Mary River Project

Type A Water Licence

Attachment 5: Management Plans

Emergency Response & Spill Contingency Plan

Oil Pollution Emergency Plan – Milne Inlet Fuel Storage Facility

Oil Pollution Emergency Plan – Steensby Port Fuel Storage Facility

Surface Water and Aquatic Ecosystems Management Plan

Freshwater Supply, Sewage and Wastewater Management Plan

Waste Management Plan for Construction, Operation & Closure

Waste Rock Management Plan

Hazardous Material and Hazardous Waste Management Plan

Environmental Monitoring Plan

Health and Safety Management Plan

Environmental Protection Plan

MMER Environmental Effects Monitoring Study Design Framework

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Baffinland Iron Mines Corporation

Mary River Project
Type A Water Licence Application
Attachment 5: Management Plans

1. Introduction

1.1 Description and Overview

The Mary River Project is located on north Baffin Island, in the Nunavut Territory, in the Canadian Arctic. One aspect of the Project that is required is obtaining a Nunavut Water Board (NWB) Type A Water Licence to operate. In order to do this, a Water Licence application needs to be completed and submitted to the Board so that they can exercise their powers under the *Nunavut Waters Nunavut Surface Rights Tribunal Act* (NWNSRTA or Act) and the *Northwest Territories Water Regulations* (NTWR or Regulations). As part of the application process there are certain engineering deliverables that need to be submitted. This document gives an outline of all Management Plans that apply to the Type A Water Licence.

1.2 Scope

The scope of this element of the Project includes all works and/or undertakings required for the construction, operation, modification, maintenance and engineering of the Project facilities; as they relate to Management Plans:

Management Plans:

- Emergency Response & Spill Contingency Plan;
- Oil Pollution Emergency Plan – Milne Inlet Fuel Storage Facility;
- Oil Pollution Emergency Plan – Steensby Port Fuel Storage Facility;
- Surface Water and Aquatic Ecosystems Management Plan;
- Freshwater Supply, Sewage and Wastewater Management Plan;
- Waste Management Plan for Construction, Operation and Closure;
- Waste Rock Management Plan;
- Hazardous Material and Hazardous Waste Management Plan;
- Environmental Monitoring Plan;
- Health and Safety Management Plan;
- Environmental Protection Plan; and

- MMER Environmental Effects Monitoring Study Design Framework.

1.3 Additional Information

For ease of reference please see Table 1: FEIS Management Plan Summary for a summary of Project components, a summary the Project components associated activities, the applicable management plans and the management plan's status.

Table 1: FEIS Management Plan Summary

Management Plan	Project Component	Milne Port	Tote Road	Mine Site	Railway	Steensby Camp	Steensby Port
	Activity at site	Receiving port for supplies needed for construction phase of Project at the Mine Site and Milne Port.	Transportation corridor of supplies and personnel to the Mine Site.	Location of iron ore mining activities (18m/a production) and all necessary personnel and infrastructure for ore shipment via Steensby Port.	Used for transportation of ore from Mine Site to Steensby Port for shipment to markets and for supplies from Steensby Port to Mine Site.	Provides all infrastructures required to support shipping operations at Steensby Port. Stock piling of ore prior to shipment.	Shipment of ore to markets. Receiving of supplies to support mining operation at Mine Site during operation.
	Status						
Included in Type A Water Licence Application							
Emergency & Spill Response Plan	Updated for FEIS	✓	✓	✓	✓	✓	✓
Oil Pollution Emergency Plan - Milne Inlet	Updated for 2012 Work	✓					
Oil Pollution Emergency Plan - Steensby Port	Updated for 2012 Work						✓
Surface Water and Aquatic Ecosystems Management Plan	Updated for FEIS	✓	✓	✓	✓	✓	✓
Fresh Water Supply, Sewage and Wastewater Management Plan	Updated for FEIS	✓	✓	✓	✓	✓	✓
Waste Management Plan	Updated for FEIS	✓	✓	✓	✓	✓	✓
Waste Rock Management Plan	Updated for FEIS			✓			
Hazardous Material and Hazardous Waste Management Plan	Created for FEIS	✓	✓	✓	✓	✓	✓

Environmental Monitoring Plan	Updated for FEIS	✓	✓	✓	✓	✓	✓
Health and Safety Management Plan	Updated for FEIS	✓	✓	✓	✓	✓	✓
Environmental Protection Plan	Updated for FEIS	✓	✓	✓	✓	✓	✓
Preliminary Mine Closure and Reclamation Plan	Created for FEIS	✓	✓	✓	✓	✓	✓
Explosives Management	Created for FEIS	✓	✓	✓	✓	✓	✓
MMER Environmental Effects Monitoring Study Design Framework	Created for FEIS	✓	✓	✓	✓	✓	✓
Included in FEIS							
EHS Framework Standard	Reviewed for FEIS	✓	✓	✓	✓	✓	✓
Hazard Identification and Risk Assessment Procedure	Reviewed for FEIS	✓	✓	✓	✓	✓	✓
Construction Risk Management Report	Reviewed for FEIS	✓	✓	✓	✓	✓	✓
Fish Habitat Compensation	Updated for FEIS	✓	✓	✓	✓	✓	✓
Terrestrial Environment Management Plan	Updated for FEIS	✓	✓	✓	✓	✓	✓
Environmental Effects Monitoring Framework	Updated for FEIS	✓	✓	✓	✓	✓	✓
Air Quality and Noise Abatement Management Plan	Updated for FEIS	✓	✓	✓	✓	✓	✓
Road Management Plan	Updated for FEIS	✓	✓	✓	✓	✓	✓
Railway Maintenance Management Plan	Updated for FEIS				✓		
Railway Emergency	Updated for FEIS				✓		

Response Plan							
Shipping and Marine Mammals Management Plan	Updated for FEIS	✓					✓
Human Resources Management Plan	Updated for FEIS	✓	✓	✓	✓	✓	✓
Aquatic Effects Monitoring Plan	Updated for FEIS	✓	✓	✓	✓	✓	✓
Stakeholders Involvement Plan	Updated for FEIS	✓	✓	✓	✓	✓	✓
Cultural and Heritage Resource Protection Plan	Updated for FEIS	✓	✓	✓	✓	✓	✓

2. Document List

Document Title	Document Number	Description/Key Findings
Emergency Response & Spill Contingency Plan	H337697-0000-07-126-0008	This Plan has been developed to identify potential emergencies that could arise during construction and operation of the Mary River Project and to establish the framework for responding to these situations. The response procedures are specific to spills on land, water, snow and ice. However, the general procedure involves the following steps: source control, control of free product, protection, clean up the spill and report the spill. Also, the Plan identifies the roles and responsibilities, a potential spill analysis, and the reporting requirements.
Preliminary Oil Pollution Emergency Plan - Marine Spills Milne Inlet Fuel Storage Facility (2011)	H337697-0000-07-126-0009	The Milne Inlet Oil Pollution Emergency Plan (OPEP) was developed to specifically assist in implementing measures to protect the marine environment and minimize impacts from potential spill events. The plan outlines potential spill scenarios, and provides specific procedures for responding to spills while minimizing potential health and safety hazards, environmental damage, and cleanup costs. The OPEP provides instructions to guide personnel in emergency spill response situations, defines the roles and responsibilities of management and responders, and outlines the measures taken to prevent spills, the related exercise and evaluation program, and the mechanism for regular updates to the plan. The OPEP is updated on an annual basis.

Document Title	Document Number	Description/Key Findings
Preliminary Oil Pollution Emergency Plan - Marine Spills -Steensby Port Fuel Storage Facility (2011)	H337697-0000-07-126-0010	The Oil Pollution Emergency Plan at Steensby Port was developed to specifically assist in implementing measures to protect the environment and minimize impacts from potential spill events. The plan first describes the storage facility and the activities carried out on site. Planning standards are listed. The plan outlines potential spill scenarios, and provides specific procedures for responding to spills while minimizing potential health and safety hazards, environmental damage, and cleanup costs. The OPEP provides instructions to guide personnel in emergency spill response situations, defines the roles and responsibilities of management and responders, and outlines the measures taken to prevent spills, the related exercise and evaluation program, and the mechanism for regular updates to the plan. The OPEP is updated on an annual basis.
Surface Water, Aquatic Ecosystems Management Plan	H337697-0000-07-126-0011	This Plan outlines the processes and procedures to document the quality and quantity of water that will interact with Project components, and includes the management practices to minimize the adverse effects on receiving water systems, as well as the aquatic ecosystems. The Plan details the management of runoff collection systems at Project facilities and addresses point and non-point discharges to surface waters from Project components and discharge quality and quantity relative to the receiving water system. It outlines specific mitigation measures required for stream/river crossings works as well as for general operation and construction activities in proximity of water courses. The general mitigation measures for sediment control and erosion will be applied throughout the duration of the Project construction phase. Stream and river crossings and lakes/ponds adjacent to construction activities will receive focused attention, and depending on site-specific conditions, a variety of civil design structures will be used to prevent erosion. Also, general mitigation measures for fish and fish habitat, including Freshet mitigation and Fish Habitat Protection, will be applied throughout the Project. The general mitigation measures for water use, includes water intake and wastewater treatment at the Mine Site, Milne Port, Railway Construction Camps, and Steensby Port. Also, the Plan identifies the roles and responsibilities, the performance indicators and thresholds, monitoring and reporting requirements, data management and reporting as well as the adaptive strategies, which include regular monitoring supported by operational change and adoption of other mitigating measures as necessary.
Fresh Water Supply, Sewage and Wastewater	H337697-4000-10-126-0001	This document was developed to provide a management strategy for fresh water supply and wastewater treatment/disposal at the various camp sites to be developed for the Mary River Project, specifically during the construction and operation phases.

Document Title	Document Number	Description/Key Findings
Management Plan during Construction and Operation		The plan addresses surface water treatment, including the identification of treatment areas and discharge locations of treated waters. As a management plan, it includes a review of existing systems and the changes needed to accommodate the Projected usage increases during construction and operation. In addition, contingency measures are addressed and details given in regards to sampling, monitoring and reporting requirements.
Waste Management Plan for Construction, Operation and Closure	H337697-0000-07-126-0001	The aim of the Waste Management Plan is to implement a sound waste minimization program that will focus upon the principles of Reduction/Recovery/Reuse/Recycling. The residual waste generated by the Project activities will then be disposed of in a landfill/landfarm, incinerated or shipped off-site for final disposal, treatment, or recycling. This Waste Management Plan deals with wastes generated by the Mary River Project including solids, semi-solid and sludge, used oils, contaminated fuel, and antifreeze, used chemical products, biomedical waste and spills clean-up materials. The management of sewage effluent and sludge from the sewage treatment plants is the subject of the Fresh Water Supply, Sewage and Wastewater Management Plan. The Waste Management Plan presents the various disposal methods, the types and expected quantities of waste produced and the ultimate disposal of the waste stream. The Plan also defines the roles and responsibilities, specific requirements, and monitoring controls for managing solid and hazardous wastes generated by the Project. It also presents the strategy for adaptive management and continuous improvement. The Waste Management Plan Annex's include: • Incinerator Operation Information; • Mary River Project Landfill Operating Manual; and • Landfarm Operation Information.
Waste Rock Management Plan	H337697-07-0000-126-0012	The Waste Rock Management Plan addresses the issues of siting, deposition of the waste rock, inspection, potential release of contaminants to the receiving environment, geotechnical stability, as well as closure considerations. As additional geochemical, geotechnical, and geological data are collected, and detailed engineering is completed, the management plan will be further optimized using an approach that best protects the environment while operating in a cost-effective manner.

Document Title	Document Number	Description/Key Findings
Hazardous Material and Hazardous Waste Management Plan	H337697-0000-07-126-0002	This Hazardous Waste Management Plan deals with hazardous wastes generated by the Mary River Project including, fuel, explosives, antifreeze, used chemical products, biomedical waste and spills clean-up materials. The management of sewage effluent and sludge from the sewage treatment plants is the subject of the Fresh Water Supply, Sewage and Wastewater Management Plan. The Plan presents the various disposal and treatment methods, the types and expected quantities of waste produced and the ultimate disposal of the waste stream. The Plan also defines the roles and responsibilities, specific requirements, and monitoring controls for managing hazardous wastes generated by the Project. It also presents the strategy for adaptive management and continuous improvement.
Environmental Monitoring Plan	H337697-0000-07-126-0006	The Environmental Monitoring Plan is intended to combine all the Project monitoring programs in one document. This plan details the procedures and systems that will be put in place to ensure that any environmental changes that occur are quickly observed so mitigating measures can be put in place.
Health and Safety Management Plan	H337697-0000-01-126-0002	The Health and Safety Plan is devised to outline the procedures and practices that will be put in place to protect the safety and health of employees, contractors, and the public. The plan identifies values which include specific expectations surrounding safety and health, and social and environmental responsibility. Baffinland has an EHS Corporate Committee, EHS Charter, and Code of Business Conduct and Ethics to support these values. These documents are posted on the company's website. Baffinland's Health and Safety Management Plan is based on the principle of continuous improvement and is consistent with the Occupational Health and Safety Management System (OHSAS) 18001, dated 2007.
Environmental Protection Plan	H337697-0000-07-126-0017	The Environmental Protection Plan includes all the procedures that will be put in place to ensure that environmental impacts are minimized throughout the life of the Project. The plan provides an overview of both preventative measures taken to protect the environment as well as mitigative measures that will occur in the event that any environmental damages do occur.
MMER Environmental Effects Monitoring Study Design Framework	E337697-0000-07-126-0002	The MMER Environmental Effects Monitoring Study Design Framework describes a study design framework for an Aquatic Effects Monitoring Plan (AEMP) for the Mary River Project. The study design will address Environment Canada requirements under the Metal Mining Effluent Regulations (MMER). Discharge points, sampling strategy and QA/QC are discussed.