

2021). This commercialisation strategy incorporates a green power generation model to ensure the project is carbon-neutral overall.

Greenvale is well advanced in progressing towards the delivery of a maiden JORC Mineral Resource for the Alpha Torbanite Project, which will in turn underpin the Feasibility Study and Ore Reserve estimate targeted for completion in Q1 2022.

The Company expects that the JORC Resource will be finalised in the coming weeks.

Overview

The MFA involves heating an amount of crushed sample (~80 grams) to 500 degrees for 40 minutes. The distilled vapours of oil and water plus gas then pass through a condenser to liquefy the vapours into a graduated centrifuge tube. This technique provides a potential oil yield from the raw sample which is reported as litres per tonne on a zero-moisture basis (LTOM).

Core samples from the Alpha site were taken by SRK Consulting following detailed lithological logging at the Stratum Reservoir Laboratory in Brisbane and transported to ALS Laboratories, Gladstone for assaying. Representative samples were taken in four boreholes across the lower seam, which contains a torbanite ply (LT) sandwiched between an upper (L1) and a lower ply (L2) of cannel coal. The four holes had samples taken from these three plies and are represented by ply names based on the structural model as previously prepared by SRK.

Four representative holes, located in the depocentre of the Alpha Torbanite deposit, were chosen for testing (GM09CR, GM20C, GM21CR & GM28CR). The samples were taken from the lower seam and are located with the main part of the deposit (Figure 1).

Figure 1: MDL 330 locations with sampled core holes (highlighted)

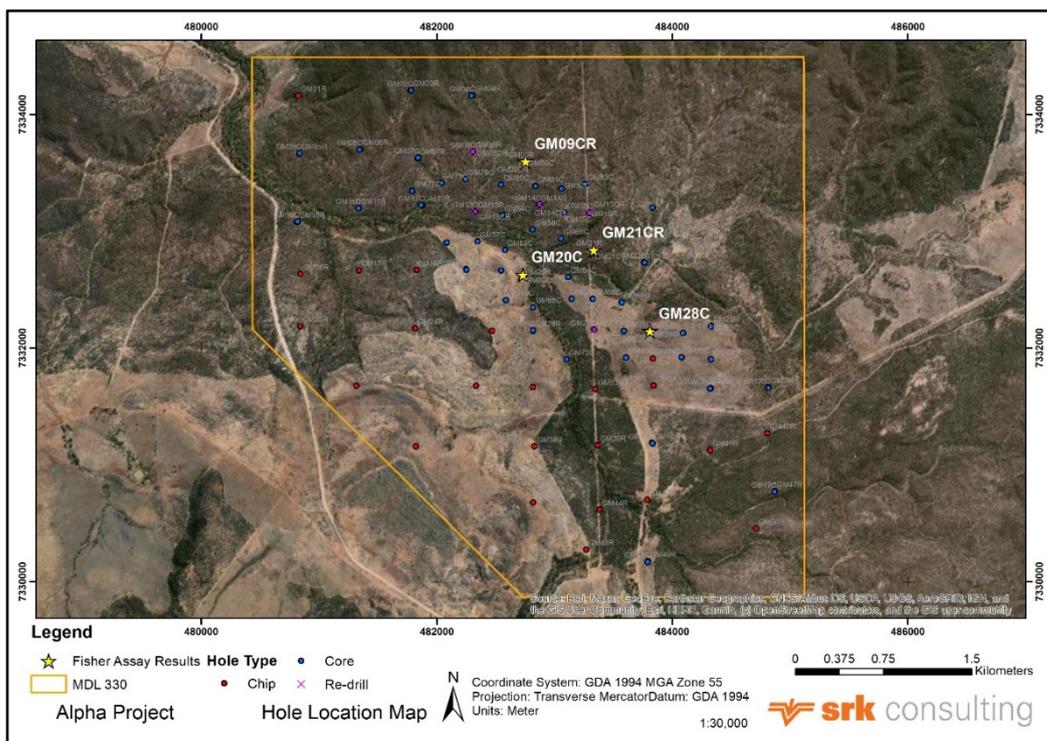


Table 1: Core holes sampled for MFA work

Borehole	Number	Ply	Roof	Floor	Thickness
GM09CR	MFA01	L1	8.64	9.48	0.84
GM09CR	MFA02	LT	9.48	10.26	0.78
GM09CR	MFA03	L2	10.26	10.70	0.44
GM20C	MFA04	L1	21.08	22.22	1.12
GM20C	MFA05	LT	22.20	23.58	1.38
GM20C	MFA06	L2	23.58	23.68	0.10
GM21CR	MFA07	L1	22.37	23.40	1.03
GM21CR	MFA08	LT	23.40	24.49	1.09
GM21CR	MFA09	L2	24.49	24.73	0.24
GM28C	MFA10	L1	29.73	31.10	1.37
GM28C	MFA11	LT	31.10	31.73	0.63
GM28C	MFA12	L2	31.73	32.00	0.27

Table 2: Sampled borehole locations within MDL 330

Borehole	Easting	Northing	Collar Height	Total Depth
GM09CR	482756.75	7333601.73	454.07	19
GM20C	482616.90	7332450.18	444.96	31
GM21CR	483333.93	7332843.14	459.82	33
GM28C	483812.65	7332150.29	459.21	40
Horizontal Datum				
		GDA94 MGA94, Zone 55		
Vertical Datum				
		AHD		

Results

The oil yield values for the 12 Alpha samples (Figure 2) were all extremely positive and were either in line with or above expectations. Of particular note, the Torbanite delivered a top yield of 698ltrs per tonne, well above the previously stated upper yield of 650ltrs per tonne.

As demonstrated in Table 3 (below), all three plies delivered exceptional results and confirm the exciting commercial potential of the Alpha Project.

Figure 2: Comparison of MFA results between Torbanite and Cannel Coal samples

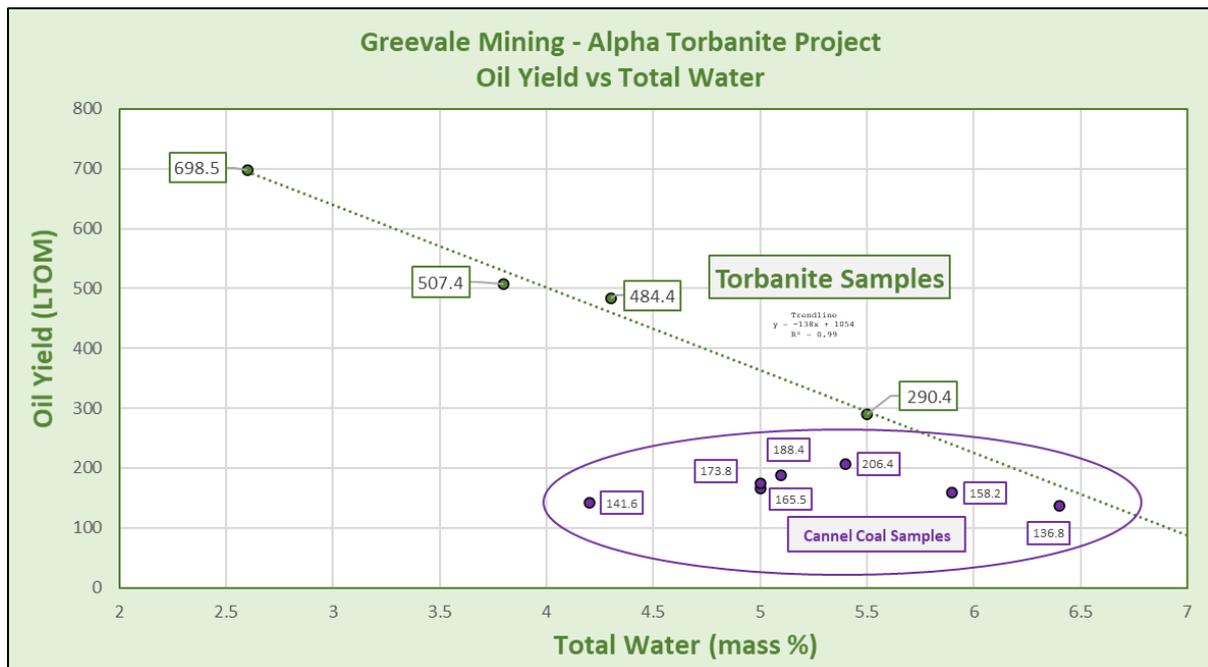


Table 3: Oil yield ranges for boreholes GM09CR, GM20C, GM21CR & GM28CR

Alpha Lower Seam	Oil Yield Range (LTOM)	Number of Samples
L1 – Upper Cannel Coal Ply	120 – > 160	4
LT – Torbanite Ply	290 – > 690	4
L2 – Lower Cannel Coal Ply	150 – > 200	4

The particularly high oil yield from the Torbanite reflects the accumulation of organic-rich sedimentary rock formed in a lacustrine (lake) environment.

Torbanite is an olive-black to black rock containing >5 percentage by volume (vol%) liptinite, of which Alginite (derived from algae related to Botryococcus) is most abundant. Cannel coal is derived from the accumulation of plant remains and the source of the oil is preserved spores, plant resin and cuticles.

Cannel coal deposits have a long history of commercial exploitation, particularly in North America, and the **MFA results from the cannel coal plies found at Alpha are extremely promising.**

When compared to its peers, the high-yielding nature of the Alpha Torbanite Project is more evident (see Table 4). The oil yield results for the 2021 Alpha Torbanite samples are comparable to the lamosite samples from the Mahogany Zone in the Green River Formation, Piceance Basin, Colorado, which is among the highest yielding oil shales in the world.

Even the average yields from the cannel coal plies at Alpha measure highly when ranked among similar coal and oil shale deposits globally.

Table 4: Comparative data of various oil shales

Deposit	Torbanite/Coal/ Oil shale	Oil Yield (LTOM)	
		Range	Average
Alpha, Qld	Torbanite	50 - 620	420
	Cannel coal	50 - 150	120
Green River (USA)	Oil shale	45 - 460	135
Rundle, Qld	Oil shale	50 - 200	105
Stuart, Qld	Oil shale	50 - 220	94
Duaranga, Qld	Oil shale	50 - 130	82
Condor, Qld	Oil shale	50 - 120	65
Julia Creek, Qld	Oil shale	50 - 100	60

Source: Crisp, P.T., Ellis, J., Hutton, A.C., Korth, J, Martin F.A., and Saxby, J.D., 1987, Australian Oils Shales – A compendium of geological and chemical data: North Ryde, NSW, Australia, CSIRO Inst. Energy and Earth Sciences, Division of Fossil Fuels, 109pp.

Next Steps

The Company is awaiting additional laboratory results from the MFA analysis work including trace element analysis, gas sampling and hydrocarbon properties of the potential bitumen and synthetic-light crude yields from the torbanite and cannel coal. These results should be available in mid-to-late December.

Most of this work has been focussed on the lower seam. There is potential for material upside with additional MFA sampling to be undertaken for the Upper Seam.

Once received, integration of the MFA results with raw core analysis will assist in determining volumetrics and help further evaluation and calibration of the Company's own retort testing as it moves toward the delivery of a maiden JORC Mineral Resource.

Management Comment:

Greenvale Mining CEO, Matthew Healy, commented:

“The high oil yields from the Torbanite and Cannel Coal as demonstrated in these Modified Fischer Assay results highlight the oil-rich nature of the Alpha deposit and represent a great outcome for the Project. These exceptionally high grades makes the deposit quite unique when compared with other organic-rich sedimentary rocks, such as oil shales.

“Pleasingly, these results are also consistent with – and in some cases greater than – historically reported yields for the Alpha Torbanite and the Cannel plies.

“These results represent another important step toward the finalisation of a maiden JORC Mineral Resource Estimate for the Alpha Torbanite Deposit, which is currently being completed by highly-regarded consultants SRK Consulting (Australasia) Pty Ltd.

“With sighter test-work nearing completion using the Greenvale retort, systematic retorting of drill core samples will be able to commence shortly, allowing us to ramp up feasibility work on the Alpha Project.

“In the coming weeks we look forward to a very positive end to 2021 and a strong start to the New Year with strong news-flow expected on a number of fronts. At the Alpha Torbanite Project, we have gas and trace element assays on the way, analysis of oil splits produced using the Greenvale retort, and a maiden JORC Mineral Resource being prepared. At the Georgina Project, drilling of our second diamond hole is well underway and we look forward to updating the market on our progress in due course.”

Authorised for Release

This announcement has been approved by the Board for release.

Alan Boys
Company Secretary

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Competent Person's Statement:

The information in this report that relates to Exploration Results is based on information compiled by Mr Carl D'Silva, a Competent Person who is a Member of The Australasian Institute of Mining and Metallurgy (Member number 333432). Mr D'Silva is a full-time employee of SRK Consulting (Australasia) Pty Ltd, a group engaged by the Company in a consulting capacity.

Mr D'Silva has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr D'Silva consents to the inclusion in the report of the matters based on his information in the form and context in which it appears