

# TABLE OF CONTENTS

|             |   |             |
|-------------|---|-------------|
| <b>11.0</b> | <b>ENVIRONMENTAL PROTECTION, FOLLOW-UP AND MONITORING .....</b> | <b>11-1</b> |
| 11.1        | INTRODUCTION .....  | 11-1        |
| 11.2        | ENVIRONMENTAL PROTECTION PROGRAM.....                           | 11-2        |
| 11.2.1      | Overview .....  | 11-2        |
| 11.2.2      | Organization.....   | 11-3        |
| 11.2.3      | Roles and Responsibilities .....                                | 11-4        |
| 11.2.4      | Resources .....   | 11-6        |
| 11.2.5      | Environmental Management .....                                  | 11-6        |
| 11.2.6      | Environmental Protection Documents .....                        | 11-6        |
| 11.2.7      | Pre-construction Activities .....                               | 11-8        |
| 11.2.8      | Construction Activities .....                                   | 11-9        |
| 11.2.9      | Work Stoppage .....   | 11-10       |
| 11.2.10     | Emergency and Contingency Response .....                        | 11-10       |
| 11.2.11     | Tools and Resources .....                                       | 11-11       |
| 11.2.12     | Communications .....  | 11-11       |
| 11.3        | ENVIRONMENTAL PROTECTION PLAN.....                              | 11-12       |
| 11.3.1      | Overview.....   | 11-12       |
| 11.3.2      | General Environmental Protection Measures .....                 | 11-13       |
| 11.3.3      | Specific Environmental Protection Measures.....                 | 11-13       |
| 11.3.4      | Follow-up Activities .....                                      | 11-14       |
| 11.3.4.1    | Inspection .....  | 11-14       |
| 11.3.4.2    | Monitoring .....  | 11-15       |
| 11.3.4.3    | Biophysical Monitoring .....                                    | 11-15       |
| 11.3.4.4    | Socio-Economic Monitoring .....                                 | 11-16       |
| 11.3.4.5    | Heritage Resources Monitoring .....                             | 11-16       |
| 11.3.4.6    | Management .....  | 11-16       |
| 11.3.4.7    | Auditing .....  | 11-17       |
| 11.3.5      | Review and Updating.....  | 11-17       |
| 11.4        | SUMMARY.....  | 11-18       |
| 11.5        | REFERENCES .....  | 11-18       |

# LIST OF FIGURES

|  | Page |
|--|------|
| Figure 11.2-1: Environmental Protection Organizational Structure .....           | 11-4 |
| Figure 11.2-2: Typical Organizational Lines of Reporting and Communication ..... | 11-5 |
| Figure 11.2-3: Typical Environmental Protection Documents .....                  | 11-7 |

# 11.0 ENVIRONMENTAL PROTECTION, FOLLOW-UP AND MONITORING

## 11.1 INTRODUCTION

Mitigation measures, monitoring and other follow-up actions identified in Chapter 8 Environmental Effects Assessment of the Project EIS, will be implemented through an Environmental Protection Program. Manitoba Hydro's Environmental Protection Program provides the framework for implementing, managing, monitoring and evaluating environmental protection measures consistent with regulatory requirements, corporate commitments, best practices and public expectations. Environmental protection, management and monitoring plans will be prepared and implemented under the environmental protection framework to address environmental protection requirements in a responsible manner. Socio-economic elements will be encompassed within environmental protection programs.

The purpose of this Environmental Protection, Follow-up and Monitoring chapter is to outline how Manitoba Hydro will implement, manage and report on environmental protection measures, monitoring and other follow-up actions as well as regulatory and policy requirements and other commitments identified in the Project EIS. The Draft Environmental Protection Plan (Draft EnvPP) for the Project (Attachment 11-1) is provided as a separate document in support of the EIS submission.

The environmental protection program was developed in accordance with Manitoba Hydro's vision, goals and environmental policies.

The Corporate Vision 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 (Manitoba Hydro 2010).

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's Corporate Environmental Management Policy (Manitoba Hydro 2008) states that:

Manitoba Hydro is committed to protecting the environment. In full recognition of the fact that corporate facilities and activities affect the environment, Manitoba Hydro integrates environmentally responsible practices into its businesses, thereby:

- Preventing or minimizing any adverse impacts, including pollution, on the environment, and enhancing positive impacts;
- Continually improving our Environmental Management System;
- Meeting or surpassing regulatory requirements and other commitments;
- Considering the interests and utilizing the knowledge of our customers, employees, communities, and stakeholders who may be affected by our actions;
- Reviewing our environment objectives and targets annually to ensure improvement in our environmental performance; and
- Documenting and reporting our activities and environmental performance.

## **11.2 ENVIRONMENTAL PROTECTION PROGRAM**

### **11.2.1 Overview**

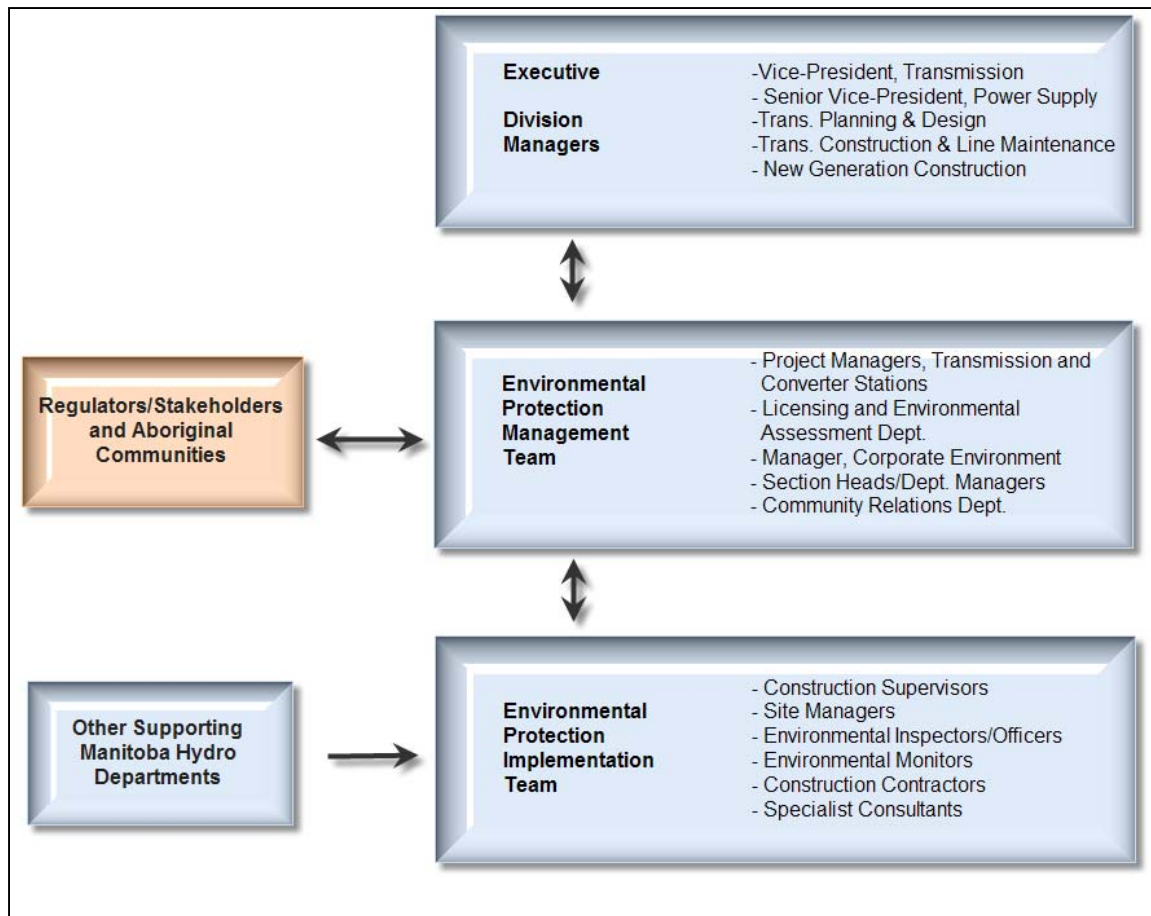
Manitoba Hydro's Environmental Protection Program provides the framework for the delivery, management and monitoring of environmental and socio-economic protection measures that satisfy corporate policies and commitments, regulatory requirements, environmental protection guidelines and best practices, and input from stakeholders and the Aboriginal community. 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. 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.

## 11.2.2 Organization

The organizational structure of the Environmental Protection Program includes senior Manitoba Hydro management, and 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 11.2-1. Manitoba Hydro senior management is responsible for the overall Environmental Protection Program including resourcing, management and performance, and is accountable for regulatory compliance, policy adherence and stakeholder satisfaction.

The Environmental Protection Management Team is composed of senior Manitoba Hydro staff and is responsible for the management of environmental protection plans including compliance with regulatory and other requirements, quality assurance and control, and consultation with regulators, stakeholders and Aboriginal communities. The management team is supported by environmental consultants and advisors.

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.



**Figure 11.2-1: Environmental Protection Organizational Structure**

### 11.2.3 Roles and Responsibilities

Roles and responsibilities for delivery of the Project and implementation of environmental protection measures are illustrated in general terms in Figure 11.2-2.

The Construction Supervisor/Site Manager has overall responsibility for the implementation of the environmental protection plans and reports to a Section Head or Department Manager.

The Licensing and Environmental Assessment Department oversees the development of environmental protection documents and associated inspection and monitoring programs.

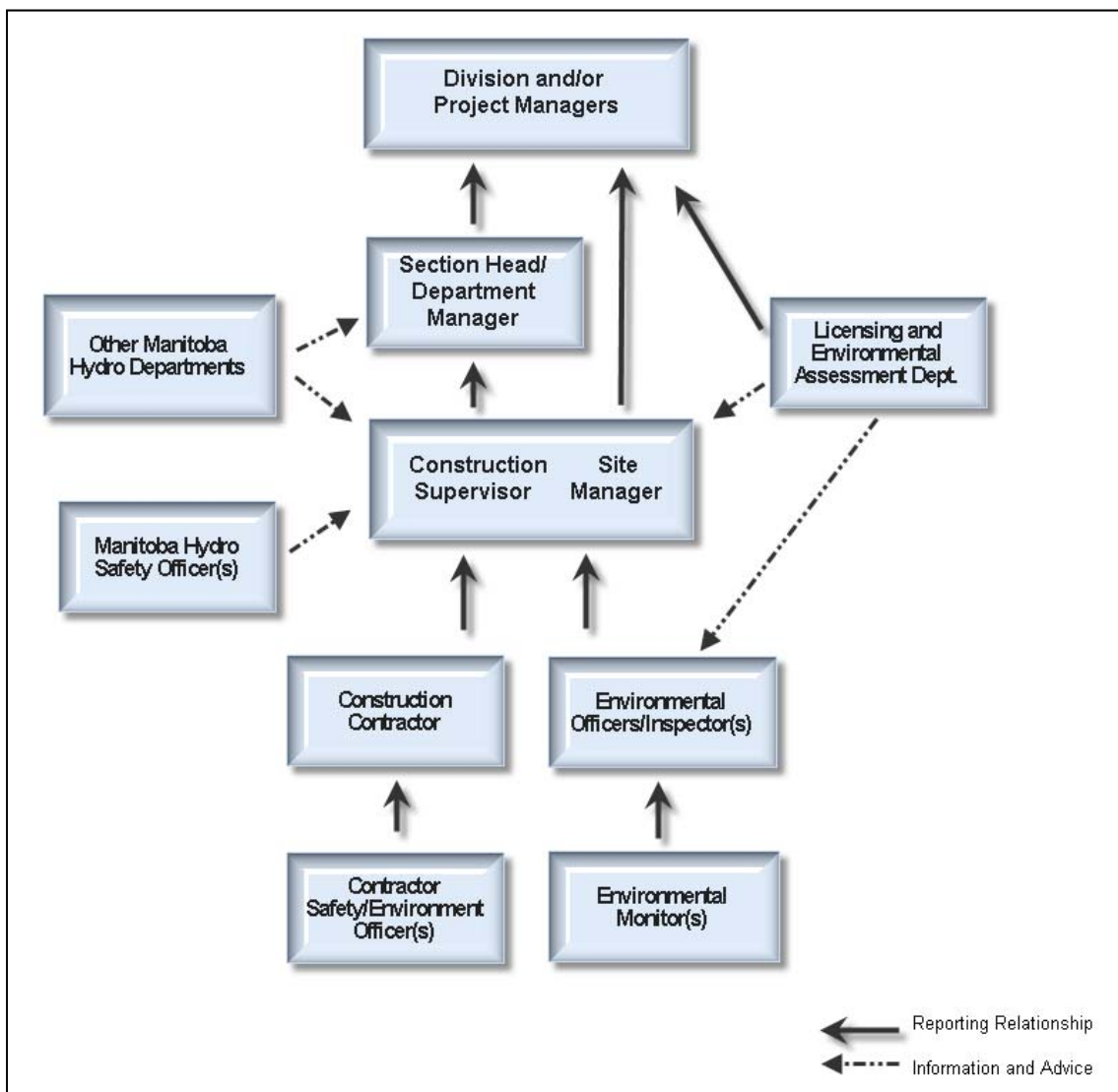
The Construction Contractor is responsible for ensuring work adheres to the environmental protection plans and reports to the Construction Supervisor/Site manager.

Environmental Officers/Inspectors have the primary responsibility to confirm that environmental protection measures and specifications are implemented as per the environmental protection plans as well as provide information and advice to Construction Supervisor/Site Manager.

Environmental Monitors assist Environmental Officers/Inspectors and perform biophysical monitoring.

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.

Other Manitoba Hydro employees, including engineers and technicians, provide information and advice to the Construction Supervisor/Site Manager.



**Figure 11.2-2: Typical Organizational Lines of Reporting and Communication**

## **11.2.4 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.

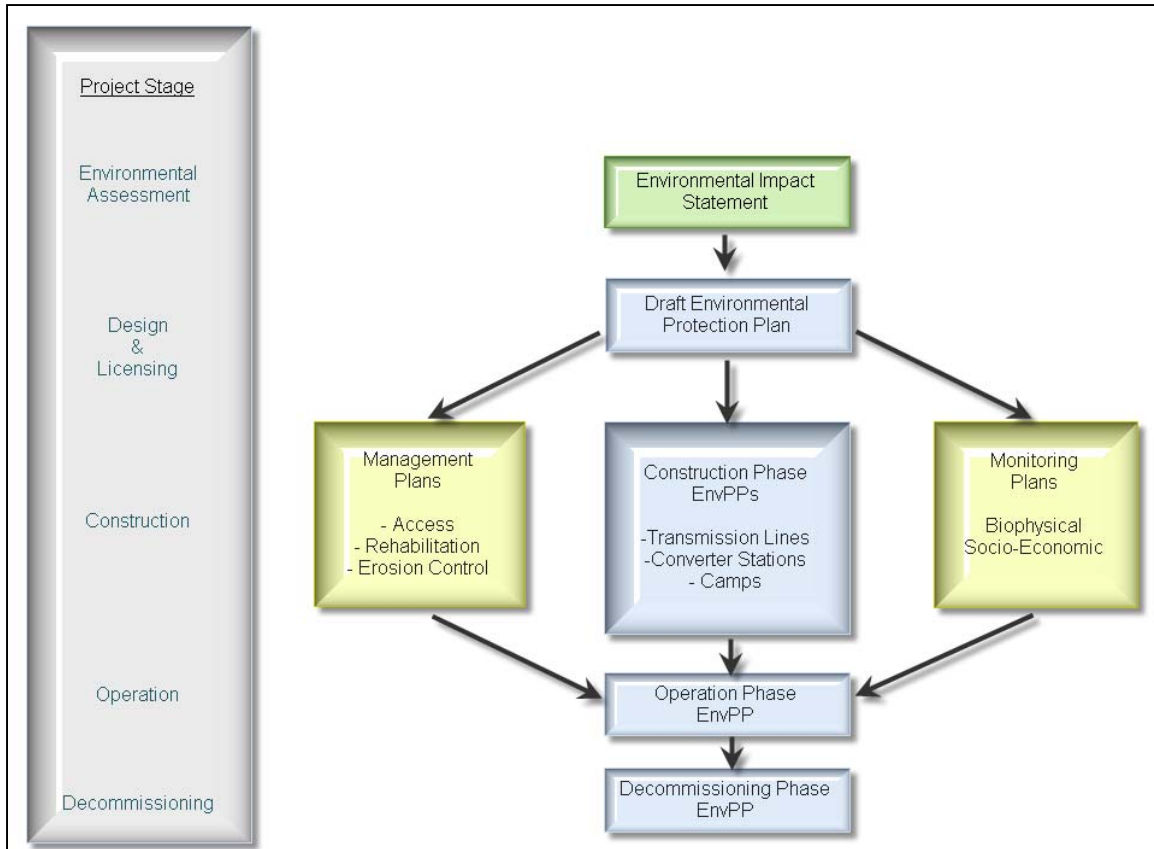
## **11.2.5 Environmental Management**

Manitoba Hydro is certified under the ISO 14001 Environmental Management System standard and is the subject to requirements of the standard, including annual audits to verify its environmental performance. 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.

## **11.2.6 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 11.2-3).





**Figure 11.2-3: Typical Environmental Protection Documents**

The Draft Environmental Protection Plan covers the period from submission of the Environment Act Proposal to receipt of an Environment Act License and other approvals for the Project. At that time the Draft Environmental Protection Plan will be updated in “Final” form to include licence terms and conditions, and other regulatory requirements. This Final Environmental Protection Plan is intended to provide the framework under which detailed Construction and Operational Phase Environmental Protection Plans, along with various Management and Monitoring Plans that include socio-economic considerations, will be developed.

Prior to the commencement of construction activities, Construction Phase Environmental Protection Plans will be prepared. It is anticipated that several environmental protection plans will be prepared, each addressing separate project components or construction contracts. The Construction Phase Environmental Protection Plans will provide the high level of detail required to implement general and specific environmental protection measures and will cover the construction period from beginning to end.

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

Management plans are prepared in response to specific environmental issues identified during the environmental assessment of the Project. Typical environmental issues include road access, erosion control and resource use. Management plans are structured documents that provide reasoned and approved courses of action to address environmental issues. 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 invasive vegetation, water quality, population size, breeding bird nest site abundance and resource use.

## **11.2.7 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 meet with Aboriginal communities in the development of Construction Phase Environmental Protection Plans to ensure concerns with culturally and environmentally sensitive sites identified in the aboriginal traditional knowledge workshops and reports are addressed and mitigated to the extent possible.

Manitoba Hydro will obtain all licenses, permits, authorizations and other approvals including property agreements, rights-of-way easements and releases prior to commencement of construction of each individual project component or segment. Any additional terms and conditions of these approvals will be incorporated into the Construction Phase Environmental Protection Plan. Any additional approval requirements 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.

The Licensing and Environmental Assessment Department will typically participate in the tender/direct negotiated contract development process to ensure environmental requirements will be included as contract specifications. All bidders are required to list and defend their environmental record and must have an environmental policy including a commitment to environmental protection.

Meetings will be held with the successful contractors to review the environmental protection requirements, establish roles and responsibilities, management, monitoring and other plans, inspection and reporting requirements, and other submittals. Prior to the start of construction, contractor employees will be trained and/or oriented on environmental protection requirements. Manitoba Hydro and contract employees, project managers, consultants and others working on the proposed Project will be required to attend orientation sessions.

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

### **11.2.8 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, inspection and compliance, work stoppage and emergency response.

The Project Manager, Construction Supervisor/Site Manager, Environmental Officer/Inspector, and Licensing and Environmental Assessment staff will meet with regulatory authority contacts 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 inspection, monitoring and other reports. Regulators will be notified immediately in case of emergencies 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 with the appropriate regulatory authorities.

Manitoba Hydro will establish a comprehensive integrated environmental inspection program to comply with regulatory requirements, implement environmental protection measures and meet corporate environmental objectives.

### **11.2.9 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 or exposed human remains. Individuals discovering such situations are to inform their supervisor who will report the matter to the Construction Supervisor/Site 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 is been assessed and responded to and the Construction Supervisor/Site Manager approves the resumption of work. All stop work orders will be documented, reported to regulatory authorities (if applicable) and reviewed at construction meetings.

### **11.2.10 Emergency and Contingency 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 and municipal authorities, and Manitoba Hydro personnel are to be notified in accordance with regulations and emergency and contingency response plans. These plans provide names of emergency responders, up-to-date contact information and notification procedures. Contractors are also required to have emergency response plans outlining contacts and response measures to exigent situations including hazardous materials spills, heritage resource discoveries, environmental accidents and fires or explosions. Manitoba Hydro has emergency response coordinators to deal with spills of hazardous and other substances.

## 11.2.11 Tools and Resources

An Environmental Protection Information Management System (EPIMS) will be developed as a central repository of environmental protection information including but not limited to:

- Environmental protection documents;
- Reference information such as regulations, guidelines;
- Daily, weekly and monthly inspection reports;
- Environmental incident reports; and
- Monitoring program field data and reports.

The environmental inspection program will employ modern electronic recording, reporting and communication systems using field computers, geographic positioning systems and digital cameras. Electronic forms will be transferable to supervisors and project managers thereby enabling rapid communication and response to emerging situations. 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.

The EPIMS will monitor and report on environmental protection implementation, regulatory compliance and incident reporting. EPIMS will be the mechanism to provide reporting and tracking of environmental protection performance, and the foundation of an auditable environmental protection program.

## 11.2.12 Communications

Manitoba Hydro personnel will maintain on-going communications with Manitoba Conservation, other provincial and federal departments, and Aboriginal communities as necessary regarding implementation of Bipole III Transmission Project environmental protection plans. The Construction Supervisor/Site Manager and Environmental Officers/Inspectors will maintain on-going 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 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 provide Aboriginal communities and the public with on-going opportunities to review and comment on the Project as it is being developed. A dedicated Project website fed with information from the EPIMS will be developed to facilitate communication with the public. All enquiries or complaints received will be recorded and reviewed by the Environmental Protection Management Team for response or action.

## **11.3 ENVIRONMENTAL PROTECTION PLAN**

### **11.3.1 Overview**

The Environmental Protection Plan is the main implementation instrument under the Environmental Protection Program. The draft EnvPP has been submitted to Manitoba Conservation with this Project EIS and is part of the project submission. It is provided as a draft to allow for review and input from the regulatory process before finalization which will occur subsequent to licensing and prior to construction.

Environmental protection plans document environmental protection measures to provide for compliance with regulatory and other requirements, and to achieve environmental protection goals consistent with corporate environmental policies. Manitoba Hydro's environmental protection plans are designed as user-friendly reference documents that provide project managers, construction supervisors/site managers and contractors with detailed lists of environmental protection measures and other requirements to be implemented in the design, construction and operation phases of a project. Environmental protection measures are organized by construction component and activity, and environmental component and issue to assist project personnel in implementing measures for specific work sites and activities.

The Draft Environmental Protection Plan is a key element in implementing effective environmental protection and minimizing the potential adverse environmental effects identified in the EIS. It also outlines actions to identify unforeseen environmental effects and to implement adaptive management strategies to address them. An important component of an environmental protection plan is monitoring and updating which serves to ensure that environmental protection measures remain current and to provide for continual improvement of environmental performance.

### **11.3.2 General Environmental Protection Measures**

General environmental protection measures for the Project include mitigation measures and follow-up actions identified in the EIS including design mitigation, provincial and federal regulatory requirements, best practice guidelines, Manitoba Hydro environmental policies and commitments, and input from stakeholders, Aboriginal communities and the general public. The general environmental protection measures are listed for all major components and activities associated with the Project. Project components include transmission lines, access roads, construction camps, marshalling yards, converter stations and ground electrode facilities. Project activities include blasting, burning, clearing, draining, drilling, etc. General management measures are also provided that relate to all environmental protection categories.

### **11.3.3 Specific Environmental Protection Measures**

Specific environmental protection measures are provided for environmentally sensitive sites (ESS) identified in the Project EIS. Environmentally sensitive sites are locations, features, areas, activities or facilities along or immediately adjacent to the five kilometre transmission line corridor and other project components that were determined to be ecologically, socially, economically or culturally important and sensitive to disturbance by the Project and, as a result, require site-specific mitigation measures. The sites include sensitive or unique terrain features, waterbodies and wetlands, important mammal, bird, amphibian and reptile habitats, protected species and areas, and heritage resources.

The EnvPP Interactive Mapping Application was developed as a mapping application containing environmentally sensitive sites mapped as points, lines or polygons within the project Local Study Area and is included as Appendix A to the Draft Environmental Protection Plan. Environmental effects and mitigation measures are provided for each environmentally sensitive site based on information contained in Chapter 8. Specific environmental protection measures include mitigation measures, regulatory requirements, best practice guidelines, environmental standards and other protection strategies. Linkages are also provided to legislation, guidance documents, drawings, diagrams, maps, photos, videos and other materials relevant to the sites. The Interactive Mapping Application is intended to provide an overview of ESS that Manitoba Hydro intends to integrate into its Construction, Operation and Decommissioning Phase Environmental Protection Plans.

Through Aboriginal Traditional Knowledge workshops and self-directed Aboriginal community reports, many culturally and environmentally sensitive sites were identified. Due to the highly sensitive nature of this information, Manitoba Hydro has not included

it in the Interactive Mapping Application. Manitoba Hydro will be working with Aboriginal communities prior to the start of construction to further identify and map these sites and develop mitigation measures to minimize the effects of the project on them.

For the Construction and Operation Phase Environmental Protection Plans, orthophoto map sheets will provide Manitoba Hydro project managers, construction supervisors and employees, and contractors and contract employees with detailed site-specific environmental protection information that can be implemented, managed, evaluated and reported on in the field. The orthophoto map sheets will be provided in paper and electronic formats which will be used by Manitoba Hydro, contractor and regulatory staff on laptop computers in field offices, vehicles and aircraft.

### **11.3.4 Follow-up Activities**

Follow-up is an activity carried out to verify the accuracy of the environmental assessment of a project, assess the effectiveness of measures taken to mitigate adverse effects and determine compliance with regulatory requirements. Follow-up identified in Chapter 8 Environmental Effects Assessment will be implemented through inspection, monitoring, management and auditing actions.

#### **11.3.4.1 Inspection**

Inspection is the organized and routine examination or evaluation, including observations, measurements and sometimes tests, of a construction project or activity. Inspection results are compared to pre-defined requirements or standards to determine whether an activity conforms to these requirements. Inspection provides an essential function in environmental protection and implementation of mitigation measures. Much of the success in environmental protection will be attributable to how well environmental inspection is carried out during the construction phase of a project.

Manitoba Hydro is establishing a comprehensive and integrated environmental inspection program to ensure effective implementation of environmental protection measures, compliance with regulatory approvals and fulfilment of corporate environmental objectives. The inspection program includes hiring and training of Environmental Inspectors to be on-site during all construction activities. Trained inspectors visit work sites daily and inspect for compliance with license terms and conditions, and adherence to environmental protection measures. Inspection activities are recorded in journals and daily inspection forms that are submitted to the



Construction Supervisor. Weekly and monthly summary reports are also submitted to the Manitoba Hydro Project Manager and senior management as required or requested.

#### **11.3.4.2 Monitoring**

Monitoring is the continuing observation, measurement or assessment of environmental conditions at and surrounding a construction project or activity. Two main types of monitoring are typically undertaken for environmental assessments: 1) environmental monitoring to verify the accuracy of the predictions made and the effectiveness of the mitigation measures implemented; and 2) compliance monitoring to verify whether a practice or procedure meets legislated requirements. Monitoring determines if environmental effects occur as predicted, residual effects remain within acceptable limits, regulatory limits, criteria or objectives are not exceeded and mitigation measures are as effective as predicted. Monitoring also allows for adaptive management where monitoring results show there is a need for additional environmental protection or enhancement.

Monitoring plans will describe parameters to be monitored, methods to be used, roles and responsibilities, and reporting schedules. Monitoring will be carried out by Manitoba Hydro and may be contracted to environmental consultants who possess the necessary expertise, equipment and analytical facilities. Monitoring plans and reports from monitoring programs will be submitted to regulatory authorities, Aboriginal communities and placed on the project website for the Project.

Environmental monitoring plans for the Project will be prepared to address follow-up actions identified in the EIS as well as specific environmental protection, best practice and regulatory requirements, including:

- Biophysical environmental effects monitoring plan;
- Socio-economic monitoring plan; and
- Heritage resources monitoring plan.

#### **11.3.4.3 Biophysical Monitoring**

Potential biophysical environmental effects have been identified through the environmental assessment of the Project. To illustrate how Manitoba Hydro intends to monitor the mitigation prescribed to minimize the potential effects of the Project, a Biophysical Environmental Effects Monitoring Framework (Appendix H of Draft Environmental Protection Plan) has been developed. The framework outlines the environmental effects that need to be addressed and monitored, how the Biophysical

Environmental Effects Monitoring Plan will be developed, and the process in which the results of the monitoring plan will be shared with regulators, stakeholders, Aboriginal communities and the public.

#### **11.3.4.4 Socio-Economic Monitoring**

Monitoring key components of the socio-economic environment will be undertaken during the construction and operation and maintenance phases of the proposed Project. Manitoba Hydro has experience undertaking such activities and has gained valuable insight through recent developments (e.g., Wuskwatim Generating Station and Transmission Projects). Similar to other projects undertaken by Manitoba Hydro, socio-economic monitoring plans will be developed and submitted to the regulator in advance of all project phases. All results from the socio-economic monitoring program will be reported to regulatory authorities annually. Two streams of socio-economic monitoring will be undertaken for the project – economic monitoring and social monitoring.

The purposes of the socio-economic monitoring program for the Project will be to:

- Confirm effects predictions documented in the Environmental Impact Statement;
- Monitor the effectiveness of mitigation measures;
- Identify unanticipated effects;
- Identify other actions necessary to mitigate adverse effects or enhance positive effects; and
- Provide socio-economic information for other uses.

#### **11.3.4.5 Heritage Resources Monitoring**

A Heritage Resources Monitoring Plan will be developed for monitoring of the discovery of heritage sites during construction along with the ongoing monitoring of known heritage sites for disturbance. All results from the heritage resources monitoring program will be reported to the regulatory authorities and Aboriginal Communities as required and annually.

#### **11.3.4.6 Management**

Management is the control of pre-defined environmental effects, issues and concerns through the implementation of reasoned and approved courses of action. Management plans will be prepared to address important management issues, regulatory requirements and corporate commitments identified in the Project EIS. The management plans will

describe the management actions, roles and responsibilities, evaluation mechanisms, updating requirements and reporting schedules. The following management plans will be prepared prior to the construction of the Project:

- Access management plan;
- Hazardous substances management plan;
- Erosion protection and sediment control plan;
- Emergency preparedness and response plan;
- Solid waste/recycling management plan;
- Rehabilitation management;
- Vegetation management plan; and
- Decommissioning plans (Construction Sites).

The above plans will be prepared by Manitoba Hydro or the Contractor and may be contracted to environmental consultants that possess the necessary expertise and experience.

#### **11.3.4.7 Auditing**

Auditing involves 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 subject to audits. Environmental protection plan audits will be conducted by accredited environmental auditors. The results of the audits will help to evaluate the effectiveness of environmental protection measures, learn from inspection and monitoring programs, and improve project planning, environmental assessment performance and sustainability appraisal.

#### **11.3.5 Review and Updating**

Construction Phase Environmental Protection Plans will be reviewed annually or at the end of each construction season. Reviews will be conducted by Manitoba Hydro personnel in consultation with the Contractor, regulators and stakeholders. Checklists will be used to ensure that reviews address all required information in a consistent manner. The results of each review will be summarized in a report that documents the

issues addressed and provides recommended updates to the environmental protection plan.

## **11.4 SUMMARY**

This section outlined the Environmental Management Program under which environmental protection commitments, mitigation measures and follow-up actions identified in the Project EIS will be implemented, managed, reported and evaluated. The purpose, organization, responsibilities, management, communication and other aspects of the Environmental Management Program are described. Environmental protection plans are described as they relate to the construction, operation and decommissioning stages in the project planning cycle and environmental assessment and licensing process. Implementation of follow-up actions including inspection, management and auditing are discussed. Specific environmental management and monitoring plans are also identified.

## **11.5 REFERENCES**

Manitoba Hydro. 2008. Environmental Management Policy. Corporate Affairs, Manitoba Hydro.

Manitoba Hydro. 2010. The Corporate Strategic Plan 2010-2011. Corporate Affairs, Manitoba Hydro.