Environment Act Licence

Manitoba Environment

Licence No. 1703 R

Issue Date OCTOBER 4, 1993

In accordance with the Manitoba Environment Act (C.C.S.M. c. E125) (REVISED: FEBRUARY 14, 1994)

THIS LICENCE IS ISSUED TO:

MANITOBA HYDRO; "the Licencee"

for the rehabilitation, upgrading and continuing operation of the existing Development, being the Brandon Thermal Generating Station as outlined in the Licencee's Proposal dated September 24, 1990, and the Environmental Impact Assessment report (Volumes I and II) dated August, 1992, and the addendum Volume III dated January, 1993, and located in the SW 1/4 Section 20, Township 10, Range 18, WPM in the City of Brandon, Manitoba, and subject to the following specifications, limits, terms and conditions:

DEFINITIONS

In this Licence:

"acid-soluble" means extractable, where the liquid sample is acidified with 5 millilitres of 1:1 nitric acid per litre of sample at the time of collection, and shaken well before analysis;

"ASTM" means American Society of Testing Materials;

"A-weighted sound level" means the sound level measured in dBA units with a sound level meter set on the A-weighting network, being a filter designed to approximate the relative sensitivity of the normal human ear to different frequencies of sound;

"BTU" means British Thermal Units;

"dB" means decibel, a dimensionless measure of sound level or sound pressure level, where, sound level = $20 \log_{10} \frac{\text{sound pressure (actual)}}{\text{sound pressure (reference)}}$;

"effluent" means a liquid released from the plant through discharge pipes or a final control structure, or released from the plant site as surface runoff, and comprised of or having come in contact with any pollutant used at, generated at, or brought onto the plant site;

"emergency shutdown" means an abrupt unscheduled shutdown of any one of the five power generating units;

"ESP" means electrostatic precipitator;

"fugitive emissions" means particulate matter escaping from sources within the plant site into the atmosphere other than through any of the three on-site stacks;

"fully mixed zone" means that location, in the Assiniboine River, as depicted in Appendix 'A'.

"heat input" means the amount of heat potential applied to all active boilers affecting any one of the three stacks on the plant site, calculated on the basis of the quantity of fuel burned and on laboratory analyses of the fuel;

"hour" means any time span consisting of 60 consecutive minutes;

"L_{eq}" (equivalent continuous sound level) means a constant or steady A-weighted sound level which, over a specified duration of time, has the same total A-weighted energy as the actual fluctuating sound;

"$L_{eq}(1)$" means the L_{eq} for a one-hour period;

"mothball" means to place into a state of non use, while maintaining the option for potential re-use in the future subsequent to any necessary re-conditioning;

"MWAT" means the maximum weekly average temperature, that is, the maximum average temperature to which selected species of fish in a waterway can be exposed for seven consecutive days without adversely affecting the fish during growth, reproduction and winter periods;

"nanogram" means one billionth of a gram;

"opacity" means the degree to which visible 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;

"plant" includes the power house, offices and all the ancillary buildings, facilities and storage areas associated with the operation of the Brandon Thermal Generating Station, as depicted in Appendix 'A' attached to this Licence;

"plant site" means the property described by the legal property boundary lines for that land owned by Manitoba Hydro on which the Brandon Thermal Generating Station is located;

"sewage" means all sanitary wastewater collected from toilets, urinals, bathroom sinks and shower stalls.

"visible emissions" means any air-borne particulate matter which obscures visibility;

"7Q10" means the average minimum seven-day flow rate which has a recurrence interval of once in ten years.

GENERAL SPECIFICATIONS

1. Notwithstanding any of the following 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 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 plant; or

   (c) provide the Director, within such time as may be specified, with such reports, drawings, specifications, analytical data, flow rate measurements and such other information as may from time to time be requested.

2. The Licencee shall carry out all 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" published jointly by the American Public Health Association, the American Waterworks Association and the Water Pollution Control Federation, unless otherwise specified in this Licence or by the Director.

3. The Licencee shall ensure that all monitoring activities, data collection and interpretations requested through the provisions of this Licence are carried out by individuals properly trained or qualified to carry out these tasks.

4. The Licencee shall report all data requested through this Licence in a manner and form acceptable to the Director.

SPECIFICATIONS, LIMITS, TERMS AND CONDITIONS

Respecting Air

5. The Licencee shall not burn coal to operate any power generating unit in the generating mode unless the air emissions from the boiler furnace associated with that unit are directed through a fully functional and operating cyclone or some other equivalent or superior particulate matter emission control device.

6. The Licencee shall limit the emission of pollutants from any active stack serving the power generating units on the plant site to the extent that:
   (a) the emission of sulphur dioxide does not exceed 890 nanograms per Joule (2.07 pounds per million BTU) of heat input associated with the respective stack;

   (b) the emission of nitrogen oxides (expressed as nitrogen dioxide, NO_2) do not exceed 258 nanograms per Joule (0.6 pounds per million BTU) of heat input associated with the respective stack;

as determined from any stack emission test carried out in accordance with procedures and methods satisfactory to the Director.

7. The Licencee shall replace the existing mechanical dust collectors from generating Unit 5 with an ESP having a rated 99.5% particulate matter removal efficiency, within an implementation and testing schedule such that the ESP is set into service by no later than January 1, 1996.

8. Subsequent to setting the ESP into service, the Licencee shall not release particulate matter into the air through the stack from the boiler furnace serving generating Unit 5 in excess of 0.23 grams per standard cubic metre calculated at 25 degrees Celsius and 760 millimetres of mercury corrected to 12 percent carbon dioxide.

9. The Licencee shall mothball generating Units 1, 2, 3 and 4 in the spring of 1996 in their capacity to generate power, and shall not place any of these units back into operation in the generating mode without prior due process under The Environment Act.

10. The Licencee shall at all times carry out an efficient program of general housekeeping, equipment maintenance and mitigative measures so as:
    (a) to minimize the emission of particulate matter through any of the stacks serving the generating units;

    (b) to limit the discharge of fugitive emissions from any source within the plant site such that:
        (i) distinct plume forming fugitive emissions do not exceed an opacity of 5%;
        (ii) non plume forming fugitive emissions are not at any time visible;
    when measured or viewed in the atmosphere at any point beyond the plant site.

11. The Licencee shall, within 24 hours of having received notification from an Environment Officer of a complaint from the public concerning fugitive emissions, respond effectively and mitigate the fugitive emissions to the satisfaction of the Director, and submit a report to the Director within seven days outlining why the problem developed, how it was mitigated and what would be done to prevent another similar situation from developing.

12. The Licencee shall ensure that at any downwind point of impingement of plant emissions off the plant site, ground level concentrations of any of the following air pollutants are not in excess of the corresponding limits for any of the listed measurement criteria:

Air Pollutants	Measurement Criteria	Limits
(a) Sulphur Dioxide	1-hour average	900 micrograms per cubic metre
	24-hour average	300 micrograms per cubic metre
	annual arithmetic mean	60 micrograms per cubic metre
	Measurement	
(b) Nitrogen Dioxide	1-hour average	400 micrograms per cubic metre
	24-hour average	200 micrograms per cubic metre
	annual arithmetic mean	100 micrograms per cubic metre

Air Pollutants	Criteria	Limits
(c) Suspended Particulate Matter	24-hour average annual geometric mean	120 micrograms per cubic metre 70 micrograms per cubic metre

as determined from any ambient air sample or samples collected and analyzed in accordance with procedures and methods satisfactory to the Director, and corrected to a reference temperature of 25 degrees Celsius and a reference pressure of 760 millimetres of mercury.

13. The Licencee shall limit sound emissions from all sources on the plant site to the degree that sound levels, when measured off the plant site in any area zoned industrial, do not exceed an $L_{eq}(1)$ of 70 dBA at any time, where the sound level determinations are based on measurements that exclude any significant interfering sounds from other sources off the plant site, and are based on using a sound level monitoring device which equals or surpasses the requirements of Canadian Standards Association, Standard Z 107.1 - 1973 (or the equivalent) for Type 2 sound level meters operated on the "A-weighting network" and "slow" meter response.

Respecting Water

14. The Licencee shall by no later than January 1, 1996:
    (a) install and set into full service a closed-loop cooling tower which has the capacity to recirculate at least all steam condenser cooling water requirements associated with generating Unit 5;

    (b) report to the Director the findings of the current study being undertaken by the Licencee into the feasibility of cooling all the synchronous condensers and heat exchanger cooling water through the cooling tower, and implement the procedures if determined feasible.

15. The Licencee shall during the transition period from January 1, 1996 to April 1, 1996 maximize recirculation of generating steam condenser and, if determined feasible, synchronous condenser and heat exchanger cooling water through the cooling tower, excluding cooling tower blow-down water, unless a complete tower breakdown occurs.

16. The Licencee shall by no later than April 1, 1996 recirculate all generating Unit 5 steam condenser and, if determined feasible, synchronous condenser and heat exchanger cooling water through the cooling tower, excluding cooling tower blow-down water, unless a complete tower breakdown occurs.

17. Subject to Clause 18, the Licencee shall, whenever once-through steam condenser cooling water is or must be used for power generation:
    (a) avoid power generation during the months of May and June of any year, unless emergency power demand conditions, acknowledged by the Director, warrant power generation during these months;

    (b) throttle the cooling water intake pumps to minimize the rate of cooling water withdrawal from the Assiniboine River, where emergency power generation has been acknowledged by the Director for May and/or June in any year;

(c) (i) reduce the level of power output at the plant if the temperature of the Assiniboine River intake cooling water is approaching the MWAT value shown in Appendix 'B' for the prevailing month, with the power output reduced to such a level at which the Licencee can demonstrate to the satisfaction of the Director that the heat loading from the cooling water into the Assiniboine River is not causing the downstream mean temperature of the Assiniboine River in the nearest fully mixed zone to exceed the said MWAT value; or

(ii) discontinue power generation at the plant if the temperature of the Assiniboine River intake cooling water is equal to or exceeds the MWAT value shown in Appendix 'B' for the prevailing month; and

unless emergency power demand conditions, acknowledged by the Director, warrant the continuation of the prevailing power generation level, or unless the prevailing flow rate of the Assiniboine River at Brandon is less than the projected 7Q10 flow rate shown in Appendix 'B' for that prevailing month.

18. The Licencee shall not release once-through steam condenser cooling water into the Assiniboine River so as to cause the temperature of the river, as measured in the nearest fully mixed zone downstream of the cooling water discharge point, to exceed 30 degrees Celsius, unless emergency power demand conditions, acknowledged by the Director, warrant the continuation of the prevailing power generation level, or unless the prevailing flow rate of the Assiniboine River at Brandon is less than the projected 7Q10 flow rate shown in Appendix 'B' for that prevailing month.

19. The Licencee shall, whenever once-through steam condenser cooling water has been used for power generation and power generation shutdown at the plant is contemplated:
(a) implement all practical measures concerning the gradual reduction of generation and the handling of cooling water flows prior to and during generation shutdowns, with cooling water pumps shut down upon the cessation of generation, so as to minimize the temperature decline rate of the cooling water and the immediate receiving water; and

(b) ensure that the temperature decline rate of the Assiniboine River in the nearest fully mixed zone does not exceed 6 Celsius degrees per 24 consecutive hours, except subsequent to an emergency shutdown.

20. The Licencee shall ensure that at all times all sewage generated on the plant site is directed into the City of Brandon's municipal sewage collection system.

21. The Licencee shall ensure that the effluent released through either or both of the station drain pipes is of such quality that in any grab sample collected of that effluent either at the discharge points of the station drain pipes near the Assiniboine River or at an equivalent sampling location satisfactory to the Director:
(a) the pH is not less than 6.5 nor greater than 9.5 pH units;

(b) the oil and grease content is not greater than 15 milligrams per litre;

(c) the acid-soluble copper concentration is not greater than 0.5 milligrams per litre.

22. The Licencee shall ensure that the effluent released from the effluent discharge point of the ash lagoon is of such quality that in any grab sample taken of that effluent:
    (a) (i) the pH is not less than 6.5 nor greater than 10.0 pH units during the period up to and including the 12 consecutive months following the initial setting into service of the cooling tower;

    (ii) the pH is not less than 6.5 nor greater than 9.0 pH units after 12 consecutive months following the initial setting into service of the cooling tower, where the upper pH limit may be subject to review and revision by the Director if the Licencee can demonstrate to the satisfaction of the Director that it is impractical to implement this limit or that other compelling environmental disadvantages would ensue by implementing the specified upper limit;

    (b) the suspended solids concentration in the effluent is not greater than 25 milligrams per litre in excess of the suspended solids concentration in the raw water of the Assiniboine River sampled on that same day;

    (c) the total chlorine residual concentration is not greater than 0.2 milligrams per litre.

23. The Licencee shall install a control observation well, satisfactory to the Director, before September 30, 1994 to facilitate the determination of the background groundwater quality and water table elevation, at a site removed from and unaffected by leachates from the ash lagoon and coal storage pile and up-gradient from the existing observation wells, unless the Licencee can technically demonstrate to the satisfaction of the Director that a control observation well is not practical in this area or that one of the existing observation wells can adequately serve the purpose of a control or reference observation well.

Respecting Solid Waste

24. The Licencee shall deposit all bottom ash and fly ash recovered from the boiler units and the stacks into the ash lagoon, and not remove the ash deposited in the ash lagoon for use or disposal elsewhere without the approval of the Director.

MONITORING AND REPORTING SPECIFICATIONS

Respecting Air

25. The Licencee shall notify the Director in writing of:
    (a) the completed installation of the ESP;
    (b) the completion and results of emission tests carried out on the ESP; and
    (c) the date upon which the ESP is set into service.

26. The Licencee shall:
    (a) in each month of each year determine and record:
        (i) the maximum instantaneous generated power output (as megawatts);
        (ii) the gross monthly generation output (as megawatt-hours);

(iii) the gross monthly coal and oil consumption (as metric tons and litres, respectively); and
(iv) the gross monthly natural gas consumption (as million cubic metres);

(b) in each month of each year in which the generation mode is active, obtain representative samples of the coal used as the primary fuel at the thermal generating station, and analyze the samples for:
(i) the ash content (% by weight);
(ii) the volatile carbon content (% by weight);
(iii) the fixed carbon content (% by weight);
(iv) the sulphur content (% by weight); and
(v) the calorific value (as Joules per kilogram, taken to 2 decimal places);
as determined by means of the most current ASTM method;

(c) in each month of each year in which the generation mode is active, determine:
i) the monthly average emission rates (as nanograms per Joule of heat input) of sulphur dioxide, nitrogen oxides (expressed as NO_2) and particulate matter emitted from the combined active stacks in that month;
ii) the total quantities (as metric tons) of sulphur dioxide, nitrogen oxides (expressed as NO_2) and particulate matter emitted from the combined active stacks in that month; and
iii) the total quantities (as metric tons) of greenhouse gases, delineated by the type of gas, emitted from the combined active stacks in that month;
as based on calculations using methods acceptable to the Director;

(d) submit a monthly report on the information determined pursuant to sub-Clauses 26(a), 26(b) and 26(c) to the Director within 30 days of the end of each month; and

(e) submit an annual summary of the information reported pursuant to sub-Clause 26(d) to the Director by the 1st day of March of each calendar year.

27. The Licencee shall, at such times, for such duration, for such pollutants and at such locations as may be requested by the Director:
(a) undertake source emission tests, and/or special studies to determine the ambient air quality in the vicinity of the plant site, in a manner satisfactory to the Director, including an interpretation of the results relative to the limits of Clauses 6, 8 and/or 12; and

(b) submit a report on the source emission test results and/or the ambient air quality data, and all other related data, including the interpretation, to the Director within 90 days after completion of the studies.

28. The Licencee shall, at such times, for such duration and at such locations as may be requested by the Director:
(a) carry out sound level surveys, in a manner satisfactory to the Director, including an interpretation relative to the limits of Clause 13; and

(b) submit the results of the survey, including the interpretation, to the Director within 30 days following the completion of the specified survey.

29. The Licencee shall complete a risk assessment study on the occupational health risk associated with airborne asbestos fibres arising from asbestos containing materials present at this plant, and report the findings of this study to the Director no later than October 31, 1994.

Respecting Water

30. The Licencee shall in each month of each year:
    (a) determine and record the total monthly quantity of water (as cubic metres) withdrawn from the Assiniboine River;

    (b) during those periods when the plant is operating in the power generating mode:
        (i) determine and record the daily total water (as cubic metres) and the peak water withdrawal rate (as cubic metres per second) withdrawn from the Assiniboine River through the cooling water intakes, when applicable;
        (ii) determine and record the daily total water (as cubic metres) and the peak water withdrawal rate (as cubic metres per second) withdrawn from the Assiniboine River through the raw water intakes;
        (iii) determine and record the daily average temperature of the once-through cooling water withdrawn from the Assiniboine River, when applicable; and
        (iv) record which generating unit(s) were operated in the power generating mode and which of these units were cooled with once-through steam condenser cooling water;

    whereby the water withdrawal quantities are determined by a method of measurement or estimation satisfactory to the Director; and

    (c) submit the information recorded pursuant to sub-Clauses 30(a) and 30(b) to the Director within 30 days of the end of the month during which the information was collected.

31. The Licencee shall:
    (a) undertake a sampling program, in consultation with Manitoba Natural Resources and Fisheries and Oceans, to collect, identify and measure the size of fish impinged on the travelling screens associated with:
        (i) the mid-channel raw water intake line; and
        (ii) the side-channel cooling water intake lines, during once-through cooling water withdrawals;

    and,

    (b) provide the Director by the 1st day of September of each year after 1993 with a monthly summary of the information compiled through sub-Clause 31(a) in the preceding 12 months ending on the 31st day of July in that reporting year, together with an assessment of the relationship between water withdrawal (i.e. volume per 24 hours, flow rate and intake velocity) and the entrainment and impingement of fish;

    until the Director is satisfied that sufficient data has been collected to determine whether or not improvements to the intake and/or fish screen designs are warranted.

32. The Licencee shall, during periods whenever power is generated at the plant with the use of once-through steam condenser cooling water:
    (a) continuously monitor the temperature and the temperature decline rate over time (in Celsius degrees per hour) of the cooling water released through the outfall of the cooling water discharge pipe, and keep the continuously recorded data charts for at least one year for possible inspection or submission to the Director;

    (b) monitor the temperature of the Assiniboine River in the fully mixed zone of the river downstream of the cooling water discharge point, to ensure compliance with the temperature limits of Clauses 17, 18 and 19;

    (c) report each emergency shutdown of the power generating units to the Director, by facsimile, within 8 hours of its occurrence; and

    (d) submit a report to the Director, within 30 days of each month during which power generation occurred, identifying:
        (i) the daily maximum measured temperature of the discharged cooling water;
        (ii) the shutdown date(s) of the power generation unit(s);
        (iii) whether the shutdowns were emergency or normal shutdowns;
        (iv) the maximum recorded cooling water temperature decline rate (in Celsius degrees per hour and Celsius degrees per 24 consecutive hours) associated with each shutdown event; and
        (v) the daily maximum temperature measured in the fully mixed zone of the Assiniboine River.

33. The Licence shall notify the Director in writing of the date on which the cooling tower is set into service.

34. The Licencee shall:
    (a) determine and record the total quantities of effluent (as cubic metres) discharged each month from:
        (i) the cooling water discharge pipe;
        (ii) the station drain pipes; and
        (iii) the ash lagoon discharge point;
    where such determinations are based on methods of measurement or estimation satisfactory to the Director; and

    (b) report this information to the Director within 30 days of the end of the month during which the information was determined.

35. The Licencee shall, during effluent discharge events from the station drain pipes and/or the cooling water discharge pipe:
    (a) collect a grab sample of effluent once each week, from each station drain outfall near the Assiniboine River or at an equivalent sampling location satisfactory to the Director, and analyze each sample for:
        (i) pH (pH units);
        (ii) total dissolved solids (milligrams per litre);
        (iii) hardness (as $CaCO_3$) (milligrams per litre);

(iv)	sulphates (as SO_4)	(milligrams per litre);
(v)	total phosphorous	(milligrams per litre);
(vi)	soluble boron	(milligrams per litre);
(vii)	total iron	(milligrams per litre); and
(viii)	acid-soluble copper	(milligrams per litre);

and,

(b) collect a grab sample of effluent once each week, at the cooling water outfall, as well as from each station drain outfall near the Assiniboine River or at an equivalent sampling location satisfactory to the Director, and analyze each grab sample for oil and grease (milligrams per litre);

unless otherwise specified by the Director.

36. The Licencee shall report the weekly data determined pursuant to sub-Clauses 35(a) and 35(b), along with the monthly averages, to the Director within 30 days of the end of the month in which the samples were collected.

37. The Licencee shall, during discharge events from the ash lagoon:

(a) collect a grab sample of effluent once each week at the discharge point of the ash lagoon, and analyze each sample for:

(i)	pH	(pH units);
(ii)	total dissolved solids	(milligrams per litre);
(iii)	suspended solids	(milligrams per litre);
(iv)	hardness (as $CaCO_3$)	(milligrams per litre);
(v)	sulphates (as SO_4)	(milligrams per litre);
(vi)	total phosphorous	(milligrams per litre);
(vii)	total iron	(milligrams per litre); and
(viii)	total chlorine residual	(milligrams per litre);

(b) collect a grab sample of effluent once every two weeks at the discharge point of the ash lagoon, and analyze each sample for the following trace elements:

(i)	soluble boron	(milligrams per litre);
(ii)	acid-soluble arsenic	(milligrams per litre);
(iii)	acid-soluble copper	(milligrams per litre);
(iv)	acid-soluble lead	(milligrams per litre);
(v)	total zinc	(milligrams per litre);
(vi)	acid-soluble cadmium	(micrograms per litre); and
(vii)	total selenium	(micrograms per litre);

(c) collect a grab sample of raw river water at the plant's raw water pumphouse on each day on which the ash lagoon effluent is sampled for suspended solids, and analyze each sample for suspended solids (milligrams per litre); and

(d) collect a grab sample of raw river water at the plant's raw water pumphouse once every month and analyze each sample for all the parameters listed in sub-Clauses 37(a) and 37(b);

unless otherwise specified by the Director.

38. The Licencee shall:
    (a) report the data determined pursuant to sub-Clauses 37(a), 37(b), 37(c) and 37(d), along with monthly averages where applicable, to the Director within 30 days of the end of the month in which the samples were collected; and

    (b) submit an annual report by the 31st day of July of each year for up to three years following the year in which the ESP and the cooling tower were put into service, which summarizes the degree of any changes observed in the water chemistry from the ash lagoon, and interprets the associated environmental significance relative to the Manitoba Surface Water Quality Objectives.

39. The Licencee shall carry out a leachate test, in accordance with the methods described in Schedule "B" of Manitoba Regulation 282/87 issued under the Dangerous Goods Handling and Transportation Act, on a representative sample of the coal stored on or used at the plant site, in order to characterize the potential worst case chemical quality, dissolved trace element content and dissolved organic constituents of such leachate waters, and submit a report on the findings and their interpretation to the Director by December 31, 1993. The results of a similar leachate test required on the same source of coal under Environment Act Licence No. 1645 may be used to satisfy the requirement of this Clause.

40. The Licencee shall:
    (a) monitor the quality of the surface runoff from the plant site at the surface runoff discharge points shown in Appendix 'A', under surface runoff conditions throughout the year, at sufficient frequency to produce a statistical profile of the quality of the surface runoff at each surface runoff discharge point with respect to pollutants which could potentially be transported from the plant site; and

    (b) submit a report to the Director, by the 1st day of February of each year, on the data compiled in the preceding calendar year;

    until the Director is satisfied that sufficient representative data has been acquired to characterize the quality of these periodic releases to the Assiniboine River.

41. The Licencee shall:
    (a) once every month, monitor the 12 groundwater observation wells around the ash lagoon and the coal pile as shown in Appendix 'A', as well as any additional control or reference observation well, for their water table elevations and the chemical parameters being analyzed to date, as listed Appendix B.2 of Volume ll of the Licencee's Environmental Impact Assessment dated August 1992;

    (b) conduct a study integrating the data determined pursuant to sub-Clause 41(a) on the control, ash lagoon and coal pile observation wells to determine magnitude of pollutants in the groundwater and the direction of movement of the pollutants in the groundwater; and

(c) submit an annual report to the Director by the 1st day of February of each year on the data collected pursuant to sub-Clause 41(a), together with an interpretation of the findings of the study carried out pursuant to sub-Clause 41(b);

until the Director is satisfied that the monitoring frequency of sub-Clause 41(a) can be decreased and that the studies specified under sub-Clause 41(b) can be terminated.

DECOMMISSIONING

42. At least one year in advance of the projected date for commencing the decommissioning of the power generating station, the Licencee shall submit to the Director, for approval, a detailed Closure Plan outlining the measures proposed to address environmental and health issues which might arise in the course of, and subsequent to, the decommissioning of the said station, and implement the approved Closure Plan in accordance with a time frame satisfactory to the Director.

REVIEW AND REVOCATION

43. This Licence replaces Environment Act Licence No. 1246 which is hereby rescinded.

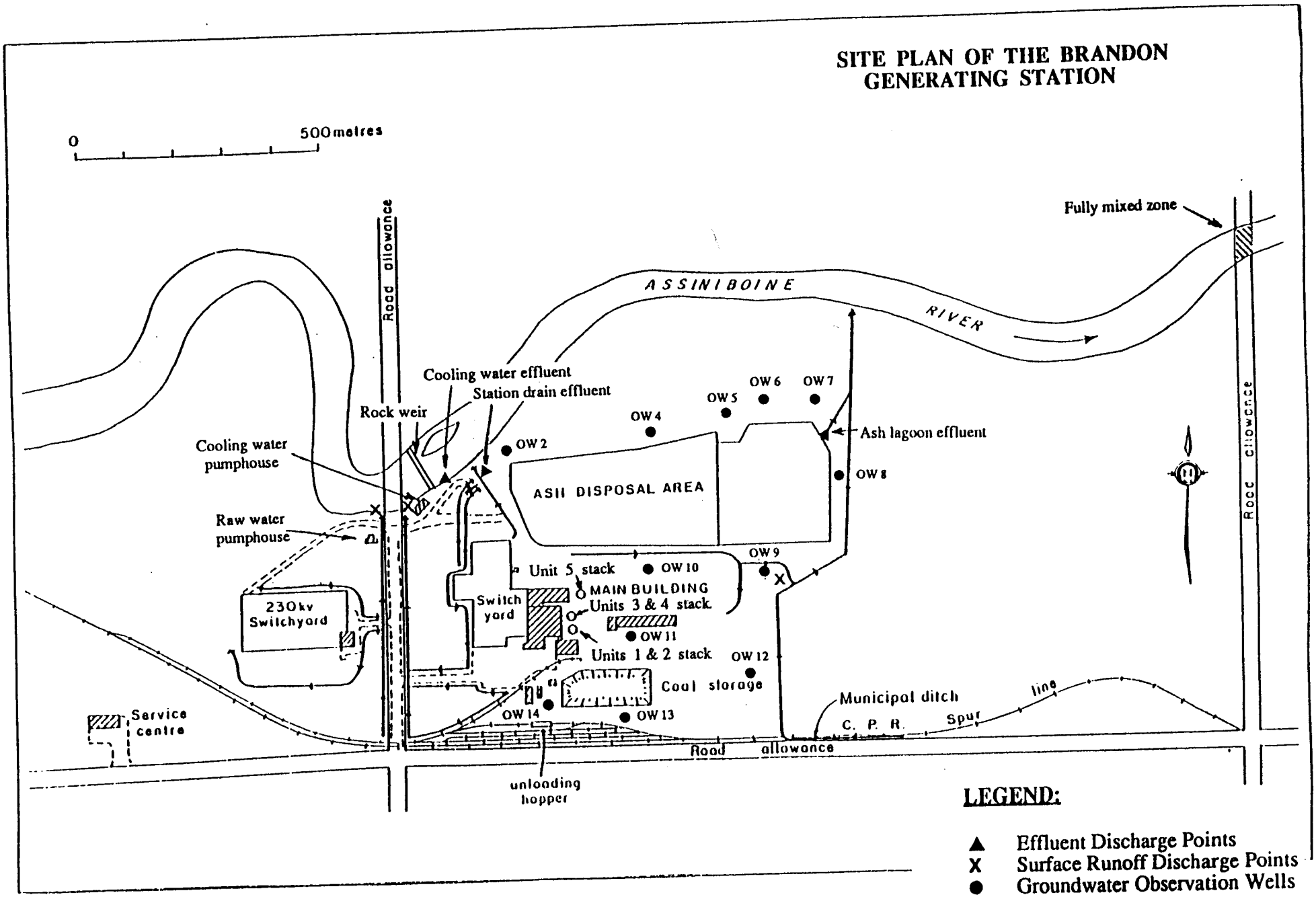
44. This Licence shall be reviewed by the Director if the plant is not retired as a thermal generating station in or before the year 2006, or if in the opinion of the Director the operational pattern of the plant has altered from the expected normal operating projections stated in the Licencee's 1992 Environmental Impact Assessment, or if any studies or monitoring programs undertaken pursuant to this Licence or otherwise, give rise to new evidence to warrant a change to this Licence.

45. If in the opinion of the Director the Licencee has failed or is failing to comply with any of the specifications, limits, terms or conditions set out herein, the Director may, temporarily or permanently, revoke this Licence.

Larry Strachan, P. Eng.
Director
Environment Act

File: 3252.0

SITE PLAN OF THE BRANDON GENERATING STATION



APPENDIX 'A'

APPENDIX 'B'

Month	MWAT (°C) *	ASSINIBOINE R. Historic 7Q10 (m^3/sec) †	ASSINIBOINE R. Projected 7Q10 (m^3/sec) †
January	11	7.8	7.8
February	11	7.2	7.2
March	11	8.6	8.6
April	11	9.3	9.3
May	13	6.7	6.7
June	15	5.4	5.7 ‡
July	25	3.5	5.7 ‡
August	25	3.0	5.7 ‡
September	25	3.4	5.7 ‡
October	20	4.7	5.7 ‡
November	11	7.8	7.8
December	11	7.9	7.9

* Taken from Table 6-8 of Volume I of the Environmental Impact Assessment dated August, 1992, compiled by SENES Consultants Limited, in association with North/South Consultants, for Manitoba Hydro for the Thermal Life Assurance Program at the Brandon Generating Station.

† Taken from Table 2-1 of Volume I of the Environmental Impact Assessment dated August, 1992, compiled by SENES Consultants Limited, in association with North/South Consultants, for Manitoba Hydro for the Thermal Life Assurance Program at the Brandon Generating Station. This data was derived by Manitoba Natural Resources, Water Resources Branch, on November 8, 1991, and is based on daily flow duration curves of the Assiniboine River at Brandon from 1971 to 1990.

‡ A minimum flow rate of 5.7 m^3/s is guaranteed until 1995 by the Water Resources Branch to Manitoba Hydro, upon request, through the control of the Shellmouth Dam. The in-service of the cooling tower will alleviate the requirement for additional flows above the historic 7Q10 flow rates.

These "MWAT" and "7Q10" values are applicable only in cases of power generation involving the release of once-through cooling water and may be subject to revision by the Director from time to time on the basis of new evidence.