CARIBOU BOG MANAGEMENT PLAN

Peat Harvest License #16

Premier Tech Horticulture

September 2018
Revision June 2019
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1. INTRODUCTION

This management plan provides a summary of the areas comprised within the Manitoba Peat Harvest Licence #16, an estimated timeline for the industrial development of the bog cluster, as well as an overview of the operations conducted on the field. Map 1 provides an overview of all four PHL under Premier Tech Horticulture Ltd. management. This document also provides information about Premier Tech Horticulture’s different emergency protocols related to harvesting operations, together with its specific environmental, economic and social objectives in the Caribou bog area.

Located about 100 km southeast of Richer, MB, the Caribou Bog is operated by Premier Horticulture since 1986. A smaller portion of the operating peat bog (111 ha) is located within private lands (CANPAR), the remaining area being located on crown lands. The complete location of the area comprised within Peat Harvest licence #16 is provided in Appendix A (i.e. Peat Harvest Licence document). Map 2 shows the current land utilization summary for the Peat Harvest Licence #16. Map 3 shows the extent of PHL #16 with townships and sections.

The land users at closest proximity to the Caribou Bog operations are The Shoal Lake No. 40 First Nation community.
Map 1 Overview of all four PHL currently under management by Premier Tech Horticulture.
Premier Tech Horticulture – PHL16 Management Plan

2. CORPORATE OVERVIEW

Premier Tech Horticulture is compliant with SCS Global Veriflora standards. This certification is a pledge of our commitment for responsible peat harvesting operations. For every peat harvesting operation, our objectives are:

- To restore the ecological functions of the bog once the harvesting operations are completed.
- To avoid impacts on endangered species
- To limit the impacts of peat harvesting on the environment by reducing our carbon emissions and waste production
- To limit our dust emissions by suspending harvest during strong winds, and by continuously monitoring air particles emissions
- To promote local employment
- To get involved in Aboriginal and local communities by participating and sponsoring local organizations and by proposing annual information meetings
- To be responsive to citizens’ concerns.
2.1. Corporate planning objectives

PTH aims for an average 2.5 % annual increase in its peat harvesting operations to meet a growing demand for its horticultural products. Currently, PHL16 is the only harvesting operation in Manitoba out of four (4) licenses held by Premier Tech Horticulture. Peat harvested in PHL16 Caribou bog is hauled all year long to our mixing and bagging factory located in Richer (MB) to supply our market in central North America with added value peat based growing media.

2.2. Economic development

PTH operations in Manitoba provide 45 full-time jobs at the plant all year round in addition to 2 full time and 17 seasonal positions at the Caribou bog.

PTH requires the work of transport brokers for its shipping. On average, 15 to 25 trucks will leave the premises per day, sometimes up to 50 on the busiest times.

PTH supports local suppliers. Over 90% of the supplies for the bog come from suppliers inside Manitoba either directly or through contracting local services.

PTH in Manitoba has worked with its closest Indigenous neighbour, The Shoal lake 40 Band, to look for and create opportunities. Regular meetings with SL40 band council has identified opportunities of improvement that PTH will seek to develop:

1. The newly constructed “Freedom Road” will create opportunities for members of Shoal Lake and PTH to connect more easily giving access to employment.

2. Any development or project is first discussed with band members to identify areas where traditional activities might be impacted. For example, harvesting plant material while land is being developed.

2.3. Future provincial interests

Premier Tech Horticulture can rely on PHL 16 area to supply the current demand and estimated growth for the near future, see Map 2.

In addition to PHL 16, Premier Horticulture holds PHL 17, 18 and 19 located in Giroux-St-Labre, Overflowing River and Pine Dock respectively, see Map 1. Our processing facility is located in Richer (MB) and is sufficient for our current volume of harvesting.
3. OPERATIONS OVERVIEW
The content in this section will be at the PHL scale, incorporating information from all sub-areas.

3.1. Required approvals

Table 1 Required approvals

<table>
<thead>
<tr>
<th>Licence</th>
<th>Issuing Authority</th>
<th>Application Timeline</th>
</tr>
</thead>
<tbody>
<tr>
<td>General permit</td>
<td>Crown Lands</td>
<td>Not required at the moment</td>
</tr>
<tr>
<td>Environment act licence</td>
<td>Environmental approvals</td>
<td>Licence No. 2721 R, last revision 2018-01-23</td>
</tr>
<tr>
<td>Work permit</td>
<td>Regional office</td>
<td>Renewed annually</td>
</tr>
<tr>
<td>Licence to construct water control works</td>
<td>Water stewardship</td>
<td>Obtained</td>
</tr>
<tr>
<td>Timber appraisal</td>
<td>Regional office</td>
<td>Annually through IRMT committee meeting</td>
</tr>
<tr>
<td>Peat surface lease</td>
<td>Crown Lands</td>
<td>Current lease expires 2037-05-09</td>
</tr>
</tbody>
</table>
3.2. Licence and Sub-Area Boundaries

Map 3 PHL16 area. Areas in hectares.

3.3. Harvesting schedule

Map 4 provides a view of the current developed fields and future developments with estimated harvesting years. For a view of the closed lands and restoration in progress, refer to Map 2.
Map 4 Anticipated development phases for the next 15 years on Caribou Bog. Sections A = 17 ha; B= 27 ha; C= 10 ha; D=32 ha; E= 26 ha; F= 179 ha.

3.4. Harvest Area and Bulk peat estimates

The average peat depth on the bog is ~3.5 m to the clay, with about 2 meters of horticultural grade fibric peat. Approximately 6 cm can be collected annually (i.e. annual harvest expectation = 600 m³/ha). About 315 000 m³ of peat is currently harvested annually (of which 75 % is harvested on Crown Lands). Considering this harvesting rate, a total yield of 20 000 m³ of peat/ha is expected over the entire operation lifespan. On the hypothesis that 70 % of non-harvested area comprised within the Peat Harvesting Licence is harvestable, one can estimate a volume of 70,000,000 m³ of peat remaining onto the Caribou Bog for the next 50 to 60 years.

Royalties are paid annually on the $0.12 per cubic meter harvested as stated by Government of Manitoba.
3.5. **Structures**

Permanent structures include a maintenance shop, an oil shed, a generator with a fuel tank, a lunchroom and additional fuel tanks all located in the yard area near the access point. For layout, see Map 5.

Peat is stored at the bog in piles up to 10 feet high. No processing is done on site. All peat is hauled to bagging plant in Richer, MB.

*Map 5 Aerial imagery showing permanent buildings at Caribou bog, PHL16.*
4. PRE-HARVEST ACTIVITIES

4.1. Timber removal

All trees within the harvest area will be harvested by PTH and stockpiled for use as a base underlying the staging yard and internal bog road (i.e. a corduroy road base). There is no merchantable timber within the harvest area. Timber appraisal is renewed yearly.

Trees will be left standing and in place around the perimeter of the harvest area and the remaining area of the bog as they provide on-going wind protection for the harvest area.

4.2. Site access

Site is accessible right on the side of road 308. Site is gated and proper signage signals for outgoing trucks near the access point.

Concurrent with the tree removal activity is the construction of the internal bog road by laying the harvested trees in a corduroy fashion and covering them with material taken from the borrow area located near the staging yard.

4.3. Drainage works

Site preparation is initiated by the construction of a perimeter drainage ditch and discharge. This is accomplished by digging a ditch approximately 2 meters deep and 1.5 meters wide around the entire area to be harvested in order to allow the water level within the bog to lower. The gradient of the ditch is designed to allow for the slow reduction of water levels within the bog over the life of the harvesting activities.

The ditch will be constructed using a track hoe with the material deposited on the outside of the ditch (outside the peat field area) over its entire length.

This method is used to ensure that the water table of the field decrease slowly to allow the top peat to dry in order to be picked up by our vacuums.
5. FIRE PROTOCOLS

Every Premier’s harvesting site and plant have an emergency protocol. Fire emergency protocol for the Caribou Bog and for the Richer Plant are provided respectively in Appendices B and C.

6. RESIDUAL PEAT DEPTHS

Preharvest depths were estimated using the report *Sphagnum Bogs in Southern Manitoba and Their Identification by Remote Sensing* by the Manitoba Department of Energy and Mines (B. B. Bannatyne 1980). See Appendix D for the specific pages referred.

PTH commits to follow regulations from local governments as well as best practices by the CSPMA.
7. SENSITIVE SITES AND SPECIES PROTOCOLS

Before any industrial operation, Premier is required to perform surveys to evaluate the potential impacts on species at risk. If species found listed under The Endangered Species and Ecosystems Act are found within future development phases, Premier will reassess its operation plan to avoid disturbance and interference with the species at risk.

In case heritage sites or cultural features are found within the development phases, Premier will comply with the Heritage Resource Act and consult the ministry charged with the administration of this act before pursuing its operations.
Appendix A

Peat Harvest License #16
CLIENT FILE NO.: 4636.00

January 23, 2018

Frederic Caron, Quality, Resource & Innovation Director
Premier Tech Horticulture Ltd.
1, avenue Premier - Premier Tech Campus
Riviere-du-loup QC G5R 6C1

Dear Mr. Caron:

Enclosed is revised Environment Act Licence No. 2721 R issued to Premier Tech Horticulture Ltd. for the continued operation of the Development being a peat harvesting operation at the Giroux and Caribou bogs in accordance with the Proposal filed under The Environment Act on May 13, 2004 and subsequent alteration dated April 29, 2010.

Please also note that licence terms and conditions have been updated, where appropriate, to reflect new standard wording and revised to reflect the new regulatory regime pursuant to the Peatlands Stewardship Act. If you have any questions on this matter, please contact Mr. Darrell Ouimet of this office at Darrell.Ouimet@gov.mb.ca. For any operational issues please contact the Regional Supervisor Diane Oertel at 204-785-5021.

Pursuant to Section 27 of The Environment Act, this licensing decision may be appealed by any person who is affected by the issuance of this Licence to the Minister of Sustainable Development within 30 days of the date of the Licence.

Yours truly,

Tracey Braun, M.Sc.
Director
Environmental Approvals Branch

c: Don Labossiere/Diane Oertel - Environmental Compliance and Enforcement
Public Registries

NOTE: Confirmation of Receipt of this Licence No. 2721 R (by the Licencee only) is required by the Director of Environmental Approvals. Please acknowledge receipt by signing in the space below and provide a copy (letter only) to the Department by February 6, 2018.

On behalf of Premier Tech Horticulture Ltd.   Date

**A COPY OF THE LICENCE MUST BE KEPT ON SITE AT THE DEVELOPMENT AT ALL TIMES**
Licence No. / Licence n° 2721 R
Issue Date / Date de délivrance May 16, 2006
Revised : January 23, 2018

In accordance with The Environment Act (C.C.S.M. c. E125) /
Conformément à la Loi sur l'environnement (C.P.L.M. c. E125)

Pursuant to Section 11(1) / Conformément au Paragraphe 11(1)

THIS LICENCE IS ISSUED TO : / CETTE LICENCE EST DONNÉE À :

PREMIER HORTICULTURE LTD.;
"the Licencee"

for the construction, operation and recovery of the Development being a peat harvesting operation comprised of:

- a peat processing, composted bark, future manure (chicken and cows) additive process, and materials and product storage operations located at N ½ and SW ¼ of 25-7-7E;
- a peat harvesting at the Giroux site located in the Rural Municipality of Ste. Anne in the Giroux sub-area of Peat Harvest Licence no. 17 issued to Premier Horticulture LTD., pursuant to The Peatlands Stewardship Act;
- a peat harvesting operation at the Caribou site located in the Rural Municipality of Ste. Anne in the Caribou sub-area of the Peat Harvest Licence no. 16, issued to Premier Horticulture LTD., pursuant to The Peatlands Stewardship Act;

in accordance with the Proposal dated May 13, 2004, filed with the Department under The Environment Act on May 18, 2004, as well as additional information submitted on June 25, 2004 and June 10, 2005 and Notice of Alteration dated April 29, 2010, and subject to the following specifications, limits, terms and conditions:

DEFINITIONS

In this Licence,

"accredited laboratory" means an analytical facility accredited by the Standard Council of Canada (SCC), or accredited by another accrediting agency recognized by Sustainable Development to be equivalent to the SCC, or able to demonstrate, upon request, that it has the quality assurance/quality control (QA/QC) procedures in place equivalent to

**A COPY OF THE LICENCE MUST BE KEPT ON SITE AT THE DEVELOPMENT AT ALL TIMES**
accreditation based on the international standard ISO/IEC 17025, or otherwise approved by the Director;

"active harvesting area" means any prepared field within the Development, which has undergone preliminary induced drainage for access, and on which surface disturbance in preparation for peat harvesting has commenced, until such time as when the harvested field has been isolated for recovery of the field;

"approved" means approved in writing;

"buffer zone" means a strip of undisturbed land comprised of in-situ vegetation;

"dangerous goods" means dangerous goods as defined in The Dangerous Goods Handling and Transportation Act, and regulations issued thereunder;

"Director" means an employee so designated pursuant to The Environment Act,

"drainage water" means surface or sub-surface water induced, by reason of constructed drains, to drain towards a final discharge point of the Development, but does not include surface runoff diverted around an active harvesting area nor preliminary induced drainage;

"effluent" means drainage water or wastewater released into the environment;

"Environment Officer" means an employee so designated pursuant to The Environment Act;

"final discharge point" means an effluent quality control point as designated within this Licence, unless otherwise re-designated in writing by the Director;

"fugitive emissions" means suspended particulate matter windblown into the atmosphere and off-site from any source on-site of the Development;

"Integrated Resource Management Team (IRMT)" means a regional management team made up of members of Sustainable Development organized to review natural resource issues;

"noise nuisance" means an unwanted sound, in an affected area, which is annoying, troublesome, or disagreeable to a person:
  a) residing in an affected area;
  b) working in an affected area; or
  c) present at a location in an affected area which is normally open to members of the public;
if the unwanted sound
  a) is the subject of at least 5 written complaints, received by the Director in a form satisfactory to the Director and within a 90 day period, from 5 different persons falling within clauses (a), (b) or (c), who do not live in the same household; or
b) is the subject of at least one written complaint, received by the Director in a form satisfactory to the Director, from a person falling within clauses (a), (b) or (c) and the Director is of the opinion that if the unwanted sound had occurred in a more densely populated area there would have been at least 5 written complaints received within a 90 day period from 5 different persons and who do not live in the same household;

"particulate matter" means any finely divided liquid or solid matter other than water droplets;

"peat" means peat as defined in The Peatlands Stewardship Act, or any future amendment there of;

"peat harvesting" means peat harvesting as defined in The Peatlands Stewardship Act, or any future amendment there of.

"peat harvest licence" means a peat harvesting licence as defined in The Peatlands Stewardship Act, or any future amendment there of.

"peatland management plan" means a peatland management plan as defined in The Peatlands Stewardship Act, or any future amendment there of.

"peatland recovery plan" means a peatland recovery plan as defined in The Peatlands Stewardship Act, or any future amendment there of.

"preliminary induced drainage" means induced surface and subsurface drainage, off an area intended to be harvested, to the extent as may be required to facilitate access to, and the construction of, sedimentation ponds incorporating final discharge points;

"recovery" means land recovery as defined in The Peatlands Stewardship Act and associated Peatland Recovery Plan Guidelines, or any future amendment there of;

"riparian area" means an area of land on the banks or in the vicinity of a waterbody, which due to the presence of water supports, or in the absence of human intervention would naturally support, an ecosystem that is distinctly different from that of adjacent upland areas (The Water Protection Act 2005);

"septage" means the sludge produced in individual on-site sewage disposal systems such as septic tanks;

"sewage" means sewage as defined in Manitoba Regulation 83/2003, or any future amendment thereto, respecting private sewage disposal systems and privies;

"Standard Methods for the Examination of Water and Wastewater" means the most recent edition of Standard Methods for the Examination of Water and Wastewater published jointly by the American Public Health Association, the American Waterworks Association and the Water Environment Federation; and
“waterbody” means any body of flowing or standing water, whether naturally or artificially created, and whether the flow or presence of water is continuous, intermittent or occurs only during a flood, including but not limited to a lake, river, creek, stream, and wetland (slough, marsh, swamp, etc.), including ice on any of them (The Water Protection Act 2005).

“wastewater” means any liquid containing a pollutant (as defined in The Environment Act) which is designated for release into the environment.

GENERAL TERMS AND CONDITIONS

This Section of the Licence contains requirements intended to provide guidance to the Licencee in implementing practices to ensure that the environment is maintained in such a manner as to sustain a high quality of life, including social and economic development, recreation and leisure for present and future Manitobans.

Compliance


Additional Reporting

2. The Licencee shall, in addition to any of the specifications, limits, terms and conditions specified in this Licence, upon the request of the Director:
   a) sample, monitor, analyse or investigate specific areas of concern regarding any segment, component or aspect of the Development for such duration and at such frequencies as may be specified;
   b) determine the environmental impact associated from the Development;
   c) conduct specific investigations in response to the data gathered during environmental monitoring programs; or
   d) provide the Director, within such time as may be specified, with such reports, drawings, specifications, analytical data, descriptions of sampling and other information as may from time to time be requested.

Sampling and Analysis

3. The Licencee shall, unless otherwise specified in this Licence:
   a) carry out all preservations and analyses of liquid samples in accordance with the methods prescribed in the Standard Methods for the Examination of Water and Wastewater or in accordance with equivalent preservation and analytical methodologies approved by the Director; and
   b) ensure that all analytical determinations are undertaken by an accredited laboratory.
Reporting Format

4. The Licencee shall provide to the Director or Environment officer, upon request, all information required under this Licence, in an acceptable electronic format, or in writing as requested, and in such form and content (including number of copies), as may be specified by the Director or Environment Officer. Each submission shall be clearly labelled with the Licence Number and Client File Number associated with this Licence.

SPECIFICATIONS, LIMITS, TERMS AND CONDITIONS

Emergency Response Plan

5. The Licencee shall prepare, within 90 days of the date of issuance of this Licence, and maintain an emergency response contingency plan in accordance with the Canadian Centre for Occupational Health and Safety “Emergency Response Planning Guide” or other emergency planning guidelines acceptable to the Director.

Pre-Construction Surveys

6. The Licencee shall, before commencing any surface disturbance or preliminary induced drainage of an intended harvesting area within the Development:
   a) conduct a survey of the intended harvesting area with respect to rare or endangered species and species of special concern, as well as migratory birds, their nests and their eggs;
   b) submit a report on the survey for the approval of the Director;
   c) transplant any visible rare, endangered or threatened species of vegetation, including species of vegetation used for traditional medicines which may be encountered on the site, to another equally suitable site in consultation with the regional wildlife manager of Sustainable Development; and
   d) upon the completion of any transplantation activity, advise the Director, in writing, of the type and number of any plant species so transplanted and the location to which they were transplanted.

Project Land Use

7. The Licence shall restrict construction and operational activities related to the Development, except for the road allowance of all access roads, to those lands to which the Licencee possesses:
   a) a Peat Harvest Licence issued pursuant to The Peatlands Stewardship Act or any future amendment thereof, for peat harvesting operations on Crown Lands;
   b) surface rights, or complete ownership, or a signed agreement with another person or legal entity respecting the use of any land to which that person or legal entity possesses the surface rights or complete ownership, wherein the agreement clearly identifies the party which accepts full responsibility for any environmental liabilities incurred by the activities of the Licencee; and
c) applicable work permits and timber cutting permits, as may be required by Sustainable Development.

8. The Licencee shall restrict all harvesting of peat associated with the Development to only those areas located within:
   a) the boundaries of Caribou sub-area of Peat Harvest Licence no. 16;
   b) the boundaries of Giroux sub-area of Peat Harvest Licence no. 17;
   c) the boundaries as described in any future newly acquired peat harvesting area of which the Director has been notified in writing, and has approved as an alteration to the licensed Development.

Bark Composting Operation

9. The Licencee shall not import wood bark which contains live pine shoot beetles in the egg, larva or adult stages.

Harvesting Plan

10. The Licencee shall, prior to commencing the surface disturbance of an undisturbed peat harvesting area that has been authorized to be prepared for harvesting, meet with and present to the IRMT the harvesting plan for the newly authorized area, outlining and detailing:
    a) the proposed drainage ditches;
    b) the proposed periphery and corridor buffer zones, where or if applicable;
    c) the depth of peat versus the proposed depth of harvesting; and
    d) the projected rates of water release, the projected effluent quality and the projected water quality impact downstream receiving waters, including Lake of the Woods, Whitemouth River and the Seine River, based on the compiled and reported sampling data collected pursuant to this Licence up to the time of the meeting;
    where upon any outstanding concerns brought to the attention of the Director by the IRMT may be addressed through work permits or other applicable approvals for the affected area.

Wildlife Habitat Losses

11. The Licencee shall, where any potential wildlife habitat losses have been identified by Sustainable Development, consult with the regional wildlife manager of Sustainable Development with respect to the mitigation of the losses, and carry out any related mitigation measures required by the Director.

Buffer Zones

12. The Licencee shall, unless otherwise approved by the Director, leave a buffer zone:
    a) of at least 150 metres from:
       i) the riparian areas of lakes, rivers, creeks, and streams; and
       ii) riparian beaver flood habitat;
b) along the interior of the entire perimeter of each sub-area as defined by the Peat Harvesting Licence having a width of at least 100 metres and possessing a minimum of 0.5 metre in depth of peat; and

c) along such corridors within the Development, and to such a width as may be specified in writing by the Director in consideration of any recommendation(s) received from the IRMT respecting a desirability for any windbreak or habitat corridors.

Minimum Depth of Peat

13. The Licencee shall, until such time that a Peatland Management Plan is approved pursuant to Peat Harvest licences no. 16 and no.17, maintain an average of :0.0 metre of in-situ peat throughout the bottom of any active harvesting area.

Clearing

14. The Licencee shall, where practical, avoid draining and clearing any portion of the overall Development too soon in advance of its needs.

Respecting Access Road Construction

15. The Licencee shall not create any new borrow pit(s) for the construction of the access/haulage road without prior consultation with, and the written concurrence of, the IRMT.

16. The Licencee shall not construct other roads connected to the Development. Short access routes for construction and maintenance purposes shall be approved in writing by the IRMT prior to construction.

Water Rights Licence

17. The Licencee shall not construct any water control works associated with the Development, including engineered drains, nor release any drainage water from the Development, without the prior receipt of a Water Rights Licence to Construct Water Control Works from the Water Stewardship Division of Sustainable Development.

Drainage, Sedimentation Ponds and Effluent

18. The Licencee shall prevent, as much as practical, natural surface runoff water from outside the boundaries of the Development from entering the active harvesting areas of Development, by diverting such surface runoff water around the perimeter of the Development.

19. The Licencee shall, during construction and operation of the Development direct all drainage water associated with any harvesting area of the Development through one or more sedimentation ponds that are designed and constructed to achieve the effluent quality criteria specified in this Licence.
20. The Licencee shall release the effluent from each sedimentation pond through one or more final discharge points and shall register with the Director a list of all active final discharge points and their GPS locations, and maintain the registered list in a current status at all times.

21. The Licencee shall clean sedimentation ponds associated with the Development to ensure that the accumulated sediment volume does not exceed 25% of the total basin volume.

22. The Licencee shall design and construct each sedimentation pond associated with the Development:
   a) to facilitate the termination, if necessary, of the release of any effluent from each final discharge point;
   b) with a manual flow rate measuring device at each final discharge point that is adequate to measure the full range of instantaneous rates of discharge as may be expected to be released into the environment; and
   c) with a floating debris boom at the outlet of each final discharge point.

23. The Licencee shall not release any effluent from the Development where the release of the effluent would:
   a) cause a downstream flooding condition;
   b) contribute to a forecast downstream flooding condition; or
   c) further aggravate an existing flooding condition prevailing at that time.

24. The Licencee shall not release any effluent from a final discharge point if the quality of the effluent, as determined from the analysis of any grab sample taken of the effluent at the outlet of the sedimentation pond, is such that:
   a) the pH is less than 5.0 pH units; or
   b) the suspended solids concentration is greater than 30 milligrams per litre.

25. The Licencee shall not release any effluent from a final discharge point if the quality of the receiving waters, including the Whitouncil River, Seine River or Lake of Woods, as determined from the analysis of any grab sample at receiving water sampling locations identified in Schedule ‘A’ attached to this licence, indicate that the discharge of effluent appears to be causing:
   a) the water quality to be adversely affected relative to the current Manitoba Water Quality Standards, Objectives, and Guidelines;
   b) the pH of receiving waters to fall below the lesser of 6.5 pH units or the prevailing pH of the receiving stream; or
   c) naturally elevated levels (i.e. in excess of the current Manitoba Water Quality Standards, Objectives, and Guidelines) in these surface waterways to be further degraded.

26. The Licencee shall, immediately upon identifying any non-compliance pursuant to Clauses 23, 24 and 25, notify the Environment Officer responsible for this Licence.
Sewage Disposal

27. The Licencee shall dispose of all sewage and septage from on-site sanitary facilities in accordance with the Onsite Wastewater Management Systems Regulation 83/2003, or any future amendment thereof.

Stream Crossings

28. The Licencee shall adhere to the general recommendations on design, construction and maintenance of stream crossings as specified in the guidelines titled Manitoba Stream Crossing Guidelines for the Protection of Fish and Fish Habitat, 1996.

Operation of Transport Trucks

29. The Licencee shall securely cover truck transport loads during transport to and from the development.

Air Emissions

30. The Licencee shall take all appropriate measures to limit wind entrainment of peat beyond the property boundary of the Development.

Solid Wastes

31. The Licencee shall dispose of solid waste at a waste disposal ground operating under the authority of a permit issued pursuant to the Waste Management Facilities Regulation 37/2016, or any future amendment thereof, or a licence issued pursuant to The Environment Act.

Storage and Handling of Dangerous Goods and Hazardous Wastes

32. The Licencee shall collect and dispose of all used petroleum products and other hazardous wastes generated by the machinery used in the construction and operation of the Development in accordance with Sustainable Development and legislative requirements.

33. The Licencee shall ensure fuel storage containers incorporate secondary containment satisfactory to an Environment Officer.

34. The Licencee shall comply with all the applicable requirements of:
   a) Manitoba Regulation 188/2001, or any future amendment thereof, respecting Storage and Handling of Petroleum Products and Allied Products;
   b) The Dangerous Goods Handling and Transportation Act, and regulations issued thereunder, respecting the handling, transport, storage and disposal of any dangerous goods brought onto or generated at the Development; and
   c) the Office of the Fire Commissioner – Province of Manitoba.
35. The Licencee shall establish any fuel storage areas required for the construction and operation of the Development a minimum distance of 150 metres from any waterbody.

36. The Licencee shall, during construction and maintenance of the Development, operate, maintain, and store all materials and equipment in a manner that prevents any deleterious substances including fuel, oil, grease, hydraulic fluid, coolant, and other similar substances from entering any waterbody. An emergency spill kit for in-water use shall be readily available on site during construction.

Environmental Accident Reporting

37. The Licencee shall, in the case of physical or mechanical equipment breakdown or process upset where such breakdown or process upset results or may result in the release of a pollutant in an amount or concentration, or at a level or rate of release, that causes or may cause a significant adverse effect, immediately report the event by calling the 24-hour environmental emergency response line at 204-944-4888 or toll-free at 1-855-944-4888 pursuant to the Notice and Reporting Regulation 126/2010, or any future amendment thereof. The report shall indicate the nature of the event, the time and estimated duration of the event and the reason for the event.

38. The Licencee shall, following the reporting of an event pursuant to Clause 37:
   a) identify the repairs required to the mechanical equipment;
   b) undertake all repairs to minimize unauthorized discharges of a pollutant;
   c) complete the repairs in accordance with any written instructions of the Director; and
   d) submit a report to the Director about the causes of breakdown and measures taken, within one week of the repairs being done.

39. The Licencee shall, in a manner approved by the Environment Officer, remove and dispose of all spilled dangerous goods and pollutants.

Noise

40. The Licencee shall not cause or permit a noise nuisance to be created as a result of the construction, operation, or alteration of the Development, and shall take such steps as the Director may require to eliminate or mitigate a noise nuisance.

Heritage Resources

41. The Licencee shall, during construction and operation of the Development, apply measures to protect heritage resources, as prescribed in the Peatland Management Plan and Historic Resources Protection Plan and as may be directed by Historic Resources Branch.

Monitoring, Record Keeping, and Reporting

42. The Licencee shall, throughout the draining and harvesting of the site of the Development, but only under conditions of effluent release:
   a) collect samples of the effluent at all final discharge points and of downstream receiving water sampling locations identified in Appendix “A” and Appendix “B”
attached to this Licence and have them analyzed at such frequencies as specified in Schedule 'A', for such substances and characteristics as specified in Schedule 'B' attached to this Licence; and

b) once per week, measure and record the flow rate (in cubic metres per second) of effluent being released from each final discharge point of the Development, and use the weekly flow rate measurements to determine an estimate of the total monthly volumes (expressed in cubic metres) of effluent released from each final discharge point of the Development;

unless otherwise specified in writing by the Director.

43. The Licencee shall maintain records onsite available for inspection of the analytical data, and flow rate measurements recorded in accordance with Clause 42 of this Licence.

Decommissioning and Recovery

44. The Licencee shall:

a) until such time that a Peatland Recovery Plan is approved pursuant to the Peat Harvesting Licence no. 16 and Peat Harvest Licence no. 17 pursuant to The Peatlands Stewardship Act, comply with the Mine Closure Regulation 67/99, or any future amendment thereof, particularly in regards to addressing environmental issues including, but not necessarily limited to:

i) implementation of a plan that includes the re-establishment of self-regulatory mechanisms and a return of the affected areas to functional peat accumulating ecosystems;

ii) the implementation of any progressive recovery of those peat bog areas of the Development where harvesting has reached its terminal depth;

iii) the decommissioning of any temporary fuel storage site used at or for the Development;

iv) the decommissioning of access and bog roads, stream crossings, and power lines constructed for the Development;

v) the decommissioning, reclamation and restoration of the overall affected operational area of the Development;

vi) the restoration or replacement of wildlife or fish habitats disturbed, adversely affected, or lost as a result of the Development;

vii) the containment, control, or treatment of pollutants originating from the harvest site of the Development; and

viii) the strategy, scope, frequency, and duration of post-closure environmental monitoring activities at the harvest site;

where applicable; and

b) provide the Director with:

i) written notice three months in advance of any imminent permanent closure of this Development; or

ii) an immediate written notice of any sudden decision to temporarily close this Development whereby the Development would be placed in a mothballed state for re-opening in the foreseeable future; and
iii) in the course of progressive reclamation and restoration, as well as upon the permanent or temporary closure of this Development, implement the environmentally related aspects of the Closure Plan approved pursuant to the Mine Closure Regulation 67/99, or any future amendment thereof, to the satisfaction of the Director.

45. The Licencee shall, upon approval of the Peatland Recovery Plan pursuant to Peat Harvest licences No. 16 and No. 17, follow the monitoring program and assessment protocols set out in their Peatland Recovery Plan.

Annual Report

46. The Licencee shall submit an annual report to the Environment Officer responsible for this Licence, by no later than February 28th each year, including an annual summary containing the following information:
   a) a discussion and trend analysis of all the analytical values, measurements, and estimates determined and recorded pursuant to Clause 42 of this Licence;
   b) a comparison of measurements to Manitoba Water Quality Standards Objectives, and Guidelines, or future amendments thereof;
   c) annual report on land recovery; and,
   d) a summary of adaptive management strategies implemented to mitigate previously identified or anticipated non-compliance issues with this Licence, in an acceptable electronic format and in writing if requested.

Progress of Recovery

47. The Licencee shall consult a specialist in restoration ecology for Manitoba if the annual monitoring of the progression of the recovery suggests a progression rate which is unsatisfactory to the Director.

Future Monitoring and Research

48. The Licencee shall participate in monitoring and research activities related to the development of best practice standards in cooperation with Sustainable Development.

Alterations to the Development

49. The Licencee shall obtain written approval from the Director for any proposed alteration to the Development before proceeding with the alteration.

REVIEW OR REVOCATION

A. Environment Act Licence No. 2721 is hereby rescinded.
B. If, in the opinion of the Director, the Licencee has exceeded or is exceeding or has or is failing to meet the specifications, limits, terms, or conditions set out in this Licence, the Director may, temporarily or permanently, revoke this Licence.

C. If, in the opinion of the Director, new evidence warrants a change in the specifications, limits, terms or conditions of this Licence, the Director may require the filing of a new proposal pursuant to Section 11 of The Environment Act.

Tracey Brain, M.Sc.
Director
Environment Act

File: 4636.00
APPENDIX 'A' to licence 2721 R

(Downstream Sampling Locations – Caribou sub-area)
APPENDIX 'B' to licence 2721 R
(Downstream Sampling Locations – Giroux sub-area)
### SCHEDULE 'A' to licence 2721 R

<table>
<thead>
<tr>
<th>Area</th>
<th>Source</th>
<th>Location</th>
<th>Sampling Frequency*</th>
<th>Determinations or Analyses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Final Discharge Point</td>
<td>Effluent</td>
<td>Stations ‘S1’, ‘S8A’ and ‘S8B’ (see Appendix ‘A’ and Appendix ‘B’))</td>
<td>Weekly &amp; 3x/year</td>
<td>See “Schedule B”</td>
</tr>
<tr>
<td>Caribou sub-area</td>
<td>Downstream Receiving Water</td>
<td>Stations ‘S2’ and ‘S3’ (see Appendix A)</td>
<td>2x/year</td>
<td>See “Schedule B”</td>
</tr>
<tr>
<td>Giroux sub-area</td>
<td>Downstream Receiving Water</td>
<td>Stations ‘S10’ and ‘S13’ (see Appendix ‘B’))</td>
<td>2x/year</td>
<td>See “Schedule B”</td>
</tr>
</tbody>
</table>

* "weekly" means one sample every seven days, but on an operating day.
  "2x/year" means one sample every spring freshet and late fall.
  "3x/year" means one sample every spring freshet, late summer, and late fall.

**Note:** The Director reserves the right to make future alterations to this Schedule in the interests of effective environmental management.
### Schedule 'B' to Licence 2721 R

<table>
<thead>
<tr>
<th>Parameters / Characteristics / Data</th>
<th>Effluent (weekly)</th>
<th>Effluent (3x / Year)*</th>
<th>Receiving Water (2x / Year)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sampling Date</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Flow rate</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>pH</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Total Alkalinity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acidity</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conductivity</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Total Dissolved Solids</td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Total Suspended Solids</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>5-day Biochemical Oxygen Demand</td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Hardness</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Total Kjeldahl Nitrogen</td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Total ammonia (as N)</td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Total organic carbon</td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Nitrate + Nitrite (as N)</td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Sulphates (as S)</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Total and dissolved metals and metalloids:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aluminum (Al)</td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Antimony (Sb)</td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Arsenic (As)</td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Barium (Ba-)</td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Beryllium (Be)</td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Bismuth (Bi)</td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Boron (B)</td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

*continued...*
<table>
<thead>
<tr>
<th>Parameters / Characteristics / Data (continued)</th>
<th>Effluent (weekly)*</th>
<th>Effluent (3x / Year)*</th>
<th>Receiving Water (2x / Year)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total and dissolved metals and metalloids</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cadmium (Cd)</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Calcium (Ca)</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Cesium (Cs)</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Magnesium (Mg)</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Manganese (Mn)</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Mercury (cold vapour)</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Molybdenum (Mo)</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Nickel (Ni)</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Phosphorus (P)</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Potassium (K)</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Rubidium (Rb)</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Selenium (Se)</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Silicon (Si)</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Silver (Ag)</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Sodium (Na)</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Strontium (Sr)</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Tellurium (Te)</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Thallium (Tl)</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Thorium (Th)</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Tin (Sn)</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Titanium (Ti)</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Tungsten (W)</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Uranium (U)</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

continued...
<table>
<thead>
<tr>
<th>Total and dissolved metals and metalloids (continued):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vanadium (V)</td>
</tr>
<tr>
<td>Zinc (Zn)</td>
</tr>
</tbody>
</table>

"weekly" means one sample every seven days, but on an operating day.
"2x/year" means one sample every spring freshet and late fall.
"3x/year" means one sample every spring freshet, late summer and late fall.

**Note:** The Director reserves the right to make future alterations to this Schedule in the interests of effective environmental management.
**SCHEDULE 'C' to licence 2721 R**

<table>
<thead>
<tr>
<th>PEAT HARVEST LICENCE SUB-AREA</th>
<th>TOTAL AREA (ha)</th>
<th>PROPERTY OWNERSHIP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caribou</td>
<td>3524.36 ha</td>
<td>Crown Land</td>
</tr>
<tr>
<td>Giroux</td>
<td>262.07 ha</td>
<td>Crown Land</td>
</tr>
<tr>
<td>TOTAL AREA =</td>
<td>3786.43 ha</td>
<td></td>
</tr>
</tbody>
</table>
Appendix B

Fire Emergency Plan

Richer Plant, MB.
FIRE ACTION PLAN OF SITE

Premier Tech Horticulture

Richer, Manitoba

Location

PTH 302 N, RICHER, MANITOBA  R0E 1S0

204-422-8805
1 FACILITY DESCRIPTION........................................................................................................................................... 1
  1.1 FACILITY TYPE OF OPERATION: .......................................................................................................................... 1
  1.2 ELECTRICAL CLASSIFICATION: ............................................................................................................................ 1
  1.3 AVERAGE OCCUPANCY - WEEKLY OPERATION PER SHIFT .................................................................................... 1
  1.4 SITE OVERVIEW ..................................................................................................................................................... 2

2 FIRE SAFETY EQUIPMENTS ........................................................................................................................................ 3
  2.1 LIST OF SAFETY EQUIPMENT .................................................................................................................................. 3
  2.2 DESCRIPTION OF FIRE ALARM SYSTEM: ................................................................................................................. 3
  2.3 SAFETY EQUIPMENT LOCATION ................................................................................................................................ 10

3 EMERGENCY PROCEDURES ....................................................................................................................................... 11

4 FLAMMABLE AND COMBUSTIBLE MATERIAL: ................................................................................................................ 12

5 LIST OF CONTACT NAMES IN CASE OF AN EMERGENCY .............................................................................................. 13

6 DOCUMENT REVISION HISTORY .................................................................................................................................. 14
1 FACILITY DESCRIPTION

1.1 Facility type of operation:
Premier Tech Horticulture manufactures and distributes a complete line of Sphagnum peat moss-based growing media and soil amendments that enhance the quality and yield of horticultural and agricultural productions.

Premier Horticulture at Richer, Manitoba includes those buildings:

Total area of buildings:

<table>
<thead>
<tr>
<th>Office</th>
<th>Plant</th>
<th>Shop</th>
<th>Bag Shed</th>
<th>Pole Sheds (3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1200</td>
<td>22,000</td>
<td>6,500</td>
<td>7,500</td>
<td>12,200</td>
</tr>
</tbody>
</table>

1.2 Electrical classification:
According to the National Building Code and our insurance company, our Richer plant is classified Group F, Division 2.

1.3 Average occupancy - Weekly operation per shift

<table>
<thead>
<tr>
<th>Personal</th>
<th>Day</th>
<th>Evening</th>
<th>Night</th>
</tr>
</thead>
<tbody>
<tr>
<td>Office staff</td>
<td>5</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Plant team members</td>
<td>15</td>
<td>14</td>
<td>8</td>
</tr>
<tr>
<td>Plant staff</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Yard team members</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>24</td>
<td>15</td>
<td>3</td>
</tr>
</tbody>
</table>

Note: In addition, maintenance contractors, truck drivers or visitors can be on site but are recorded in the logbook at the front desk.
1.4 Site overview

Manitoba’s site overview

Richer Processing Plant
Yard Plan

Air Rescue GPS Location: Latitude 49-39-55N / Longitude 96-27-38E
**FIRE SAFETY EQUIPMENTS**

2.1 **List of safety equipment**

**Extinguishers:**
- 19 ABC type extinguishers of 10 lbs
- 19 A type (water) extinguisher of 20 lbs

**Description of fires and fire extinguishers:**

**Types of fires:**
1) Type A fires are the ordinary combustible material fires such as wood, paper, cloth
2) Type B fires are flammable & combustible liquids such as gasoline, paints and solvents, alcohols, acetone
3) Type C fires involve energized electrical equipment

**Types of fire extinguishers:**
1) Water extinguishers are good for Type A fires only
2) CO2 extinguishers work well for Type B or C fires
3) Dry Chemical extinguishers (ABC) is a multipurpose extinguisher that is good for Type A, B and C fires

2.2 **Description of Fire Alarm System:**

There are three main types of devices that are controlled by the fire alarm system:

*Initiating devices*
These are components which give a signal to the fire alarm telling it that we may have a fire or trouble. It comprised smoke detectors, beam smoke detectors, heat detectors and manual pull stations.

*Beam smoke detectors are designed to provide open area protection. The detector consists of a transmitter/receiver unit and a reflector. Smoke entering the area between them causes a reduction in signal. When the obscuration reaches alarm thresholds, the detector generates an alarm signal. Slow build up of dirt or dust on the lens of the detector are compensated for by a microcontroller that continuously monitors the signal strength and periodically updates the alarm and trouble thresholds. When the self-compensation circuit reaches its limit, the detector generates a trouble signal, indicating the need for service. Due to the sensitivity of the beams, these are used only during prolonged or unoccupied shut downs.*
Three LEDs on the detector indicate the current status: a red LED for alarm, a yellow LED for trouble, and a blinking green LED for standby operation. Note: The panel controls the status of the red and green LEDs.

Three beam smoke detectors are installed in all three sections of the plant

Underneath each detector, keyed station to reset or test the detectors

Figure 1. Position of the beam smoke detectors on plant section walls

On the wall opposite the detectors, you will find a shiny piece of plastic mounted at a similar height of the detectors. These are the reflectors. Their only purpose is to reflect the projected laser beam back to the receiver unit.

In addition to the Beam devices, which are generally used only on weekends and longer breaks, the plant is equipped with heat sensing wire. The wire is located in the roof of all sections of the plant, at regular intervals. At a set temperature, this net work of wires will activate the alarms and other fire prevention devices.

The plant and shop are equipped with heat detection wires, approximately 10 feet apart, across the ceilings. These wires will trip the alarm if the heat is sufficient to complete the circuit wire within them. These wires are always armed.

2. Audible/visual warning devices
These are the ways that the fire alarm communicates with us. In our plant we have horns and strobe lights in place for this purpose.

3. Output devices
These are systems that have been tied in to the fire alarm to work in tandem with it. It comprised 5 rolling steel fire shutter doors that prevent the fire from spreading from one section of the plant to another thru openings in the firewall.
where a conveyor is passing peat through, to the adjacent room. These doors are all operated electronically from the Fire Alarm System Control Panel and can be manually operated from the red box located above each door.

Each door is working along with conveyor blow-off systems that clean the bottoms of the conveyors so that the doors can shut cleanly on the belt. Currently there are three said systems in the plant.

![Conveyor blow-off system schematic](image)

*Figure 2. Conveyor blow-off system schematic*

Within the three systems, there are seven Air knives. These are the devices that distribute the air to clean the conveyor belt. These knives are fed by the big air receiver on the ground below/beside the openings.

![Position of the conveyors' openings of screening/mixing wall](image)

*Figure 3. Position of the conveyors' openings of screening/mixing wall*

Four rolling steel doors with one air knife each are covering the conveyor openings in the screening/mixing wall.

Two conveyor blow-off systems located near the openings.

One rolling steel doors with three air knives is covering the conveyors opening in the mixing/packaging wall.
These doors/blow-offs systems are operated electronically from the Fire Alarm Control Panel, thus receive signals from it in the event of a fire. This system will be activated in a timed sequence. The timing sequence is as follows:

- Fire Alarm is triggered
- Plant is shut down (immediate)
- Conveyor blow-off system is activated (approx. 5 sec after shutdown)
- Fire Shutter doors are closed (approx. 20 sec after shutdown)

Once this system has been activated, it needs to be reset electronically from the Fire Alarm Control Panel. The conveyor blow-off systems will then recharge themselves but the rolling steel fire shutter doors must be manually reset using the reset bars and vice grips located on the bracket just aside each shutter door. These tools should remain in the brackets designed for them.

All these functions are controlled from the Fire Alarm Control Panel which is located in the electrical room and two remote annunciators located in the lunchroom and in the office to display all alarms and trouble conditions in the system.

Finally, the system’s battery has sufficient capacity to power the fire alarm system for not less than twenty-four hours plus 5 minutes of alarm upon a normal AC power failure.
All systems are working together to provide early warning of a developing fire, however, such a system does not assure protection against property damage or loss of life resulting from a fire. Therefore, respecting the procedures of the fire alarm system is essential.

A layout with all devices location is provided in Appendix 9

**Description of Self-Contained Emergency lighting units:**
These self contained emergency lighting units are at all exits in the plant. They are a sign providing maintained or non-maintained emergency lighting, in which all the elements such as battery, the lamp and the control unit are contained within the housing. All lighting units are tested monthly and are repaired if the light goes dim within under 30 minutes of the test being complete.

**Other:**
- Ten (10) alarm pull stations
- Eleven (11) emergency lights
- One (1) fire security panel
- One (1) sprinkler control
- Eleven (11) emergency exits

**Fire alarm system maintenance**

**Monthly and Yearly Maintenance**
**Ensure that monthly inspections and testing is conducted under emergency power**

The fire alarm panel and all inputs are inspected and tested every year by *indicate here supplier that proceed to yearly inspection of fire alarm system*.

All portable fire extinguishers are inspected every month by our employees and annually by *indicate here supplier that proceed to yearly inspection of extinguishers*.

All emergency lighting are inspected every month in house internally and every year by *indicate here supplier that proceed to yearly inspection of emergency lighting*.

Describe maintenance for every system that required some.

See example of Manitoba’s maintenance schedule:

### Rolling Steel Fire Door preventive maintenance

<table>
<thead>
<tr>
<th>Electrically Operated Door</th>
<th>Every 3 Months</th>
<th>Every 6 Months</th>
</tr>
</thead>
<tbody>
<tr>
<td>Check Limits</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Check and Lube Bearings/Bushings</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Check Idler Rollers</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Check Sprockets</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Check &amp; Lube Drive Chains</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Check V-Belts</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Check Safety Devices</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Check Brakes and Clutches</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Check Gear Box Oil</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Check Push Button Controls</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Check Chain Hoist Interlock</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Check General Condition of Door</td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

**Release Device**

| Test Electronic release device | X |
| Test Mechanical release device | X |

**NOTE:**
- Use SAE 30 Oil (Never use grease or silicone spray)
- Do not lubricate motor, clutch or V-belt
- Motor bearings are related for continuous operation
- Inspect and service whenever malfunction is observed or suspected.
## Conveyor blow-off preventive maintenance

<table>
<thead>
<tr>
<th></th>
<th>Every Week</th>
<th>Every Month</th>
<th>Every 6 Months</th>
</tr>
</thead>
<tbody>
<tr>
<td>Check the status of the locks on the isolation valves. Confirm all valves are locked open.</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Clean the vent connections of the fast-acting solenoid valves and tank relief valves.</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Open the valve on the bottom of the tank to blow out any moisture or condensation.</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clean the outlet of the air knives of any debris (use a .04&quot; feeler gauge).</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physically test the operation of the system.</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Confirm the check valve is preventing back-flow.</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Test the relief valve.</td>
<td></td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>
2.3 Safety equipment location

- Appendix 3 for 11” x 17” detailed view
- 22” x 34” map inside plant at “X - your position”
- 22” x 34” map inside the office for fire department & PTH management consultation

Example of Manitoba’s safety equipment location:
3 EMERGENCY PROCEDURES

A team member must call the Fire Department every time there is an emergency situation like a fire. The person who calls must have the capacity to contact the Fire Department and make a brief but exact summary of the fire’s nature, origin and location.

When the fire fighters are on the site, the emergency plan leader has to stay available to help and cooperate with them.

<table>
<thead>
<tr>
<th>FIRE DEPARTMENT</th>
<th>AMBULANCE</th>
<th>911</th>
<th>POLICE DEPARTMENT</th>
<th>POISON CONTROL CENTER</th>
</tr>
</thead>
</table>

DESIGNATED MEETING POINT

MANITOBA PLANT: EAST GATE BY OFFICE
### 4 FLAMMABLE AND COMBUSTIBLE MATERIAL:

<table>
<thead>
<tr>
<th>Description</th>
<th>*Quantity (avg.)</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Raw peat – peat bunker</td>
<td>75,000 in 75,000 out</td>
<td>Operation include peat moss on conveyors and hopper in our processes</td>
</tr>
<tr>
<td>Wood pallets – inside</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>Wood pallets – outside</td>
<td>200</td>
<td></td>
</tr>
<tr>
<td>Acetylene tank</td>
<td>2 in storage, 1 in use.</td>
<td>1 in storage, 1 in use.</td>
</tr>
<tr>
<td>Oxygen tank</td>
<td>2 in storage, 1 in use.</td>
<td>1 in storage, 1 in use.</td>
</tr>
<tr>
<td>Propane tank</td>
<td>6 in storage, 1 in use.</td>
<td>5 in storage, 1 in use.</td>
</tr>
<tr>
<td>Aerosol &amp; other flammable liquids**</td>
<td></td>
<td>Various products/sizes such as aerosol paints, cleaners, lubricants, etc..</td>
</tr>
<tr>
<td></td>
<td></td>
<td>All items stored within Flammable Storage Cabinets.</td>
</tr>
</tbody>
</table>

*Quantity can vary according to production rate, season, etc.
**Refer to: Flammable and Combustible Liquid Storage for more details for general information

Example of list of flammable liquid storage throughout the site:

<table>
<thead>
<tr>
<th>Cabinet A</th>
<th>Cabinet B</th>
</tr>
</thead>
<tbody>
<tr>
<td>➢ Paint</td>
<td>➢ Hydraulic Oil</td>
</tr>
<tr>
<td>➢ WD-40</td>
<td>➢ Paint Thinner</td>
</tr>
<tr>
<td>➢ Brake Clean</td>
<td>➢ ATF</td>
</tr>
<tr>
<td>➢ Heavy duty silicone spray</td>
<td>➢ Air Compressor Oil</td>
</tr>
<tr>
<td>➢ Silicone in Tube</td>
<td>➢ Motor Oil</td>
</tr>
<tr>
<td>➢ Motor Oil</td>
<td>➢ Air Tool Oil</td>
</tr>
<tr>
<td>➢ ATF</td>
<td>➢ Gear Oil</td>
</tr>
<tr>
<td>➢ Choke and Carb cleaner</td>
<td></td>
</tr>
<tr>
<td>➢ Glass Cleaner</td>
<td></td>
</tr>
<tr>
<td>➢ Rust Coat</td>
<td></td>
</tr>
<tr>
<td>➢ Anti seize</td>
<td></td>
</tr>
</tbody>
</table>
5 LIST OF CONTACT NAMES IN CASE OF AN EMERGENCY

PTH – RICHER
0.3 KM NORTH OF HIGHWAY 1 ON THE WEST SIDE OF PROVINCIAL ROAD 302
RICHER (MANITOBA) R0E 1S0
TEL.: 204-422-8805 – FAX: 204-422-5295
DIRECTOR: JAMIE MCLENNAN

<table>
<thead>
<tr>
<th>FIRE DEPARTMENT</th>
<th>AMBULANCE</th>
<th>POLICE DEPARTMENT</th>
<th>POISON CONTROL CENTER</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

911

DESIGNATED MEETING POINT

MANITOBA PLANT: MAIN ENTRANCE OF THE SITE

<table>
<thead>
<tr>
<th>Name/extension</th>
<th>Cell phone</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bernard Bélanger/6235</td>
<td>418-868-4501</td>
<td>Chairman, Chief Ex. Officer</td>
</tr>
<tr>
<td>Jean Bélanger/6310</td>
<td>418-868-5365</td>
<td>Chairman, Chief Op. Officer</td>
</tr>
<tr>
<td>Guy Gagnon/6226</td>
<td>418-868-4814</td>
<td>Technical Director</td>
</tr>
<tr>
<td>Jamie McLennan</td>
<td>204-392-4909</td>
<td>Operations Director</td>
</tr>
<tr>
<td>Natalie Trembley/6927</td>
<td>418-860-7203</td>
<td>Health &amp; Safety Director</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Name/extension</th>
<th>Cell phone</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jamie McLennan/245 (home: 205-0900)</td>
<td>204-392-4909</td>
<td>Emergency plan Leader</td>
</tr>
<tr>
<td>Steve Ullenboom/242</td>
<td>204-392-6432</td>
<td>Emergency plan Leader (Subs.)</td>
</tr>
<tr>
<td>Lead Hand on shift</td>
<td>204-371-9555</td>
<td>Emergency plan Representative</td>
</tr>
<tr>
<td>Mechanic on shift</td>
<td></td>
<td>Emergency plan Representative (Subs.)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Name</th>
<th>Cell phone</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phil Schroen</td>
<td>Harry Prudnikov</td>
<td>Brenden Kaminski</td>
</tr>
<tr>
<td>Mike Neufeld</td>
<td>Larry Gillings</td>
<td>Vassili Prudnikov</td>
</tr>
<tr>
<td>Steve Ullenboom</td>
<td>Les Birta</td>
<td>Nicholas Friesen</td>
</tr>
<tr>
<td>Marc Ricard</td>
<td>Dave Melanson</td>
<td></td>
</tr>
</tbody>
</table>

GPS location for air rescue:

Production site
Latitude: 49-33-48 N
Longitude: 96-29-42 W
## Document Revision History

<table>
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<th>#</th>
<th>Date</th>
<th>Description</th>
<th>Responsible</th>
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<td>1</td>
<td></td>
<td>Original version</td>
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<tr>
<td>2</td>
<td>August 9, 2012</td>
<td>Amendment</td>
<td>MCLJ</td>
</tr>
<tr>
<td>3</td>
<td>August 9, 2013</td>
<td>Amendment</td>
<td>MCLJ</td>
</tr>
<tr>
<td>4</td>
<td>Feb.14, 2017</td>
<td>Updated Contacts</td>
<td>PREJ</td>
</tr>
</tbody>
</table>
Appendix C

Fire Emergency Plan

Caribou Bog, MB.
FIRE ACTION PLAN OF

Premier Tech Horticulture

Caribou Bog 2018

Located at

HIGHWAY 308 MOOSE LAKE MANITOBA

1-204-371-0911
1 FACILITY DESCRIPTION............................................................... 1
  1.1 FACILITY TYPE OF OPERATION:...................................................... 1
  1.2 AVERAGE OCCUPANCY - WEEKLY OPERATION PER SHIFT ...................... 1
  1.3 SITE OVERVIEW............................................................................. 2
2 FIRE SAFETY EQUIPMENT .................................. ERROR! BOOKMARK NOT DEFINED.
  2.1 LIST OF SAFETY EQUIPMENT .......................................................... 2
  2.3 SAFETY EQUIPMENT LOCATION ....................................................... 2
3 EMERGENCY PROCEDURES................................................................. 4
4 FLAMMABLE AND COMBUSTIBLE MATERIAL: ......................................... 7
5 LIST OF CONTACT NAMES IN CASE OF AN EMERGENCY ......................... 9
6 DOCUMENT REVISION HISTORY .......................................................... 10
1 FACILITY DESCRIPTION

1.1 Facility type of operation:
Premier Tech Horticulture harvests, manufactures and distributes a complete line of Sphagnum peat moss-based growing media and soil amendments that enhance the quality and yield of horticultural and agricultural productions.

Premier Horticulture at Caribou Site includes the following buildings:
Office Building with attached Lunchroom
Maintenance Shop with attached Washroom

Total area of storages is: 800 sq. ft.
Total area of bogs is: 1484 acres

1.2 Average occupancy - Weekly operation per shift

<table>
<thead>
<tr>
<th>Personal</th>
<th>Day</th>
<th>Evening</th>
<th>Night</th>
</tr>
</thead>
<tbody>
<tr>
<td>Office staff</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Bog team members</td>
<td>9</td>
<td>8</td>
<td>0</td>
</tr>
<tr>
<td>Mechanic team</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>members</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>12</td>
<td>9</td>
<td>0</td>
</tr>
</tbody>
</table>

1.3 An agreement between all 3 neighbouring bogs has been developed and signed by all participants. (Premier Tech, F.P.M., and Jiffy Peatmoss)

The agreement covers the sharing of fire fighting equipment in the case of an emergency, where one of the participants is in need of help to fight fires.
Site overview  Caribou Bog

1.4 List of safety equipment

Extinguishers:
- 28 ABC type extinguishers of 5 lbs
- 12 ABC type extinguishers of 10 lbs
- 3 ABC type extinguishers of 20 lbs
- 16 A type (water) extinguisher of 30 lbs

Description of fires and fire extinguishers:

Types of fires:
1) Type A fires are the ordinary combustible material fires such as wood, paper, cloth
2) Type B fires are flammable & combustible liquids such as gasoline, paints and solvents, alcohols, acetone
3) Type C fires involve energized electrical equipment

Types of fire extinguishers:
1) Water extinguishers are good for Type A fires only
2) CO2 extinguishers work well for Type B or C fires
3) Dry Chemical extinguishers (ABC) is a multipurpose extinguisher that is good for Type A, B and C fires

1.5 Safety equipment location

3-1200 GALLON PULL BEHIND WATER TANKS WITH PUMPS ARE POSITIONED THROUGHOUT THE BOG NEAR THE HARVESTING LOCATIONS.

3-DITCH WATER PUMPS ARE SET UP ALONG THE MAIN ROAD AT MARKED PONDS.
EMERGENCY PROCEDURES

TRAINING REQUIREMENTS
All Team members and management who may be involved in dealing with a bog fire should be trained in fire fighting procedures and how to use the available equipment. All Team members should be trained and familiar with ditch and tanker pumps, and fill procedures. All contractors, including truck drivers, service mechanics and visitors: -should be issued copies of the smoking policy and the fire safety policy. All Team members should be trained in the proper use of fire extinguishers. Using this procedure will ensure everyone knows what to do in case of a fire.

FORMS USED
Accident/Incident Form
Water tanker training forms.

PROCEDURE DETAILS
Post a list of Emergency Numbers beside each phone and First Aid kits. In the case of a cellular phone, have Team members store Emergency Numbers

A bog fire is identified by sight of wisps of smoke or flame and/or by the distinctive odor of burning peat.

Preventive measures to be taken to prevent the occurrence of fires include:
**Watch the heat gauge in equipment for heat build up
**Watch for peat build up in or on the equipment
**Blow out the equipment regularly.
**Adhere to all safety rules (i.e. smoking).
**Do not open hot piles during high wind conditions. If in doubt, consult the bog supervisor or person in charge.

When a fire is spotted call for help (two-way radio, CB, etc.). Inform as many people as you can, as quickly as you can.

DO NOT ATTEMPT TO FIGHT THE FIRE BEFORE INFORMING OTHERS.
All Team members are called to action during a fire.

Stay calm, do not panic.
Designate someone to take charge of the situation (typically the Supervisor) – if the bog Supervisor is unavailable, the lead hand or most senior person on site is to take charge. Assess the situation.
What is the scope of the fire?
Will a water extinguisher be able to handle the situation?
Get the appropriate equipment to the site.
If the fire wagons and additional equipment are needed have someone available to help hook up tankers.
Bring all other persons in with extinguishers, pails, shovels, etc. (whatever resources are needed or available).
If other Team members are not needed to assist at the site, everyone should check their equipment for possible sources of fire.
The person in charge will contact the required resources or assign someone to contact them (internal company persons, Fire Departments, Dept. Natural Resources etc).

**Use extreme caution during high wind conditions.**

Once the fire wagon(s) and the tooth harrows are on site and ready, use the tooth harrows (digging deeply) around the perimeter to control the spread of fire.

Never take equipment into a zone where visibility is limited due to heavy smoke.

Do not open burning piles. Soak the surface and the surrounding area with a rain-like jet of water.

Once the surface is extinguished, if it is determined that there is fire in the pile, the proper nozzle should be used for injecting water internally into the pile.

Do not walk up a pile that has smoldering ashes, embers or flames as this may hide the fire by pushing it into the pile.

Use extreme caution with mobile equipment as using the wheel loader to pull down burning peat often spreads the fire and cause more hidden fires.

Completely extinguish the fire and wet down the entire fire area.

**Maintain a fire watch and Restore all fire equipment to proper condition.**

Any team member may call the Fire Department if there is an Emergency Situation like a fire. The person who calls must have the capacity to contact the Fire Department and make a brief but exact summary of the fire’s nature, origin and location.

When the fire fighters are on the site, the emergency plan leader has to stay available to direct and cooperate with them.

<table>
<thead>
<tr>
<th>FIRE CENTER</th>
<th>204-345-1418</th>
</tr>
</thead>
<tbody>
<tr>
<td>AMBULANCE</td>
<td>218-463-2500</td>
</tr>
<tr>
<td>POLICE DEPARTMENT</td>
<td>204-437-2041</td>
</tr>
<tr>
<td>POISON CONTROL CENTER</td>
<td>204-787-2591</td>
</tr>
</tbody>
</table>
DESIGNATED MEETING POINT

IN THE EVENT OF AN EMERGENCY EVACUATION THE MUSTER POINT IS JUST OUTSIDE THE ENTRANCE GATE

CARIBOU BOG : BESIDE MAIN ENTRANCE GATE
2  **FLAMMABLE AND COMBUSTIBLE MATERIAL:**

<table>
<thead>
<tr>
<th>Description</th>
<th>*Quantity (avg.)</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetylene tank</td>
<td>1 in storage, 1 in use.</td>
<td></td>
</tr>
<tr>
<td>Oxygen tank</td>
<td>1 in storage, 1 in use.</td>
<td></td>
</tr>
<tr>
<td>Propane tank</td>
<td>2 in storage, 1 in use.</td>
<td></td>
</tr>
<tr>
<td>Aerosol &amp; other flammable liquids**</td>
<td></td>
<td>Various products/sizes such as aerosol paints, cleaners, lubricants, etc.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>All items stored within Flammable Storage Cabinets.</td>
</tr>
</tbody>
</table>

*Quantity can vary according to production rate, season, etc.
**Refer to : *Flammable and Combustible Liquid Storage* for more details for general information

<table>
<thead>
<tr>
<th>Cabinet A</th>
<th>In oil shed</th>
</tr>
</thead>
<tbody>
<tr>
<td>➢ Paint</td>
<td>➢ Hydraulic Oil</td>
</tr>
<tr>
<td>➢ WD-40</td>
<td>➢ Paint Thinner</td>
</tr>
<tr>
<td>➢ Brake Clean</td>
<td>➢ ATF</td>
</tr>
<tr>
<td>➢ Heavy duty silicone spray</td>
<td>➢ Air Compressor Oil</td>
</tr>
<tr>
<td>➢ Silicone in Tube</td>
<td>➢ Motor Oil</td>
</tr>
<tr>
<td>➢ Motor Oil</td>
<td>➢ Air Tool Oil</td>
</tr>
<tr>
<td>➢ ATF</td>
<td>➢ Gear Oil</td>
</tr>
<tr>
<td>➢ Choke and Carb cleaner</td>
<td>➢ Gasoline</td>
</tr>
<tr>
<td>➢ Glass Cleaner</td>
<td></td>
</tr>
<tr>
<td>➢ Anti seize</td>
<td></td>
</tr>
</tbody>
</table>
- In oil shed South side of the maintenance shop -

<table>
<thead>
<tr>
<th>Cabinet B</th>
<th>In shop</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓ ATF</td>
<td>✓ Paint Thinner</td>
</tr>
<tr>
<td>✓ Air Compressor Oil</td>
<td>✓ Motor Oil</td>
</tr>
<tr>
<td>✓ Paint</td>
<td>✓ Air Tool Oil</td>
</tr>
<tr>
<td>✓ Silicone in Tube</td>
<td>✓ WD-40</td>
</tr>
<tr>
<td>✓ Brake clean</td>
<td>✓ Lock- tight</td>
</tr>
</tbody>
</table>

- South wall of the maintenance shop –
### List of Contact Names in Case of an Emergency

**Caribou Bog**  
36 KMs SOUTH OF HIGHWAY 1 ON THE WEST SIDE OF PROVINCIAL ROAD 308  
Shop TEL.: 204-371-4766  
MANAGER: JOHN PREVOST 204-371-0911

<table>
<thead>
<tr>
<th>FIRE DEPARTMENT</th>
<th>Sprague</th>
<th>204-437-3131</th>
<th>204-437-2322</th>
</tr>
</thead>
<tbody>
<tr>
<td>AMBULANCE- (Roseau) Minn.</td>
<td>218-463-2500</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bethesda – (Steinbach) Man.</td>
<td>204-326-6411</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stars Air Ambulance</td>
<td>911 or 204-786-4647</td>
<td></td>
<td></td>
</tr>
<tr>
<td>POLICE DEPARTMENT</td>
<td>204-437-2041</td>
<td></td>
<td></td>
</tr>
<tr>
<td>POISON CONTROL CENTER</td>
<td>204-787-2591</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Designated Meeting Point**

**Caribou Bog: Beside Main Entrance Gate**

<table>
<thead>
<tr>
<th>Name/extension</th>
<th>Cell phone</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Intervention committee</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CENTER 418-862-6356 in RDL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bernard Bélanger/6235</td>
<td>418-868-4904</td>
<td>Chairman, Chief Ex. Officer</td>
</tr>
<tr>
<td>Jean Bélanger/6310</td>
<td></td>
<td>Chairman, Chief Op. Officer</td>
</tr>
<tr>
<td>Guy Gagnon/6226</td>
<td></td>
<td>Technical Director</td>
</tr>
<tr>
<td>Jamie McLennan</td>
<td>204-392-4909</td>
<td>Operations Director</td>
</tr>
<tr>
<td>Marc St-Pierre</td>
<td>1-403-415-5590</td>
<td>Health &amp; Safety Director</td>
</tr>
<tr>
<td><strong>Participant 204-422-8805</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jamie McLennan (home 485-1203)</td>
<td>204-392-4909</td>
<td>Emergency plan Leader</td>
</tr>
<tr>
<td>John Prevost / (home 437-2464)</td>
<td>204-371-0911</td>
<td>Emergency plan Leader (Subs.)</td>
</tr>
<tr>
<td>Kevin Milne/ (home 437-2476)</td>
<td>204-392-5856</td>
<td>Emergency plan Representative</td>
</tr>
<tr>
<td>Eddy Faskerti</td>
<td>204-371-4766</td>
<td>Emergency plan Representative (Subs.)</td>
</tr>
<tr>
<td><strong>First Aid Team</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eddy Faskerti</td>
<td></td>
<td>Safety Comm. Reps</td>
</tr>
<tr>
<td>Darryl Pederson</td>
<td></td>
<td>Safety Comm. Reps</td>
</tr>
<tr>
<td>Don Brindle</td>
<td></td>
<td>First Aid person</td>
</tr>
<tr>
<td>All senior employees</td>
<td></td>
<td>First Aid person</td>
</tr>
</tbody>
</table>

**GPS location for air rescue:**

- **Shop yard site**  
  - Latitude: 49-23-36  
  - Longitude: 95-21-11
### Document Revision History

<table>
<thead>
<tr>
<th>#</th>
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Appendix D

Pre Harvest Peat Depths

Caribou Bog, MB.
located in the survey. After reconnaissance sampling indicated the bog exceeded 5 m in depth in many places, it was decided to sample it on a 300 m grid. Forty-one sites, CS-48 to 88, were sampled (Fig. 8). Mental records in section 8 are held by Hudson’s Bay Company, and the remander is Crown Land.

The vegetation associations of the bog surface are shown in Figure 11. Aside from some areas of moderately to densely treed Picea mariana, the bog is either open sparsely treed or consists of large open areas of either Sphagnum or Sphagnum + Carex that can be distinguished on the infralittoral plane, because the Sphagnum areas have a distinctive orange tone. A pond 250 m in diameter in the west-central part is surrounded by peat several meters in thickness. It is bordered with a narrow fringe of spruce and a dense shrub growth. One feature of the bog is patterned black with abundant Carex that occurs on the surface drains in the north-central part. These are probably wet in normal years, but the water table was at the Sphagnum surface in the very dry summer of 1976. North-south profiles along the sampled grid lines indicate the good Sphagnum layer is thinnest along the eastern side (Fig. 12). From these, it is estimated that 990 acres (3.86 km²) are underlain by 3.5 m of 80 to 100 per cent Sphagnum, or 13 605 400 m³, and that an additional 300 acres (1.29 km²) are underlain by 2 m of similar Sphagnum, or 2 941 300 m³. The total estimated Sphagnum moss is 15 146 700 m³ or equivalent to 1 420 000 tonnes of product. Much additional material consisting of 20 to 75 per cent Sphagnum is present at depth; it is mixed with both peat and humified material. The content of woody fragments is uniformly low, with a few minor exceptions (see Appendix 1).

Nineteen sites were sampled in the reconnaissance survey, and a tonnage calculation, based on these holes only, yielded a figure of 0.4 per cent higher than the final estimate. This over-estimate is attributed to sampling one location in the south-eastern central part of the bog. However, this may give some indication of the validity of other tonnage estimates made in this report.

CARIBOU SOUTHWEST BOG

The Caribou Southwest bog extends over 1,780 acres (7.20 km²) and contains large reserves of Sphagnum moss. Only 11 sites were sampled. OWS-99 to 99 (Fig. 8) and tonnage estimates are considered tentative.

The vegetation patterns, as shown in Figure 13, indicate a north-westward sloping, domed, treed area across the bog with drainage to the west and north. The northeastern third of the bog is either open or sparsely treed, and much of the area has a similar response in infrared photos to the open Sphagnum areas in other parts of the Caribou bog. Two small ponds were present here.

Based only on the 11 sampled sites, an upper layer of 80 to 100 per cent Sphagnum has an average thickness of 2.8 m (Fig. 14) and an average absorptive value of 18.0 (B.2 yr). The volume is estimated at 20 000 000 m³, equivalent to 2 020 000 tonnes of product. An underlying layer 1.7 m thick consists of 90 to 70 per cent Sphagnum, 20 to 10 per cent sedge, some woody fragments, and a variable amount of humified material. The absorptive value averages 15.6 (21 yr) and the estimated volume is 12 300 000 m³, equivalent to 1 230 000 tonnes of product. More detailed testing would be required to determine whether some of this marginal material is marketable.

CARIBOU WEST BOG

In the remote sensing photographs, this bog shows a response suggesting a good Sphagnum bog. Where it was sampled, west of the central part, the surface consists of an extensive growth of Sphagnum. (Fig. B). However, a large percentage of the samples show the point below the 0.5 m layer of living Sphagnum consists of 2.5 m of peat, slightly humified, with only 14.1% to 32% of the Sphagnum moss (Fig. 14). The 15 000 topographic map indicates the bog is domed, as outlined by the 350 m contour. It is possible that this area was originally a "Sphagnum drainage" outlet for the Caribou South Bog, and has only relatively recently acquired a surface growth of Sphagnum. Further testing, particularly in the central and eastern parts would be necessary to determine whether more Sphagnum is present in these areas. The results of this test will determine whether more Sphagnum is present in these areas.

CAREBOU NORTHEAST BOG

This large bog can be subdivided into three physiographic areas; a north-eastern domed area of 790 acres (3.20 km²), an open "central" area of 730 acres (2.95 km²), and a moderately humified area of 370 acres (1.5 km²). The bog is accessible from Provincial Road 308. (Fig. 8). The vegetation communities are shown in Figure 15.

a) Northeastern domed area (tidal ridge)

Most of the northeastern part of the Caribou East Bog is a 790-acre (3.20 km²) bog plateau paralleling the Campbell Beach ridge. Aerial photos show a north-west-oriented central ridge, with growth of spruce radiating outward on all sides. On the extreme north-eastern side, where it encroaches on the beach ridge, the bog is only 1 to 3 m deep. The upper layer of good Sphagnum is 1 to 2 m thick, underlain in places by Sphagnum mixed with small to large amounts of peat. Humification increases considerably with depth. In the central ridge (CNE-116-122), good Sphagnum moss is at least 3 m thick, and is underlain by a thin layer of partly humified mixed peat.

On the south-western side of the ridge, (CNE-119, 121, and 125), about 2.5 m of Sphagnum is present, underlain by 2 m of slightly to moderately humified Sphagnum (GS-170 to 70 per cent) with some intermixed read and sedge peat. That area of thick bog merges southwestward into the central bog of similar thickness (4.5 m). Assuming an average thickness of 1.8 m for the good Sphagnum layer, (Fig. 16) reserves are 540 000 m³, equivalent to 554 000 tonnes of product.

b) Open area to southwest

The southwestern 730 acres (2.95 km²) of the bog is an open, wet meadow with abundant Carex and Eriophorum, but with a generally continuous cover of Sphagnum moss. Very rare widespread burned, stunted spruce and lupine are present. Open wet areas, or drains, are present over much of the bog, and an area of moderately-treed bog on the eastern side is included.

Five widely spaced sampling sites within this part indicate a uniform depth of 4.5 to 6 ft (1.4 to 1.8 m). At one of these locations (CNE-110, 118, 130) a layer of Sphagnum moss 3 to 5 m deep is present, underlain by about 1.5 m of mixed Sphagnum-merge peat with some woody fragments. In the other two locations (CNE-114, 117) the Sphagnum layer is 1.5 to 2 m thick, with an underlying layer of 3.5 m that is at least 20 per cent humified, and contains about 1.5 m of Sphagnum mixed with some read and sedge peat, and some woody fragments. More sampling is required for an accurate assessment of resources, but if a layer averaging 2.5 m of Sphagnum moss is present, reserves would be 7 400 000 m³, equivalent to 740 000 tonnes of product.

c) Eastern sublobe

A 370-acre (1.5 km²) oval-shaped raised or domed peat plateau is present in the south-eastern part of the Caribou Northeast bog. The plateau bog is generally moderately treed, and a central area of dense growth has some trees of large size. At least two open Sphagnum hazel beds with some scattered stunted spruce are present. The humification of this bog is variable, being 2.7 m on the north side, 3.3 m on the east side, 4.5 m in the centre, and 4.9 m in the western side, where it merges into the "central" bog (Fig. 7).

The layer of good Sphagnum moss averages 2.3 m thick, and is underlain by 1 to 2 m of layer of Sphagnum-merge peat that is variably humified. Reserves of this good Sphagnum moss are estimated at 3 450 000 m³ equivalent to 345 000 tonnes of product.
FIGURE 13: Natural vegetation communities of the Caribou Southwest bog.
CARIBOU SOUTHWEST AND WEST BOGS

FIGURE 14: Profiles of Caribou Southwest and West bogs, showing percentage of Sphagnum.
CARIBOU NORTHEAST BOG

FIGURE 16: Profiles of Caribou Northeast bog, showing percentage of Sphagnum.

CARIBOU NORTHEAST BOG (cont’d.)

FIGURE 17: Profiles of Caribou Northeast and Caribou Northwest bogs, showing percentage of Sphagnum.