

Environment Act Licence

Loi sur l'environnement Licence

Manitoba
Conservation
Conservation
Manitoba



Licence No./Licence n° 364 RRR

Issue Date/Date de délivrance June 17, 1974

Revised: **April 14, 1997**
May 10, 1999
May 27, 2004

**IN ACCORDANCE WITH THE MANITOBA ENVIRONMENT ACT (C.C.S.M. c. E125)
THIS LICENCE IS ISSUED PURSUANT TO SECTIONS 10(1) AND 14(2) TO:**

SPRUCE PRODUCTS LIMITED; "the Licencee"

for the operation of the Development being a sawmill plant, located in part of the SW 1/4 of Section 33-36-27 WPM in the Rural Municipality of Swan River, in accordance with the Proposal filed under The Clean Environment Act in 1974, and submissions dated July 15, 1996; August 22, 1996; and July 10 2002; and subject to the following specifications, limits, terms and conditions:

DEFINITIONS

In this Licence,

"**accredited laboratory**" means facilities accredited by the Standard Council of Canada (SCC), or facilities accredited by another accrediting agency recognized by Manitoba Conservation to be equivalent to the SCC, or facilities which can demonstrate to Manitoba Conservation, upon request, that quality assurance/quality control (QA/QC) procedures are in place equivalent to accreditation based on the Canadian Standard Can/CSA-Z753, extension of the international standard ISO 9000, Guide 25;

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

"**approved**" means approved by the Director in writing;

"**ash**" means the powdery solid residue remaining after burning;

"**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;

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

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

"Enerwaste Incinerator" means that device described in the submission dated July 10, 2002, which is to be used only for the disposal of uncontaminated wood residue;

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

"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;

"open burn" means the process of disposing of uncontaminated wood residue by combustion where the process has no approved control of combustion air and burn retention time, and where the gaseous products from the combustion are not directed through a stack;

"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 ducted into the atmosphere;

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

"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;

"start-up period" means a period not exceeding 45 minutes immediately following the initiation of combustion;

"uncontaminated wood residue" means any wood fibre by-product of the wood milling process at the Development which has not been in contact with a pollutant which might result in a significant negative environmental or health impact if subjected to the burning process;

"waste(s)" means waste products of any kind whatsoever or the run-off from such waste products and includes both liquid and solid materials; and

"wood residue" means any wood fibre including but not limited to; whole logs, bark, wood slabs, wood chips, sawdust, paper, cardboard, etc.

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 carry out, as deemed necessary by the Director, any remedial measures or modifications in respect to matters authorized under this Licence.

SPECIFICATIONS, LIMITS, TERMS AND CONDITIONS

7. The Licencee shall install and operate the boiler equipment as specified in the document entitled 'Proposal No. 96379' dated July 9, 1996, and subsequent correspondence dated May 5, 1999, shown in Attachment 'A' to this Licence, such that the operational design specifications and conditions contained therein are not exceeded.

Respecting Air Emissions – Limits

8. The Licencee shall not emit particulate matter from the Development such that:
 - a) particulate matter:
 - 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) opacity from any point source of the Development 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; and
 - iv) for the Enerwaste Incinerator only, notwithstanding Clause 8 b iii), 60 percent for any individual opacity observation during the start-up period.
9. 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.
10. 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

11. The Licencee, upon written request from the Director, shall provide a stack or stacks at any area of the Development 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.
12. The Licencee, upon a written request from the Director, shall submit a detailed plan for any area of the Development 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.

13. 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.
14. The Licencee shall arrange the scheduling of the sampling plan, approved pursuant to Clause 12 of this Licence, such that a representative of Manitoba Conservation is available to monitor and audit the implementation of the sampling program.
15. The Licencee, within a timeframe to be determined by the Director, shall complete the sampling plan approved pursuant to Clause 12 of this Licence.
16. The Licencee, within 60 days of the receipt of the analytical results of the sampling plan approved pursuant to Clause 12 of this Licence, shall submit a report for the approval of the Director containing 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.
17. 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 or 12 of this Licence.

Respecting Ambient Air Quality Monitoring

18. The Licencee shall submit, upon the written request and for the approval of the Director, a program for:
 - a) the sampling, analysis and reporting of levels of pollutants, as determined by the Director, at a selected location(s) beyond the property boundaries of the Development; and
 - b) the location, installation and operation of a meteorological monitoring station.
19. The Licencee shall:
 - a) implement the approved program submitted pursuant to Clause 18 of this Licence within a timeframe stipulated by the Director; and
 - b) submit a report within 60 days of the receipt of the analytical results of the sampling plan pursuant to Clause 18 of this Licence for the approval of the Director containing at minimum:
 - i) the raw data collected;

- ii) a discussion of the sampling and analytical portions of the program including any anomalies of sampling and analysis; and
- iii) a discussion of the significance of the data gathered with specific attention to:
 - 1) the significance for potential acute and chronic impacts to health or environment from exposure to concentrations of the compounds detected;
 - 2) the need for risk assessment of the impact of emissions;
 - 3) the need for the establishment of ambient air monitoring stations;
 - 4) results and conclusions of the QA/QC program; and
 - 5) other issues as may be determined by the Director.

Respecting Management of On-Site Burning

- 20. The Licencee shall not initiate combustion in the Enerwaste Incinerator more than once in any 24-hour period.
- 21. The Licencee may open burn wood residue at the Development only if in compliance with the following conditions:
 - a) for a cumulative period of 14 days per year maximum after snow cover is present; and
 - b) an Environment Officer is notified of the commencement of the burning period.

Respecting Management of Wood Residue Ash

- 22. The Licencee shall handle, use all uncontaminated wood residue ash produced as a result of burning activities at the Development for road improvement on the site of the Development, unless other use or disposal is ordered by the Director.

Respecting Solid Waste

- 23. The Licencee shall dispose of all solid waste generated from any activity at the Development, which is not recycled or burned, 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, or a Licence issued pursuant to The Environment Act.

Respecting Chemical Storage and Spill Containment

- 24. The Licencee shall comply with all the applicable requirements of:
 - a) Manitoba Regulation 188/2001, or any future amendment thereof, respecting the *Storage and Handling of Petroleum Products and Allied Products*;
 - b) The Dangerous Goods Handling and Transportation Act, and regulations issued thereunder, respecting the handling, transport, storage and disposal of any dangerous goods brought onto or generated at the Development; and
 - c) the Office of the Fire Commissioner – Province of Manitoba.

25. The Licencee shall provide containment for all vessels containing chemicals and in each area of the development where the chemicals are stored, loaded, transferred, used or otherwise handled, in compliance with the National Fire Code of Canada (1995), or any future amendment thereof such that any product leakage or spillage and any contaminated liquid generated is contained within the Development and contamination of groundwater is prevented.
26. The Licencee shall, in a manner approved by the Director, remove and dispose of all spilled dangerous goods.

Respecting Emergency Response Planning

27. The Licencee shall submit to the Director for approval, within 90 days of the issuance of this Licence, 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. 364 RR 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.



Larry Strachan, P. Eng.
Director
Environment Act

File No: 847.00

ATTACHMENT To Licence No. 364 RRR

PROPOSAL FOR: Spruce Products Ltd.
Swan River, Manitoba

PROPOSAL NO. 96379
DATE: July 9, 1996

The following is a list of equipment and services supplied for the proposed KMW ENERGY system.

FUEL HANDLING SYSTEM

Base of fuel storage to be 17' 10" x 29 feet.

Average height of fuel over scrapers to be maximum 13.6 feet. *on increase of 4000 ft³ per 36 hours*
based on 9.3 feet fuel depth.

Item	Qty	Description
111	4	Silo scraper assemblies, c/w wings with different heights welded to a heavy wide flange beam.
112	4	Embedment steel sections for silo floor complete with wear plates and hold-down brackets.
113	4	Hydraulic cylinder assemblies complete with embedment steel cylinder anchors for cast concrete floor.
114	1	Overfeed protection system for fuel feed out complete with regulating control gates and safety limit switch.
121	1	Hydraulic power station consisting of oil, reservoir, hydraulic pump and electric motor. The system is supplied pre-assembled and tested with all necessary directional, check and relief valves, filters, pressure switches and necessary fittings. (Hydraulic oil to be supplied by others.)
122	1	Set of hydraulic piping, hoses and fittings to interconnect the cylinders with the hydraulic power unit. A set of isolating valves for each cylinder, to allow maintenance of cylinders without stopping the operation, is included. The piping will be of the hydraulic steel tubing type supplied with "Lenz" connections.
132	1	Fuel feed-out screw conveyor. The screw will be of a heavy duty design with 3/8 inch flites of A.R. Steel continuous welded on a schedule 80 pipe. The conveyor package approx. 21 ft. long is supplied complete with bearings, necessary conveyor supports, fuel overfeed protection, inspection door and a flange mounted reducer with electric motor.
141	1	Fuel transfer screw conveyor. The screw will be of a heavy duty design with 3/8 inch flites of A.R.. Steel continuous welded on a schedule 80 pipe. The conveyor package approx. 25 ft. long is supplied complete with steel trough, bearings, all necessary conveyor supports, fuel overfeed protection, inspection door and a flange mounted reducer with electric motor.

COMBUSTION SYSTEM

Item Qty

211 1 Fuel feed stoker screw conveyor including:

- Metering bin complete with access door and level sensor for automatic fuel-feed control. Heavy duty screw conveyor assembly complete with enclosed trough, access door and bearings. The screw flites are supplied in 3/8" thick A.R. steel welded on a schedule 80 pipe. Drive assembly complete with flange mounted reducer and electric motor.
- Conveyor and metering bin support system. Heat sensor and back-fire protection system complete with spray nozzles, capillary tube, piping, valves and flow switch. Water piping on the unit is pre-piped in the shop. Water connection in field is by Client.

NOTE: No electricity is required to operate the backfire protection system described.

224 1 KMW Combustion System Type SRF.

The combustion chamber package will include:

- Fuel infeed system providing control of fuel depth. It is also designed to prevent backdraft and give even fuel distribution across the width of the grate system.
- Prefabricated steel cell floor and support framework with internally integrated air chamber below the grates, ash dumping grates, grate supports and drive mechanism.
- Cell enclosure comprised of prefabricated steel wall frame constructed with inner vented panels and roof or arch supports. Overfire air passages and injection ports integrated within the cell wall panels. Air ducts contain air regulation devices for balancing the flow.
- Fire doors and inspection eyes of cast iron.
- Refractory material for roof, walls and exposed sections of the furnace floor with ceramic anchors, insulating fire brick and high temperature block insulation. All refractory to be field installed. Minimum temperature rating is 2800 Deg. F.
- KMW reciprocating grate system. Grates are machined and cast for extensive heat and wear resistance. Each level of grates is alternately actuated by individually controlled hydraulic cylinders. Hydraulic power unit with tank and valves.
- The last level of grates will cover the ash dumping pit thus preventing unburned fuel from entering the automatic ashing system.
- Cell test port and draft regulation transmitter port.
- Forced draft fans to provide underfire and overfire combustion air complete with air regulating damper and drive with electric motor.

HEAT EXCHANGER (Boiler)

Item Qty

312 1 Steam boiler of the three pass firetube, firebox type all welded construction built to ASME code complete with necessary valves and boiler trim package, fibreglass insulation with steel jacket, insulated front and rear. Flushout and hand holes as required.

The heat exchanger control and trim package includes pressure gauge, hi-limit pressuretrol, operating pressuretrol, safety valves, pump control and low water cut-off with blowdown valve, auxilliary low water cut-off with blowdown valve, water column blowdown valve, try-cocks, syphon, gauge cock, water glass set and boiler drain valve. The trim is prepped and broken down for shipping.

General Specifications:

- . Nominal rating: 250 Boiler HP
- . Design pressure: 15 PSIG

321 1 Support structure of prefabricated steel for placement under heat exchanger (boiler), designed to serve as a boiler support from the building floor. The setting package includes boiler level adjustment pads.

GRATE ASH DISPOSAL SYSTEM

Automatic ash removal system to transport ash from the furnace to a discharge point located outside/inside the boiler building consisting of:

Item Qty

421 1 Primary ashing screw conveyor to be integrated to the combustion chamber complete with speed reducer and electric motor. The screw is of a heavy duty design with 3/8 inch flite thickness continuous welded on a schedule 80 pipe. The screw conveyor discharge is equipped with an air lock.

431 1 Ash transfer screw conveyor complete with drive and motor. Approx. 10 ft. long. The screw will be of a heavy duty design with 5/16 inch flite thickness continuous welded on a schedule 80 pipe.

FLUE GAS HANDLING AND CLEANING SYSTEM

Item	Qty	
511	1	Fly ash collector of the multicyclone type (Joy or equal) with access door.
521	1	Sections of breeching as required between the heat exchanger and the stack complete with temperature compensated connections. The breeching sections will be provided with cleanout doors.
522	1	Induced draft fan of the industrial centrifugal type complete with heavy gauge metal housing, antifriction bearings, heavy duty shafts and shaft cooler and balanced wheel with welded blades to wheel cone. The fan assembly is supplied complete with housing cleanout door and drain, damper assembly, motor and drive and drive base w/anti-vibration mounts and belt guard. The fan is designed to handle a maximum continuous temperature of 450 Deg.F.
523	1	Gas vent stack from fabricated steel or spiral weld pipe approximately 35 ft. in height. The stack will be equipped with insulation, flanged breeching connection, ring bolt floor flange, drain and clean-out door at base of stack.
531	1	Support steel structure for I.D. fan and fly ash collector from floor elevation.
532	1	Rotary airlock valve assembly to discharge the fly ash from the ash collector hopper via a chute to the ash transfer conveyor. Complete with drive and electric motor.

CONTROL CENTER AND INSTRUMENTATION

Item	Qty	
611	1	<p>Central control panel and instrumentation to provide manual and automatic control of the combustion system with adjustable high fire and standby modes of operation controlled by boiler demand. The control center and instrumentation package will include:</p> <ul style="list-style-type: none">- NEMA 12, approved steel cabinet.- Fused motor starters for all KMW equipment.- Control package consisting of programmable controllers, all necessary push buttons, selector switches, gauges, timers, and pilot lights to provide for sequential system operation in:<ul style="list-style-type: none">- Stop/start and manual/automatic firing modes.- Stop/start and manual/automatic fuel feed and fuel feed hydraulics.- Stop/start and manual/automatic ash conveying.- Furnace draft monitoring and control.- I.D. Fan speed control.- Interface to heat exchanger and low water control.- Display of system's status by illuminated devices.- Overload protection provided for all starters.- Thermo couple to monitor temperature in combustion chamber and to provide required alarm output.- Combustion "Flame Failure" temperature control.- Alarm system with individual pilot lights for each alarm condition.

The control panel package will also include provision to automatically increase or decrease the rate of fire in the furnace in the high fire mode, based on actual boiler demand. The flow of combustion air from the overfire and underfire air fans will be automatically adjusted in proportion with the signal from the boiler master control as well as the variable fuel feed.

Customer to provide dry and filtered compressed air for the pneumatically operated fuel gate and ash gates.

Electric actuators for remote and automatic control of the underfire and overfire air dampers and the induced draft fan damper.

OPTIONAL: Item 813 - SITE SUPERVISION

KMW Engineering Inc. will provide the Purchaser with a field supervisor to assist the customer in proper installation of KMW's equipment and electrical and instrumentation hook-ups. A project schedule to be developed jointly between KMW and the Purchaser, or his engineers.

The site supervision will be billed extra at \$668.00/day plus actual living and traveling expenses.

OPTIONAL: Item 814 - REFRACTORY INSTALLATION (IN FIELD)

KMW Engineering Inc. will provide the Purchaser with a field supervisor to assist the customer in proper field installation of refractory roof, walls and exposed sections of the furnace floor with anchors, and insulating fire brick and high temperature block insulation. Purchaser to provide labor and temporary storage adjacent to the furnace. The storage shall be heated if required to protect the refractory material from freezing. Purchaser will be responsible for welding of anchors to the walls and to provide air compressor.

The site supervision will be billed extra at \$668.00/day plus actual living and traveling expenses.

Item 911 - ENGINEERING

During the initial phase of the project KMW will review with the Purchaser and its consulting engineers the overall aspects of the projects, layouts, etc...., and will proceed to develop preliminary, confirming layouts to allow the civil structural design work to begin as soon as possible. Confirmation of site dimensions elevations, etc. must however be provided by the client's engineers to allow KMW to proceed with final engineering.

It is estimated that on this basis a preliminary confirming layout of equipment arrangement could be provided approximately 20 days from the date of the review meeting if applicable or from the date KMW was provided with all necessary information by the Purchaser.

After that, final dimensions on areas requiring further design information would be provided as drawing revisions within days from the first issue. This would constitute basically final anchoring dimensions, foundation outlines, embedment locations, electrical drawings, and required pipe connections, sizes and locations, etc....

In order to issue final certified drawings for construction in time and meet delivery schedules as specified it is assumed that the approval of drawings by client will take no longer than two weeks.

The required sets of drawings required for construction and installation purposes will be provided with sufficient lead time.

KMW reserves the right to change some of the specifications of the equipment proposed here pending more detailed engineering and final layouts.

KMW's engineering and project management staff will be available to the client and its engineers for proper coordination of project drawing requirements, delivery schedules, maintenance and operating manuals and startup services.

Prior to the start-up of the boiler, KMW will provide three (3) copies of the manual which will include the following:

- a) Instruction for Operation
- b) Maintenance Instructions
- c) Recommended Spare Parts List
- d) Lubrication Instructions
- e) Brochures on Equipment

OPTIONAL: Item 912 - COMMISSIONING AND STARTUP

Assistance by KMW's service technicians in performing the following work:

- Final equipment inspection
- Dry run and final adjustments
- Curing of refractory
- Firing-up, system testing
- Intermediate load run
- Full capacity run and combustion efficiency testing (if No load demand restrictions occur).

Prior to and during the performing of the above tasks, the client will provide the following:

- a) Sufficient labour for adjustments where required.
- b) Availability of boiler plant operators to allow KMW to discuss and instruct on site, the proper method of operation and maintenance of the equipment.
- c) Sufficient fuel and boiler demand in that no restrictions for final adjustments will occur.

The commissioning and startup assistance will be billed extra at \$668.00/day plus actual living and traveling expenses.

Item 913 - PAINTING

All KMW fabricated components will be supplied with primer and one (1) coat of paint in KMW standard colours. Client is free, within reason, to have a choice of colours for some of the components but would have to notify KMW early during the engineering phase of the project.

After final installation and start-up, a final coat of paint should be applied where required and general touch-up on areas where field welding has been necessary. This work will be done by Purchaser and is not included in this proposal.

Item 914 - MOTOR LIST, PRELIMINARY

Location	Description	Installed hp	Estimated hp	Estimated Duty
Fuel Handling	Hydraulic Power Unit	10	5	50%
	Fuel Feed Out Conveyor	5	3	50%
	Fuel Transfer Conveyor	7.5	4	50%
Combustion Cell	Sloker Screw	3	2	50%
	Underfire Air Fan FD 1	5	3	100%
	Overfire Air Fan FD 2	5	3	100%
	Hydraulic Power Unit	0.5	0.25	50%
Ash Handling	Primary Ashing Screw	0.5	0.25	10%
	Ash Transfer Screw	0.75	0.5	10%
Gas Handling	Fly Ash Rotary Air Lock	0.5	0.3	100%
	Induced Draft Fan	25	20	100%

Total Installed hp is 62.75.

The equivalent hp requirement at full operating conditions is 33.5 HP.

NOTE: All motors will be TEFC frame, 575 Volt, 3 Phase, 60 Hertz. High Efficiency Motors are included.

PERFORMANCE AND DESIGN CRITERIA

Maximum Heat Output	8.36 million Btu/h
Maximum Steam Output	8,391 lbs/h
Boiler Nominal Rating	250 BHP
Heat Transfer Medium	Saturated Steam
Design Pressure	15 PSIG
Operating Pressure	13 PSIG
Return & Makeup Temperature	200 °F
Furnace Operating Temperature	1800 - 2100 °F
Flue Gas Temperature	420 °F Approx.
Fuel Description:	Bark, sawdust
Fuel Density	18 lb/ft ³ Approx.
Fuel Size Characteristic	Min. Sawdust Size
	Max. 100% below 4"
	95% below 3"
	90% below 2"
Moisture Content (Wet Basis)	Min. 35%
	Design 45%
	Max. 55%
Higher Heating Value	8,700 Btu/oven dry lb.
Fuel Consumption Rate at full load	2,436 lbs/h
Storage Volume	4,800 ft ³
Storage Capacity at Full Load	36 hours

Boiler Efficiency at full load and @ 45% moisture content, wet basis:

Based on High Heat Value of the fuel	71.7%
Based on Net Heat Value of the fuel	84.5%

Fuel Analysis:	Carbon	51.6%
	Hydrogen	6.0%
	Oxygen	41.0%
	Nitrogen	0.4%
	Sulphur	0.0%
	Ash	1.0%

OUR SUPPLY ALSO INCLUDES:

- Pre-assembly of all items at shop into units as large as possible considering reasonable transportation.
- General arrangement drawing.
- Sub-assembly drawings.
- Foundation drawings.

NOT INCLUDED IN OUR SUPPLY:

- Erection and mechanical installation.
- Metal fasteners and concrete anchor bolts, other than provided for assembly by KMW components.
- Welding rods and accessories.
- Grout for setting of any KMW equipment.
- Site preparation.
- Construction or engineering of buildings.
- Any or all concrete work or forming.
- Any or all reinforcing steel unless specified as included in this quotation.
- Any or all boiler water treatment equipment and pumps.
- Water piping, other than attached or assembled to equipment supplied by KMW.
- Pipe fittings, gaskets and plumbing supplies.
- Electrical field wiring, fittings, conduit or associated materials.
- Any or all ladders and service platforms, unless specified as included in this quotation.
- Permits, licenses, legal fees, cost for system testing, freight or any other expenses unless specified as included in this quotation.

CONDITIONS OF SALE

Shipping date

Delivery date and F.O.B. is as per our quotation.

The Company will make all reasonable efforts to meet promised delivery date; however, where changes in the dates are necessary the Company will advise the Purchaser.

The date of completion of the apparatus shall be regarded as the date of delivery in determining when payments for said apparatus are to be made. In the event that the Purchaser requests delay in delivery of the equipment, the Purchaser will be required to cover any additional costs associated with the delay such as storage, demurrage, additional freight costs, etc.

The date of completion of the apparatus shall be regarded as date of delivery in determining when the warranty period for purchased components starts.

No liquidated damages for delayed delivery shall be payable whether or not resulting in a postponement of the date of start of continuous operations.

Warranty

The Company warrants the whole of its material and workmanship, normal wear and tear excepted, on all components of its manufacture for a period of 12 months from the date the goods comply with performance testing or 18 months from the date of delivery to the Purchaser, whichever comes first. However, purchased components in our systems bear the original manufacturers' warranty.

The Company's liability in respect of any failure of the goods supplied by it which are properly installed in accordance with installation specifications, or any loss, or injury is the cost of repairing or replacing any parts or components which prove to be defective under normal and proper use during the warranty period specified above, not including the labour to remove and reinstall said parts and any freight incurred by the Purchaser in returning said parts to the Company.

The Company shall not be liable for consequential losses, damages or any expenses directly or indirectly arising from the use of its products. It is expressly understood that the Company is not responsible for damage and or injuries caused to buildings, contents, products, persons, or to other property not belonging to the Purchaser but situated on the Purchaser's property or rail line adjoining or to any other installation, by reason of installation or use of any of the Company's products.

The Company shall in no event be liable for any breach of warranty in an amount exceeding the original purchase price of the defective equipment. The Company does not warrant against equipment damages caused by storage or handling.

Patent

The Company warrants that the apparatus does not infringe any patents which the Company is not entitled to use and the Company shall:

1. defend the Purchaser and save the Purchaser harmless against any action taken against the Purchaser based on any alleged patent infringement by the apparatus, and;
2. if any Injunction issued forbidding the Purchaser the use of the apparatus by reason of a patent infringement, the Company will either have the injunction suspended or otherwise obtain the right for the Purchaser to continue using the apparatus or, if the Company cannot effect this result within a reasonable time, the Company will replace or modify the apparatus so that it no longer infringes the patent provided that:
 1. the Purchaser is not in default under the agreement at the time of the alleged infringement;
 2. the Purchaser has not made any admissions, acknowledgments or agreements which might prejudice or compromise the Company in its defense of the action;
 3. the Purchaser gives immediate notice to the Company of service of action;
 4. the Purchaser assists and cooperates with the Company in every way in the defense of the action or otherwise;
 5. the infringement complained of is alleged to have been committed by the Purchaser in the ordinary use of the apparatus contemplated by the Company at the time of entering into this agreement;
 6. the Company shall in no event be liable for any consequential damages even though there may have been negligence on the part of the Company in failing to anticipate the infringement claim.

Product changes

The Company reserves the right to make minor changes in specifications where such changes constitute an improvement and do not alter the manner in which the equipment will inter-relate to the foundation and other associated pieces of equipment or structures.

Title, risk of loss and insurance

Full risk of loss (including transportation delays) shall pass to the Purchaser upon delivery of equipment and accessories.

The Company, however, retains title for security purposes only, to all products until paid in full in cash and at its option may repossess same upon the Purchaser's default in payment hereunder, and charge the Purchaser with any deficiency.

Service charge

A service charge of 1.5% per month (18% per annum) will be charged on invoices exceeding 30 days, provided that the Company's invoice properly refers to the order and terms of the contract.

Final acceptance

These Conditions of Sale shall not be deemed to be waived or varied by any conditions included in the Purchaser's order, unless the same shall be expressly stated or approved by the Company in writing.

Cancellation

The Purchaser may cancel the present contract after the construction of the apparatus has been begun by KMW Energy Inc. by written notice to the Company but such cancellation shall be without effect unless the Purchaser indemnifies the Company in the amount which the Company shall determine represents all expenses for labour, material or otherwise incurred by the Company to the time of such cancellation including all obligations of the Company in respect of materials ordered from suppliers but not yet delivered and not cancelable, and also to include 15% (fifteen percent) of such amount for profit, credit being given to the Purchaser for any payment made and if the Purchaser shall upon demand of the Company pay to the Company the amount so determined, the Purchaser shall be entitled to take possession of the apparatus in its then condition.



**SPRUCE
PRODUCTS
LIMITED**

BOX 1210
SWAN RIVER, MB
CANADA R0L 1Z0
TEL (204) 734-3089
FAX (204) 734-2906

BOX 1199
THE PAS, MB
CANADA R9A 1J2
TEL (204) 624-5479

May 5, 1999

Att: 947.00

Mr Larry Strachan P. Eng. *[Signature]*
Director, Environmental Approvals
Manitoba Environment
123 Main Street, Suite 160
Winnipeg, Manitoba
R3C 1A5

ATTACHMENT To Licence No. 364 RRR

Fax: (204) 945-5229

RE: Wigwam Wood Waste Burner

Dear Larry:

I am in receipt of your letter dated April 27, 1999. Spruce Products Limited will immediately begin to look at alternatives to the wigwam waste burner and reply to yourself in writing by April 30, 2000.

As a first step towards reducing our reliance on the wigwam burner we are proposing the installation of an 2nd wood waste boiler immediately. The proposed wood waste boiler will assist the existing boiler in providing additional energy for heating site buildings and additional energy for the dry kiln process. The proposed boiler will allow for the installation of a 2nd dry kiln at a later date but most importantly from an environmental viewpoint the 2nd boiler will immediately further reduce the load on the wigwam burner.

As the volume of bark and sawdust entering the existing wigwam is not metered it is not possible to accurately quantify the volume reduction we can expect through the use of a 2nd wood waste boiler. However, based on our experience with our first wood waste boiler we could see as high as a 20% reduction in existing load to the wigwam burner.

I have not included any technical details on the proposed wood waste boiler as it is identical to the first boiler installed under the Revised Environment Act License No. 364 R dated April 14, 1997. Please refer to that document for any information you may require.

s:/data/naumill/99-05-05-Environment

Yours Truly:



Ward Perchuk, R.P.F.
General Manager
Spruce Products Limited