

Environmental Stewardship Division  
Environmental Approvals Branch  
123 Main Street, Suite 160, Winnipeg, Manitoba R3C 1A5  
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www.gov.mb.ca/conservation/eal

**CLIENT FILE NO.: 5803.00**

May 16, 2016

Dr. David Barber  
University of Manitoba, Centre for Earth Observation Science  
576 Wallace Building  
Winnipeg MB R3T 2N2

Dear Mr. Barber:

Enclosed is **Environment Act Licence No. 3174** dated May 16, 2016 issued to the **University of Manitoba** for the construction and operation of the Development being an experimental facility to study the impacts of oil, liquefied natural gas and other contaminants on the arctic marine environment in the Town of Churchill between the Port of Churchill and Cape Merry, with treated wastewater to be discharged to the Churchill River Estuary.

In addition to the enclosed Licence requirements, please be informed that all other applicable federal, provincial and municipal regulations and by-laws must be complied with. A Notice of Alteration must be filed with the Director for approval prior to any alteration to the Development as licensed.

For further information on the administration and application of the Licence, please feel free to contact Jeff Fountain, Environment Officer, at 204-677-6703.

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,

***“original signed by”***

**Tracey Braun, M.Sc.**  
Director  
Environment Act

c: Don Labossiere, Tim Prawdzik, Jeff Fountain, Environmental Compliance and Enforcement Branch  
Shaun Moffatt, KGS Group  
Public Registries

**NOTE:** Confirmation of Receipt of this Licence No. 3174 (*by the Licencee only*) is required by the Director of Environmental Approvals. Please acknowledge receipt by signing in the space provided below and faxing a copy (letter only) to the Department by May 30, 2016.

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On behalf of the University of Manitoba

Date

# LICENCE

Licence No. / Licence n°

3174

Issue Date:

May 16, 2016

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 Paragraphes 11(1)

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

**UNIVERSITY OF MANITOBA;**  
**"the Licencee"**

for the construction and operation of the Development being an experimental facility to study the impacts of oil, liquefied natural gas and other contaminants on the arctic marine environment in NE 15-113-20E in the Town of Churchill between the Port of Churchill and Cape Merry, with treated wastewater to be discharged to the Churchill River Estuary, in accordance with the Proposal filed under *The Environment Act* dated November 6, 2015, and additional information dated February 1, 2016, April 22, 2016 and May 11, 2016 and subject to the following specifications, limits, terms and conditions:

### **DEFINITIONS**

In this Licence,

**"accredited laboratory"** means an analytical facility accredited by the Standards Council of Canada (SCC), or accredited by another accrediting agency recognized by Manitoba Sustainable Development to be equivalent to the SCC, or be able to demonstrate, upon request, that it has the quality assurance/quality control (QA/QC) procedures in place equivalent to accreditation based on the international standard ISO/IEC 17025, or otherwise approved by the Director;

**"affected area"** means a geographical area, excluding the property of the Development;

**"approved"** means approved by the Director or assigned Environment Officer in writing;

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

**"effluent"** means treated water flowing or pumped out of the testing tanks of the Development;

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

**"five-day carbonaceous biochemical oxygen demand (CBOD<sub>5</sub>)"** means that part of the oxygen demand usually associated with biochemical oxidation of carbonaceous organic matter within five days at a temperature of 20°C, excluding the oxygen demand usually associated with the biochemical oxidation of nitrogenous organic matter;

**"grab sample"** means a quantity of wastewater taken at a given place and time;

**"odour nuisance"** means a continuous or repeated odour, smell or aroma, in an affected area, which is offensive, obnoxious, troublesome, annoying, unpleasant 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 odour, smell or aroma

- d) 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
- e) 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 odour, smell or aroma 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 who do not live in the same household;

**"PHC"** means Petroleum Hydrocarbons;

**"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

**"wastewater"** means the spent or used water of a community or industry which contains dissolved and suspended matter.

## **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.

1. In addition to any of the limits, terms and conditions specified in this Licence, the Licencee shall, upon the request of the Director:
  - a) sample, monitor, analyze or investigate specific areas of concern regarding any segment, component or aspect of pollutant storage, containment, treatment, handling, disposal or emission systems, for such pollutants, ambient quality, aquatic toxicity, leachate characteristics and discharge or emission rates, and for such duration and at such frequencies as may be specified;
  - b) determine the environmental impact associated with the release of any pollutant 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 analytical procedures being used, bioassay data, flow rate measurements and such other information as may from time to time be requested.
2. The Licencee shall submit all information required to be provided to the Director or Environment Officer under this Licence, in written and electronic format, in such form (including number of copies) and of such content as may be required by the Director or Environment Officer, and each submission shall be clearly labeled with the Licence Number and Client File Number associated with this Licence.
3. The Licencee shall direct all water contaminated during testing in the Development through the Development's water treatment facilities prior to discharge to the Churchill River Estuary.
4. The Licencee shall not cause or permit an odour nuisance to be created as a result of the construction, operation or alteration of the Development, and shall take such steps as the Director or Environment Officer may require to eliminate or mitigate an odour nuisance.

## **SPECIFICATIONS, LIMITS, TERMS AND CONDITIONS**

### **Respecting Construction**

5. The Licencee shall notify the assigned Environment Officer not less than two weeks prior to beginning construction of the Development. The notification shall

- include the intended starting date of construction and the name of the contractor responsible for the construction.
6. The Licencee shall:
    - a) place and/or isolate all excavated and construction material where it will not erode into any waterbody;
    - b) implement effective long-term sediment and erosion control measures to prevent soil-laden runoff, and/or excavated or blasted material from entering any waterbody during construction and operation; and
    - c) routinely inspect all erosion and sediment control structures and immediately complete any necessary maintenance or repair.
  7. The Licencee shall dispose of non-reusable construction debris from the Development at a waste disposal ground operating under the authority of a permit issued pursuant to *Manitoba Regulation 150/91* respecting *Waste Disposal Grounds*, or after July 1, 2016, issued pursuant to *Manitoba Regulation 37/2016* respecting *Waste Management Facilities*, or any future amendment thereof, or a Licence issued pursuant to *The Environment Act*.
  8. The Licencee shall, during construction and maintenance of the Development, prevent the introduction and spread of foreign aquatic and terrestrial biota by cleaning equipment prior to its delivery to the site of the Development.

#### **Respecting the Storage and Handling of Petroleum Products**

9. The Licencee shall locate fuel storage and equipment servicing areas established for the construction, operation and maintenance of the Development a minimum distance of 100 metres from any waterbody, and shall comply with the requirements of *Manitoba Regulation 188/2001* respecting *Storage and Handling of Petroleum Products and Allied Products*, or any future amendment thereof.
10. The Licencee shall, during construction, operation and maintenance of the Development, operate, maintain and store all materials and equipment in a manner that prevents any deleterious substances (fuel, oil, grease, hydraulic fluids, coolant, paint, uncured concrete and concrete wash water, etc.) from entering any waterbody, and have an emergency spill kit for in-water use available on site during construction and operation.

#### **Respecting Polar Bear Control**

11. The Licencee shall, prior to operation of the Development, develop a polar bear protocol for the approval of the Northeast Region of Manitoba Sustainable Development. The protocol shall include but not necessarily be limited to actions to protect workers and visitors at the Development, handling practices for food and other attractants, and responses to the presence of polar bears at the

Development. The protocol shall also include polar bear monitors at times required by the Northeast Region of Manitoba Sustainable Development.

### **Respecting Operation**

12. The Licencee shall direct sanitary wastewater from the Development to the Town of Churchill wastewater treatment facility, or another approved wastewater treatment facility.
13. The Licencee shall install, operate and maintain water treatment facilities for the testing tanks of the Development as follows:
  - a) a boom and vacuum system for floating petroleum product, with removed product contained in barrels;
  - b) an oil and water separator with coalescing plates; and
  - c) a carbon filter.
14. The Licencee shall dispose of petroleum product from testing tank cleaning and the treatment facilities listed in Clause 13 of this Licence using a registered hauler and at a waste disposal facility authorized to accept these materials.
15. The Licencee shall not discharge effluent from the testing tanks of the Development to the Churchill River Estuary:
  - a) where the five-day carbonaceous biochemical oxygen demand is in excess of 25 milligrams per litre;
  - b) where the total suspended solids content of the effluent is in excess of 25 milligrams per litre;
  - c) where the benzene content of the effluent is in excess of 370 micrograms per litre;
  - d) where the toluene content of the effluent is in excess of 2 micrograms per litre;
  - e) where the ethylbenzene content of the effluent is in excess of 90 micrograms per litre;
  - f) where the xylene content of the effluent is in excess of 300 micrograms per litre; or
  - g) where the PHC content of the effluent is in excess of 750 micrograms per litre for Fraction 1, 150 micrograms per litre for Fraction 2, 500 micrograms per litre for Fraction 3, or 500 micrograms per litre for Fraction 4.
16. The Licencee shall capture air emissions from oil-burn-on-ice experiments in the Development using a movable fume hood with carbon filters. Used filter material shall be disposed of in accordance with Clause 7 of this Licence.

### **Respecting Emergency Reporting**

17. 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 accident reporting line at 204-944-4888 (toll-free 1-855-944-4888). The report shall indicate the nature of the event, the time and estimated duration of the event and the reason for the event.

18. The Licencee shall, following the reporting of an event pursuant to Clause 17:
- 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/or the Environment Officer; and
  - d) submit a report to the Director about the causes of breakdown and measures taken, within one week of the repairs being done.

### **MONITORING AND REPORTING SPECIFICATIONS**

19. The Licencee shall, unless otherwise specified in this Licence:
- a) carry out all preservations and analyses on 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;
  - b) carry out all sampling of, and preservation and analyses on, water and air samples in accordance with methodologies approved by the Director;
  - c) have all analytical determinations undertaken by an accredited laboratory; and
  - d) report the results to the Director, in writing and in an electronic format acceptable to the Director, within 60 days of the samples being taken.
20. The Licencee shall, during each discharge of treated water from the testing tanks of the Development, obtain grab samples of the treated water near the beginning, middle and end of the discharge period, and have them analyzed for:
- a) the five-day carbonaceous biochemical oxygen demand expressed as milligrams per litre;
  - b) total suspended solids content expressed as milligrams per litre;
  - c) benzene expressed as micrograms per litre;
  - d) toluene expressed as micrograms per litre;
  - e) ethylbenzene expressed as micrograms per litre;
  - f) xylene expressed as micrograms per litre; and
  - g) PHC Fractions 1, 2, 3 and 4 expressed as micrograms per litre.
21. The Licencee shall during each year maintain the following records and retain them for a minimum period of five calendar years:
- a) treated water sample dates;
  - b) original copies of laboratory analytical results of the sampled treated water;
  - c) a summary of laboratory analytical results;
  - d) treated water discharge dates;

- e) treated water discharge volumes; and
  - f) maintenance and repairs.
22. The Licencee shall submit an annual report to the Environment Officer by February 28 of the following year including all records required by Clause 21 of this Licence.

### **REVIEW AND REVOCATION**

- A. 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.
- B. If the Licencee has not commenced construction of the Development within three years of the date of this Licence, the Licence is revoked.
- 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*.

*“original signed by”*

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**Tracey Braun, M.Sc.**  
**Director**  
**Environment Act**

**Client File No.: 5803.00**



**Figure 1 to Environment Act Licence No. 3174**

**University of Manitoba Centre for Earth Observation Science  
Churchill Marine Observatory – Location Plan**



**\*\*A COPY OF THE LICENCE MUST BE KEPT ON SITE AT THE DEVELOPMENT AT ALL TIMES\*\***