



**Environment and Climate Change**

Environmental Approvals Branch  
Box 35, 14 Fultz Boulevard  
Winnipeg MB R3Y 0L6  
T 204-945-8321 F 204-945-5229  
[EABDirector@gov.mb.ca](mailto:EABDirector@gov.mb.ca)

File No. : 3967.10

July 10, 2025

Greg Elson  
Public Works Manager  
Rural Municipality of St. Clements  
Box 2 Grp 35 RR1  
East Selkirk MB R03 0M0  
[pwmanager@rmofstclements.com](mailto:pwmanager@rmofstclements.com)

Dear Greg Elson:

**Re: Rural Municipality of St. Clements - Cell Construction Approval -  
Environment Act Licence No. 2274 S2 RRR**

Thank you for your email dated March 20, 2025, and additional information received on June 19, 2025 and July 2, 2025, seeking approval of engineering drawings for the construction of a new cell no. 2 at the Libau Waste Disposal Ground. Clause 41 and 42 of the licence require engineering design plans to build a new cell to be submitted to the director for approval.

As the submitted engineering drawings meet the departmental regulatory requirements, I approve the construction pursuant to clause 42 of the licence. In executing the work, the licensee must:

1. Follow the engineering design and specifications submitted on March 20, 2025, and additional information provided on June 19, 2025 and July 2, 2025;
2. Notify the environment officer at least 5 days and not more than 10 days before construction begins;
3. Construct and maintain a continuous liner underlying the cell, such that:
  - a) the liner is constructed from HDPE geomembrane;
  - b) the liner has a minimum thickness of 60 mil;
  - c) all sections of the liner are joined by dual track seaming;
  - d) the liner is installed over the entire base and side wall or berm of the cell;
  - e) the liner is installed to a minimum elevation of 2.33 metres above the base of the cell;
  - f) the liner is installed following the manufacturer's installation requirements;
  - g) non-destructive test methods are used to test the integrity of:
    - i) all field seams joining liner sections following the current version of ASTM Standard D5820-95; and

- ii) all other field seams following the current version of ASTM Standard D4437-08 or any future amendments.
- h) the liner is secured to prevent lifting of the liner;
- i) an installation report is prepared and submitted to the environment officer of the Environmental Approvals branch for approval within 30 days of commencing the installation of the liner. The installation report must include a cover letter with a declaration that the liner is continuous underlying each cell. The installation report must also include the test results, a discussion of the results, and a declaration that the liner was installed following the manufacturer's requirements;
- j) The licensee must:
  - i) arrange with the designated environment officer a mutually acceptable time and date for any required inspection of the installed HDPE liner between the 15<sup>th</sup> day of May and the 15<sup>th</sup> day of October of any year, unless otherwise approved by the designated environment officer; and
  - ii) make arrangements such that the designated environment officer can safely access the development lined with HDPE geomembrane.
- 4. Receive a written authorization from an environment officer or the director before using the cell;
- 5. Submit, by September 30, 2025, a final report of the findings and recommendations of the pilot leachate irrigation project following clause 8 of the notice of alteration approval dated June 18, 2021; and
- 6. Submit the final design elevation of the cell by December 31, 2025. The final design elevation information must be prepared by an engineer.

All other clauses of Environment Act Licence No. 2274 S2 RRR remain in effect.

If you have any questions regarding this approval and for liner inspection, please contact Desalegn Edossa, Environmental Engineer, Environmental Approvals Branch at [Desalegn.Edossa@gov.mb.ca](mailto:Desalegn.Edossa@gov.mb.ca) or 204-945-7021.

For questions relating to the ongoing administration of the licence, please contact Tyler Kneeshaw, Regional Supervisor, Environmental Compliance and Enforcement Branch at [EnvCEInterlake@gov.mb.ca](mailto:EnvCEInterlake@gov.mb.ca) or 204-239-3608.

Sincerely,

Original Signed By  
Siobhan Burland Ross  
On behalf of Agnes Wittmann  
Director  
The Environment Act

c. Tyler Kneeshaw  
Desalegn Edossa

## Schedule A to July 10, 2025, Approval Letter

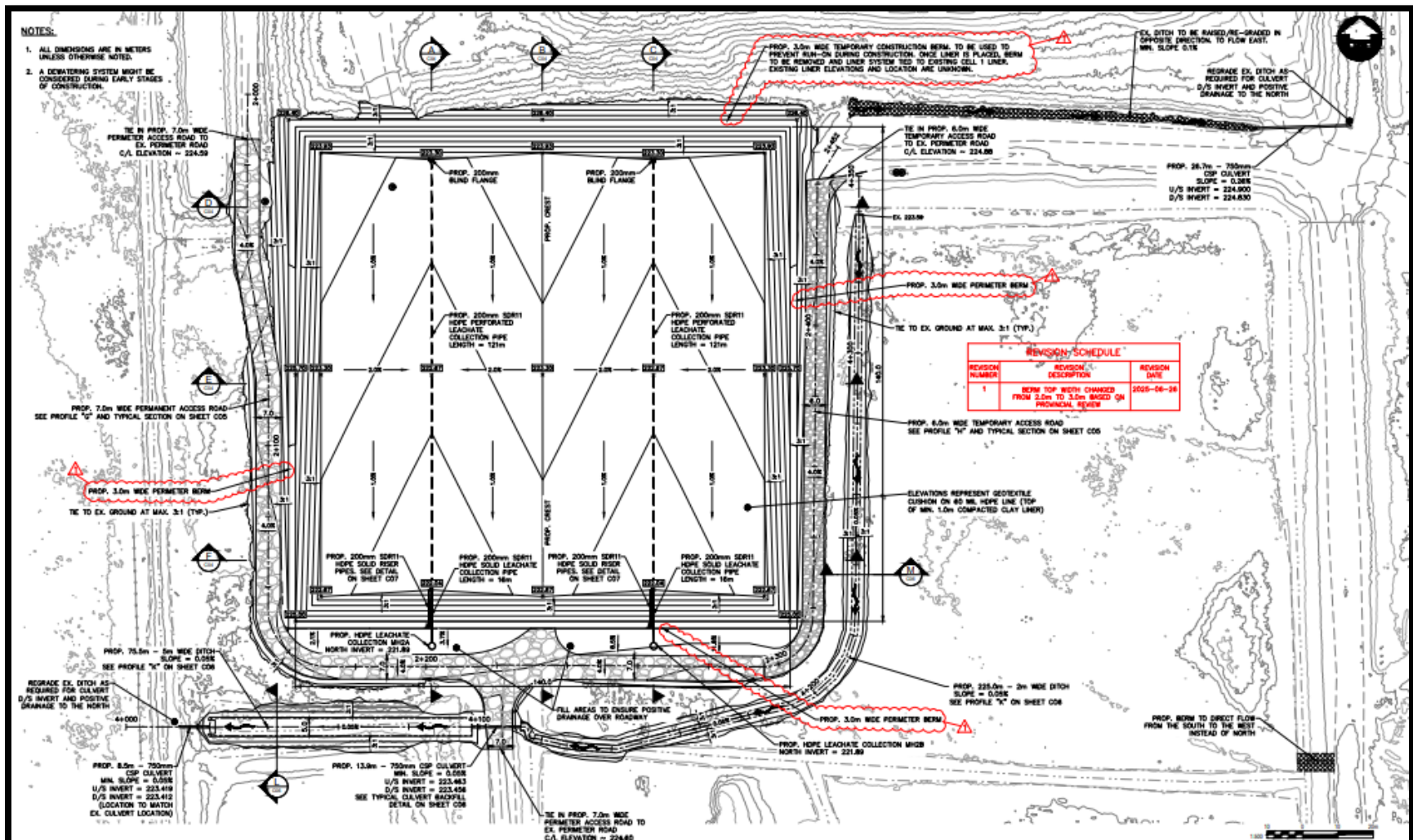


Figure 1 Proposed new cell



**Conservation and Climate**

Environmental Stewardship Division  
Environmental Approvals Branch  
1007 Century Street, Winnipeg Manitoba R3H 0W4  
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File No.: 4548.00/3967.10

July 9, 2020

Greg Elson  
Manager, Public Works  
R.M. of St. Clements  
Libau Landfill  
Box 2, Grp 35, R.R. #1  
East Selkirk, MB R0E 0M0

Dear Greg Elson:

**Re: Notice of Alteration – Dangerous Goods Handling and Transportation Act Licence  
112 HW – Addition of Household Hazardous Waste Depot**

Thank you for your June 19, 2020 Notice of Alteration to Dangerous Goods Handling and Transportation Act Licence 112 HW. The alteration consists of construction and operation of a hazardous waste depot at 37175 Road 88 North (NE 29-15-07 E), Libau Landfill, Rural Municipality of St. Clements.

Upon review of your amendment request, I have concluded that the environmental effects of the proposed addition of a household hazardous waste depot are minimal and the Rural Municipality of St. Clements is authorized to carry out the proposed amendments to develop a hazardous waste depot, subject to the following terms and conditions:

**Trained Personnel – Hazardous Waste Depot and Used Oil Depot**

1. The Licencee shall provide training for all persons who will be assigned duties at the Hazardous Waste Depot and the Used Oil Depot in:
  - a) transportation of dangerous goods;
  - b) regulatory requirements; and
  - c) procedures pertaining to the operation of the Facility including spill response.
2. The records of the training of Clause 1 shall be made available for inspection by an Environment Officer upon request.
3. The trained personnel shall be on site at all times when the Hazardous Waste Depot or the Used Oil Depot is open to receive waste or materials.

### **Facility Access – Hazardous Waste Depot and Used Oil Depot**

4. The Licencee shall lock or restrict access to the Hazardous Waste Depot and the Used Oil Depot in a manner that prevents unauthorized delivery of hazardous wastes when the trained personnel are not present at the Depots.

### **Signage – Hazardous Waste Depot and Used Oil Depot**

5. The Licencee shall post legible, weatherproof signs at the entrance to the Hazardous Waste Depot and the Used Oil Depots identifying the area(s) as hazardous waste collection facilities; and the signs shall indicate the hours of operation, a contact number and a warning not to leave hazardous waste at the Depots when the trained personnel are not available to accept delivery.

### **Manitoba Household Hazardous Waste Stewardship Program Materials**

6. The Licencee shall receive and store household hazardous wastes that are identified as program materials and non-program materials under the Manitoba Household Hazardous Waste Stewardship Program in accordance with the most current version of the Manitoba Product Care Collection Site Guidelines and this Licence.

### **Non-Program Household Hazardous Waste**

7. The household hazardous waste that is deemed to be non-program waste shall be segregated and disposed of at a facility operating under the authority of a Licence issued pursuant to The Dangerous Goods Handling and Transportation Act in Manitoba, or under an approval of similar type in another jurisdiction.

### **Facility Operations – Hazardous Waste Depot and Used Oil Depot**

8. The Licencee shall not receive at the Hazardous Waste Depot or the Used Oil Depot any hazardous wastes other than the types of hazardous wastes listed in Schedule A to this approval letter.

### **Hazardous Waste Storage – Hazardous Waste Depot**

9. The Licencee shall store hazardous waste:
  - a) in single pallet rows not more than 2 drum heights or 240 centimetres in height; and
  - b) with a minimum aisle width between rows of 1 metre.
10. The Licencee shall store hazardous waste in a container that must be:
  - a) constructed of a material that is compatible with the hazardous waste being stored;
  - b) designed and constructed to withstand damage during handling and transportation;
  - c) sealable to prevent the release of its contents and prevent any other substance from entering the container; and
  - d) labelled prominently with a weather resistant label with the name of the hazardous waste in the container.
11. The Licencee shall not store hazardous wastes outside the storage structure or Depot other than for purposes of handling during receiving or shipping operations.

12. Clause 11 does not apply to hazardous wastes that are stored in a container or other structure approved by the Director.
13. The Licencee shall, upon completion of a lab pack, properly label and mark the outer container and attach an inventory of the contents to the container. The date of completion of filling of the lab pack shall also be indicated on the inventory.
14. The Licencee shall not store more than 20 in-process lab packs at the Hazardous Waste Depot. The in-process lab packs shall be segregated from the other incompatible hazardous wastes in storage.
15. The Licencee shall:
  - a) maintain the Depot in a condition capable of retaining any spillage which may occur. Floor drains or catch basins are not permitted in the storage area unless they are connected to an on-site holding tank or sump; and
  - b) manage all liquids collected in holding tanks or sumps in a manner approved by the Director.

#### **Transport of Hazardous Waste – Hazardous Waste Depot and Used Oil Depot**

16. The Licencee shall use only licensed carriers to transport hazardous wastes from the Hazardous Waste Depot or the Used Oil Depot.
17. The hazardous waste transported from the Hazardous Waste Depot or the Used Oil Depot shall be accompanied by a hazardous waste movement document or a dangerous goods shipping document, as appropriate.
18. The Licencee shall only allow transport of hazardous waste received at the Hazardous Waste Depot or the Used Oil Depot to:
  - a) a hazardous waste disposal facility licensed in accordance with The Dangerous Goods Handling and Transportation Act;
  - b) a consignee who operates a used oil burner in accordance with the Hazardous Waste Regulation;
  - c) a consignee who operates a used oil collection facility in accordance with the Hazardous Waste Regulation;
  - d) a facility otherwise approved by the Director pursuant to an Order; or
  - e) a facility operating under an approval of similar type in another jurisdiction.
19. The Licencee shall transport all hazardous wastes received at the Hazardous Waste Depot within ninety (90) days to a recycling or disposal facility operating under the authority of a Licence issued pursuant to The Dangerous Goods Handling and Transportation Act in Manitoba, or under an approval of similar type in another jurisdiction. The ninety (90) day period will commence on the date the container is filled, or in a timeframe stipulated by the Environment Officer.

#### **Waste Automotive Batteries – Hazardous Waste Depot**

20. The Licencee shall store the waste automotive batteries in an area where the floor or base is resistant to acid.

21. The Licencee shall store the waste automotive batteries on pallets or in tub skids in the following manner:
  - a) if pallets are used, the waste automotive batteries shall be placed on the pallets with a layer of corrugated cardboard or other material which will prevent casing ruptures, placed between successive layers of waste automotive batteries. The full pallet of batteries shall have three layers of batteries and be shrink wrapped with plastic before shipment from the Facility; and
  - b) if tub skids are used, the waste automotive batteries shall be placed in acid resistant, leak-proof tub skids.
22. The Licencee shall conspicuously place in the area used for storage of waste automotive batteries effective neutralizing materials, or materials approved by the Director in writing, for the containment or cleanup of spills.
23. The Licencee shall in the event of a spill, dispose of the water used to clean up the spill in accordance with applicable regulations.
24. The Licencee shall not allow the inventory of waste automotive batteries at the Hazardous Waste Depot to exceed 250 at any one time.

#### **Liquid Emissions – Hazardous Waste Depot**

25. The Licencee shall:
  - a) maintain the Hazardous Waste Depot in a condition capable of retaining any spillage which may occur. Floor drains or catch basins are not permitted in the storage area unless they are connected to an on-site holding tank or sump; and
  - b) direct wastewater collected in the holding tank or sumps to a wastewater treatment facility approved by the Director.

#### **Facility Inspection – Hazardous Waste Depot and Used Oil Depot**

26. The Licencee shall inspect, and record inspections at the Hazardous Waste Depot and the Used Oil Depot each day that the respective Depot is operating; and properly manage any unauthorized materials found at either Depot by securely storing or removing them from the Depot. The records shall include the name of the person who conducted the inspection and the observations made by that person during the inspection.
27. The records of this inspection required by Clause 26 shall be made available to an Environment Officer upon request.

#### **Annual Hazardous Waste Receiver Report – Hazardous Waste Depot and Used Oil Depot**

28. The Licencee shall, on or before the 31<sup>st</sup> day of March of each year, submit to the Director an annual report respecting the hazardous waste received at the Depots pursuant to this approval during the previous calendar year and the manner in which the waste was treated or disposed as defined in Manitoba Regulation 195/2015 under The Dangerous Goods Handling and Transportation Act. The report shall be made in such format as approved by the Director.

Please be advised that all Terms and Conditions of Dangerous Goods Handling and Transportation Act Licence 112 HW remain in effect.

Due to changes in The Dangerous Goods Handling and Transportation Act, if an Environment Act Licence is issued for the same development, the terms and conditions for the management and handling of dangerous goods may be included within the Environment Act Licence; therefore this approval is contingent on the acceptance of a revised Environment Act Licence that will be issued in the near future.

If you have any questions regarding this matter, please contact Cory Graham, Environmental Engineer by e-mail at [Cory.Graham@gov.mb.ca](mailto:Cory.Graham@gov.mb.ca) or at 204-250-7645.

Yours sincerely,

*Original Signed By*

Shannon Kohler  
Director  
The Dangerous Goods Handling and Transportation Act

cc: Kristal Harman/Larry Markwart/Tyler Kneeshaw/Raj Rathamano: Environmental Compliance and Enforcement Branch  
Siobhan Burland Ross/Cory Graham: Environmental Approvals Branch  
Public Registries



**Schedule “A” to  
Libau Hazardous Waste Depot**

<b>Hazardous Waste</b>
Adhesives
Aerosols
Automotive Antifreeze
Batteries, Lead-Acid Automotive
Batteries, Rechargeable
Batteries, Other
Compressed Gases
Corrosives
Flammable Liquids
Flammable Solids
Fluorescent Lighting Tubes and Compact Fluorescent Lights
Organic Peroxides
Oxidizing Substances
Paint Products
Pesticides
Polychlorinated Biphenyls (PCB)
Toxic Materials
Used Oil
Used Oil Products and Materials

Environmental Stewardship Division  
Environmental Approvals Branch  
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www.gov.mb.ca/conservation/eal

**CLIENT FILE NO.: 3967.00**

January 23, 2017

D.J. Sigmundson, CAO  
Rural Municipality of St. Clements  
Box 2, Group 35, RR#1  
East Selkirk MB R0E 0M0

Dear D.J. Sigmundson:

Enclosed is **Environment Act Licence No. 2274 S2 RRR** issued to the **Rural Municipality of St. Clements** for the operation of the Development being a Class 1 Waste Disposal Ground located on the East half of Section 29-15-7EPM of the Rural Municipality of St. Clements, in accordance with the Proposal filed under *The Environment Act*.

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 Mike Baert, Environment Officer at 204-782-9104.

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  
Environment Act

c: Don Labossiere, D. Smiley, M. Baert, Environmental Compliance and Enforcement  
S. Lozecznik, P.Eng., KGS Group  
Public Registries

**NOTE:** Confirmation of Receipt of this Licence No. 2274 S2 RRR (*by the Licensee 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 February 6, 2017

\_\_\_\_\_  
On behalf of the RM of St. Clements

\_\_\_\_\_  
Date

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

Licence No. / Licence n°	<u>2274 S2 RRR</u>
Issue Date / Date de délivrance	<u>November 4, 1998</u>
Revised:	<u>November 27, 2000</u>
Revised:	<u>April 12, 2001</u>
Revised:	<u>January 23, 2017</u>

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:

**THE RURAL MUNICIPALITY OF ST. CLEMENTS;**  
**"the Licensee"**

**STAGE 2 LICENCE (Revised)**

for the operation of the Development being a Class 1 Waste Disposal Ground located on the East half of Section 29-15-7EPM of the Rural Municipality of St. Clements, and bordered on the East by the East boundary of Section 29-15-7EPM; on the North by a line parallel to, and 50 metres South of the North boundary of Section 29-15-7EPM; on the West by a line parallel to, and 600 metres West of the East boundary of Section 29-15-7EPM and on the South by a line parallel to, and 1,050 metres South of the North boundary of Section 29-15-7EPM, in accordance with the Proposal filed under *The Environment Act* on March 21, 1996 and Notice of Alteration of Proposal filed on June 22, 1998, and alteration submitted July 8, 2016, and subject to the following specifications, limits, terms and conditions:

**DEFINITIONS**

In this Licence,

"**access roads**" mean the roads that are to be used by commercial vehicles transporting wastes to the St. Clements Waste Disposal Ground for disposal;

"**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;

**"active area"** means an area of a landfill that is currently being used for the deposit of solid waste;

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

**"alternative cover"** means materials approved by the Director for use in temporarily covering waste in an active area;

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

**"background water quality"** means the quality of water in any geologic zone monitored with regards to the chemical and microbiological parameters specified in a Licence issued pursuant to *The Environment Act* by the Director;

**"cell"** means an area of a landfill in which solid waste has been, or is to be, deposited;

**"CFIA"** means Canadian Food Inspection Agency;

**"Closure Plan"** means a plan indicating the actions to be taken for the closure of the Development, or a portion of the Development;

**"compliance boundary"** means the planar surface that circumscribes the Development, extends vertically downward from the land surface, and constitutes the place at which the parameters of the background water quality as specified in a Licence issued pursuant to *The Environment Act* are not to be exceeded;

**"component"** means a landfill cell, pad or structure that forms a part of a process or system within an activity area of the Development;

**"concentration value"** means a restriction established by a Licence issued pursuant to *The Environment Act* on quantities, discharge rates and concentrations of pollutants;

**"cover material"** means inorganic soil, free of refuse, trash and vegetation, or other materials as approved by the Director, that is used to cover compacted solid waste;

**"daily"** means any 24-hour period;

**"dangerous goods"** means a product, substance or organism as defined in *The Dangerous Goods Handling and Transportation Act*, or any amendments thereto;

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

**"engineer(s)"** means an engineer or engineers registered with the Association of Professional Engineers and Geoscientists of the Province of Manitoba;

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

**"final cover"** means earth compacted to a thickness of at least 0.5 metres applied to the surface of the compacted waste cell that has achieved the final elevation for cell closure, and is graded to minimize ponding of water on the surface;

**"groundwater"** means water below the ground surface and within a zone of saturation;

**"hazardous waste"** means a product, substance or organism as defined in *The Dangerous Goods Handling and Transportation Act*, or any amendments thereto;

**"hydraulic conductivity"** means the quantity of water that will flow through a unit cross-sectional area of a porous material per unit of time under a hydraulic gradient of 1.0;

**"industrial waste"** means waste product generated by industry other than hazardous waste and liquid industrial waste;

**"landfill"** means waste disposal ground;

**"leachate"** means liquid that has percolated through solid waste, and that contains dissolved and suspended materials from the solid waste;

**"liner"** means a continuous layer of reworked soil, or manufactured materials, placed beneath and on the sides of a waste disposal ground cell or a storage area intended to restrict the downward or lateral escape of solid waste, leachate, and or gases, or to restrict the upward movement of groundwater into an area;

**"liquid waste"** means waste that has a slump of more than 150 mm using the Canadian Standards Association Slump Test Method A23.2-5C;

**"monitoring point"** means any installation or location used to determine the quality or physical characteristics of groundwater, surface water, or water in the unsaturated zone;

**"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
- 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 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 who do not live in the same household;

**"notify"** means notify in writing;

**"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;

**"operator"** means company or person who is responsible for the day-to-day maintenance and operation of the Development;

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

**"pollutant"** means a pollutant as defined in *The Environment Act*;

**"Post-Closure Plan"** means a plan indicating the actions to be taken for the care, maintenance, and monitoring of the Development after closure, that will prevent, mitigate, or minimize the threat to public health and the environment;

**"QA/QC"** means quality assurance/quality control;

**"qualified professional"** means an individual properly trained and authorized to practice in a specific area or field which may include assessment, design, or providing consultation for an aspect of the Development; to include but not be limited to Professional Engineers, Geoscientists or Landscape Architects;

**"site"** means the area both permanent and temporary which is required for the construction and operation of the Development;

**"solid waste"** as defined in *Manitoba Regulation 37/2016*, or any future amendment thereto, respecting waste disposal grounds;

**"special waste"** means bagged asbestos containing materials, dead animals including specified risk materials (SRM), slaughterhouse waste and food products deemed to be unacceptable by the Canadian Food Inspection Agency (CFIA), biosolids, and any other waste identified by the Director;

**"SRM"** means specified risk materials;

**"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 Water Works Association and the Water Environment Federation;

**"top soil"** means soil that is free of roots, vegetation, weeds and stones larger than 50 mm, is capable of supporting good vegetative growth, and is suitable for use in top dressing, landscaping and seeding; and

**"waste disposal ground"** means a parcel of land that is used for the disposal of solid or industrial waste, also referred to as a landfill.

### **GENERAL TERMS AND CONDITIONS**

This Section of the Licence contains terms and conditions 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.



### **General Terms**

1. The Licencee shall operate the Development in compliance with the provisions of *Manitoba Regulation 37/2016* respecting Waste Management Facilities, or any future amendment thereof.
2. The Licencee shall provide to an Environment Officer access throughout the duration of construction, operation and decommissioning of the Development to facilitate inspection.

### **Reporting Format**

3. 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 File Number associated with this Licence.
4. The Licencee shall carry out any remedial measures, modifications, or alterations, as deemed necessary by the Director, in respect to matters authorized under this Licence.

### **Future Sampling**

5. 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 and/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 or ambient quality, aquatic toxicity, leachate characteristics and discharge or emission rates, for such duration and at such frequencies as may be specified;
  - b) determine the environmental impact associated with the release of any pollutants from the Development; or
  - c) 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.

### **Sampling Methods**

6. 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 most current edition of 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 soil 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 sixty (60) days of the samples being taken, or within another timeframe as specified by the Director.
7. The Licencee shall, unless otherwise specified in this Licence carry out all sampling of groundwater, surface water, leachate, soil, and air in accordance with methodologies specified in the Operations Manual developed pursuant to Clause 20 of this Licence.

### **Equipment Operation**

8. 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.
9. The Licencee shall, following the reporting of an event pursuant to Clause 8,
- 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 thirty (30) days of the repairs being completed.
10. The Licencee shall implement a high standard of equipment maintenance and good housekeeping and operational practices with respect to the Development, at all times.

### **Fire Reporting**

11. The Licencee shall in the event of a fire which continues in excess of thirty (30) minutes, or requires implementation of the Emergency Response Plan, or requires fire suppression assistance from personnel outside of the Development (e.g., fire department) report the fire by calling the 24-hour environmental accident reporting line at 204-944-4888 (toll free 1-855-944-4888), identifying the type of materials involved and the location of the fire.

### **Approvals and Permits**

12. The Licencee shall locate fuel storage and equipment servicing areas established for the construction and operation of the Development in compliance with the requirements of *Manitoba Regulation 188/2001* respecting Storage and Handling of Petroleum Products and Allied Products or any future amendments thereof.
13. The Licencee shall obtain approval in writing from the Director for any proposed alteration to the Development before proceeding with the alteration.

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

### **Odours and Air Emissions**

14. 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 may require to eliminate or mitigate an odour nuisance.
15. The Licencee shall, upon written request of and in a timeframe stipulated by the Director, comply with any air emission or ambient air quality criteria specified by the Director for any pollutant of concern to the Director which has been identified pursuant to Clause 5.
16. The Licencee shall take action to minimize the entrainment of particulate matter into the air at the Development resulting from the operation of vehicles or the transportation, storage or handling of wastes or other materials.

### **Noise**

17. 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.

### **Responsible Party**

18. The Licencee shall assign an engineer(s) or other qualified person(s) to be responsible for the construction of the Development and any required remediation action in accordance with the plans, specifications and design report(s) submitted in support of the proposal or this Licence.
19. The Licencee shall designate an employee, within sixty (60) days of the date of issuance of this Licence, as the Licencee's Environmental Coordinator, whose job description will include assisting the Licencee in complying with the limits, terms

and conditions in this Licence and assisting Senior Management of the Licencee to manage environmental issues at the Development. The name of the Environmental Coordinator shall be submitted in writing to the Director within fourteen (14) days of appointment and any subsequent appointment.

### **Operations Manual**

20. The Licencee shall update within six (6) months of the date of issuance of this Licence, the Operations Manual which is to include information regarding all aspects of the Development, to include but not be limited to:
- a) operational parameters and objectives, including method of tracking placement of special wastes and those wastes requiring unusual management considerations;
  - b) waste acceptance parameters and limitations;
  - c) incident tracking and reporting parameters;
  - d) dust and litter control procedures;
  - e) vector control procedures;
  - f) methodologies and processes for all sampling (groundwater, surface water, leachate, soil and air);
  - g) leachate management, including transfer from landfill cells to leachate ponds, monitoring and sampling schedule;
  - h) surface and groundwater management, monitoring and sampling schedule;
  - i) identification of operational records to be maintained; and
  - j) an overview of staffing qualifications and positions.
21. The Licencee shall implement the Operations Manual developed pursuant to Clause 20 of this Licence, and subject to any terms and conditions set by the Director.

### **Transportation Routes**

22. The Licencee shall require that all commercial vehicles transporting wastes to the Development access from PR 59 to the east along Road 88 N.
23. The Licencee shall place at least one sign at the intersection of PTH 59 and Mile Road 87 N, at the intersections of PR 317 and Mile Roads 34, 35 and 36 E indicating the access roads to the site.
24. The Licencee shall require that vehicles transporting waste to the Development are covered to prevent the spread of litter on transportation routes and the surrounding areas.

### **Signage and Staffing**

25. The Licencee shall post adequate signage at the entrance to the Development indicating, but not limited to the following:
- a) the types of wastes accepted at the site;

- b) the hours and days of operation; and
  - c) 24-hour telephone numbers to be called in the event of an emergency occurring at the site.
26. The Licencee shall staff and secure the Development so that:
- a) an attendant is on duty at the scale at all times during hours of acceptance of materials to the Development from the public or contractors not employed by the Owner;
  - b) gates are provided for all access locations to the site;
  - c) the gates are kept locked when the attendants are not on duty or the Development is closed; and
  - d) other attendants to direct traffic and operate heavy equipment are on duty as necessary.

### **Materials Handling**

27. The Licencee shall deposit all waste, other than material intended for recycling, or processing, in an active area within the Development.
28. The Licencee shall position fencing, including adequate portable litter fences, around the active area or other locations where unloading or handling of materials occur, to prevent litter or other material from collecting on or escaping from the boundaries of the Development. The Licencee is responsible for litter clean up along access roads, facility fencing and adjacent properties.
29. The Licencee shall not accept the following wastes at the Development:
- a) hazardous waste;
  - b) biomedical waste;
  - c) liquid waste;
  - d) radioactive waste or materials;
  - e) outdated drugs or cytotoxic waste;
  - f) PCB's or PCB contaminated materials;
  - g) explosives;
  - h) unbagged asbestos; or
  - i) soils contaminated with total Volatile Hydrocarbons in excess of 800 ppm; or containing:
    - i) benzene greater than 5 ppm;
    - ii) toluene greater than 30 ppm;
    - iii) ethyl benzene greater than 50 ppm;
    - iv) xylene greater than 50 ppm;
    - v) total semi-volatile hydrocarbons greater than 2000 ppm or
    - vi) mineral oil and grease greater than 5000 ppm.
30. Notwithstanding Clause 29 of this Licence, hazardous waste collected or received by the Licencee, shall be allowed in designated areas at the Development in

accordance with *The Dangerous Goods Handling and Transportation Act* and any Licence issued pursuant to that Act or regulations thereunder.

31. The Licencee may receive wastes prohibited in Clause 29 of this Licence if appropriate provisions have been provided in a proposal which has been submitted and approved by the Director.
32. The Licencee may receive a limited quantity of dead animals at the Development provided that they are buried immediately with a minimum of one metre of cover. Receipt of more than ten tonnes of dead animals from a single source or event must be approved by an Environment Officer. Dead animal material received at the Development which may be affected by SRM must be handled in accordance with CFIA requirements.

### **Special Wastes**

33. The Licencee shall not excavate in areas where special wastes have been previously buried without approval from an Environment Officer.
34. The Licencee shall keep record, by Global Positioning System (GPS), of the locations of buried special wastes.

### **Site Preparation**

35. The Licencee shall, prior to any new construction of any component of the Development, remove all top soil to a minimum depth of 150 mm and store this top soil at a suitable location for future use.

## **LINERS AND CLAY COMPONENTS**

36. The Licencee shall arrange with the designated Environment Officer a mutually acceptable time and date for any required soil sampling between the 15th day of May and the 15th day of October of any year, unless otherwise approved by the Environment Officer.
37. The Licencee shall take and test undisturbed soil samples, in accordance with Appendix 'B' attached to this Licence, from:
  - a) the clay of any new active waste disposal cell(s);
  - b) leachate ponds; and
  - c) any clay component of the Development requiring testing by the Director.

### **WEIGH SCALES**

38. The Licencee shall maintain federal certification of the weigh scales utilized at the entrance of the Development.

### **MATERIAL STORAGE AREAS**

#### **Operation – Material Storage Areas**

39. The Licencee shall operate any and all material storage areas in a manner to prevent windblown waste, litter, odour generation, fire and other hazards, as well as preventing spills from contaminated runoff.
40. The Licencee shall remove ozone depleting substances from appliances using a certified contractor in accordance with *Manitoba Regulation 103/94*, or any future amendment thereof, respecting Ozone Depleting Substances and Other Halocarbons.

### **LANDFILL CELLS**

#### **Construction – Landfill Cells**

41. The Licencee shall submit to the Director, at least sixty (60) days prior to construction of a new waste disposal cell, the engineering design plans, sealed by an engineer(s) which address construction specifications of any new active area and include, but are not limited to the following:
- a) detailed sub-soil investigation and report of the sub-soil investigation;
  - b) engineering design with respect to construction of the waste disposal cell base and sides;
  - c) engineering design with respect to the construction of the leachate collection system in each new cell, and connections, if applicable, to the overall leachate management system;
  - d) location of access road(s) to the waste disposal cell;
  - e) details of the location of the waste disposal cell with respect to property lines; and
  - f) details of a drainage system to prevent water from entering the waste disposal cell and to channel the surface run-off into the surface water system for the Development.
42. The Licencee shall construct new waste disposal cells in accordance with the design plans submitted pursuant to Clause 41 of this Licence; subject to terms and conditions set by the Director.

**Operation – Landfill Cells**

43. The Licencee shall minimize the working face to reduce the generation of litter and leachate from the Development.
44. The Licencee shall compact waste deposited in the active area and cover the waste daily with cover material or alternative cover or at a frequency approved by the Director.
45. The Licencee, upon a written request to an Environment Officer, may, during extreme weather conditions, utilize temporary covering of wastes deposited in an active area. Such temporary covering material shall be replaced with permanent cover material when the extreme weather conditions cease; unless otherwise specified by an Environment Officer.

**BURNING AREA**

46. The Licencee shall only allow burning in accordance with the requirements of the *Waste Management Facilities Regulation* or any future amendment thereof.
47. The Licencee shall only burn separated and readily combustible materials such as boughs, leaves, loose straw, paper products, cardboard, non-salvageable untreated wood, and packing materials derived from wood, and only when there is an appropriate volume of this material to burn. Plywood, composite board or other materials constructed with glues, finishes, or preservatives must not be burned.
48. The Licencee shall not burn any other products or materials; including but not limited to plastics, composites, rubber, manures, chemically treated fabrics, mattresses, finished furniture or man-made synthetics.
49. The Licencee shall notify residents within two (2) kilometres of the Development and the Environment Officer of any proposed controlled burning, prior to the actual time and date the burning is to occur.

**LEACHATE**

50. The Licencee shall construct the leachate collection pond in accordance with the design plans submitted by KGS dated July 8, 2016, with the following conditions:
  - a) provide notification to the Environment Officer in writing 5 to 10 days prior to:
    - i) commencing the modifications to the Development (including earthworks for the ponds, and the installation of the leachate extraction trench);

- ii) completion of the earthworks for the clay evaporation ponds to arrange for testing of the liner, prior to commissioning;
  - iii) drilling or collecting soil samples for the testing of the 'large pond' south of Cell 1 to determine soil suitability as a leachate collection pond;
  - iv) covering the glass filled leachate extraction trench and pipe; and
  - v) installation of the monitoring points;
  - b) all leachate ponds are lined with at least 1 metre of compacted clay that achieves hydraulic conductivity of  $1 \times 10^{-7}$  cm/second or less; and
  - c) all components are in compliance with this Licence regarding submission of as-built construction drawings, lab results and testing.
51. The Licencee shall have leachate collection and extraction infrastructure installed in any waste cell developed after January 1, 2017; prior to placement of any waste in a new waste cell.
52. The Licencee shall collect and manage all liquids collected in drain sumps or the leachate collection system at the Development in a manner approved by the Director, or at an alternative off-site licenced facility approved by the Director.
53. The Licencee shall not recirculate leachate or contaminated water collected at the Development through the landfill cells.
54. The Licencee shall report any occurrence of leachate breakout which leaves the Development to an Environment Officer within 24 hours.

### **GROUNDWATER**

55. The Licencee shall ensure that:
- a) four monitoring points are installed and maintained in operational condition in the shallow bedrock system spaced immediately down gradient of Cell 1;
  - b) one background monitoring point is installed and maintained in operational condition upgradient of Cell 1; and
  - c) installation of monitoring points shall be undertaken by a qualified professional.
56. The Licencee shall sample, store and analyze monitoring point samples using approved field and laboratory techniques for dissolved analysis. The analytical results shall be retained in a format acceptable to the Director.
57. The Licencee shall sample the groundwater monitoring points for those parameters identified in Appendix 'A' once per year, or at a frequency as approved by the Director.



58. The Licencee shall include in the Annual Report of Clause 73 the results of the groundwater sampling analyses, complete with previous results, trends and any recommendations with regards to groundwater monitoring.
59. As a result of the operation of the Development, the Licencee shall not cause the concentration values of the parameters listed in the attached Appendix 'A', to exceed background levels in groundwater at the compliance boundary.

### **SURFACE WATER**

60. The Licencee shall place permanent and temporary dyke structures to control surface drainage and divert surface runoff away from active waste disposal cells, construction areas and material storage areas.
61. The Licencee shall construct and maintain the final side slopes of the above ground deposit of waste, including final cover, in the waste cell to not exceed one unit vertical to four units horizontal (1V:4H) and the final top slope to not less than one unit vertical to twenty units horizontal (1V:20H), unless otherwise specified in the Closure Plan by the qualified professional, and approved by the Director.
62. The Licencee shall direct surface drainage outside of the active area away from the active area such that it leads to the adjoining extension of Road 88 N drainage system and the network of municipal ditches off site.
63. The Licencee shall manage surface water, both impacted and non-impacted, at the Development to prevent uncontrolled release from the Development.
64. The Licencee shall operate and maintain all surface water courses to minimize odour and pest problems, sedimentation within the waterways, and to maximize nutrient reduction.
65. The Licencee shall sample the liquid in any surface water pond that collects water from the site for those parameters identified in Appendix 'A' or selected parameters approved by the Director, and receive approval of the assigned Environment Officer prior to release off site or use of the liquid.
66. The Licencee shall with respect to on-site earthen construction works, construct and maintain silt fences in the drainage routes transporting surface runoff off the property of the Development until vegetation has been re-established on the disturbed areas.

### **MONITORING AND REPORTING**

67. The Licencee shall keep for inspection, records of all monitoring at the Development, at the operator's office, or other location approved by the Environment Officer.
68. Where the Licencee fails to undertake the monitoring required pursuant to Clauses 57 or 65 or identified in the Operations Manual of this Licence, the Director may cause such monitoring to be undertaken and recover the cost of such monitoring from the Licencee.
69. The Licencee shall develop an action plan to be implemented in the event that the monitoring results identify any pollutant in air, soil, surface or groundwater, as a result of the operation of the Development, in excess of background levels. The plan shall be submitted to the Director for approval within sixty (60) days of the date of this Licence.
70. The Licencee shall submit to the Director the details of all incidents requiring contingency action regarding groundwater or surface water pollution within seven (7) days from the occurrence of such incidents.

### **RECORDS AND ANNUAL REPORT**

#### **Operation and Monitoring Records**

71. The Licencee shall have available for inspection by an Environment Officer or the Director upon request, records of all operational activities, monitoring and analytical results, reports, certifications and documents identified in this Licence.
72. The Licencee shall keep for inspection, operating and monitoring records at the Development site office including the following:
  - a) as-built drawings showing the location and development of excavation, fill area, final grades and structural components;
  - b) records of annual waste tonnage received at the site;
  - c) records of any wastes (including special wastes) accepted at the landfill including the amounts accepted and the disposal locations within the landfill;
  - d) all Certifications and permits for acceptance of regulated materials (SRM (if applicable), weigh scale certification, etc.);
  - e) an initial topographic survey and plans showing the areas where waste has been disposed in the current and previous years;
  - f) the number of samples collected to establish groundwater quality data;
  - g) details of all incidents requiring the implementation of the contingency action plan regarding groundwater or surface water pollution;
  - h) monitoring results; and

- i) complaints received and actions taken.

### **Annual Report**

73. The Licencee shall, unless otherwise approved by the Director, on or before the 15th day of April of each year and beginning in 2018, prepare an annual report with respect to all activities at the Development conducted pursuant to this Licence during the previous calendar year. The report shall be submitted in a format acceptable to the Director and contain at minimum the following:
- a) a summary of any construction activities which occurred at the Development;
  - b) the mass of each type of waste received (solid waste to tipping face, special wastes, SRM wastes, asbestos, etc.);
  - c) the mass of each type of material that was removed from the Development;
  - d) a summary of the monitoring report results from groundwater sampling;
  - e) the volume of leachate which was removed from the Development for treatment and the final disposal or treatment site(s) (if applicable);
  - f) summary report of noise or odour complaints received; and
  - g) a summary report of any fires within the development requiring notification.
74. The Licencee shall compare the results included with the report pursuant to Clause 73 of this Licence with annual reports submitted in previous years to show trends and variances. The reports shall identify, at minimum, any significant variations, the cause of the variations and any actions taken.

### **CONTINGENCY / EMERGENCY RESPONSE PLANS**

75. The Licencee shall prepare, within ninety (90) days of the date of issuance of this Licence, and maintain a contingency plan related to emergency planning and response at the Development, in accordance with the Canadian Centre for Occupational Health and Safety "Emergency Response Planning Guide" or other emergency planning guidelines acceptable to the Director, outlining procedures to be used in the event of a leak, spill, fire, flood or other hazardous condition at the Development, or if waste management functions are disrupted.
76. The Licencee shall have available for inspection by an Environment Officer, upon request, records of the details of all incidents requiring the implementation of the Contingency or Emergency Response Plan at the Development site office.

### **SITE SAFETY PLAN**

77. The Licencee shall maintain a Site Safety Plan in the Operations Manual in accordance with Provincial requirements.

### **CLOSURE AND POST CLOSURE**

78. The Licencee shall submit, within twelve (12) months of the date of issuance of this Licence, for the approval of the Director, a preliminary Closure and Post-Closure plan for the Development. The plan shall address the closure of the leachate ponds and the landfill and shall include, but not be limited to, information with respect to the following:
- a) final cover design and maintenance;
  - b) maintenance of leachate detection, collection and treatment systems;
  - c) groundwater monitoring;
  - d) removal of all ancillary equipment associated with the Development;
  - e) restoration of the site to the satisfaction of the Director; and
  - f) financial assurance required to implement the Plan.
79. The Licencee shall submit to the Director, not less than one (1) year prior to closure of the Development, an updated engineering design for the closure of the Development and the proposed post closure monitoring plan.
80. The Licencee shall, where an increase in the slope of the final cover due to settlement, or erosion of the final cover occurs during the post closure period, take remedial action to correct the situation and maintain the design.
81. The Licencee shall implement and maintain the approved Closure Plan for the Development pursuant to Clause 78 or 79 of this Licence and any terms and conditions set by the Director at the time of approval.

### **FINANCIAL ASSURANCE/INSURANCE**

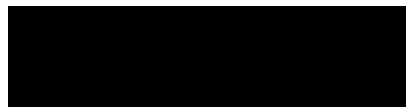
82. The Licencee shall within sixty (60) days of the date of this Licence, provide to the Director confirmation of the following financial insurance coverage:
- a) Environmental Impairment Liability insurance providing coverage subject to a minimum limit of \$1.0 million per occurrence or claim, including coverage for gradual, and sudden and accidental pollution. Coverage to include on-site and off-site clean up costs, and be placed with insurers satisfactory to the Province of Manitoba. The Province of Manitoba shall be added as an Additional Insured on the policy. The policy shall contain a clause stating that the Insurer will give Manitoba sixty (60) days prior written notice in case of significant reduction in coverage or policy cancellation; and
  - b) The Insured will provide Manitoba with a certificate of insurance as written evidence of required coverage prior to commencing operations.

### **RECORD DRAWINGS**

83. The Licencee shall:
- a) prepare “record drawings” for the Development and label the drawings “record drawings”; and
  - b) provide to the Director, within six (6) months, or as otherwise approved by the Director, after completion of construction of each component of the Development, two paper copies and one electronic copy of the “record drawings” of the component of the Development.

### **REVIEW AND REVOCATION**

- A. This Licence replaces Environment Act Licence No. 2274 S2 RR, which is now 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 Braun, M.Sc.**  
**Director**  
*The Environment Act*

**APPENDIX 'A'**  
**TO ENVIRONMENT ACT LICENCE NO. 2274 S2 RRR Clauses 57, 59 and 65**  
**Water Chemistry Parameters**

<b>Chemical Parameters</b>	
<b>Inorganics</b>	
Alkalinity – Total	Magnesium – Dissolved
Ammonia – Total	Manganese – Dissolved
Arsenic – Total	Mercury – Dissolved
Barium – Dissolved	Nitrate - Reported as N
Boron – Dissolved	Nitrite - Reported as N
Cadmium – Dissolved	Total Kjeldahl Nitrogen – Reported as N
Calcium – Dissolved	pH
Calcium Carbonate	Total Phosphorous
Chloride	Potassium – Dissolved
Chromium – Dissolved	Silicon – Dissolved
Conductivity	Sodium – Dissolved
Copper – Dissolved	Total Dissolved Solids (TDS)
Iron – Dissolved	Sulphate
Lead – Dissolved	Uranium – Dissolved
	Zinc – Dissolved
<b>Volatile Organic Compounds (VOC's)</b>	
BTEX	
<b>Other Organics</b>	
Biological Oxygen Demand (BOD)	Chemical Oxygen Demand (COD)
Dissolved Organic Carbon (DOC)	
<b>Field Parameters</b>	
pH	Groundwater Elevation
Conductivity	Dissolved Oxygen
Temperature	

Note: This Appendix is subject to revision at any time by the Director.  
All metals (except Arsenic) are to be sampled for dissolved analysis.  
Dissolved samples should be filtered in the field and preserved in the field at time of sampling. If dissolved samples are not to be filtered and preserved in the field then Sustainable Development and the Laboratory must be notified prior to sampling.

**APPENDIX 'B'**  
**TO ENVIRONMENT ACT LICENCE NO. 2274 S2 RRR Clause 37**

**SOIL SAMPLING**

1. The Licencee shall provide a drilling rig, acceptable to the designated Environment Officer, to extract soil samples from the specified liner of the structure. This includes all liners constructed with clay. The drill rig shall have the capacity to drill to the maximum depth of the clay liner plus an additional 2 metres. The drill rig shall be equipped with both standard and hollow stem augers. The minimum hole diameter shall be 5 inches.
2. For liners placed or found at the surface of the structure, the Licencee shall provide a machine, acceptable to the designated Environment Officer, capable of pressing a sampling tube into the liner in a straight line motion along the centre axis line of the sample tube and without sideways movement.
3. Soil samples shall be collected and shipped in accordance with ASTM Standard D 1587 (Standard Practice for Thin-Walled Tube Sampling of Soils), D 4220 (Standard Practice for Preserving and Transporting Soil Samples) and D 3550 (Standard Practice for Ring-Lines Barrel Sampling of Soils). Thin-walled tubes shall meet the stated requirements including length, inside clearance ratio and corrosion protection. An adequate venting area shall be provided through the sampling head.
4. At the time of sample collection, the designated Environment Officer shall advise the Licencee as to the soil testing method that must be used on each sample. The oedometer method may be used for a sample were the Environment Officer determines that the soil sample is taken from an undisturbed clay soil which has not been remoulded and which is homogeneous and unweathered. The triaxial test shall be used for all samples taken from disturbed and remoulded soils or from non homogenous and weathered soils.
5. The Licencee shall provide a report on the collection of soil samples to the designated Environment Officer and to the laboratory technician which includes but is not limited to: a plot plan indicating sample location, depth or elevation of sample, length of advance of the sample tube length of soil sample contained in the tube after its advancement, the soil test method specified by the Environment Officer for each soil sample and all necessary instructions from the site engineer to the laboratory technician.
6. All drill and sample holes shall be sealed with bentonite pellets after the field drilling and sampling has been completed.

**APPENDIX 'B' (cont'd.)**  
**TO ENVIRONMENT ACT LICENCE NO. 2274 S2 RRR Clause 37**

**SOIL TESTING METHODS**

1. Triaxial Test Method
  - a) The soil samples shall be tested for hydraulic conductivity using ASTM D 5084 (Standard Test Method for Measurement of Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter).
  - b) Soil specimens shall have a minimum diameter of 70 mm (2.75 inches) and a minimum height of 70 mm (2.75 inches). The soil specimens shall be selected from a section of the soil sample which contains the most porous material based on a visual inspection. The hydraulic gradient shall not exceed 30 during sample preparation and testing. Swelling of the soil specimen should be controlled to adjust for: the amount of compaction measured during sample collection and extraction from the tube and the depth or elevation of the sample. The effective stress used during saturation or consolidation of the sample shall not exceed 40 kPa (5.7 psi) or the specific stress level, that is expected in the field location where the sample was taken, whichever is greater.
  - c) The complete laboratory report, as outlined in ASTM D 5084, shall be supplied for each soil sample collected in the field.
2. Oedometer Test Method
  - a) The soil samples shall be tested for hydraulic conductivity using ASTM D 2435 (Standard Test Method for One-Dimensional Consolidation Properties of Soils).
  - b) Soil specimens shall have a minimum diameter of 50 mm (2 inches) and a minimum height of 20 mm (0.8 inches). The soil specimens shall be selected from a section of the soil sample which contains the most porous material based on a visual inspection. The soil specimen shall be taken from an undisturbed soil sample. The soil specimen shall be completely saturated.
  - c) The complete laboratory report, as outlined in ASTM D 2435, shall be supplied for each soil sample collected in the field.