Manitoba Hydro

Bipole III Transmission Project

Environmental Protection Plan

Document Owner
Licensing and Environmental Assessment Department
Transmission Planning and Design Division
Transmission Business Unit
Manitoba Hydro

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List of Revisions

Number	Nature of Revision	Section(s)	Revised By	Date

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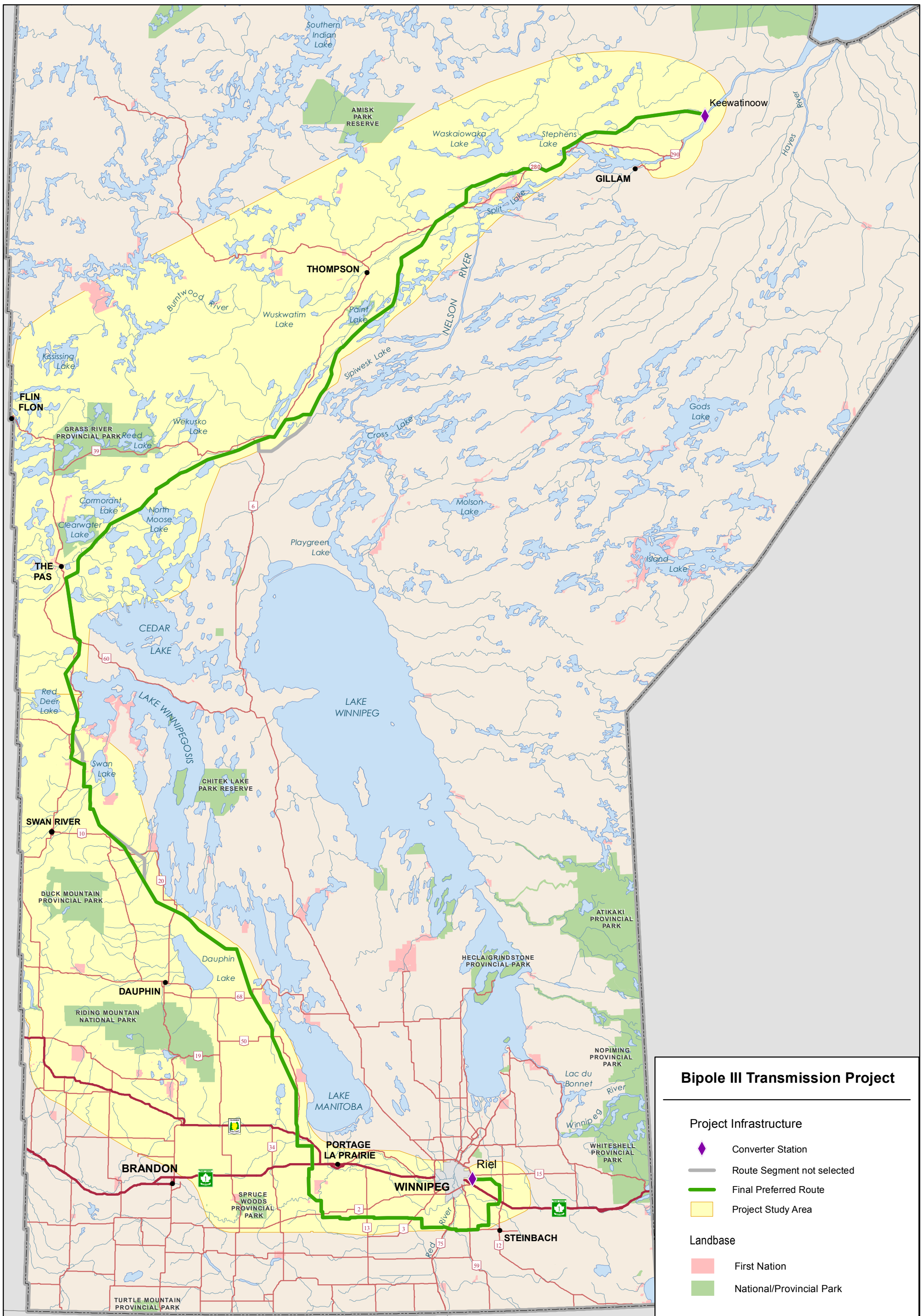
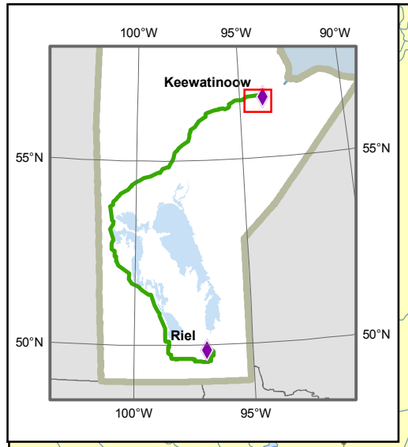
1. Introduction

1.1 Bipole III Transmission Project

Manitoba Hydro is proposing to construct a new 500 kV HVdc transmission line, known as Bipole III, on the west side of Manitoba (Map 1). The Bipole III Transmission Project (the Project) will consist of a HVdc transmission line originating at a new Keewatinoow Converter Station to be located northeast of the Henday Converter Station along the Nelson River (Map 2) and terminating at a second new converter station to be located at the Riel Station site east of Winnipeg (Map 3). Each of the converter stations will require a separate ground electrode facility connected by a low voltage feeder line. The Project will also include new 230 kV transmission lines linking the Keewatinoow Converter Station to the existing 230 kV switchyards at the Henday Converter Station and Long Spruce Generating Station, as well as a northern construction camp, a 138 kV construction power transmission line and associated station facilities.

The Bipole III transmission line will be approximately 1,380 km in length and will cross diverse regions of Manitoba from the Boreal Forest in the north to agricultural and developed areas in the south. Construction is planned to commence in the winter of 2013 with a projected in-service date of October 2017. The Environmental Impact Statement for the Project (Manitoba Hydro, 2011) describes the Project, provides detailed technical information and outlines the project schedule.


Southern Indian Lake
AMISK PARK RESERVE
Waskaiowaka Lake
Stephens Lake
Keewatinoow
Hayes River
290
280
GILLAM
Split Lake
THOMPSON
Burntwood River
Wuskwatim Lake
Paint Lake
NELSON RIVER
Kissising Lake
Sipiwesk Lake
FLIN FLON
GRASS RIVER PROVINCIAL PARK
Reed Lake
Wekusko Lake
Cross Lake
Gods Lake
39
Cormorant Lake
North Moose Lake
Clearwater Lake
6
Molson Lake
Playgreen Lake
Island Lake
THE PAS
CEDAR LAKE
60
LAKE WINNIPEG
Red Deer Lake
LAKE WINNIPEGOSIS
Swan Lake
CHITEK LAKE PARK RESERVE
SWAN RIVER
10
20
DUCK MOUNTAIN PROVINCIAL PARK
ATIKAKI PROVINCIAL PARK
HECLA/GRINDSTONE PROVINCIAL PARK
Dauphin Lake
DAUPHIN
68
RIDING MOUNTAIN NATIONAL PARK
50
19
NOPIMING PROVINCIAL PARK
Lac du Bonnet
Winnipeg River
LAKE MANITOBA
34
PORTAGE LA PRAIRIE
Riel
WHITESHELL PROVINCIAL PARK
BRANDON
WINNIPEG
15
SPRUCE WOODS PROVINCIAL PARK
2
13
3
Red River
75
12
STEINBACH
59
TURTLE MOUNTAIN PROVINCIAL PARK
Bipole III Transmission Project
Project Infrastructure
Converter Station
Route Segment not selected
Final Preferred Route
Project Study Area
Landbase
First Nation
National/Provincial Park
Manitoba Hydro
Coordinate System: UTM Zone 14N NAD83
Data Source: MB Hydro, ProvMB, NRCAN
Date Created: Aug 2013
0 25 50 Kilometres
0 25 50 Miles
1:2,500,000
N
Final Preferred Route



Bipole III Transmission Project

Infrastructure

- Final Preferred Route
- AC Collector Lines
- Ground Electrode Line
- Ground Electrode Site
- Construction Power Line (KN36)
- Keewatinoow Converter Station
- Construction Power Site
- Construction Camp Site
- Limestone Construction Power Station Site
- Manitoba Hydro and Contractor Work Area Site
- Limestone Stores Area
- Henday Storage
- Project Study Area

Infrastructure

- Converter Station
- Generating Station
- Bipole I and II
- Transmission Line

Landbase

- Community
- City / Town
- First Nation
- Wildlife Management Area

Coordinate System: UTM Zone 14N NAD83
Data Source: MBHydro, MMM, Stantec, ProvMB, NRCAN
Date Created: September 09, 2013

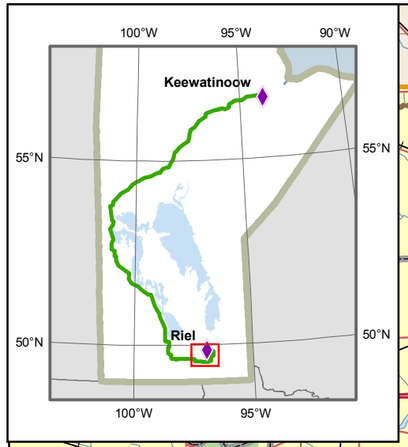
N

0 5 10 Kilometres
0 3 6 Miles

1:250,000

Northern Project Components

Map 2



Bipole III Transmission Project

Project Infrastructure

- Final Preferred Route
- Ground Electrode Line
- Converter Station Site
- Ground Electrode Site
- Project Study Area

Infrastructure

- Transmission Line
- Electrical Station

Landbase

- Community
- City / Town
- Rural Municipality
- First Nation
- National/Provincial Park

Coordinate System: UTM Zone 14N NAD83
Data Source: MBHydro, MMM, Stantec, ProvMB, NRCAN
Date Created: September 09, 2013

0 5 10 Kilometres
0 3 6 Miles
1:250,000

Southern Project Components

Map 3

1.2 Manitoba Hydro Environmental Policies

Manitoba Hydro's Corporate Vision (Manitoba Hydro 2012) 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".*

One of the corporation's goals is "*To protect the environment in everything we do*". This goal can only be achieved with the full commitment of Manitoba Hydro management, employees, consultants and contractors at all project stages from planning and design through the construction and operational phases.

Manitoba Hydro is ISO 14001 certified and has a corporate Environmental Management System (EMS) consistent with that standard. The certificate scope of registration for the corporate EMS is the provision of environmental management guidance and direction from Manitoba Hydro's corporate office for the construction, generation, transmission and distribution of electricity and the distribution and retail sale of natural gas in Manitoba. The corporation's Environmental Management Policy (Manitoba Hydro 2013) 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 strategic objectives and goals, and environmental management policy have been incorporated into this Project Environmental Protection Plan (EnvPP) for the Project.

1.3 Engagement Process

The Bipole III Environmental Assessment Consultation Program (EACP) included four rounds, which was carried out between October 2008 and December 2010 and involved over 4,000 participants. During November 2012 to January 2013, Manitoba Hydro undertook an additional Environmental Assessment Consultation Program regarding the three route adjustments.

Manitoba Hydro representatives sought to achieve the following goals throughout the EACP activities:

- Share project information as it becomes available;
- Obtain feedback into the assessment process;
- Understand local issues pertinent to the project;
- Integrate issues and concerns into the assessment process; and
- Discuss appropriate mitigation measures.

EACP participants were informed of these goals and were encouraged to participate in the process.

EACP participants engaged in the process by sharing their concerns and knowledge of local areas to assist in the environmental assessment being undertaken for the proposed route adjustments.

1.4 Aboriginal Traditional Knowledge

Manitoba Hydro sent letters to 49 First Nation and Northern Affairs communities identified in the study area on May 26, 2009 inviting them to participate in the Aboriginal Traditional Knowledge (ATK) process for the Bipole III Transmission Project. Between October 2009 and November 2010, 19 First Nation and Northern Affairs Communities participated in workshops as part of the Bipole III Project ATK Study. Below is a list of eight self-directed Traditional Knowledge studies were carried out independently, these documents were referred to during the development of Environmental Protection Plans.

Keewatinoow Converter Station & Bipole III Aski Keskentamowin Report. Fox Lake Cree Nation. (2011).

Aboriginal Traditional Knowledge Study. Long Plain First Nation (April 2011)

Manitoba Metis Federation Traditional Use, Values and Knowledge of the Bipole III Project Study Area. Manitoba Metis Federation. (2011).

Aboriginal Ecological Knowledge Project Report on Proposed Bipole III Transmission Line - Manitoba Hydro. Opaskwayak Cree Nation. (2011).

Sapotaweyak Cree Nation. Final Report (2013)

Swan Lake First Nation Report on the finding and the concerns identified by the Traditional Knowledge Project. Swan Lake First Nation. (2011).

Tataskweyak Cree Nation Report on Bipole III Right-of-Way and Expected Impacts. Tataskweyak Cree Nation. (2011).

Wuskwi Sipihk First Nation. Traditional Land Use and Occupancy. (2011).

Manitoba Hydro recognizes the unique relationship Aboriginal communities have with their areas of use and is appreciative to all the communities who took time to share information about their history and culture as well as their valued knowledge and perspectives with regards to the Bipole III study area and Project. Each community who undertook a self-directed study developed the objectives, methods, and analysis procedures that they deemed appropriate for their study and community. The ATK that has been shared assisted Manitoba Hydro in: developing a greater understanding of the study area; identifying potential Project effects; planning and designing the Project; developing potential mitigation measures, which can be found throughout this document and other project environmental plans. Manitoba Hydro understands the importance of continuing to engage with Aboriginal communities and to work to address outstanding concerns.

1.4.1 Environmental Protection Program Engagement Process

To enhance the use of Aboriginal Traditional Knowledge and to continue to engage communities, Manitoba Hydro is continuing to meet with First Nations, Northern Affairs Communities and the MMF as part of the Environmental Protection Program to discuss sensitive sites identified during the ATK process and any additional unidentified sensitive sites, as well as any relevant mitigation measures.

1.5 Environmental Impact Statement

The Bipole III Transmission Project Environmental Impact Statement (EIS) provides information on the Project's main components and activities, the environmental effects of the Project including accidents and malfunctions, measures to mitigate adverse effects, and follow-up requirements. The EIS also provides information on regulatory requirements, environmental guidelines and best practices, and documents the results from stakeholder and Aboriginal consultations. Chapter 11 of the EIS describes how mitigation measures and follow-up will be implemented through an Environmental Protection Program. The EIS is a major source of input to environmental protection measures for this Project Environmental Protection Plan.

1.6 Environmental Protection Program

Manitoba Hydro's Environmental Protection Program (Manitoba Hydro 2011) is based on Manitoba Hydro's corporate commitments and policies, regulatory requirements, best practice guidance and stakeholder input. The Environmental Protection Program provides the framework for implementation, management, monitoring and evaluation of environmental protection activities in keeping with environmental effects identified in environmental assessments, regulatory requirements and public expectations. The Program outlines how Manitoba Hydro is organized and functions to deliver timely, effective, and comprehensive solutions and mitigations to predicted environmental issues and effects. The Program consists of an implementation framework outlining how environmental protection is delivered and managed. Environmental protection plans used in the program prescribe measures and practices to avoid and minimize adverse environmental effects as well as evaluate the effectiveness of mitigation strategies. Adaptive management is being implemented within the program to be responsive and adaptive to changes to the project and on the landscape, stakeholder and aboriginal concerns, as well as inputs from our inspection and monitoring programs.

1.7 Environmental Protection Plans

Environmental protection plans document environmental protection measures as part of the overall Environmental Protection Program to ensure compliance with regulatory and other requirements, and to achieve environmental protection goals consistent with corporate environmental policies. Environmental protection measures supplement project specifications to avoid or minimize potential adverse environmental effects arising during the construction and operation phases of the project. Environmental protection plans are designed as “user-friendly” reference documents that provide Manitoba Hydro construction supervisors and site managers as well as contractors with detailed environmental protection measures. Environmental protection measures are organized by project component and activity, in addition to environmental component and issue. This is to assist project personnel in implementing mitigation measures for a variety of project components and activities, and ensuring the protection of environmentally sensitive sites. Environmental protection plans include monitoring programs and updating schedules to ensure that the environmental protection measures remain current and effective, and to enable continual improvement of environmental performance.

1.8 Purpose

The purpose of this Project Environmental Protection Plan is to provide for the effective implementation of mitigation measures and follow-up actions as well as regulatory requirements, environmental guidelines and best practices identified in the Bipole III Transmission Project EIS. This Project Environmental Protection Plan covers the entire project and provides the overall description of the Environmental Protection Program and its components. Eleven (11) Construction Environmental Protection Plans will be prepared to include licence terms and conditions and other regulatory requirements. The Construction Environmental Protection Plans will cover the construction period from beginning to end.

2. Environmental Protection Program

2.1 Overview

This section outlines Manitoba Hydro's Environmental Protection Program for the Project. The Program provides a framework for the delivery, management and monitoring of environmental protection measures that satisfy corporate policies and commitments, regulatory requirements, environmental protection guidelines and best practices, and inputs from stakeholders, the Aboriginal community and the public. The Program describes how Manitoba Hydro is organized and functions to deliver timely, effective, and comprehensive solutions and mitigation measures to address potential environmental effects. Roles and responsibilities for Manitoba Hydro employees and contractors are defined, along with management, communication and reporting structures for implementation of the Program. The Environmental Protection Program includes the what, where and how aspects of protecting the environment during the pre-construction, construction, operation and decommissioning of the Project.

2.2 Organization

The organizational structure of the Environmental Protection Program includes senior Manitoba Hydro management, project management and implementation teams that work together to ensure timely and effective implementation of environmental protection measures identified in environmental protection plans and is broadly depicted in Figure 2.1.

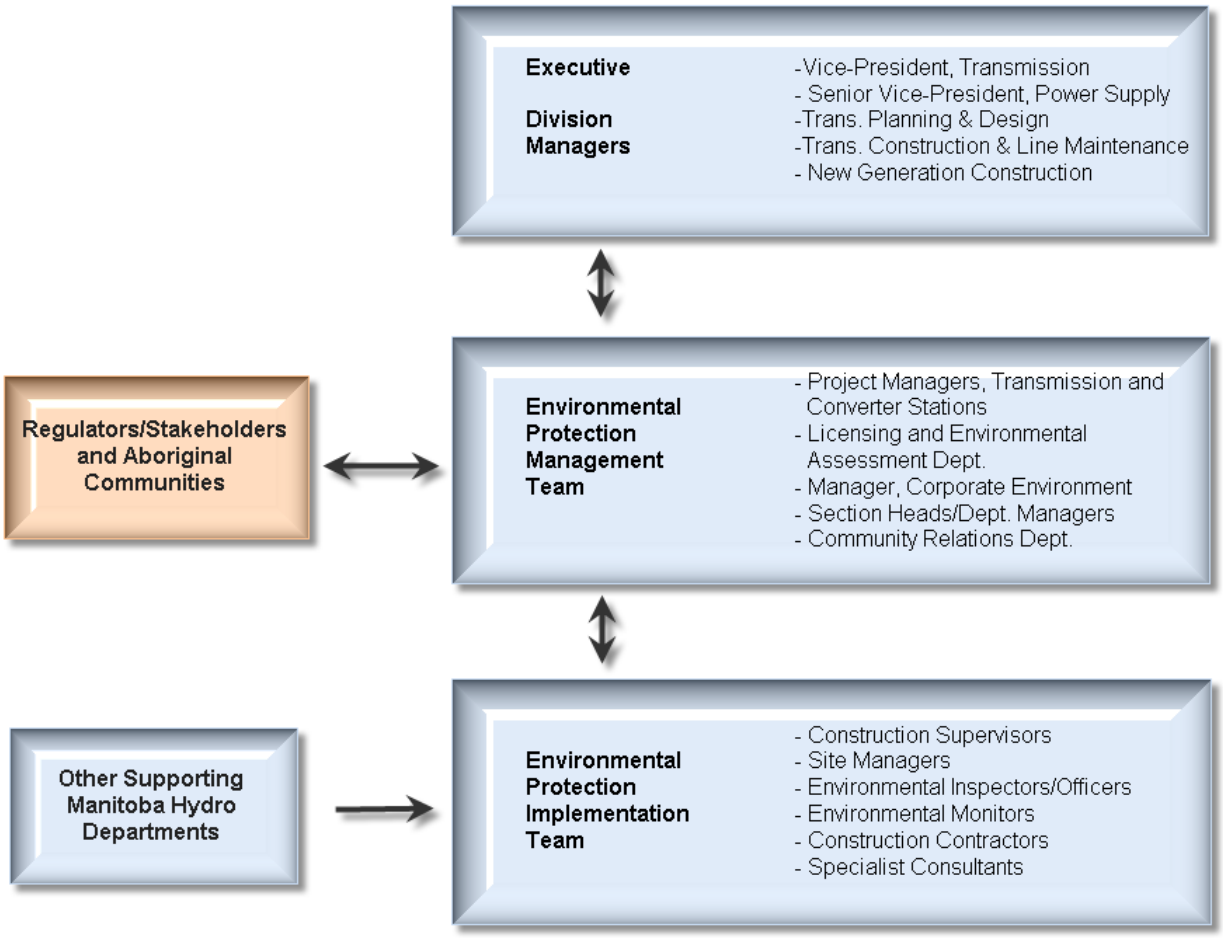


Figure 2.1 Environmental Protection Program Organizational Structure

2.2.1 Executive and Division Managers

Executive and Division Managers are responsible for the overall Environmental Protection Program including resourcing, management and performance, and are accountable for regulatory compliance, policy adherence and stakeholder satisfaction.

2.2.2 Environmental Protection Management Team

The Environmental Protection Management Team is composed of senior Manitoba Hydro staff and is responsible for the management of environmental protection plans including regulatory compliance, quality assurance and control, as well as consultation with regulators, stakeholders and Aboriginal communities.

2.2.3 Environmental Protection Implementation Team

The Environmental Protection Implementation Team is composed of Manitoba Hydro operational field and office staff, and is responsible for the day-to-day implementation of environmental protection plans including monitoring, inspecting and reporting. The implementation team works closely with other Manitoba Hydro staff on an as required basis.

2.2.4 Roles and Responsibilities

Roles and reporting structure for implementation of environmental protection measures for the Bipole III Transmission Project are illustrated in general terms in Figure 2.2.

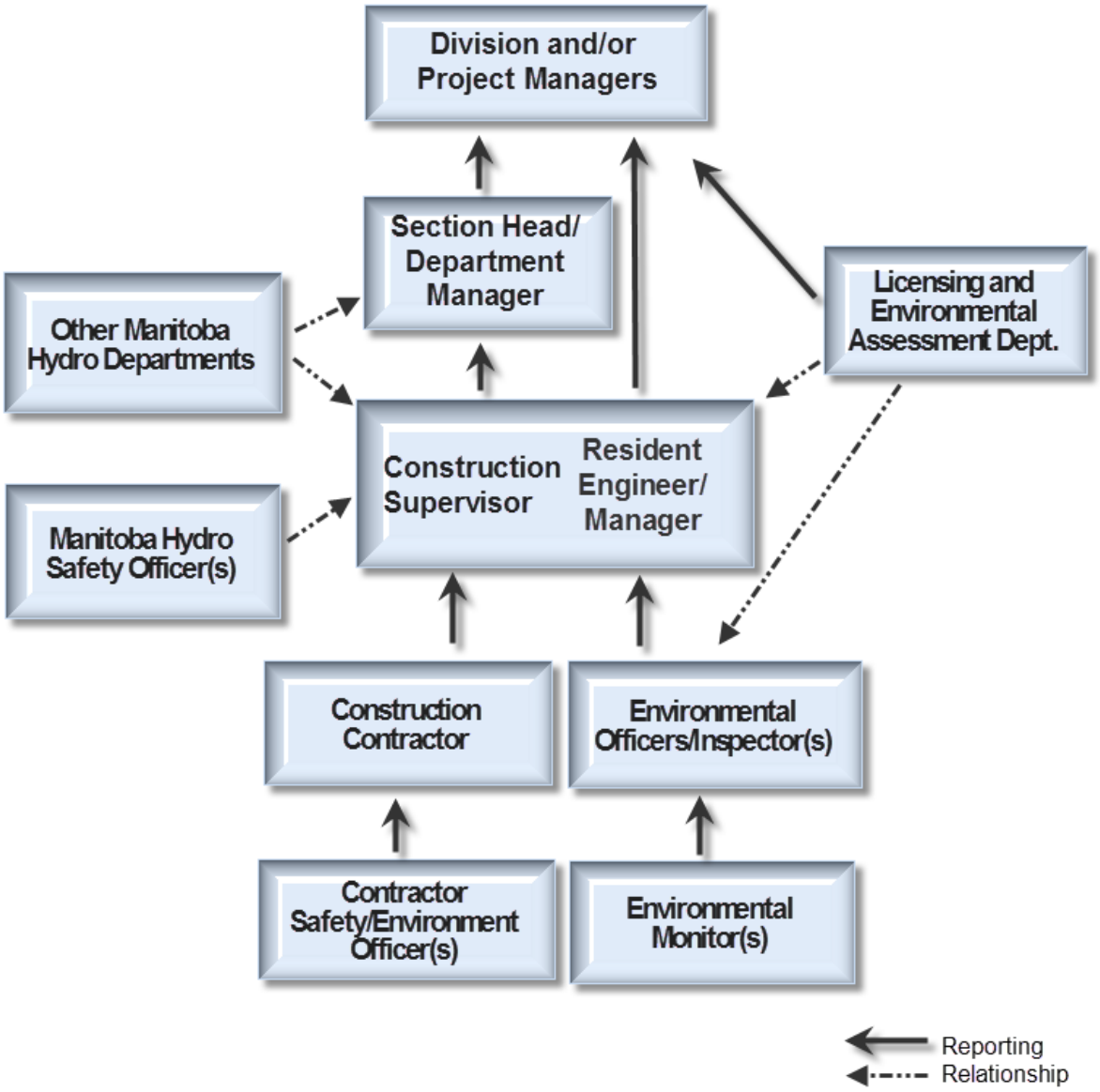


Figure 2.2 Typical Organizational Lines of Reporting and Communication

The responsibilities for key positions are described below:

2.2.5 Project Manager (Transmission)

Reports to the Transmission Construction & Line Maintenance Division Manager and is accountable for all aspects of the Transmission components of the Bipole III Transmission Project including regulatory compliance and environmental performance. They depend on each Section Head/Department Manager and the Licensing and Environmental Assessment Department, to implement environmental protection measures and provide information and advice on environmental matters.

2.2.6 Project Manager (Converter Station)

Reports to New Generation Construction Division Manager and is accountable for all aspects of the Converter Station components of the Bipole III Transmission Project including regulatory compliance and environmental performance. The Converter Station Project Manager relies on each Site Manager/Resident Engineer (Riel and Keewatinoow Converter Stations) to implement environmental protection measures, and the Licensing and Environmental Assessment Department to provide information and advice on environmental matters.

2.2.7 Section Head/Department Manager(s) (Transmission Only)

Reports to the Transmission Construction & Line Maintenance Division Manager or Transmission Planning & Design Division Manager.

Key Responsibilities:

- Accountable for all aspects of their applicable component of the Bipole III Transmission Project including regulatory compliance and environmental performance.
- Oversees Construction Supervisors who are responsible for implementing environmental protection measures and ensuring regulatory compliance.

2.2.8 Licensing and Environmental Assessment Department

Reports to the Transmission Planning and Design Division Manager.

Key Responsibilities:

- Responsible for preparation of the Project EIS, obtaining an Environment Act Licence (Manitoba) and overall implementation of licence terms and conditions.
- Provides advice and guidance to the Transmission and Converter Station Project Managers, Construction Supervisors and Resident Engineer/Managers, and Environmental Officers on environmental protection matters.
- Provides training support for Environmental Officers/Inspectors and Environmental Monitors, develops field methods, and designs inspection and reporting systems for implementation.
- Reviews inspection reports and monitoring information, and prepares monitoring and other reports to satisfy regulatory requirements.
- Liaises with senior regulatory authorities, and provides advice and guidance to the Environmental Inspectors for non-compliance situations, environmental incidents and emergencies.

2.2.9 Construction Supervisor(s) (Transmission)

Reporting to the Section Head/Department Manager the Construction Supervisor works with the Construction Contractor to implement environmental protection measures and ensure regulatory compliance.

Key Responsibilities:

- Reviews inspection reports with the Construction Contractor, and remedial actions or responses to non-compliance situations or incidents are implemented as required.
- Works with the Environmental Officer and Inspectors to ensure implementation of environmental protection, management, monitoring and other plans, and ensures that appropriate authorities are notified in emergency or incident situations.
- Issues stop work orders.
- There may be several Construction Supervisors reporting to the Section Head/Department Manager due to the large size and complex nature of the Project.

2.2.10 Resident Engineer/ Manager(s) (Converter Stations)

Reporting to the Converter Station Project Manager, the Resident Engineer/Manager works with the Construction Contractor to implement environmental protection measures and ensure regulatory compliance.

Key Responsibilities:

- Inspection reports are reviewed regularly with the Construction Contractor, and remedial actions or responses to non-compliance situations or incidents are implemented as required.
- Oversees the Environmental Officers to ensure implementation of environmental protection and other plans.
- Ensures that appropriate authorities are notified in emergency or incident situations.
- Issues stop work orders.
- There will be one Resident Engineer/Manager for each of the two Converter Stations (Keewatinoow and Riel).

2.2.11 Environmental Officer(s)/Inspectors

There will be three Environmental Officers, a Senior Environmental Assessment Officer reporting to the Transmission Line and Civil Construction Department Manager and two Site Environmental Officers, one for each Converter Station site reporting to the respective Resident Engineer/Manager. In New Generation Construction there will be two Environmental specialists that will provide off site support and guidance to the Resident Engineer/Manager

The Senior Environmental Assessment Officer reports to the Transmission Line Construction Section Head and due to the multiple construction sites, and supervises a team of Environmental Inspectors.

Key Responsibilities:

- Reviews inspection reports.
- Investigates incidents.
- Provides orientation training to Manitoba Hydro staff and Contractors.

- Liaises with regulators and Aboriginal Communities.

The Environmental Inspectors report to the Senior Environmental Officer and provide advice and guidance to the Construction Supervisor.

Key Responsibilities:

- Conducts site inspections regularly and submits reports electronically to the Environmental Protection Information Management System.
- Submits weekly and monthly reports containing information on activities carried out, effectiveness of actions and outstanding issues.
- Has the authority to resolve environmental issues on-site with the Construction Supervisor.
- Reports non-compliance situations and incidents to the Construction Supervisor immediately.
- Due to the large size and complex nature of the Project there will a number of Environmental Inspectors.

The New Generation Construction Environmental Specialist provides advice and guidance to the Resident Engineer/Manager.

Key Responsibilities:

- Off-site support for all aspects of the EnvPP and environmental approvals.
- Provides advice and guidance on environmental protection matters.
- Liaises with Licensing and Environmental Assessment Department.
- Liaises with Regional regulatory authorities.
- Provides advice and guidance to Manitoba Hydro site staff for non-compliance situations, environmental incidents and emergencies.
- Ensures all reporting into Environmental Protection Information Management System.

The Converter Station Site Environmental Officer reports to the Resident Engineer/Manager. There will be one officer for each Converter Station site.

Key Responsibilities:

- Creates inspection reports.
- Investigates incidents.
- Provides orientation training to Manitoba Hydro staff and Contractors.
- Liaises with Manitoba Conservation Officer and Aboriginal Communities.
- Conducts site inspections regularly and submits reports electronically to the Environmental Protection Information Management System.
- Submits monthly reports containing information on activities carried out, effectiveness of actions and outstanding issues.
- Has the authority to resolve environmental issues on-site with the Resident Engineer/Manager.
- Reports non-compliance situations and incidents to the Resident Engineer/Manager immediately.

2.2.12 Environmental Monitor(s) (Transmission Only)

The Environmental Monitor(s) while on site will report to the Senior Environmental Assessment Officer and receive training from the Licensing and Environmental Assessment Department.

Key Responsibilities:

- Environmental Monitors conduct field monitoring activities as outlined in the monitoring plans (access, biophysical and socioeconomic monitoring).
- Assist in the locating and delineating of environmentally sensitive sites.
- Shares traditional and/or local knowledge and perspective on the environment.

2.2.13 Community Liaison(s) (Transmission Only)

The Community Liaison(s) plan to be hired from local First Nation and Northern Affairs communities, along with the Manitoba Metis Federation. This position will report to both the community leadership and the Manitoba Hydro Construction Supervisor when on construction site.

Key Responsibilities:

- Provide the primary method of communication between community and Construction Supervisor on issues relating to the construction of the project.
- Observes the construction and environmental protection program activities and reports back to community Leadership, as well as info the Construction Supervisor of any concerns the community may have with those activities.
- Shares traditional and/or local knowledge and perspective on the environment.

2.2.14 Construction Contractor(s)

Reports to the Construction Supervisor or Resident Engineer/Manager and is responsible for conducting work in accordance with the construction contract, complying with all regulatory requirements, following best practice guidelines, and adhering to requirements in environmental protection plans.

Key Responsibilities:

- Maintains detailed records of environmental approvals and inventories of accidents, incidents, alterations, wastes, equipment maintenance, public complaints and other matters.
- Reports any discoveries of non-compliance, accidents or incidents to the Construction Supervisor or Resident Engineer/Manager.
- Reports discoveries of heritage resources, human remains, paleontological finds, environmentally sensitive sites, etc. to the Construction Supervisor or Resident Engineer/Manager.
- Responsible for preparing and implementing contract-specific hazardous materials management and emergency response plans in accordance with Manitoba Hydro plans and specifications.
- Contaminated site identification, assessment and remediation are also a responsibility of the Construction Contractor.

There will be a number of Construction Contractors retained for major components of the Project, each reporting to a Construction Supervisor or Resident Engineer/Manager.

2.2.15 Construction Contractor's Safety and Environment Officers

The Construction Contractors Safety Officer provides information and advice to the Construction Contractor employees on safety matters and is responsible for implementation of the emergency response and hazardous substances plans, and other related topics. The Construction Contractor's Environment Officer provides information and advice to the Construction Contractor's employees on environmental protection matters and is responsible for the construction contractor's implementation of environmental protection and related topics.

The number of Safety and/or Environment Officers required is based on project component, size, environmental issues and other factors. The Environment Officer and Safety Officer must be deemed as qualified environmental professionals and/or qualified occupational safety and health professionals.

2.2.16 Manitoba Hydro Safety, Health, Emergency Response Officers

Manitoba Hydro Field Safety, Health and Emergency Response Officers are responsible for the development and execution of the safety program and Occupational Health and Safety practices at the various construction sites. The officers provide information and advice to the Construction Supervisor and Resident Engineer/Manager.

2.2.17 Other Manitoba Hydro Departments

Other Manitoba Hydro groups including Engineers, Property Agents and technicians provide functional advice to the Construction Supervisor and Resident Engineer/Manager on an as required basis.

2.3 Resources

Ensuring that adequate resources are allocated to the environmental aspects of project planning, development, implementation and operation is key to successful implementation of environmental protection measures and follow-up including monitoring and other requirements. Manitoba Hydro commits resources early in the planning cycle to ensure effective environmental

assessment, mitigation and monitoring. Teams of engineers and environmental professionals develop preventative or avoidance mitigation measures that include design, routing and siting alternatives. In addition, there are resource allocations for the delivery and implementation of specific environmental protection measures to meet corporate policy and government regulatory requirements. Manitoba Hydro is committed to staffing the Environmental Protection Program with sufficient Environmental Inspectors and providing required support including training, financial resources and equipment.

2.3.1 Environmental Management

Manitoba Hydro is certified under the ISO 14001 Environmental Management System standard and is subject to requirements of the standard including annual audits to verify its conformance to the standard. An Environmental Management System is a framework for developing and applying its environmental policy and includes articulation of organizational structure, responsibilities, practices, processes and resources at all levels of the corporation. The Environmental Management System includes commitments to comply with legislation, licenses, permits and guidelines, conduct inspections and monitoring, and review the results for adherence to requirements. The ISO standard ensures quality, performance and continual improvement in the delivery of Manitoba Hydro's Environmental Protection Program.

2.4 Environmental Protection Documents

Several environmental protection planning documents are developed for different project phases, components and activities. The documents include environmental protection, management and monitoring plans. The level of detail captured in the various plans increases as the project advances through planning, design, construction and operation phases, and the environmental assessment and licensing process (Figure 2.3).

The Draft Environmental Protection Plan covered the period from submission of the Environment Act Proposal to receipt of an Environment Act Licence for the Bipole III Transmission Project. This final Project Environmental Protection Plan incorporates licence terms and conditions, and other regulatory requirements. Prior to the commencement of construction activities Construction Environmental Protection Plans will be prepared. Several environmental protection plans will be prepared, each addressing separate project components

or construction contracts. The Construction Environmental Protection Plans will cover the construction period from beginning to end.

Operation Environmental Protection Plans will be prepared prior to the project In-Service Date. One or more environmental protection plans will be prepared for this phase of the Project, each addressing separate project components. Operation Environmental Protection Plans will cover the period post commissioning to the eventual decommissioning of the Project. A Decommissioning Environmental Protection Plan would be prepared prior to the eventual decommissioning of the Project.

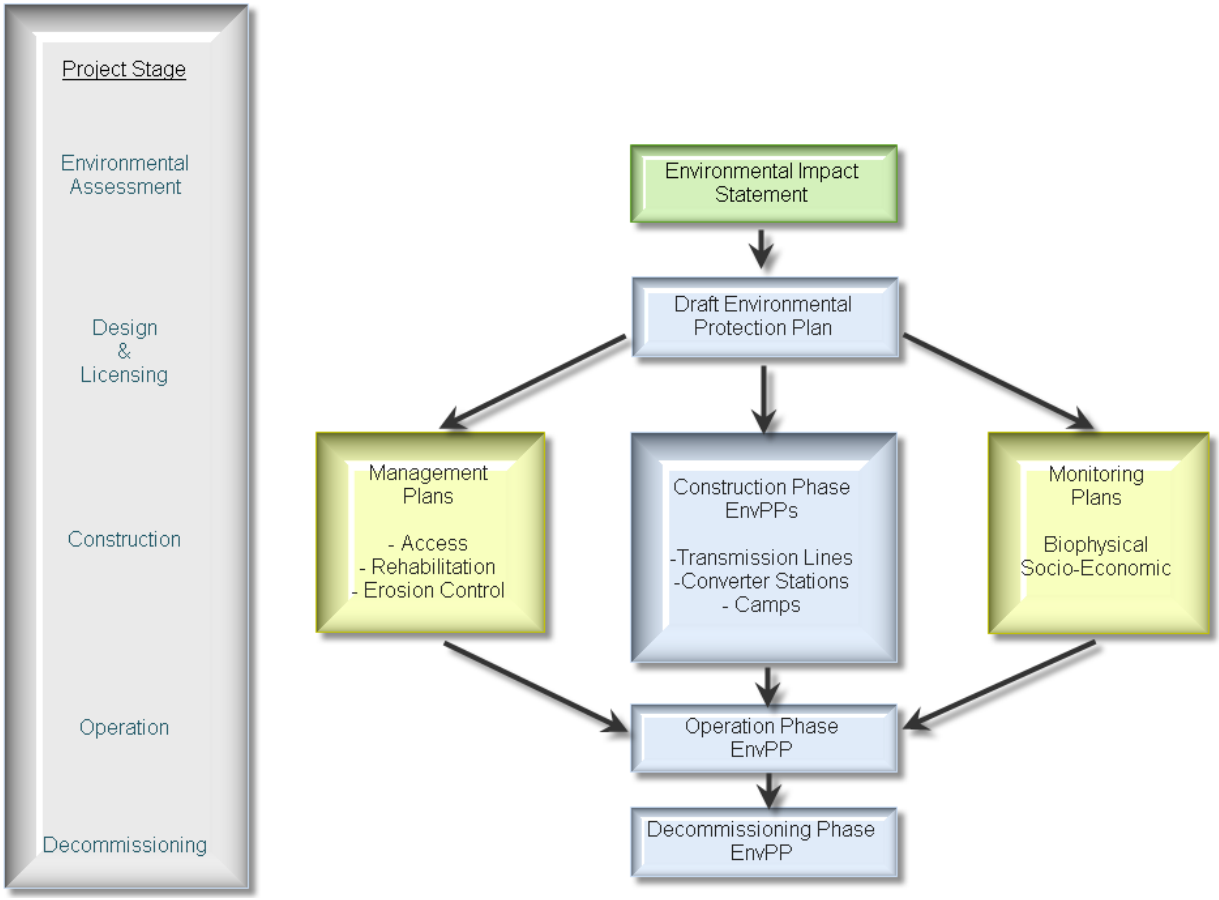


Figure 2.3 Typical Environmental Protection Documents

Management plans are prepared in response to specific environmental issues identified during the environmental assessment of the Project. Typical environmental issues include access, environmental protection and resource use. Management plans are structured documents that provide reasoned courses of action to address environmental issues and concerns. Management plans are also prepared in response to regulatory requirements and responsible management practices.

Monitoring plans are prepared in response to specific follow-up requirements identified during the environmental assessment of the Project. Follow-up requirements include those actions implemented to confirm compliance with regulatory requirements and to assess the effectiveness of the environmental assessment. Example follow-up actions include water quality, abundance monitoring, wildlife mortality and resource use.

2.5 Pre-construction Activities

Manitoba Hydro will undertake a number of activities prior to commencing construction of the Project to set the direction for environmental protection and compliance with legislated requirements.

Manitoba Hydro will obtain all licenses, permits, authorizations and other approvals in writing including property agreements, rights-of-way easements and water crossings prior to commencement of construction. Terms and conditions of these approvals will be incorporated into the Construction Environmental Protection Plans. Additional approvals to be obtained by the Contractors will be identified and communicated to the successful bidders. Pre-construction contacts will be established with provincial and federal regulatory authorities including Manitoba Conservation, Manitoba Water Stewardship, Department of Fisheries and Oceans, Transport Canada and others, and formal points of contact will be identified.

Meetings will be held with the successful contractors to review environmental protection requirements, establish roles and responsibilities, management, monitoring and other plans, inspection and reporting requirements, and specified submittals. Prior to the start of construction, contractor employees will be trained and/or oriented on environmental protection requirements. Construction Supervisors and Resident Engineer/Manager(s), Manitoba Hydro employees, consultants and others working on the project will be required to attend orientation sessions.

The Licensing and Environmental Assessment Department will assist the Senior Environmental and the Senior Environmental Assessment Officer in the training of environmental officers/inspectors for the Project. Training will be comprehensive and focused on environmental protection measures, inspection protocols, monitoring programs, computer systems, record keeping and emergency response procedures.

2.6 Construction Activities

A number of activities occur during construction of the Project to implement environmental protection measures and ensure compliance with regulatory requirements. Such activities include meetings with contractors, working with regulators and Aboriginal communities, inspection and compliance, works stoppage, emergency response, and heritage resource discovery.

2.6.1 Liaison with Regulators and Aboriginal Communities

The Construction Supervisor and or Resident Engineer/Manager, and Licensing and Environmental Assessment staff will meet with regulatory and Aboriginal community points of contact at the beginning of the Project to outline construction plans and schedules, and will request regular meetings to provide updates on project progress, environmental protection measure implementation and regulatory compliance. Manitoba Hydro will fulfill all regulatory requirements for submission of summaries for inspection, monitoring and other reports. Regulators will be notified immediately in case of emergency situations, environmental accidents or other incidents in accordance with regulatory requirements. Any proposed changes or alterations to the construction project environmental protection measures or monitoring activities will be reviewed in consultation with the appropriate regulatory authorities.

2.6.2 Inspection and Compliance

Manitoba Hydro will establish a comprehensive integrated environmental inspection program to comply with regulatory requirements, implement environmental protection measures and meet corporate environmental objectives. The inspection program involves hiring and training of environmental inspectors/officers, daily inspection of construction activities and regular reporting to Construction Supervisor or Resident Engineer/Managers and senior management as required.

Trained inspectors will visit active construction sites daily and inspect for compliance with regulatory requirements, license terms and conditions, contract specifications, and environmental protection measures. Specific mitigation measures will be inspected for adherence to specifications and effectiveness of operation. Environmental monitoring sites will be inspected routinely where information or data will be recorded and observations or photographs will be taken. Any situations where unforeseen environmental effects are evident will be reported and mitigation measures will be identified for implementation in a timely manner.

Inspection activities will be recorded on a daily report form. Any non-compliance matters, emergency conditions or environmental accidents will be recorded on an non-compliance report form and submitted immediately to the Senior Environmental Assessment Officers and Environmental Specialists and Construction Supervisor or Resident Engineer/Manager for follow-up action. Responses to enforcement actions will be in accordance with Manitoba Hydro's policy for processing legal documents (Appendix D). The Transmission and Converter Station Project Manager(s) and senior management will be kept informed on any incidents and remedial actions taken. Weekly and monthly summary reports will document responses to incidents and their effectiveness.

2.6.3 Work Stoppage

The duty to stop work rests with everyone encountering situations where the environment including biophysical, socio-economic, and heritage resources are threatened by an activity or occurrence that has not been previously identified, assessed and mitigated. Work stoppage is also to occur in the event of an environmental accident, extreme weather event (i.e. ice storm, wind sheer, tornado, heavy rainfall) or the exposure of human remains. Individuals discovering such situations are to inform their supervisor who will report the matter to the Construction Supervisor or Resident Engineer/Manager immediately who will issue a stop work order. The Contractor is also required to stop work voluntarily where construction activities are adversely affecting the environment or where mitigation measures are not effective in controlling environmental effects. Remedial action plans or other environmental protection measures will be developed and implemented immediately after discussion and prior to resumption of work if previously halted. Work is not to resume until the situation has been assessed and responded to and the Construction Supervisor or Resident Engineer/Manager approves the resumption of work. All stop work orders will be documented, reported to regulatory authorities (if applicable)

and reviewed at construction meetings. Remedial Action Plan proposals will be forwarded to Manitoba Conservation and Water Stewardship pursuant to Information Bulletin No. 96-02E.

2.6.4 Emergency Preparedness and Response

Spills of hazardous substances, fires and explosions, environmental accidents, heritage resource discoveries and other emergency or contingency situations require immediate action and response in accordance with established response plans. Provincial, federal, First Nations and municipal authorities, and Manitoba Hydro personnel are to be notified in accordance with regulations and emergency preparedness and response plans. These plans provide names of emergency responders, up to date contact information and notification procedures. Contractors are required to have contract-specific emergency preparedness and response plans outlining contacts and response measures to emergency situations including hazardous materials spills, environmental accidents, fires or explosions, and heritage resource discoveries. These plans will be prepared in accordance with Manitoba Hydro plans and specifications. Manitoba Hydro also has emergency response coordinators to deal with spills of hazardous materials and other substances.

2.6.5 Culture and Heritage Resources

Culture and heritage resources may be found in many different locations, and all workers on the Project will be aware of the protocols regarding the removal and handling of artifacts. Detailed actions and procedures for heritage discoveries are described in the Culture and Heritage Resource Protection Plan. All information regarding heritage resources and/or found human remains will be submitted to the Historic Resources Branch as per the terms of the Heritage Resources Act (1986) and heritage permit and to the local Aboriginal Communities. Ownership of all heritage objects found within Manitoba rests with the Province of Manitoba.

2.7 Tools and Resources

The environmental inspection program will employ modern electronic recording, reporting and communication systems using field computers, geographic positioning systems and digital cameras. Field computers will have project and other reference information needed for effective implementation of environmental protection measures including regulations, guidelines, licences, permits, engineering drawings, specifications, maps, reports and data. An Environmental Protection Information Management System (EPIMS) will monitor and report on

environmental protection implementation, regulatory compliance and incident reporting. The EPIMS will be fully integrated with field inspection, monitoring and data collection.

2.8 Communications

Manitoba Hydro personnel will maintain ongoing communications with Manitoba Conservation and Water Stewardship, other provincial and federal departments, and Aboriginal communities as necessary regarding implementation of the environmental protection plans. The Construction Supervisor and Resident Engineer/Manager and Environmental Officers/Inspectors will maintain ongoing communications with the Contractor and contract staff through daily tailboard meetings and weekly or otherwise scheduled construction meetings at the worksite. Daily, weekly and monthly inspection reports as well as incident, monitoring and other reports will be prepared and available on site thru EPIMS for the regulators, contractors and Manitoba Hydro staff. In addition, Manitoba Hydro will prepare summary information and activity reports related to environmental protection for the Project on an annual basis. These reports will be designed for a general readership and will provide opportunities for interested parties to provide feedback on the Project as it is constructed and eventually operated.

Manitoba Hydro will develop a communications strategy to ensure that all communication requirements are addressed in a timely and effective manner. The Manitoba Hydro Licensing and Environmental Assessment Department will provide the public with on-going opportunities to review and comment on the Project as it is being developed. A dedicated Project website (www.hydro.mb.ca/bipole3) has been developed to facilitate communication with the public. A Project hotline 1-877-343-1631 and bipole3@hydro.mb.ca e-mail has been established to facilitate reporting and response to environmental issues. All enquiries, reports or complaints received will be recorded and reviewed by the Environmental Protection Management Team for response or action.

2.9 Summary

This section outlined Manitoba Hydro's Environmental Protection Program for the Project. The Program provides a framework for the delivery, management and monitoring of environmental protection measures consistent with corporate policies and commitments, regulatory requirements, environmental guidelines and best practices. The Program describes how Manitoba Hydro is organized and functions to deliver timely, effective, and comprehensive solutions and mitigation measures to address potential environmental effects. Roles and responsibilities for Manitoba Hydro employees and contractors are defined, and management, communication and reporting structures are outlined for implementation of the Program.

3. General Environmental Protection Measures

3.1 Overview

This section of the Project Environmental Protection Plan provides general environmental protection measures that address potential environmental issues and effects for the Project. Environmental protection measures are provided in tabular form for major Project components and activities, environmental components, and environmental issues or topics.

3.2 General Environmental Protection Measures

General environmental protection measures include: 1) mitigation measures identified in the EIS; 2) regulatory requirements, environmental guidelines and best practices; 3) Manitoba Hydro policies and commitments; and 4) results from stakeholder and Aboriginal consultations that mitigate potential adverse effects on sensitive sites. The protection measures have wide-ranging application to the Project including the various project components and activities as well as important environmental components and issues. Relevant General Mitigation measures are incorporated into each Construction Environmental Protection Plan (CEnvPP).

The environmental protection measures are provided under the following five categories: 1) Management; 2) Project Activity; 3) Project Component; 4) Environment Component; and 5) Environmental Topic/Issue, as follows:

Management environmental protection measures include management, contractual, administrative and other measures that are common to all environmental protection categories and topics.

Project Activity environmental protection measures include construction activities that are likely to cause direct environmental effects. Project activities are action words or phrases, that that are carried out during construction of the Bipole III Transmission Project. Some project activities include related actions (e.g., drilling includes boring and pile driving) while others are unique (e.g., burning) and are often regulated or managed by one set of regulation or guidelines.

Project Component environmental protection measures relate to major components of the Project. The Project is very large and complex consisting of several major components including

transmission lines, converter stations and ground electrode facilities, and involves access trails, stream crossings, construction camps, marshalling yards, etc. Each project component has the potential to result in a variety of direct and indirect environmental effects which are managed by various means including regulations, guidelines, best practices and project-specific mitigation. Project component environmental protection measures address these situations, and also include protection measures from related project activities.

Environmental Component protection measures include important or vulnerable components of the environment that are subject to environmental effects of the Project. Some environmental components are particularly vulnerable to construction of transmission lines, converter stations, ground electrode facilities and other project components and activities, and warrant separate consideration. Example environmental components include agricultural areas, fish habitat, heritage sites and wetlands. Each environmental component is managed by a variety of different regulations, guidelines, best practices, etc. Environmental component environmental protection measures address these situations, and also include protection measures from related project components and activities.

Environmental Issue and Topic protection measures include important issues and topics identified for the Project. Environmental issues and topics include emergency response, erosion protection/sediment control, hazardous substances, petroleum products and soil contamination. These issues and topics can cause substantial public concern and result in potentially significant adverse environmental effects. Each environmental issue and topic is managed by a variety of particular regulations, guidelines, best practices, etc. Environmental issue and topic protection measures address these situations, and also include protection measures from related project and environmental components.

4. Specific Environmental Protection Measures

4.1 Overview

This section of the Project Environmental Protection Plan presents specific environmental protection measures for environmentally sensitive sites potentially affected by the Project. Environmentally sensitive sites are displayed in an interactive mapping application and specific environmental protection measures are provided for each sensitive site.

4.2 Environmentally Sensitive Sites

Environmentally sensitive sites are locations, features, areas, activities or facilities that were identified in the Bipole III Transmission Project EIS to be ecologically, socially, economically or culturally important or sensitive to disturbance and require protection and mitigation during construction and operation. The sites were identified by discipline specialists based on desktop studies and field research, baseline investigations, and consultation programs, and included Aboriginal Traditional and Local Knowledge. Sensitive sites include unique terrain features, erosion prone soils, waterbodies, wetland areas, valued and protected species and habitats, protected areas, heritage, cultural and spiritual sites, and other important locations requiring specific protection.

Through Aboriginal Traditional Knowledge workshops and self directed Aboriginal community reports many sensitive sites were identified.

Sensitive sites located adjacent to the transmission line corridors and in the immediate vicinity of other project components are included in the CEnvPPs These sites are to be accounted for, when planning bypass trails, borrow pits, marshalling yards, etc. These sensitive sites if they become affected by the project will be assessed on environmental effect and appropriate mitigation applied.

4.3 Specific Environmental Protection Measures

Specific environmental protection measures are provided for each environmentally sensitive site identified in the CEnvPP’s. The environmental protection measures include project-specific mitigation measures, regulatory requirements, best practice guidelines, environmental standards, Aboriginal Traditional Knowledge and other protection strategies. References are made to general environmental protection measures where applicable.

4.4 Summary

This section of the Project Environmental Protection Plan presented specific environmental protection measures for environmentally sensitive sites potentially affected by the Project.

5. Follow-up Actions

5.1 Overview

This section outlines inspecting, monitoring, managing and auditing requirements for the Project Environmental Protection Plan.

5.2 Inspecting

Inspection is the organized examination or evaluation involving observations, measurements and sometimes tests for a construction project or activity. The results of an inspection are typically compared to specified requirements, drawings and standards for determining whether the item or activity is in conformance with these requirements. Environmental inspection is an essential and key function in environmental protection and implementation of mitigation measures.

Manitoba Hydro has established a comprehensive integrated environmental inspection program to comply with regulatory approvals and meet corporate environmental objectives. The program includes hiring and training of Environmental Inspectors to be on-site during construction activities. Manitoba Hydro's approach to environmental inspection includes:

- Compliance with regulatory approvals;
- Adherence to environmental protection plans;
- On-site environmental inspectors;
- Training and education;
- Regular monitoring and inspection during construction;
- Interaction with contractors (e.g. pre-construction meeting, daily discussion);
- Regular review of inspection and monitoring information;
- Quick response to incidents or changing conditions;
- Weekly and monthly summary reports;
- Regular reporting to regulators; and
- Notification of regulators of emergency or contingency situations.

Trained environmental inspectors/Officers will visit active work sites daily to inspect for compliance with licence, permit or other approval terms and conditions, and adherence to

environmental protection plan general and specific measures. All inspection activities will be recorded in a daily journal and daily inspection forms will be completed. Daily, weekly and monthly inspection reports will be provided electronically to the Environmental Protection Information Management System for review and viewing by applicable project staff.

Project locations with environmental protection measures in place will be inspected routinely for continuing effectiveness. Particular attention will be paid to access roads and trails, rights-of-way, borrow pits and quarries, construction camps, marshalling areas, stream crossings, petroleum product and hazardous materials storage areas, rehabilitated sites and soil remediation locations.

All instances of non-compliance with legislated requirements or non-conformance with environmental protection measures will be recorded on daily inspection forms and reported to the Construction Supervisor or Resident Engineer/Manager, Contractor and Manitoba Hydro Licensing and Environmental Assessment Department. Instances of non-compliance and non-conformance will be responded to immediately. Non-compliance and non-conformance instances will be followed up in subsequent daily inspection reports and in weekly and monthly summary reports.

Incidents such as accidents, malfunctions, spills, fires, explosions, environmental damage, etc will be reported immediately to the Construction Supervisor or Resident Engineer/Manager, Contractor and Environmental Inspector\Officer, and an incident report form will be completed. Incidents will be dealt with immediately and followed up in subsequent daily inspection reports and in weekly and monthly summary reports.

5.3 Monitoring

Monitoring is the continuing observation, measurement or assessment of environmental conditions according to a pre-defined sampling, analysis and reporting procedures. There are two main types of monitoring in the environmental field. Compliance Monitoring is a broad term for 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, licence or authorization). Environmental Monitoring is 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.

Monitoring for the Project will be in accordance with pre-defined plans. These monitoring plans will verify changes to the environment predicted in the EIS, facilitate compliance with regulatory limits, criteria or objectives, and identify any unforeseen environmental effects. Monitoring will be carried out by a Contractor or Manitoba Hydro and it may be contracted to environmental consultants that possess the necessary expertise, equipment and analytical facilities. Environmental monitors hired from the local communities will also conduct field monitoring activities as outlined in the monitoring plans (access, wildlife, vegetation monitoring). The following is a list of monitoring plans to be prepared for the Project:

A Biophysical Environment Effects Monitoring Plan will be prepared to monitor effects of the Project on the environment. The scope of the monitoring plan includes physical and biological components of the environment. Objectives of the monitoring plan are to:

- Confirm the nature and magnitude of predicted environmental effects;
- Assess effectiveness of mitigation measures implemented;
- Identify unexpected environmental effects of the project, if they occur;
- Identify mitigation measures to address unanticipated environmental effects, where required;
- Confirm compliance with regulatory requirements including approval terms and conditions; and
- Provide baseline information to evaluate long-term changes or trends.

Monitoring will be carried out on selected environmental components using environmental indicators and measurable parameters identified in the EIS. Components to be monitored will be selected based on regulatory requirements, environmental importance, vulnerability and sensitivity, and licence requirements. The monitoring plan describes sampling procedures, quality control and assurance programs, laboratory methods and protocols, laboratory accreditations and reporting requirements. Results from monitoring will be used to adjust mitigation measures and to modify the plan on an ongoing basis. Aboriginal Traditional and Local Knowledge will be considered and incorporated into the monitoring plan where appropriate and applicable. The monitoring plan and subsequent monitoring reports will be

provided to the Contractor and Manitoba Conservation, and will be placed on the website established for the Project.

5.4 Management

Management involves the control or organization of activities and resources to resolve or respond to environmental problems, issues or concerns. Management plans provide reasoned courses of action to achieve pre-defined goals or objectives. Management strategies are identified, compared and analyzed, and preferred courses of action are implemented and evaluated.

5.4.1 Access Management Plan

Access Management Plans for the Keewatinoow Converter Station and Transmission components were prepared by Manitoba Hydro to control access to construction areas for the Project.

- The scope of the access management plans includes security of construction sites and facilities, safety of construction workers and the general public, respect for Aboriginal rights and resource users, and protection of natural, cultural and heritage resources.
- The plans provides for security of Manitoba Hydro properties and facilities, and safe access to or through construction areas for authorized employees, land and resource users, and research and monitoring personnel.
- Contact requirements are outlined for municipalities, land owners, resource users and other parties to be consulted prior to accessing lands.
- The management plans outline security requirements including terms and conditions for access, restrictions on firearms, hunting and fishing, and other resource use activities.
- Environmental protection measures are prescribed related to access including timing windows, vehicle cleaning and servicing, gate protocols, load restrictions, warning signage, speed limits, sensitive area avoidance, stream crossings and other environmental issues.

- The management plans will be reviewed after each construction season and/or annually and results from the reviews will be used to adjust plan provisions to ensure continued effectiveness.
- The plans will be provided to the Contractor as well as Manitoba Conservation and Water Stewardship, and will be placed on the website established for the Project.

5.4.2 Blasting Plans

Blasting Plans will be prepared by the Contractor to manage the storage and use of explosives at construction sites for the Project.

- The objective of the plans will be to provide for the effective management of explosives in accordance with environmental protection measures, provincial and federal legislation and guidelines, and corporate policies for explosives.
- Environmental Inspectors will conduct regular inspections of blasting activities and will submit reports to the Contractor and Construction Supervisor or Resident Engineer/Manager.
- Blasting Plans will be completed by the contractor and approved by the Construction Supervisor or Resident Engineer/Manager prior to commencement of construction activities for Project.

5.4.3 Emergency Preparedness and Response Plans

An Emergency Preparedness and Response Plan will be prepared by each Contractor to prepare for and respond to emergency situations at construction sites for the Project.

- The objective of the plan will be to provide for emergency preparation and response in accordance with provincial legislation and guidelines, and corporate policies and procedures for the protection of human health and the environment.
- The scope of the plan will include spills or releases of hazardous substances including petroleum products, accidents involving hazardous substances, medical emergencies, explosions and fire.

- Environmental protection measures will be prescribed for the provision of emergency response planning, responsibilities, training, exercises, procedures, containment, and clean-up equipment and materials.
- Environmental Inspectors or Environmental Officers will conduct regular inspections of construction activities including emergency preparedness and response measures. The plan will be reviewed after each construction season and annually and results from the reviews will be used to adjust plan provisions to ensure continued effectiveness.

The Emergency Preparedness and Response Plan will be completed and implemented by the contractor prior to the commencement of work.

5.4.4 Erosion Protection and Sediment Control Plans

An Erosion Protection and Sediment Control Framework has been developed to guide each contractor (where applicable) in preparing an Erosion Protection and Sediment Control Plan in accordance with Canadian professional erosion and sediment control standards to manage construction activities that cause soil erosion and result in sediment releases to the aquatic environment.

- The objective of the plan will be to minimize any adverse environmental effects of sediment releases on the aquatic environment in accordance with provincial and federal legislation and guidelines, and corporate environment policies and guidelines.
- Environmental protection measures will be prescribed for erosion protection and sediment control including winter construction, establishment of buffer zones, avoidance of sensitive areas and use of bioengineering techniques.
- Environmental Inspectors\Officers will conduct regular inspections of construction activities including erosion protection and sediment control measures.
- The plan will be reviewed after each construction season and annually and results from the reviews will be used to adjust plan provisions to ensure continued effectiveness.

- The Erosion Protection and Sediment Control Plan will be completed and implemented prior to the commencement of construction for each applicable component of the Project.

5.4.5 Rehabilitation and Vegetation Management Plan

A Rehabilitation and Vegetation Management Plan will be prepared by Manitoba Hydro to manage rehabilitation and vegetation management activities at construction sites for the Project.

- The objective of the plan will be to provide for the rehabilitation of completed construction sites and vegetation management of project sites during construction, in accordance with environmental protection measures, provincial guidelines, and corporate policies for rehabilitation.
- Environmental protection measures will be prescribed for washing equipment and vehicles prior to entering construction sites, controlling vegetation at construction sites and restoring and re-vegetating disturbed sites.
- Environmental Inspectors and Officers will conduct regular inspections of sites for the requirement for vegetation management and will submit reports to the Contractor and Construction Supervisor or Resident Engineer/Manager.
- The rehabilitation activities will be implemented on sites as they are no longer required for construction of the Project.
- The plan will be provided to the Contractors and Manitoba Conservation and Water Stewardship, and will be placed on the public website established for the Project.

5.4.6 Waste and Recycling Management Plans

A Waste and Recycling Management Framework has been developed by Manitoba Hydro to assist contractors (where applicable) to develop Waste and Recycling Management Plans to manage wastes at work and camp sites for the Project.

- The objective of the plans will be to provide for effective waste management in accordance with provincial legislation and guidelines, and corporate policies and procedures for the protection of human health and the environment.

- The scope of the plans will include waste reduction, recycling and reusing initiatives.
- Environmental protection measures will be prescribed for the storage of kitchen wastes, recycling and disposal of construction wastes and disposal of wastes at licenced facilities.
- Environmental Inspectors and Officers will conduct regular inspections of construction activities including waste management.
- The plan will be reviewed after each construction season and annually and results from the reviews will be used to adjust plan provisions to ensure continued effectiveness.
- The Waste and Recycling Management Plan will be completed by the contractor and implemented prior to the commencement of work for the Project.

5.5 Summary

This section outlined inspecting, monitoring and auditing requirements for the Project. Inspecting, monitoring and auditing results will be used in updating the environmental protection plan as outlined in the following section.

6. Plan Updating and Review

6.1 Overview

This section outlines how environmental protection plans will be reviewed, audited and updated for the Project.

6.2 Adaptive Management

The Environmental Protection Program is designed to be adaptive and responsive throughout the Project lifecycle. Program documents, processes, procedures and mitigation measures will be continuously evaluated by inspection, monitoring and communication programs. Audits and reviews will be conducted to facilitate updates to the program through an adaptive management process.

6.3 Construction Season Reviews

Construction Environmental Protection Plans for transmission line project components will be reviewed at the end of each construction season and will be updated based upon the results of the reviews. Construction season reviews will be conducted by Licensing and Environmental Assessment in consultation with Contractor and Manitoba Hydro personnel, regulators and stakeholders. Checklists will be used to ensure that reviews address all required information in a consistent manner. It is expected the construction work in northern Manitoba will be carried out during the winter months from November to March while construction work in southern Manitoba may be carried out year-round. The results of each construction season review will be summarized in a report that documents the issues addressed and provides recommended updates to the environmental protection plan.

6.4 Annual Reviews

Construction Environmental Protection Plans for main camp and converter station project components will be reviewed at the end of each fiscal year ending on March 31st and will be updated based upon the results of the reviews. Annual reviews will be conducted by Licensing and Environmental Assessment in consultation with Contractor and Manitoba Hydro personnel, regulators and stakeholders. Annual reviews will be conducted so that they coincide with construction season reviews to the extent possible. Checklists will be prepared to ensure that reviews address all required information in a consistent manner. The results of each annual

season review will be summarized in a report that documents the issues addressed and provides recommended updates to the environmental protection plan.

6.5 Incident Reviews

Construction Environmental Protection Plans will be subject to review in the event of any incident including environmental accidents, fires and explosions, reportable releases of hazardous substances and non-compliance situations.

6.6 Auditing

Auditing is a systematic approach to defining environmental risk and/or determining the conformance of an operation with respect to prescribed criteria. An environmental audit typically involves a methodical examination of evidence that may include interviews, site visits, sampling, testing, analysis, and verification of practices and procedures. Environmental protection plans for the Project will be audited annually. Environmental protection plan audits will be conducted by accredited environmental auditors. The audit results will help to evaluate the effectiveness of environmental protection measures, to learn from inspection and monitoring programs, and to improve project planning and environmental assessment performance.

6.7 List of Revisions

A list of revisions will be maintained at the beginning of each environmental protection plan that identifies the nature of the revision, section revised, responsibility and dates.

6.8 Summary

This section outlined how environmental protection plans will be reviewed and updated and audited for the Project. Both construction season and annual reviews will be conducted. Through an adaptive management process plans will be updated for construction, operation and decommission phases of the Project. A list of revisions will be maintained in each environmental protection plan.

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APPENDIX - A

-Glossary

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 processes, procedures and or mitigation measures over the construction and operation phases of a project to address unanticipated environmental effects.

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; 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.

Converter Station: The terminal equipment for a high voltage direct current transmission line, in which alternating current is converted to direct current or direct current is converted to alternating current.

Corridor: A band of land within which one or more alternative routes can be accommodated.

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.

dc: See **Direct Current.**

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.

Direct Current (dc): Electric current that flows in one direction only (i.e., Bipole III Transmission Line).

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.

EIS: See **Environmental Impact Statement.**

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 Impact Statement (EIS): A document that presents the findings of an environmental assessment in response to specific guidelines or terms or reference. The term EIS is often used in the context of an assessment by a review panel and in the environmental assessment regimes of other jurisdictions.

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; 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 mitigation measures and specific mitigating measures for the various construction 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 identified on EnvPP Map Sheets to be ecologically, socially, economically or culturally important or sensitive to disturbance and require protection during construction and operation of the project.

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.**

Evaluation: The determination of the significance of effects. This involves making judgements as to the value of what is being affected and the risk that the effect will occur and be unacceptable.

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 contact 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).

Ground Electrode: Buried ring of iron located in close proximity to a converter station which provides for the return of direct current (ground) in the event of a malfunction on the transmission line.

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 Impact Statement, 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.

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 Description: Any information in relation to a project that includes, at least: (a) a summary description of the project; (b) information indicating the location of the project and the areas potentially affected by the project; (c) to the extent possible, a summary description of the physical and biological environments within the areas potentially affected by the project; and (d) the mailing address, e-mail address and phone number of a contact person who can provide

additional information about the project (*Canadian Environmental Assessment Act,* Federal Coordination Regulations).

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 source or disturbance and a resource or ecosystem that needs protection.

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

Shoreline: See **Shore.**

Significance: A conclusion about whether adverse environmental effects are likely to be significant, taking into account the implementation of appropriate mitigation measures. Significance is determined by a combination of scientific data, regulated thresholds, standards, social values and professional judgment.

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.

Start-up Camp: The initial housing and support of workers prior to development of a main construction camp.

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.

Sustainable Development (SD) (Canada): Development that meets the needs of the present, without compromising the ability of future generations to meet their own needs.

Sustainable Development (SD) (Manitoba): Meeting the needs of the present without compromising the ability of future generations to meet their own needs.

TEK: See Traditional Ecological Knowledge.

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.

Traditional Ecological Knowledge (TEK): A body of knowledge built up by a group of people through generations of living in close contact with nature. Also see Aboriginal Traditional Knowledge.

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.

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

-Environmental Protection Legislation

-Provincial and Federal

Environmental Protection Legislation - Provincial and Federal

Introduction

Appendix B identifies provincial and federal environmental legislation applicable to the Bipole III 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 Bipole III Transmission Project is reviewed in the Environmental Impact Statement

Following are lists of the major provincial and federal regulatory requirements identified in the Environmental Impact Statement that have been reviewed and incorporated where applicable into the Environmental Protection Program.

Provincial Legislation

Provincial legislation relevant to the Bipole III 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

1. Federal Legislation

Federal legislation relevant to the Bipole III 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
    - Law List 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

-Environmental Protection Guidance

-Provincial and Federal

Environmental Protection Guidance - Provincial and Federal

Introduction

Appendix C identifies provincial, federal/national, international guidelines and other best practice documents applicable to the Bipole III 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 Bipole III Transmission Project are reviewed in the Environmental Impact Statement for the Project.

Following are descriptions and lists of provincial, national/federal and international guidelines and best practices identified in the Environmental Impact Statement that have been reviewed and incorporated where applicable into the Environmental Protection Program.

Provincial

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.
- Contaminated Sites in Manitoba Submission of Remedial Action Plans Information Bulletin 96-02E (January 2004).
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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).

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).

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.

Federal/National

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).

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).

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).

Fisheries and Oceans Canada

Fisheries and Oceans Canada (formerly 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 Fisheries and Oceans Canada 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).

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).

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).
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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

-Environmental Protection Guidance

-Manitoba Hydro

Environmental Protection Guidance - Manitoba Hydro

Introduction

Appendix D identifies Manitoba Hydro guidelines, best practices and policies applicable to the Bipole III 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 Bipole III Transmission Project are reviewed in the Environmental Impact Statement for the Project

Following are descriptions and lists of Manitoba Hydro environmental protection guidelines, policies, and best practices identified in the Environmental Impact Statement that have been reviewed and incorporated where applicable into the Environmental Protection Program.

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 on 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 2007) 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*.

Environmental Policies

Manitoba Hydro's Corporate Vision (Manitoba Hydro 2012) 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:

- Improve safety in the workplace.
- Provide exceptional customer value.
- Strengthen working relationships with Aboriginal peoples.
- Maintain fiscal strength.
- Extend and protect access to North American energy markets and profitable export sales.
- Attract, develop and retain a highly skilled and motivated workforce that reflects the demographics of Manitoba.
- Protect the environment in everything we do.
- Promote cost effective energy, conservation and innovation.
- Be recognized as an outstanding corporate citizen and a supporter of economic development in Manitoba

Manitoba Hydro's Environmental Management Policy (Manitoba Hydro 2013) states that:

"Manitoba Hydro is committed to protecting the environmentby:

- 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".

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 (2012/13).

APPENDIX - E

-Timing Windows

Timing Windows

General

Construction activities that may cause excessive soil disturbance in northern Manitoba will be carried out during winter months (November 1st to March 31st) with the exception of the Construction Power Station, Converter and Camp project components.

Construction in southern Manitoba will be carried out during winter months (November to March) under frozen and snow-covered conditions where required, and under conditions during other times of the year that minimize excessive soil disturbance.

Wildlife Reduced Risk Work Windows

Table E-1 outlines 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 E-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. These timing windows have been appended to environmental sensitive sites in the Construction EnvPP.

Table E.1 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)

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.

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; and
- 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. Table E-2 below contains general recommended timing windows to avoid during construction.

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

Table E - 2 Timing windows for no in water work to occur

No in-water work to occur to protect spawning fish and 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).

Permafrost

Project activities will be scheduled between November 1st and April 30th under frozen ground conditions to minimize surface disturbance and permafrost degradation except at Construction Power Station, Converter Station and Camp project components where some permafrost melting may be required.

APPENDIX - F

-Buffers and Setbacks

Buffers and Setbacks

Setbacks and Buffers for Wildlife and Anthropogenic Features

Recommended setbacks and buffer distances from sensitive environmental features are provided in Table F-1. These have been applied to Environmental Sites in the appropriate EnvPP.

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. Riparian Management

Recommended Setbacks, Riparian Buffers and Machine Free zones distances from sensitive water features are provided in Tables F-1 and F-2. These have been applied to Environmental Sites in the appropriate EnvPP.

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. Setbacks are measured from OHWM or from a defined riparian boundary.

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

Table F - 1 Setbacks and Buffers

Feature	Activity	Non Frozen Ground Setback Distance (No work allowed)	Frozen Ground Setback Distance (No work allowed)	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						

Table F - 1 Setbacks and Buffers

Feature	**Activity**	**Non Frozen Ground Setback Distance (No work allowed)**	**Frozen Ground Setback Distance (No work allowed)**	**Vegetated Buffer Distance (Shrub and Herbaceous Vegetation Retained)**	**Effective Period**	**Rationale**
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
	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 - Breeding and Nesting Sites						
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.

Table F - 1 Setbacks and Buffers

Feature	Activity	Non Frozen Ground Setback Distance (No work allowed)	Frozen Ground Setback Distance (No work allowed)	Vegetated Buffer Distance (Shrub and Herbaceous Vegetation Retained)	Effective Period	Rationale
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.
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.
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	Clearing And Construction	30m		30m		Protect from disturbance
	Maintenance	30m		30m		Protect from disturbance
	Access Trail	30m		30m		Protect from disturbance
	Hazardous Material Handling/Storage	100m	100m			Protect from disturbance
	Soil Stockpiles	30m		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	100m			Protect from disturbance

Table F - 1 Setbacks and Buffers

Feature	Activity	Non Frozen Ground Setback Distance (No work allowed)	Frozen Ground Setback Distance (No work allowed)	Vegetated Buffer Distance (Shrub and Herbaceous Vegetation Retained)	Effective Period	Rationale
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 F - 2 Riparian Setbacks, Buffers and Zones

Feature	Activity	Setback (No work allowed)	Riparian Buffer	Machine Free Zone (No machines allowed except at trail crossing)	Rationale
Wetland/Lake/River/Creek/Stream					
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 Inside ROW	Tower Foundation Siting	15-30m			Protect from sedimentation and erosion
	Clearing and Construction		30m	7m	Protect from sedimentation and erosion
	Maintenance		30m	7m	Protect from sedimentation and erosion
All zones and buffers are measured from Ordinary High Water Mark or defined riparian area by Aquatic specialist					