



**Conservation**

Climate Change and Environmental Protection Division  
Environmental Assessment and Licensing Branch  
123 Main Street, Suite 160, Winnipeg, Manitoba R3C 1A5  
T 204 945-7100 F 204 945-5229  
www.gov.mb.ca/conservation/eal  
**CLIENT FILE NO.: 4563.00**

August 10, 2010

Greg Bott  
Plant Manager  
ERCO Worldwide  
P.O. Box 2410  
Virden, MB R0M 2C0

Dear Mr. Bott:

Enclosed is **Environment Act Licence No. 2495 R5** dated August 10, 2010 issued in accordance with The Environment Act to **Erco Worldwide** for the construction and operation of the Development being a sodium chlorate manufacturing facility, located in those portions of the SW  $\frac{1}{4}$ , the SE  $\frac{1}{4}$  and the NW  $\frac{1}{4}$  of Section 12, Township 11, Range 27 WPM that are south of the Trans Canada Highway in the Rural Municipality of Wallace, in accordance with the Proposal dated September 18, 2000, the Notice of Alteration dated January 25, 2002, and the Notice of Alteration dated January 27, 2007, and the Licence alteration request dated May 19, 2010.

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.

For further information on the administration and application of the Licence, please feel free to contact Peter Crocker, Environment Officer at (204) 726-6565.

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 Conservation within 30 days of the date of the Licence.

Yours truly,

Tracey Braun, M. Sc.  
Director  
Environment Act

Enc.

c: Don Labossiere, Director, Environmental Operations  
Public Registries

**NOTE:** Confirmation of Receipt of this Licence No. 2495 R5 (by the Licencee only) is required by the Director of Environmental Assessment and Licensing. Please acknowledge receipt by signing in the space provided below and faxing a copy (letter only) to the Department by August 24, 2010.

\_\_\_\_\_  
On behalf of ERCO Worldwide

\_\_\_\_\_  
Date

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

# LICENCE

|                                 |                          |
|---------------------------------|--------------------------|
| Licence No. / Licence n°        | <u>2495 R5</u>           |
| Issue Date / Date de délivrance | <u>January 22, 2001</u>  |
| Revised / Révisé                | <u>November 28, 2001</u> |
|                                 | <u>February 7, 2002</u>  |
|                                 | <u>December 1, 2003</u>  |
|                                 | <u>August 23, 2007</u>   |
|                                 | <u>August 10, 2010</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 Sections 10(1) and 14(2) / Conformément aux Paragraphes 10(1) and 14(2)

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

**ERCO WORLDWIDE; "the Licencee"**

for the construction and operation of the Development being a sodium chlorate manufacturing facility, located in those portions of the SW ¼, the SE ¼ and the NW ¼ of Section 12, Township 11, Range 27 WPM that are south of the Trans Canada Highway in the Rural Municipality of Wallace, in accordance with the Proposal dated September 18, 2000, the Notice of Alteration dated January 25, 2002, the Notice of Alteration dated January 27, 2007, and the Licence alteration request dated May 19, 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 Manitoba Conservation 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 in writing;

"**as-constructed drawings**" means engineering drawings complete with all dimensions which indicate all features of the Development as it has actually been built;

"**ASAE**" means the American Society of Agricultural Engineers;

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"**ASTM**" means the American Society for Testing and Materials;

"**brine well**" means a well licenced under The Oil and Gas Act and used to extract salt and other soluble material from the Prairie Evaporite Formation;

"**composite sample**" means a quantity of undiluted process water consisting of equal volumes of undiluted samples collected each day for a period of one month;

"**dangerous good**" means any product, substance or organism designated in the regulations, or conforming with the criteria set out in the regulations, or in any regulation adopted in accordance with The Dangerous Goods Handling and Transportation Act, and includes hazardous wastes;

"**day**" means a 24 hour period beginning at 00:00:00 hours and ending at 23:59:59 hours;

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

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

"**flowlines**" means the pipes used to move brine, salt water or other approved fluids to and from the wells and any other part or process at the Development, and which are designed, installed, operated and maintained in accordance with CSA Standard Z662-99, *Oil and Gas Pipeline Systems*;

"**full production**" means manufacture of 40,000 tonnes per annum;

"**grab sample**" means a quantity of undiluted process water collected at any given time;

"**GRI**" means the Geosynthetic Research Institute;

"**HDPE**" means high density polyethylene;

"**high water mark**" means the fluid level mark on the interior surface of the brine retention pond which is normally reached when the cell is at the maximum allowable liquid level;

"**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;

"**Interlake Group Formation**" means that geological layer deposited during the Silurian Period into which waste salt or process water is to be injected;

"**low water mark**" means the fluid level mark on the interior surface of the brine retention pond which is projected according to design or operational normal minimum volume storage;

"**NO<sub>x</sub>**" means oxides of nitrogen, and refers collectively to nitric oxide (NO) and nitrogen dioxide (NO<sub>2</sub>) expressed as a nitrogen dioxide equivalent;

**"noise nuisance"** means a continuous or repeated noise 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 the members of the public;

if the noise

- 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;

**"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 the 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 unwanted 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;

**"opacity"** means the degree to which emissions reduce the transmission of light and obscure the view of an object in the background;

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

**"particulate residue"** means that part or portion of an atmospheric emission which is deposited onto a surface;

**"point source"** means any point of emission from the Development where pollutants are emitted to the atmosphere by means of a stack;

**"Prairie Evaporite Formation"** means that mineral layer deposited during the Devonian Period from which sodium chloride is to be extracted;

**"process water"** means water at the Development which has been used in any process or has in any manner become contaminated and includes liquids withdrawn from the Prairie Evaporite Formation, stored in the brine retention pond and collected as leachate from the brine retention pond;

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

**"riprap"** means small, broken stones or boulders placed compactly or irregularly on dykes or similar embankments for protection of earth surfaces against wave action or current;

**"salt water disposal well"** means a well for which a Salt Water Disposal Permit has been issued, which is used for the disposal of salt water or other approved process waters into an underground formation, and which has been licenced under The Oil and Gas Act;

**"sanitary wastes"** means sewage containing human body, toilet, liquid, waterborne culinary, sink or laundry waste;

**"stack"** means a duct, pipe, chimney, vent, opening or other structure through which pollutants are emitted to the atmosphere;

**"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 any liquid containing a pollutant as defined in The Environment Act, associated with or resulting from the Development which is discharged 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.

1. The Licencee shall implement a high standard of equipment maintenance and good housekeeping and operational practices with respect to the Development, at all times.
2. The Licencee shall reduce the production and dissemination of wastes by initiating and maintaining waste reduction and waste recycling programs.
3. The Licencee shall, upon the request of the Director and in addition to any of the limits, terms or conditions specified in this Licence:
  - 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 said 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.
4. 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) ensure that all analytical determinations are undertaken by an accredited laboratory; and
  - d) report the results to the Director within 60 days of the samples being taken.
5. The Licencee shall provide to the Director, upon request, all information required under this Licence, in writing and in such form and content (including number of copies), as may be specified by the Director.
6. The Licencee shall submit in writing to the Director the date of initiation of the production of sodium chlorate at the Development, within ten working days of that date.

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

#### **Respecting Site Plans and Building Plans**

7. The Licencee shall submit to the Director, prior to the initiation of construction at the Development:
- a) engineered construction drawings of the Development sealed by a professional engineer registered with the Association of Professional Engineers and Geoscientists of the Province of Manitoba, containing the proposed scaled site layout showing and identifying property boundaries, all existing buildings, roadways, storage areas, wells, fence lines, ponds, off-site drainage, wastewater discharge locations and other man made structures; and
  - b) drawings and schematic diagrams identifying proposed processing equipment, air handling and air pollution control and treatment equipment, emission stacks, water supply and wastewater collection systems.

All drawings shall be of sufficient size, but no smaller than 11" by 17", so as to clearly identify all features including textural descriptions.

8. The Licencee shall submit to the Director, within 90 days of date of the initiation of production of sodium chlorate at the Development:

- a) engineered as-constructed drawings of the Development sealed by a professional engineer registered with the Association of Professional Engineers and Geoscientists of the Province of Manitoba, containing the existing scaled site layout showing and identifying property boundaries, all existing buildings, roadways, storage areas, wells, fence lines, ponds, off-site drainage wastewater discharge locations and other man made structures; and
- b) drawings and schematic diagrams identifying existing processing equipment, air handling and air pollution control and treatment equipment, emission stacks, water supply and wastewater collection systems.

All drawings shall be of sufficient size, but no smaller than 11" by 17", so as to clearly identify all features including textural descriptions.

### **Respecting the Brine Retention Pond – Construction**

9. The Licencee shall, prior to the construction of the brine retention pond:
  - a) remove all the organic topsoil from the area where the pond will be constructed;
  - b) drill a minimum of 3 test holes to a minimum depth of 7 metres within the footprint of the brine retention pond for purposes of soil characterization;
  - c) characterize the soil profile with respect to texture, moisture content and hydraulic conductivity; and
  - d) prepare and submit a report to the Director addressing the suitability of the soil for the location and construction of the brine retention pond.
10. The Licencee shall install and maintain a continuous HDPE membrane double liner system on each wall and on the floor of the brine retention pond in accordance with the specifications identified in the submission received on November 6, 2000, such that the membrane liners:
  - a) are underlain with continuous suitable material at least 0.6 metres in thickness with a hydraulic conductivity of  $1.0 \times 10^{-7}$  centimetres per second or less;
  - b) are installed in accordance with ASAE Standard EP340.2 for the Installation of Flexible Membrane Linings;
  - c) have a minimum thickness of:
    - i) 1.5 millimetres (60 mil) for the secondary liner; and
    - ii) 2.0 millimetres (80 mil) for the primary liner;
  - d) are free of perforations;
  - e) are installed such that gases which may form beneath the membranes do not accumulate and cause floating, displacement or otherwise compromise the membrane integrity;
  - f) are field tested for the integrity of all seams in accordance with the more suitable of GRI Standard GM6 or ASTM Standard D4437-84, and a test report is prepared and submitted to the Director 30 days prior to the brine retention pond being placed into operation;
  - g) are properly integrated with the leachate collection and monitoring systems; and
  - h) where exposed, are overlaid with suitable material such that proper protection is provided from the elements and any maintenance activities which might cause damage.
11. The Licencee shall ensure that any soil compaction of the continuous suitable material of the brine retention pond floor and walls referred to in Clause 10 a) of this Licence does not occur when ambient temperatures are below freezing conditions.

12. The Licencee shall arrange with the designated Environment Officer a mutually acceptable time and date for any required soil sampling during a period of time when the soil of concern is in an unfrozen state.
13. The Licencee shall take and test a minimum of 3 and a maximum of 10 samples of the continuous suitable material of the brine retention pond cell floor and walls referred to in Clause 10 a) of this Licence, in accordance with Attachment 'A' to this Licence, from locations acceptable to the designated Environment Officer.
14. The Licencee shall, not less than 10 working days before the brine retention pond is placed into operation, submit the results of the tests, pursuant to Clause 13 of this Licence, to the Director for approval.
15. The Licencee shall install and maintain a fence around the brine retention pond to restrict unauthorized access.
16. The Licencee shall undertake any works deemed by the Director to be necessary to upgrade the liner system, and shall complete the works within a time frame determined by the Director.
17. The Licencee shall maintain, at all times, a minimum of 1.0 metres of freeboard in the brine retention pond.
18. The Licencee shall place rip rap on the exterior or interior dyke surfaces from 0.6 metres above the high water mark to at least 0.6 metres below the low water mark to protect the dykes from wave action or erosion from flood water if, in the opinion of the Director, significant erosion of the interior or exterior surfaces of the brine retention pond is apparent.

#### **Respecting Brine Retention Pond Monitoring**

19. The Licencee shall collect a grab sample of liquid from the brine retention pond semi-annually and analyse the sample for pH, conductivity, hexavalent chromium and cations/anions including chloride.
20. The Licencee shall collect a grab sample of leachate from the brine retention pond monthly and analyse the sample for pH, conductivity, hexavalent chromium and cations/anions including chloride.
21. The Licencee shall estimate and record the volume of leachate collected from the brine retention pond on a monthly basis.

#### **Respecting Surface Water Discharge**

22. The Licencee shall not discharge to the ground surface beyond the property boundaries of the Development, any water which is contaminated from contact with any material or process at the Development.



### **Respecting Ground Water**

23. The Licencee shall conduct a groundwater study of all areas at the Development which may be impacted by any construction or activity including the brine retention pond, prior to undertaking any construction at the Development.
24. The Licencee shall submit a report of the study conducted pursuant to Clause 23 of this Licence, for the approval of the Director, prior to undertaking any construction activity at the Development.
25. The Licencee shall implement all measures requested by the Director as a result of the Department's assessment the report submitted pursuant to Clause 24 of this Licence.

### **Respecting Water and Process Water Management**

26. The Licencee shall record and maintain a monthly water volume balance for the Development addressing the following:
  - a) the volume of water received at the Development, the volume of water and process water injected into the Interlake Formation, and the volume of water and process water withdrawn from or injected into the Prairie Evaporate Formation; and
  - b) the volume of water and process water directed to and removed from the brine retention pond.
27. The Licencee shall measure the volumes described in Clause 26 a) and b) of this Licence to an accuracy of plus or minus 1 percent with an appropriate and properly calibrated meter.
28. The Licencee shall collect a composite sample of process water recycled to the Prairie Evaporite Formation and a composite sample of waste process water injected to the Interlake Group Formation monthly; and analyse the sample for pH, conductivity, hexavalent chromium, and cations/anions including chloride.
29. The Licencee shall report in writing to the Director, on a semi-annual basis, a monthly summary of the information required in Clause 26 and 28 of this Licence.

### **Respecting Air Emissions – Limits**

30. The Licencee shall not emit from the Development:
  - a) particulate matter in any air emission that:
    - i) exceeds 0.23 grams per dry standard cubic metre calculated at 25 degrees Celsius and 760 millimetres of mercury, corrected to 12 percent carbon dioxide for processes involving combustion, from any point source of the Development;
    - ii) exhibits a visible plume with an opacity of greater than 5 percent at any point beyond the property line of the Development; or
    - iii) results in the deposition of visible particulate residue at any time beyond the property line of the Development; or
  - b) particulate matter from any point source with an opacity that equals or exceeds:

- i) 20 percent as the average of any 24 consecutive opacity observations taken at 15 second intervals;
  - ii) 20 percent for more than 16 individual opacity observations within any 1 hour period; or
  - iii) 40 percent for any individual opacity observation.
31. The Licencee shall not emit from any point source at the Development:
  - a) chlorine (Cl<sub>2</sub>) in excess of 15.0 milligrams per cubic metre determined as a one hour average;
  - b) hydrogen chloride (HCl) in excess of 76.0 milligrams per cubic metre determined as a one hour average; and
  - c) nitrogen oxides (NO<sub>x</sub>) in excess of 26 grams per gigajoule of energy input.
32. 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.
33. 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.

#### **Respecting Air Emissions – Sampling, Analysis, Reporting**

34. The Licencee, upon written request from the Director, shall provide a stack or stacks including all necessary sampling facilities for the sampling of air emissions at the Development. The stack or stacks shall be provided:
  - a) at a location(s) and within a time frame satisfactory to the Director; and
  - b) to the specifications and in accordance with the most recent version of Manitoba Conservation Guideline, *Guideline for Stack Sampling Facilities*, unless otherwise approved by the Director.
35. The Licencee, upon a written request from the Director, shall submit a detailed plan which is acceptable to and approved by the Director, for the sampling and analysis of potential air pollutants, released as stationary point and fugitive emissions, including any compounds determined by the Director. The plan shall identify the rationale for the sampling; the ways and means by which the sampling program will be implemented including any special measures or methods which would be necessitated by influencing factors such as unfavourable weather conditions, the need for large or additional sample volumes, the need for multiple sampling runs; the methods used for the sampling and the analysis for each compound; the detection level to be attained; a comprehensive QA/QC program, and other items as may be identified by the Director.
36. The Licencee shall perform all stack sampling in accordance with the most recent version of Manitoba Conservation Report No. 96-07, *Interim Stack Sampling Performance Protocol*, unless otherwise approved by the Director.

37. The Licencee shall arrange the scheduling of the sampling program submitted pursuant to Clause 35 of this Licence such that a representative of Manitoba Conservation is available to monitor and audit the implementation of the sampling program.
38. The Licencee shall complete the sampling of emissions according to the approved plan submitted pursuant to Clause 35 of this Licence, within a timeframe to be determined by the Director.
39. The Licencee shall submit a report, for the approval of the Director, of the completed sampling and analysis plan approved pursuant to Clause 35 of this Licence, within 60 days of the receipt of the analytical results of that sampling plan. The report shall contain at minimum:
  - a) the raw data collected;
  - b) a discussion of the sampling and analytical portions of the program including any anomalies of sampling and analysis; and
  - c) a discussion of the significance of the data gathered with specific attention to:
    - i) the significance for potential acute and chronic impacts to health or environment from exposure to concentrations of the compounds detected;
    - ii) the need for risk assessment of the impact of emissions;
    - iii) the need for the establishment of ambient air monitoring stations;
    - iv) the need for dispersion modeling of emissions;
    - v) results and conclusions of the QA/QC program; and
    - vi) other issues as may be determined by the Director.
40. The Licencee, upon the written request of and in a timeframe stipulated by the Director, shall 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 Clauses 3, 39 or 41 of this Licence.

#### **Respecting Monitoring of Air Emissions**

41. The Licencee shall sample and analyse for chlorine ( $\text{Cl}_2$ ) and hydrogen chloride (HCl) in emissions from the hydrogen gas scrubber; nitrogen oxides ( $\text{NO}_x$ ) in emissions from the boiler; and particulates and sodium chlorate in emissions from both the dryer scrubber and product storage silos/loading complex baghouse(s) every third year beginning in 2010 and in accordance with the conditions specified in Clauses 34 to 39 of this Licence.

#### **Respecting Chlorine Emissions**

42. The Licencee shall:
  - a) Maintain excess caustic in the hydrogen scrubber blow down;
  - b) Monitor pH of the reactor liquor; and
  - c) Monitor the continuous oxygen reduction potential of sodium hypochlorite in the hydrogen scrubberIn such a manner as to minimize chlorine emissions from the hydrogen scrubber.

### **Respecting Air Pollution Control Equipment**

43. The Licencee shall not operate any process which might cause pollutants to be emitted from the Development unless:
- a) a Standard Operating Procedure manual for the operation and maintenance of the air handling and air pollution control equipment is prepared for and approved by the Director;
  - b) all emissions from the process are directed to a fully operational air pollution control device(s) which removes or treats the pollutants of interest;
  - c) all discharges of treated emissions from the air pollution control devices are immediately directed to a stack which meets the conditions as stipulated in this Licence; and
  - d) the emissions do not contain concentrations of pollutants which:
    - i) are in violation of any other applicable legal instrument including an Act, Regulation or by-law; or
    - ii) otherwise create a significant health or environmental impact beyond the boundaries of the Development.
44. The Licencee shall maintain a log book of the most recent 24 months of downtime of any air pollution control equipment due to either the breakdown or maintenance of that air pollution control equipment. The log book shall be kept at the Development and shall be available upon request for inspection by an Environment Officer. The log book shall record, at minimum, the following information:
- a) identification of the unit and the process(s) it serves;
  - b) time/date of log entry;
  - c) nature of event;
  - d) duration of event;
  - e) the accumulated downtime of this equipment for the events for each calendar year; and
  - f) signature of employee or manager.
45. The Licencee shall handle, store and dispose of all pollutants collected by the air pollution control equipment in a manner suitable to their characterization as type of waste or dangerous good.

### **Respecting Ambient Air Quality Monitoring**

46. The Licencee shall submit for the approval of the Director within 90 days of the issuance of this Licence, a proposal for:
- a) the sampling, analysis and reporting of levels of chlorine (Cl<sub>2</sub>), particulates, hydrogen chloride, hexavalent chromium and sodium chlorate at a selected location beyond the property boundaries of the Development; and
  - b) the location, installation and operation of a meteorological monitoring station.

### **Respecting Cooling Tower Emissions**

47. The Licencee shall not emit water vapour from the cooling towers at the Development such that, at any point beyond the property boundaries of the Development, visibility is obscured or a negative impact is otherwise created which causes or might cause a safety concern.

**Respecting the Brine Well, the Salt Water Disposal Well and the Salt Solution Mined Cavern**

48. The Licencee shall drill, complete, operate and abandon all brine and salt water disposal wells such that:
- a) the wells are in compliance with The Oil and Gas Act and the regulation thereunder<sup>1</sup>;
  - b) a baseline survey of the surface elevations of a monitoring network to be established over the proposed and developed salt solution mined cavern and at the well head is completed;
  - c) additional surveys of surface elevation at the monitoring network and well head are performed every 3 years to determine any surface subsidence; and
  - d) a report of the information required in Clauses 48 b) and c) of this Licence is submitted to the Director within 60 days of completion of the wells and the surveys.

**Respecting Sanitary Waste Disposal**

49. The Licencee shall discharge only sanitary wastes to the sewage system.

**Respecting Chemical Storage**

50. The Licencee shall comply with all the applicable requirements of:
- a) Manitoba Regulation 97/88R, or any future amendment thereof, respecting the storage and handling of gasoline and associated products; and
  - b) the Manitoba 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.
51. The Licencee shall grade, surface and dike or curb all areas where chemicals are stored, loaded, transferred or otherwise handled in a manner and using appropriate impermeable materials approved by the Director, such that all product spillage and contaminated run-off water from these areas is contained within the Development and contamination of groundwater is prevented.
52. The Licencee shall provide containment within any diked or curbed liquid chemical storage area for a volume of liquid equal to:
- a) 110% of the volume of the largest storage tank located therein; and
  - b) the effective displacement volume of all other tanks and structures located therein.

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<sup>1</sup> For the purposes of this Licence, the jurisdiction of The Oil and Gas Act and regulations thereunder shall be applied to all downholes and the surface equipment associated with the downholes up to and including the valves used to isolate the wells from their flowlines; and to the design, construction, operation and abandonment of the salt solution mined cavern.

53. The Licencee shall maintain the containment area volume capacity in Clause 52 of this Licence by the immediate removal and disposal, in a manner approved by the Director, of all accumulated fluids.

#### **Respecting Solid Waste**

54. The Licencee shall dispose of all solid waste generated from any activity at the Development only to a waste disposal ground operating under the authority of a permit issued pursuant to Manitoba Regulation 150/91 or any future amendment thereof.

#### **Respecting the Determination of Regular Full Production of Sodium Chlorate**

55. The Licencee shall determine the rate of regular full production within 270 days of the initiation of the production of sodium chlorate at the Development.
56. The Licencee shall submit to the Director, not later than 285 days after the initiation of production of sodium chlorate at the Development, the determined rate of regular full production of product manufactured. The rate shall be stated as:
- a) a monthly average; and
  - b) daily and hourly averages as calculated from the determined monthly average.

#### **Respecting Financial Assurance**

57. The Licencee shall, prior to commencement of operation at the Development, post with the Manitoba Department of Conservation in the amount of \$250,000 Cdn:
- a) a permit bond issued by a surety company licenced to do business in the Province of Manitoba;
  - b) an irrevocable letter of credit; or
  - c) another acceptable security satisfactory to the Director.

This permit bond, irrevocable letter of credit, or other security and renewals thereof shall remain in place for the duration of the operation and decommissioning of the facility. The Director may order forfeiture of the permit bond, irrevocable letter of credit, or other security, either in whole or in part, by giving written notice to that effect to the Licencee, upon the Director being satisfied that the Licencee is in breach of any specification, limit, term or condition of this Licence, or for reimbursement of any costs or expenses incurred by the Province of Manitoba in rectifying environmental damage caused or contributed to by the operation of the facility.

58. The Licencee shall, prior to commencement of operation at the Development, provide to the Director confirmation of Environmental Impairment Liability insurance providing coverage subject to a minimum limit of \$1,000,000 Cdn 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 is to be added as an Additional Insured on the policy. The policy shall contain a clause stating that the Insurer will give Manitoba 60 days prior written notice in case of significant reduction in coverage or policy cancellation.

**Respecting Decommissioning**


- 59. The Licencee shall submit a decommissioning plan for the Development, including the brine and disposal wells and the salt solution mined cavern, suitable to the Director, prior to commencement of operation at the Development.
- 60. The Licencee shall decommission and remediate the Development, if so ordered by and to the satisfaction of, the Director.

**Respecting Emergency Response Planning**

- 61. The Licencee shall submit to the Director for approval, prior to operation of the Development, a contingency plan, in accordance with the Manitoba Industrial Accidents Council (MIAC) *Industrial Emergency Response Planning Guide*, outlining procedures to be used in the event of a leak, spill, fire, or other hazardous condition at the Development.

**REVIEW AND REVOCATION**

- A. This Licence replaces Licence No. 2495 RRRR which 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 10 of The Environment Act.

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

## Attachment 'A' To Environment Act Licence No. 2495 R5

### Soil Sampling:

1. The Licencee shall provide a drilling rig, acceptable to the designated Environment Officer, to extract soil samples from the liner which is not placed or found at the surface of the lagoon structure. This includes all wastewater treatment lagoons constructed with clay cutoffs at the interior base of the dyke or with a clay cutoff in the centre of the dyke. The drill rig shall have the capacity to drill to the maximum depth of the clay cutoff 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 lagoon liners placed or found at the surface of the lagoon 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.



## 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 were the sample was taken, which ever 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.