbers of bird-wire collisions are anticipated for this Project, especially where bird deflectors are installed at sensitive sites. However, as there is a paucity of data for Manitoba, and as there is some level of uncertainty with the effects predictions, Manitoba Hydro will monitor and report the number of bird-wire collisions associated with the Project.

### 3.4.3 Active Bird Nests

Land clearing during the breeding bird period (April 1–July 31) has the potential to destroy migratory bird nests, which is a violation of the *Migratory Bird Convention Act* (MBCA) and the

Manitoba *Wildlife Act*. In order to prevent nest loss, pre-clearing nest searches in areas where summer clearing is planned (i.e., April 1-July 31) are necessary to determine locations of active bird nests. For all active nests identified, appropriate buffer sizes would be applied and retained until young fledge and are no longer vulnerable to nest loss. In areas where habitat for species at risk occurs (common nighthawk, olive-sided flycatcher and rusty blackbird), pre-clearing surveys would occur if any clearing is proposed between April 1 and August 31.

### 3.5 MAMMALS

#### 3.5.1 Caribou

Boreal woodland caribou (*Rangifer tarandus caribou*) are listed under SARA and MESA as threatened. Requirements of SARA (subsection 79[2]), indicate that monitoring of potential adverse effects on SARA-listed wildlife species must occur (SARA 2011). Woodland caribou are sensitive to changes in habitat that involve loss or alteration of calving and wintering areas.

#### 3.5.2 Moose

The Project has the potential to increase moose mortality through potential increased access by hunters and predators along transmission line rights-of-way. Moose harvest and predation along the Project rights-of-way will be monitored.

## 4.0 Monitoring Plan Organization

### 4.1 APPROACH

The Biophysical Monitoring Plan that will be developed on the basis of this framework document and will describe the environmental components and indicators that will be monitored, including: sampling methods, timing of activities, quality control and assurance programs, reporting requirements and opportunities for public involvement. Manitoba Hydro will develop the plan with input from stakeholders, and will include Aboriginal Traditional and Local Knowledge where appropriate and applicable. The Plan will be submitted to Manitoba Conservation for review and comment before being implemented, by Manitoba Hydro, prior to Project construction. Results from monitoring will be shared publicly and will be used to adjust mitigation measures and to modify the plan on an ongoing basis.

The Biophysical Monitoring Plan will include two main types of monitoring: environmental monitoring and compliance monitoring. Information generated from these programs will be used to improve and adapt management strategies as required.

- Environmental monitoring – periodic or continuous surveillance or testing, according to a predetermined schedule, of one or more environmental indicators to establish baseline conditions or to verify the accuracy of an environmental assessment and the effectiveness of mitigation measures.

- Compliance monitoring – conducted to verify whether a practice or procedure meets the applicable requirements prescribed by legislation, guidelines, industry standards or specific terms and conditions (e.g., in an agreement, lease, permit, license or authorization).

The following environmental components will form the basis of the Biophysical Monitoring Plan. Monitoring efforts will focus on the environmental indicators, with a general overview of anticipated activities by Project phase. Where possible, the Plan will consider opportunities to build efficiencies by combining monitoring tasks that have overlapping sampling periods (e.g., plant species of concern surveys and investigations of plants/communities important to Aboriginal communities).

## 4.2 AQUATICS

### 4.2.1 Construction

All stream crossing sites will be inspected following construction to document compliance with prescribed mitigation and recommend additional remediation where deemed necessary.

### 4.2.2 Post-Construction

Monitoring of stream crossings affected by Project components will be carried out during the post-construction phase to ensure that rehabilitation works and stability of the watercourse is at least equal to the pre-construction condition.

## 4.3 TERRESTRIAL ECOSYSTEMS AND HABITAT

### 4.3.1 Priority Plants

#### *4.3.1.1 Pre-Construction*

Pre-clearing surveys for priority plants will be focused in areas of the Project footprint likely to support species of conservation concern but not previously assessed. A representative number of sample plots will be established during pre-construction surveys for follow up during the post-construction phase.

#### *4.3.1.2 Post-Construction*

Areas previously identified as requiring mitigation (i.e., minimization of shrub and herb disturbance) will be investigated to determine success of measures used to minimize Project effects on priority plants.

### 4.3.2 Ecosystem Diversity

#### *4.3.2.1 Post-Construction*

Monitoring ecosystem diversity will occur to verify the predicted amounts and composition of direct and indirect habitat loss, alteration and disturbance during construction. Post construction the Project Footprint will be delineated and spatial analysis of direct and indirect habitat loss will be conducted.

### 4.3.3 Fragmentation

#### *4.3.3.1 Post-Construction*

Monitoring of fragmentation will occur to verify the Project effects on linear feature density and core area abundance. Post construction Project linear features will be measured along with the final Project footprint relative to core areas.

### 4.3.4 Invasive and Non-Native Species

#### *4.3.4.1 Post-Construction*

Permanently located sampling units located at representative sites will be used to record any changes in vegetation resulting from Project construction (i.e., introduction of non-native and invasive species). The collection of vegetation information will occur at a similar time during the growing season to maximize the comparability of data.

## 4.4 BIRDS

### 4.4.1 Bird Species of Concern

#### *4.4.1.1 Pre-Construction*

In accordance to Environment Canada guidelines, pre-construction surveys will identify the location of active nests and any additional sensitive sites or habitats that may require the implementation of mitigation measures including species-appropriate set-back distances or buffers.

#### *4.4.1.2 Construction*

Manitoba Hydro will monitor threatened and endangered species occurrences at locations where species at risk were observed. Evaluation of the effectiveness of buffer zones and set-back distances for species at risk will be assessed where construction occurs during the breeding season (April1-August 31). If suggested sizes of buffer zones or set-back distances are determined to be inadequate, and measureable effects are found, or where unanticipated effects have occurred, adaptive management will be employed to modify their sizes to eliminate any nest abandonment and to minimize potential effects to fledging success.

### 4.4.2 Bird-Wire Collisions

#### *4.4.2.1 Post-Construction*

Searches for dead or injured birds will be performed at selection of representative sites during peak periods of bird activity in order to determine the efficacy of bird deflectors in higher risk-of-collision habitats. Searches will also occur at a select number of sites where effects were not anticipated and bird deflectors were not implemented. If unanticipated effects are encountered such as high numbers of bird-wire strikes, or collisions involving listed species, appropriate mitigation measures will be implemented and add follow up monitoring will occur.

### 4.4.3 Active Bird Nests

#### *4.4.3.1 Pre-Construction*

Pre-Project nest searches are required in areas where summer construction (April 1-July 31) is anticipated (i.e., in the southern portion of the Project footprint). In accordance to Environment Canada guidance, pre-construction surveys will identify the location of active nests and any additional sensitive sites or habitats that may require the implementation of mitigation measures including species-appropriate setback distances or buffers. In areas where habitat for species at risk occurs (common nighthawk, olive-sided flycatcher and rusty blackbird), pre-clearing surveys would occur if any clearing is proposed between April 1 and August 31.

## 4.5 MAMMALS

### 4.5.1 Caribou

#### *4.5.1.1 Pre/Post-Construction*

Currently, collaborative research and monitoring between Manitoba Hydro, Manitoba Conservation and the Split Lake, York Factory and Fox Lake Resource Management Boards is ongoing. Monitoring and research include ongoing collaring of caribou and specific research assessing caribou persistence in relation to linear development. Monitoring of caribou populations will continue through to the post construction stage, with the purpose of assessing the effects of linear features on caribou populations and caribou use of habitat.

### 4.5.2 Moose

#### *4.5.2.1 Construction/Post Construction*

Moose mortality will be monitored by surveying for kill sites and determining cause of death within the Project Footprint during and post construction.

## 5.0 Anticipated Project Timelines and Key Monitoring Activities

The following table provides an overview of the timing of key monitoring activities identified in the EA Report and supporting technical reports.

**Table 5-1: Anticipated Project Timeline for Key Monitoring Activities**

| Environmental Component | Key Monitoring Activity | Pre-construction Phase | Construction Phase | Post-construction Phase |
|---|---|---|---|---|
| Aquatics | Inspect stream crossing sites | - | - | Yes |
| Terrestrial Ecosystems and Vegetation | Fragmentation | - | - | Yes |
| | Ecosystem Diversity | - | - | Yes |
| | Priority Plants | Yes | - | Yes |
| | Invasive and non-native species | - | - | Yes |
| Birds | Bird species of concern | Yes | Yes | - |
| | Bird-wire collisions | - | - | Yes |
| | Active bird nests | Yes | - | - |
| Mammals | Caribou | Yes | Yes | Yes |
| | Moose | | Yes | Yes |

## 6.0 Stakeholders, Roles and Responsibilities

The following Table 6-1 provides an overview of the roles and responsibilities of the Project stakeholders.

| Table 6-1: Overview of Stakeholder Roles and Responsibilities | | |
|---|---|---|
| **Stakeholder** | **Role** | **Responsibilities** |
| Manitoba Hydro | Proponent | • Design and implementation of Biophysical Monitoring Plan<br>• Collaboration with stakeholders in development and implementation of various aspects of the monitoring plan<br>• Management of monitoring plan activities<br>• Development of monitoring reports<br>• Regular reporting and sharing of information with stakeholders (e.g., open house) |
| Manitoba Conservation | Regulator | • Review and provide input into the monitoring plan<br>• Approve monitoring plan<br>• Collaborate on research and monitoring initiatives with Manitoba Hydro (e.g., caribou)<br>• Jurisdictional responsibilities related to wildlife, and species at risk, as mandated by the Manitoba Wildlife Act and MESA |
| Department of Fisheries and Oceans | Regulator | • Jurisdictional responsibilities relate to the protection of fish and fish habitat as mandated by the Fisheries Act |
| Environment Canada | Regulator | • Jurisdictional responsibilities relate to the protection of migratory birds and species at risk as mandated by the Migratory Birds Convention Act, 1994, and the Species at Risk Act. |
| Aboriginal Communities | Active participant | • Provide input into the monitoring plan design<br>• Active role in the implementation of the monitoring plan |
| Private Landowners | Active participant | • Active contributors of any biophysical-related monitoring information opportunistically encountered<br>• Communicate with proponent regarding unanticipated Project effects |
| Public | Active participant | • Active contributors of any biophysical-related monitoring information opportunistically encountered |

## 7.0 Reporting

The Biophysical Monitoring Plan will be developed by Manitoba Hydro and submitted to Manitoba Conservation for review and approval prior to the commencement of the Project construction phase. The monitoring plan and subsequent monitoring reports will be shared with regulators, stakeholders, aboriginal communities and the public. Monitoring plans and reports from monitoring programs will also be made available to all stakeholders on the Project website.

## 8.0 References

CEAA 2011. Canadian Environmental Assessment Agency. Accessed at: http://www.ceaa.gc.ca/default.asp?lang=En&n=081671C7-1&offset=7&toc=show

SARA 2011. Government of Canada's Species at Risk Act registry. Accessed at: http://www.sararegistry.gc.ca/approach/act/sara_e.pdf