

9. ENVIRONMENTAL MANAGEMENT PROGRAM

The following Environmental Management Plans address specific environmental issues and will form the main components of the Environmental Management Program that will be implemented by Mackenzie Green Energy LP (MGELP) for construction and operation of the MGEC.

9.1 STORM WATER MANAGEMENT PLAN

A preliminary storm water management plan (SWMP), as presented in Appendix H, has been developed to mitigate the potential impacts of storm water runoff from the MGEC site during construction and operation of the facility. This SWMP is based on preliminary engineering information. The final SWMP will be developed in coordination with completion of the engineering design of the MGEC and implemented prior to the start of construction at the site.

During the construction phase, and during normal operations, storm water runoff may transport sediments in storm conditions or come in contact with contaminants on the MGEC site. Controls for storm water runoff during construction of the MGEC, and during the operational phase, have been included in the design of the MGEC. These controls were assessed and concluded to provide a high level of protection to prevent adverse environmental impacts from occurring from discharge of storm water offsite.

The proposed SWMP will control runoff and sediment transport from the MGEC site and collect leachate from the wood residue and ash landfill areas for primary treatment prior to discharge to the adjacent wetland. Details of the proposed storm water controls are described in Section 5.7.2 and in Appendix H.

MGELP's proposed plans for controlling storm water runoff during construction are briefly listed below from the SWMP:

- divert all storm water runoff into sediment control ponds during construction;
- control and divert water from the construction area through ditches to the sediment control ponds and allow sedimentation to take place before being released to the local drainage;
- install storm water runoff control design elements after clearing of the site has been completed for drainage to the collection pond (construction phase) and detention pond (operational phase);
- control onsite water movement using diversion ditches and direct water flow to existing offsite water drainage channels;
- control onsite water movement to minimize site erosion and sediment formation;
- control oil and other hydrocarbons by using oil absorbing pads at the inlets to the collection pond and detention pond; and
- monitor the receiving water to confirm compliance with water quality criteria.

Site-specific sediment control measures will be selected and implemented under the supervision of the Environmental Monitor. The SWMP identifies a list of possible control measures that will be considered for use.

As any ponds constructed for sediment control during construction are the last point at which to treat water quality before discharge, they will be constructed prior to the grubbing and construction phase with sediment control structures (including fabric cloth, gravel and hay bales), and oil absorbent pads at the pond inlets, as appropriate.

9.2 CONSTRUCTION WASTE MANAGEMENT PLAN

The Construction Waste Management Plan will be implemented in conjunction with complementary plans for Hazardous Waste Management and Spill Prevention and Contingency.

The Construction Waste Management Plan will be finalized prior to initiation of construction and reviewed with the Regional District of Fraser-Fort George and the Ministry of Environment to ensure it meets regulatory requirements and the commitments made in this Application for an Environmental Assessment Certificate.

MGELP will officially apply to The Regional District of Fraser-Fort George for a disposal permit. This will be done at the Valemount and McBride Transfer Station Facility. No construction waste will be generated until a permit has been received. The Construction Waste Management Plan will comply with the “Regional Solid Waste Management Program” for Fraser Fort-George.

As explained in Section 5.15.1 construction wastes will be delivered to the local Legrand Demolition and Construction Waste Landfill. The landfill will accept materials such as; demolition waste, landscaping debris, construction wastes, gypsum board, bulky wastes, and sludges pumped from sumps. All wastes will be transported offsite by a licensed contract hauler.

There are two main themes for the Construction Waste Management Plan: (i) Waste Segregation, and (ii) Controlled Waste Management. The main principle of the plan will be to minimize waste where possible. The plan will allow the segregation of the waste into three designated areas (1) reused materials, (2) recycled materials, and (3) wastes for disposal. These two themes are discussed in more detail in the preliminary Construction Waste Management Plan provided in Appendix I.

9.3 AIR QUALITY AND DUST CONTROL PLAN

The Air Quality and Dust Control Plan addresses mitigation and monitoring of emissions that will occur during the construction and operating phases of the MGEC. This Plan will be finalized prior to initiation of construction and operation of the MGEC, in consultation with the Ministry of Environment. A preliminary plan is presented in Appendix J.

The potential impacts of emissions during operation of the MGEC are assessed in detail in Section 5.4.2 of this Application. Proposed emission monitoring activities for operating sources are discussed in Section 5.4.3. These mitigation and monitoring plans have been included in the preliminary Air Quality and Dust Control Plan.

During operation, the MGEC will use a modern electrostatic precipitator to minimize particulate matter emissions and will apply good design and operating practices to minimize emissions of NO_x, CO, and VOCs. The proposed emission controls are current best available control technology in British Columbia.

MGELP will install and maintain a continuous emission monitoring system that will measure in-stack opacity, NO_x concentration, and dry gas flow rate for the wood-fired power boiler. This system will be calibrated in accordance with the requirements of the air permit. MGELP will also test the power boiler stack exhaust in accordance with permit monitoring requirements to measure particulate matter and NO_x concentrations, and the dry gas flow rate to demonstrate compliance with permit criteria.

Emissions from heavy duty trucks delivering wood residue or other supplies to the MGEC during the operating phase of the MGEC are expected to have minor effects on air quality and these will be in the immediate vicinity of the engine exhaust. Operation and maintenance of these vehicles will be the responsibility of independent contractors. No mitigation or monitoring of these emission sources is proposed.

The Air Quality and Dust Control Plan includes measures for controlling dust emissions during the operation and construction phases from stockpiles, exposed surfaces, materials handling, and roadway areas. Control of dust will largely focus on implementation of good work practices and housekeeping to reduce potential sources of fugitive dust. If problems are encountered with dust during construction that cannot be adequately resolved by preventative measures, use of water sprays or other control options will be considered.

9.4 WATER QUALITY/QUANTITY MONITORING PLAN

Monitoring of effluent discharges during operation of the MGEC for quality and flow rate will be the responsibility of Pope & Talbot as a condition of its effluent permit. MGELP will conduct water quality monitoring during construction, as indicated in the Storm Water Management Plan.

9.5 HAZARDOUS WASTE MANAGEMENT PLAN

Hazardous Waste Management Plans will be developed and implemented for construction and operation of the MGEC. In coordination with the proposed Construction Waste Management Plan, these plans will help in the Regional District of Fraser-Fort George's initiative to reduce the amount of solid waste being landfilled and to improve on reduction, reuse and recycling of solid wastes.

The Hazardous Waste Regulation, 2006, replaces the former Special Waste Regulation. This regulation lists wastes which are designated as hazardous. Table K-1 in Appendix K lists the designated hazardous wastes under this regulation.

MGELP will ensure that any wastes classified as hazardous that are generated at the MGEC are handled and disposed in accordance with the requirements stipulated in the provincial Hazardous Waste Regulation. Licensed haulers or recyclers will be retained to transport these wastes offsite in accordance to requirements of the *Transport of Dangerous Goods Act*, 1996, the *Transport of Dangerous Goods Regulation*, 2002, and the *Environmental Management Act*, 2003. Appropriate means and facilities for storage and disposal of hazardous wastes will be specified in the plan.

For the protection of workers on site, a Workplace Hazardous Materials Information System (WHMIS) will be put in place as required by the Workers' Compensation Board of BC. Components of the WHMIS program include inventory of controlled products, Material Safety Data Sheets (MSDS), establishment of emergency procedures and worker education.

9.6 SPILL PREVENTION AND CONTINGENCY PLAN

A Spill Prevention and Contingency Plan will be implemented during construction and operation of the MGEC in order to prevent and reduce the discharge of pollutants to drainage systems or watercourses from leaks and spills of hazardous wastes during construction and operation of the facility. The plan will provisions for:

- reducing spills;
- stopping the source of spills;
- containing and cleaning up spills immediately;
- properly disposing of spill material; and,
- training employees.

Typical examples of materials that could be spilled are: chemicals used for construction, process and maintenance purposes, herbicides, paints and solvents, antifreeze, fuels, lubricants and petroleum products.

As part of the management plan, storm water runoff will be collected in a detention pond during the construction and operation phases of the facility. The plan for storm water management and monitoring of water prior to discharge to the receiving environment is outlined above, and described in detail in Section 5.7.2 and Appendix H.

9.6.1 Storm Water Collection

During construction and ongoing operations there is the potential for a spill to contaminate storm water runoff and downstream watercourses. Storm water runoff during construction of the MGEC, and during the operational phase, will be managed so there will be no discharge of deleterious substances offsite.

Storm water runoff from the MGEC's construction site will flow to sediment control ponds, which will also provide initial protection from offsite discharge of runoff that has become contaminated from contact with spills of petrochemical, chemical or other deleterious substances. Permanent storm water control ponds will be constructed based on the final Storm Water Management Plan. The preliminary Storm Water Management Plan (Appendix H) assumes ponds will be constructed in the main plant area and the wood residue storage area.

9.6.2 Education

MGELP will train designated staff in areas of waste management, pollution control and emergency response and planning. Education will play a part in the prevention of spills at the MGEC and involve appropriate training of staff in regard to required handling practices for hazardous materials, spill response procedures, spill cleanup procedures, and related issues.

9.7 LANDSCAPE DESIGN AND RESTORATION PLAN

The MGEC site will be landscaped in a manner appropriate for an industrial power plant and consistent with its setting in a heavy industrial area. A preliminary Landscape Design and Restoration Plan has been prepared and is presented in Appendix M. Vegetation selected to

restore the site will follow the revegetation guidelines in the preliminary plan, including the use of vegetation indigenous to the Sub Boreal Spruce Subzone (SBSmk2)

9.8 ARCHAEOLOGICAL RESOURCES MONITORING PLAN

The studies conducted for this Application have determined that the proposed MGEC site will have no significant effects or residual effects on archaeological resources.

Despite the absence of archaeological sites identified during the field assessment, the survey techniques employed are deemed suitable in consideration of the terrain. With the ground reconnaissance and subsurface testing conducted for the Archaeological Impact Assessment, the probability of identifying additional archaeological sites during construction activity at the proposed MGEC site is considered low. Therefore, no further archaeological assessment is planned in association with the proposed development and no specific mitigation measures (including the monitoring of construction activities) are required or prescribed by the project archaeologist.

In the unlikely event that unexpected archaeological features or remains are encountered during any land altering activities for this development, MGELP will contact the BC Ministry of Tourism, Sport and the Arts, Archaeology Branch immediately and implement follow-up actions in accordance with permit requirements.