

The Rendall Process: Potentially a world leader in shale oil process technology

and

A 900 million barrels (plus) shale oil resource at Julia Creek in Queensland

Overview of Blue Ensign

Blue Ensign holds two significant assets:

- the intellectual property of the Rendall Process - patented process technology for the production of shale oil from oil shale; and
- an oil shale deposit located near Julia Creek in Queensland with an Indicated and Inferred Resource of 895 million barrels of shale oil based on Fischer Assay.

Blue Ensign business plan

Blue Ensign's business plan involves the following components:

- the construction and operation of a 1 tonne per hour Rendall Process demonstration plant in order to test the design parameters for the first commercial scale Rendall Process plant and to provide investors with sufficient confidence to provide the funds required for the first Julia Creek shale oil project;
- the acquisition of additional oil shale resources both in Australia and overseas;
- the establishment of a commercial oil shale mining and processing operation at Julia Creek (and elsewhere if additional oil shale properties are acquired); and
- licensing for the Rendall Process to prospective developers of shale oil resources around the world.

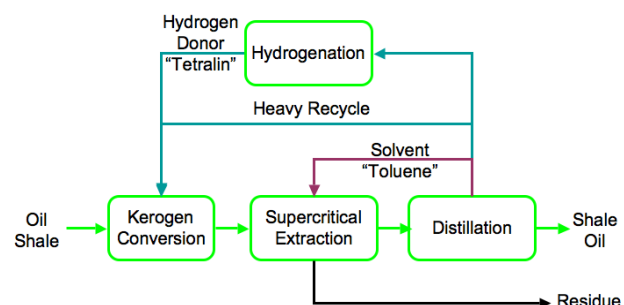
The Rendall Process

The Rendall Process involves three main steps:

Step 1 – Kerogen conversion: the thermal conversion and hydrogenation of the organic matter in oil shale (kerogen) in a closed system at elevated temperature (~450°C) and pressure (~600 PSI).

Step 2 – Supercritical extraction: the application of another solvent in supercritical conditions to separate the process oil from the spent shale residue.

Step 3 – Distillation: the separation of the process oil into methane (used to provide process heat), solvents (used in Steps 1 and 2), product shale oil (to be sold) and heavy residual oil (recycled to Step 1 for further treatment).



The benefits offered by the Rendall Process are mainly derived in STEP 1 which takes place with the mined and ground oil shale suspended in a slurry comprising a hydrogen donor solvent (tetralin) and heavy residual oil recycled from the back end of the process. The heat transfer medium is **liquid to solid** (i.e. the oil shale particles) as opposed to an air to solid or solid to solid heat transfer medium which is used in conventional retort processing. Liquid to solid heat transfer enables better heat control and more uniform heat application. More importantly, it avoids virtually all of the adverse environmental consequences of conventional retort processing which arise from the partial burning of the kerogen (which is unavoidable due to the higher temperature required for kerogen conversion in an air environment and which results in material oil yield losses), the release of particulates into the air and the water used to douse the hot residue (a step not required in the Rendall Process) and the emission of noxious and biotoxic organic compounds, including dioxins, and a terrible smell.

The Rendall Process avoids the infamous “popcorn effect” associated with conventional retorting (whereby the agglomerated residue is of greater volume than the mined oil shale). In the absence of this agglomeration, the Rendall Process residue is amenable to minerals extraction, which is not possible with conventional retort process residue.

In addition to the superior environmental performance, the benefits expected from the Rendall Process are:

- **Product oil of high quality:** The principal product will be a high quality, high value, hydrogenated shale oil, low in sulphur, nitrogen and oxygen, of approximately 35° API, which will be readily transportable by pipeline and suitable for sale to conventional oil refineries in Australia and overseas;
- **High oil yield:** About 90% of the kerogen in the oil shale will be converted to shale oil. This is approximately double the yield experienced by conventional retort processing (Fischer Assay);
- **Self-sufficiency:** In normal operations, all the gas required for process heat and process power generation, the process water and the hydrogen donor and the supercritical solvent extraction solvents will be derived from the process itself;
- **Low cash operating costs:** The higher shale oil yield and process self-sufficiencies will contribute to lowering the cash operating costs per barrel of shale oil produced. Blue Ensign believes that the cash operating cost (mining and processing) per barrel of shale oil produced by a Rendall Process plant at Julia Creek will be less than US\$30 per barrel;
- **Suitability for scale-up:** All of the equipment required for the Rendall Process flowsheet can be viewed in operation elsewhere in well proven commercial applications and in some cases much harsher environments. This provides a high degree of confidence that the Rendall Process is readily capable of substantial scale-up;
- **By-products:** The spent shale residue will be suitable for further processing for the production of by-products. At Julia Creek the by-products which could be produced (depending on economic analysis) consist of vanadium, molybdenum and alumina and portland cement clinker.

Rendall Process development

The Rendall Process was conceived of, developed and patented over a period of more than 20 years by Mr John Rendall of Albuquerque, New Mexico. The chemistry underlying step 1 of the Rendall Process has been proven in over 400 laboratory scale batch tests on oil shale ores from around the world. Steps 2 and 3 involve the use of technologies already in commercial application at large scale.

The proposed demonstration plant will demonstrate the Rendall Process in continuous mechanical operation for the first time and to provide valuable data to guide the designing of the first commercial scale plant. The risk of the Rendall process failing to achieve its intended goals is considered small. The demonstration plant is much more for optimising the flowsheet than process proving.

This confidence is supported by a November 2007 independent engineer's report on the mechanical aspects of the demonstration plant design which concluded that *“Shedden Uhde is of the opinion, based on the information presented by Blue Ensign, that the Rendall Process can be successfully engineered into the required pilot scale shale oil production plant”*.

The demonstration plant program will be carried out in two stages.

Stage I will involve:

- demonstration plant site acquisition and permitting negotiations;
- testwork and process engineering for refinement of demonstration plant design parameters;
- core sample drilling as planning for the bulk sample program;
- advancing the engineering design and engaging potential major equipment items suppliers in pre-purchase negotiations.

Stage I is scheduled to take approximately 6 months and cost approximately A\$2.5 million.

Stage II involves the construction and operation of a demonstration plant rated at 1 tonne/hour (approximately 25 bopd). Stage II is scheduled to take a further 12 months and cost approximately A\$35 million.

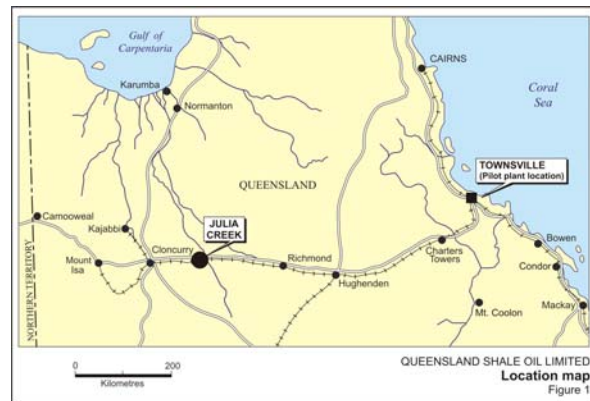
Queensland Government shale oil policy

On 24 August 2008, the Queensland Premier and Minister for Mines and Energy in a joint statement declared that the Queensland Government will devote the next two years to researching whether shale oil deposits can be used in an environmentally acceptable way and that during this period, no new shale oil mines will be permitted anywhere in the State.

Blue Ensign believes that the policy has positive ramifications for the licensing of the Rendall Process. Blue Ensign expects to complete successfully the demonstration plant program within the two year time frame and that its results will position the Rendall Process at the forefront of the environmentally responsible process options available to shale oil deposit developers.

The Julia Creek resource

Blue Ensign's Julia Creek shale oil resource is located near the township of Julia Creek in northwest Queensland, about 650 km west of the coastal city of Townsville and 250 km east of the major mining centre of Mt Isa. The permits held by Blue Ensign (MDLs 379 and 380 of 87 km² and EPM 12863 of 6 km²) contain a total Indicated and Inferred Resource estimated at **895 million barrels of oil** at an average grade of 70 litres/tonne, with a cut off grade of 40 litres/tonne. The estimate is derived from the drill holes and Fischer Assay database of prior explorers (mainly CSR) who between 1968 and 1998 spent nearly \$20 million on exploration in the Julia Creek district.



Blue Ensign's permits cover most of the core area of the Julia Creek deposit where oil shale grades are highest and overburden thickness lowest. The deposit is shallow, underlying a flat terrain and well suited to open pit mining. Average overburden stripping ratio is initially projected to be approximately 3:1.

Proposed commercial developments

The first commercial development is currently planned to process 600 tonnes per hour of oil shale and to produce approximately 15,000 barrels of shale oil per day. The project has an indicative capital cost estimate of A\$400 million and is expected to take 3 years from the availability of funding to first shale oil production.

The project has two stages:

Stage I will involve:

- activities required to obtain project environmental permitting;
- preparation of the process design and sufficient engineering design to enable compilation of $\pm 15\%$ estimates of project capital and operating costs;
- establishment of commercial arrangements for transport and sale of the shale oil product; and
- appraisal of funding options, compilation of documentation required to arrange funding, and completion of funding arrangements for Stage II of the project.

Stage II will entail project construction, commissioning and operation.

It is intended to follow the development of the 15,000 bopd mine and plant with the first full scale commercial plant which is planned to deliver approximately 50,000 barrels of oil per day. This project has an indicative capital cost estimate of A\$800 million and is expected to take 3 years.

Corporate and funding

Blue Ensign was floated in 1999 as an information technology company. It is listed on the ASX but its shares have been suspended from quotation since July 2001.

In June 2006, Blue Ensign acquired Australian Thermal Solutions Pty Limited (“**ATS**”) in a backdoor listing. The consideration for the acquisition was 83,000,020 Blue Ensign shares and 83,000,020 (50 cent, 30.4.11) options. As part of that transaction, Colonial First State Investments subscribed \$3 million to Blue Ensign for 30,000,000 shares at 10 cents per share.

Prior to the backdoor listing, ATS had acquired the Julia Creek tenement (for a total cost of \$800,000) and an exclusive license for Australia for the Rendall Process. In addition, ATS was appointed the marketing agent for the Rendall Process outside Australia for which it was to receive 30% of net revenues derived from licensing outside Australia.

In June 2007, Blue Ensign acquired ownership of the Rendall Process intellectual property for no further consideration. As part of the acquisition, it was agreed that Blue Ensign would continue to receive 30% of net revenues from Rendall Process licensing outside Australia and that the IP vendors would be paid a royalty of 70% of these net revenues.

Subsequent to the backdoor listing in June 2006, Blue Ensign has raised further working capital:

- Over the period December 2006 to April 2007, Blue Ensign issued a further 5,969,666 shares at 30 cents each to raise approximately \$1.8 million;
- Over the period March to May 2008, Blue Ensign issued a further 2,135,000 shares at 20 cents each, together with one free option (50 cents, 30.4.11) for every two shares issued, to raise approximately \$427,000 of additional working capital;
- In September 2008, Blue Ensign issued 2,000,000 shares and options (50 cents, 30.4.11) to Empire Securities Group of Sydney in association with Empire being mandated to raise an additional \$1 million of working capital. To date, Empire has not raised any new working capital.

Funding plan

In July 2008, Blue Ensign appointed Cavendish Capital Partners LLP (“CCP”) of London as its financial adviser with a mandate to seek investors for the funding of the demonstration plant program.

The contact at CCP is Siddarth Amin:

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ASX quotation

The Company intends to meet the requirements for re-quotation of its shares on ASX as soon as practicable.

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Registered Office:
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Directors:
Christopher Ryan
(Executive chairman)
John Blumer
Frank Ciotti
(Non-executive directors)

Secretary:
Grahame Clegg

Technical Management:
Cole Nelson
(Chief operating officer)
Val Vaughn
Sandy Rintoul

ASX Code:
BLE (quotation suspended)

Issued Capital:
127,532,628 FP ord shares
86,067,020 opts – 50c, 30/4/11
200,000 opts – 30c, 30/6/12
1,000,000 employee opts
– 30c, 30/6/12

Substantial Shareholders:
JSG-A (Rendall family) – 41.2%
Colonial First State Investments
funds – 23.5%
Frank and Shari Ciotti – 9.4%

Website:
www.blueensigntech.com.au