17 May 2023

ALPHA TORBANITE PROJECT – DEVELOPMENT UPDATE

ALPHA'S BITUMEN-PRODUCING POTENTIAL BOOSTED AFTER OUTSTANDING RESULTS FROM TEST PROGRAM THREE

Liquefaction Test Program Three has significantly improved conversion rates for Alpha samples and achieved higher asphaltene/pre-asphaltene contents, further enhancing the potential of the project to produce bitumen for the domestic market.

HIGHLIGHTS:

- **Maximum conversion of 67.3wt% achieved for the Cannel Coal portion of the Alpha Resource, 65.9wt% for the Torbanite portion and 66.3wt% conversion obtained for a blended sample.**
- **72% improvement achieved in the maximum conversions for Cannel Coal from Test Program Two to Test Program Three.**
- **The majority of the samples tested in Program 3 converted more than 10 wt% of the feed material to asphaltenes.**
- **Test Program Four due to commence imminently, leading to the delivery of the Pre-Feasibility Study for the Alpha Project.**

Greenvale Energy Limited (ASX: **GRV**, "**Greenvale**" or "**the Company**") is pleased to report key outcomes from the third round of liquefaction test work on bulk samples from its flagship 100%-owned **Alpha Torbanite Project** in Queensland.

The outstanding results from Test Program Three have again exceeded the Company's expectations and further enhanced the potential of the Alpha deposit to produce bitumen for the domestic market in Australia, helping to meet surging demand from the infrastructure sector.

The completion of Test Program Three paves the way for the immediate commencement of Test Program Four, which will in turn underpin the completion of the Alpha Project Pre-Feasibility Study (PFS).

During Test Program Three, a maximum conversion of 67.3wt% was achieved for the Cannel Coal portion of the Alpha Resource, 65.9wt% conversion was achieved for the Torbanite portion of the Resource and 66.3wt% conversion was achieved for a blended sample. These results, when compared to the maximum conversion rates achieved in Test Programs One

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and Two, are outstanding and have significantly enhanced the economic potential of the Alpha Project.

For comparison, during Test Program Two a maximum conversion of 39% was achieved from a Cannel Coal sample, and a maximum conversion of 38.3wt% from a Torbanite sample was achieved as part of Test Program One.

This represents a **72% overall improvement in the maximum conversions for Cannel Coal from Test Program Two to Test Program Three**.

Additionally, the majority of the samples tested in Program 3 converted 10wt% of the ore to asphaltenes and pre-asphaltenes, regardless of the specific experimental conditions. Interestingly, the Cannel Coal samples performed similarly to the Torbanite samples, particularly when the experimental conditions were more severe (higher temperatures).

Bituminous products typically contain 5-25% asphaltenes, with the asphaltenes blended with heavy oil fractions in varying ratios to produce a wide variety of products. Theoretically, the greater the amount of preserved asphaltenes, the greater the potential output of bituminous products.

Commenting on the latest round of results, Greenvale Energy CEO, Mr Mark Turner, said: *"Once again, we have been very impressed by the exceptional outcomes of the liquefaction test program. Seeing such a significant improvement in the maximum conversions for both Torbanite and, unexpectedly, Cannel Coal highlights the substantial value that has been added to the Alpha Project by investigating the liquefaction process.*

"We believe that the exceptional outcomes of this liquefaction test work have more than vindicated the decision to pursue this processing pathway for the deposit, including the additional time that has been required to complete the Pre-Feasibility Study. Ultimately, it puts us in a position to deliver a significantly more valuable Project for our shareholders.

"Excitingly, the blended samples have yielded comparatively impressive conversions, more than 65wt%. This number may seem inconsequential given the fantastic conversion results of the Cannel Coal and Torbanite samples. However, these findings may have significant flow-on effects in terms of mine and process planning, allowing for a potentially simpler and less capital-intensive mining and processing pathway.

"I would like to take this opportunity to thank the University of Jordan for their diligent and skilful work in delivering these outstanding results, their input has been greatly appreciated. Also, once again, thank you to the team at PROCOM for their technical input. We look forward to sharing more news over the coming weeks as we move closer to delivering Alpha's highly anticipated Pre-Feasibility Study."

Greenvale's technical consultants, PROCOM, have been integral in delivering these outstanding results, having initiated the concept of liquefaction as a preferred method of processing this unique deposit, designed the laboratory program, conducted the data interpretation and drafted the technical report. The laboratory test work and subsequent analysis work, under instruction from PROCOM, was completed by the University of Jordan. Jordan University has skilfully conducted the lab work, and the results are consistent with the earlier stages of the program. This consistency enhances the credibility of the work done so far.

During Test Program Three, a total of 12 tests were conducted under differing experimental conditions to determine the optimum process to improve the conversion of the Torbanite and

Cannel Coal, focusing on maximising the heavy fractions necessary for the production of bituminous products.

The study evaluated the performance of four samples each of Cannel Coal, Torbanite, and a 1:2 blend of the two in line with the ratio across the deposit. Outcrop samples continued to be used in this program to build from the knowledge base. The reaction tests were conducted at higher temperatures (370°C – 400°C) compared to Test Programs 1 and 2 (290°C - 360°C).

The results demonstrate excellent progress in converting the samples into liquids at the optimal temperature of 400°C.

Table 1: *Test Program 3 oil shale liquefaction results of conversion and yield products of oil shale samples*

Oil Shale Seams	Sample ID	Conversion (wt%)[1]	O + G (wt%)	A+ PA (wt%)	Residue (wt%)	Experiment Conditions
Cannel Coal	3B1	51.95	38.71	13.24	48.05	Oil base, 0%catalyst, **400C**
Torbanite	3F1	62.99	51.39	11.60	37.01	Oil base, 0%catalyst, **400C**
Blend	3Blend1	66.32	53.94	12.39	33.68	Oil base, 0%catalyst, **400C**
Cannel Coal	3B2	31.71	22.07	9.64	68.29	Water base, 0%catalyst, 400C
Torbanite	3F2	41.73	32.18	9.55	58.27	Water base, 0%catalyst, 400C
Blend	3Blend2	40.65	37.01	3.64	59.35	Water base, 0%catalyst, 400C
Cannel Coal	3B3	67.03	50.77	16.26	32.97	Oil base**, 2%**catalyst, 400C
Torbanite	3F3	65.87	52.85	13.02	34.13	Oil base, **2%**catalyst, 400C
Blend	3Blend3	55.75	41.99	13.75	44.25	Oil base, **2%**catalyst, 400C
Cannel Coal	3B4	38.87	28.92	9.95	61.13	Oil base, 2%catalyst, **370C**
Torbanite	3F4	46.66	35.26	11.40	53.34	Oil base, 2%catalyst, **370C**
Blend	3Blend4	41.09	30.64	10.45	58.91	Oil base, 2%catalyst, **370C**

(O+G = Oil & Gas; A+PA = Asphaltenes & Pre-asphaltenes)

The following summarises the key outcomes of the three test programs:

Test Program 1:

- Torbanite 1F2 sample achieved a conversion of 38.3wt% at 345°C, starting hydrogen pressure of 3500 kPa[2] and 2wt% catalyst. This conversion was almost twice as high as the 20wt% conversion of the Torbanite 1F1 sample at 290°C, 1,750kPa starting hydrogen pressure and 1.5wt% catalyst.
- Cannel Coal 1B1 sample achieved 24.9wt% conversion at 340°C, 3,500 kPa initial pressure and 1.5wt% catalyst.
- Blend samples achieved conversions of 15.9wt% – 19.7wt%, with temperatures of 350°C and 340°C, respectively, and an initial pressure of 3,500kPa.

[1] All weight percentages relate to the as received samples

[2] The system pressure rises to almost 11,500 kPa from the initial pressure due to the rise in temperature and the vapour pressure of the compounds present

Test Program 2:

- Cannel Coal 2B1 sample achieved 32.7wt% conversion at 365°C, 3,500kPa and 3.4wt% catalyst.
- Cannel Coal 2B2 sample achieved 33.1wt% conversion at 365°C, 3,500 kPa and 2.5wt% of catalyst.
- Cannel Coal 2B3 sample achieved 39.0wt% conversion at 365°C, 3,500 kPa and 6.1wt% of catalyst.

Test Program 3:

- Cannel Coal 3B1 sample of 52wt% conversion, Torbanite 3F1 sample of 63wt% conversion and Blend 3Blend1 sample of 66.3wt% conversion at 400°C, in a carrier oil and without catalyst.
- Cannel Coal 3B2 sample of 31.7wt% conversion, Torbanite 3F2 sample of 41.73wt% conversion and Blend 3Blend2 sample 40.7wt% conversion at 400°C, without catalyst and water carrier.
- Cannel Coal 3B3 sample of 67wt% conversion, Torbanite 3F3 sample of 65.9wt% conversion and Blend 3Blend3 sample 55.8wt% conversion at 400°C, 2wt% catalyst and oil as the carrier.
- Cannel Coal 3B4 sample of 38.87% conversion, Torbanite 3F4 sample of 46.66% conversion and Blend 3Blend4 sample 41.1wt% conversion at 370°C, 2wt% catalyst and oil as the carrier.

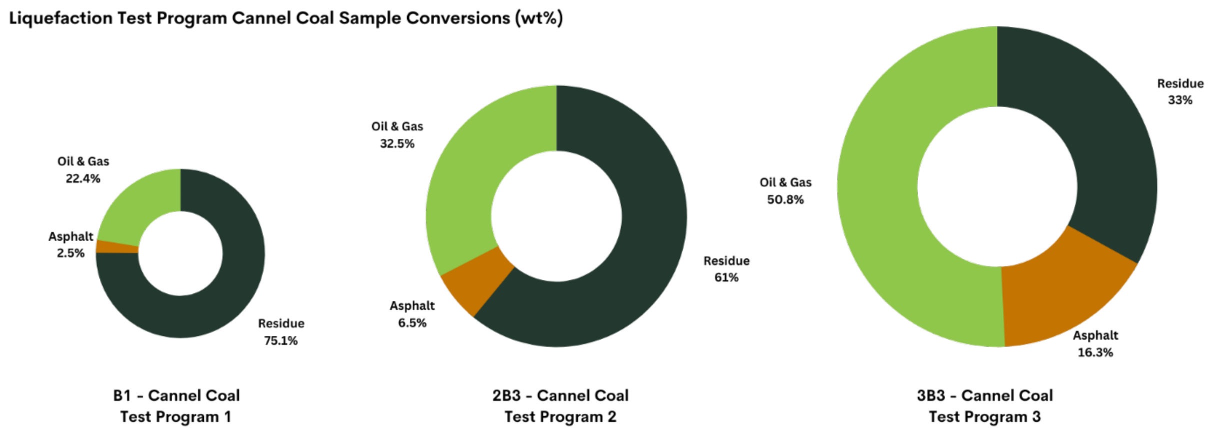

Figure 1: A comparison of the maximum conversions achieved for cannel coal samples across the three liquefaction test programs

TEST PROCEDURES

In the previous Test Programs One and Two, reactions were conducted in a 7-litre Parr Reactor with a carrier oil volume ranging from 2 to 4 litres and shale weighing between 300 and 700 grams.

In the current Test Program 3, the liquefaction reactions were carried out in a 0.1-litre stirred autoclave reactor. In a typical experiment, designated powdered shale ore samples, with or without the iron-based catalyst, were mixed with the carrier, oil or water and then charged into the reactor. After loading, the reactor was first purged to replace air using nitrogen followed by hydrogen and then pressurised with hydrogen to the required pressure at room temperature.

The charged autoclave reactor was heated to the desired temperature. Pressure in the reactor rose with temperature. Once the target temperature was reached, the temperature was held for 30 minutes before cooling commenced. At the end of each run, the reactor rig was cooled to room temperature, and the samples were collected for subsequent laboratory tests.

No gas samples were taken under this testing program. A negligible amount of gas evolution was detected from Test Programs 1 and 2, and the gas analyses did not vary substantially. Results from this program also indicated little gas make and overall mass balance closure better than +/- 2%.

Further testing of the off-gas will be conducted in the yield tests conducted on the core samples (Test Program Four). For each experiment, the potential gas yield is estimated by the weight loss of the reactor and contents before and after the reactions at room temperature and pressure.

Table 2: *Summary of the experiment tests and conditions*

Samples	Solid	Catalyst/Shale	Carrier	Temperature	Pressure		
ID	(g)	wt%	Type	°C	Initial (MPa)	Max (MPa)	After (MPa)
Cannel Coal (3B1)	10	0	Oil Base (30g)	400	7.74	16.9	6.71
Torbanite (3F1)	10	0	Oil Base (30g)	400	8.1	16.35	6.50
Blend (3Blend1)	10	0	Oil Base (30g)	400	7.11	16.97	6.00
Cannel Coal (3B2)	10	0	Water Base (30g)	400	0.50	24.00	0.48
Torbanite (3F2)	10	0	Water Base (30g)	400	1.01	25.90	0.99
Blend (3Blend2)	10	0	Water Base (30g)	400	0.97	25.41	0.95
Cannel Coal (3B3)	10	2	Oil Base (30g)	400	8.66	17.75	5.7
Torbanite (3F3)	10	2	Oil Base (30g)	400	8.91	18.07	8.46
Blend (3Blend3)	10	2	Oil Base (30g)	400	8.97	17.96	7.97
Cannel Coal (3B4)	10	2	Oil Base (30g)	370	10.29	18.66	9.28
Torbanite (3F4)	10	2	Oil Base (30g)	370	9.35	16.57	8.16
Blend (3Blend4)	10	2	Oil Base (30g)	370	9.4	17.84	8.37

NEXT STEPS

Overall, the liquefaction program has been extremely encouraging. The dataset from Test Programs One, Two and Three will prove invaluable in evaluating the Alpha Resource for the Pre-Feasibility Study. With the initial success of Programs One and Two, and encouraging improvements from Test Program Three, attention now shifts to Test Program Four.

As part of the upcoming testing program, the reported conversion under Test Program Three will be experimentally improved, with the liquefaction tests conducted using Alpha core samples. The reaction tests of the core samples will be systematically investigated under various pressure, temperature, reaction time and catalyst concentration, in line with the findings from Test Program Three. The analyses of the liquefied products will be interpreted and reported to the market in due course. Early indications show that the oil produced is substantially heavier than the carrier oil with an added 20wt% of the combined carrier oil and new oil compared to the carrier oil feed, boiling over diesel end point of 343C. The Asphaltene and Pre-Asphaltene liquids were analysed separately.

Test Program Four will be designed to improve on the conversions demonstrated in Program Three, emphasising heavy oil and asphaltenes yield enhancement. Greenvale's technical team is confident that there is still scope for improvement.

PROCOM has designed the Scope of Work (SOP) that describes the experimental program and instructions for the upcoming Test Program Four.

In addition, the core samples have also been prepared by the PROCOM team and are readily available to initiate the liquefaction experiments.

Once Test Program Four has commenced, Greenvale expects to be in a better position to determine the final delivery date of the Pre-Feasibility Study.

The significant improvements in conversions throughout the liquefaction program have impacted multiple aspects of the PFS delivery. The continuous improvements and changes to conversion conditions have resulted in significant changes to everything from mine planning to process and plant design.

AUTHORISED FOR RELEASE:

The Board of Greenvale has approved this announcement for release.

FOR FURTHER DETAILS, CONTACT:

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COMPETENT PERSON'S STATEMENT:

The information in this report that relates to Metallurgical Results is based on information compiled by David Cavanagh, a Competent Person who is a Member of The Australasian Institute of Mining and Metallurgy AusIMM Member number 112318 David Cavanagh is a full-time employee of Core Resources.

David Cavanagh 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'.

David Cavanagh consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

JORC Code, 2012 Edition – Table 1 Report

Section 1 Sampling Techniques and Data

(Criteria in this section apply to all succeeding sections.)

Criteria	JORC Code explanation	Commentary
Sampling techniques	• *Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.* • *Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.* • *Aspects of the determination of mineralisation that are Material to the Public Report.* • *In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information.*	• An outcrop sample has been collected using basic channel sample protocols. • An electric jackhammer was required to cut a vertical section (approximately 30cm x 30cm) with samples typically being taken in 30cm to 60cm intervals and interval boundaries being defined by a visual change in material type or the presence of bedding. • All reasonable attempts were made to sample a uniform vertical cross section. • The purpose of the outcrop sampling has been to provide sufficient material for sighter testing only.
Drilling techniques	• *Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (e.g. core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).*	• Not applicable to the outcrop sampling.

Drill sample recovery	• *Method of recording and assessing core and chip sample recoveries and results assessed.* • *Measures taken to maximise sample recovery and ensure representative nature of the samples.* • *Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.*	• Not applicable to the outcrop sampling.
Logging	• *Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.* • *Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.* • *The total length and percentage of the relevant intersections logged.*	• Detailed logging was not undertaken at the outcrop sample location as it was not possible to expose the full horizon. • The outcrop sampling of material has only been used for sighter testing with all Mineral Resource estimation, mining, and metallurgical studies to be developed based evaluation of the core sample material. • Photographic records have been taken which shows each horizon sampled and the weight of samples taken from each sample location has been recorded.
Sub-sampling techniques and sample preparation	• *If core, whether cut or sawn and whether quarter, half or all core taken.* • *If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.* • *For all sample types, the nature, quality and appropriateness of the sample preparation technique.* • *Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.* • *Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling.* • *Whether sample sizes are appropriate to the grain size of the material being sampled.*	• The bulk sample was taken in substantial quantities of over 50 kilograms and of both torbanite and cannel coal portions of the subcrop. Samples were held by Stratum and Subsampling for this exercise was undertaken by Stratum Laboratories. • Splits of approximately 400 grams were cut from subsamples obtained from Stratum splits of the subcrop samples. Smaller samples were used in the program to facilitate subsequent processing in the laboratory. • The splits were pulverised to sub 200 microns undertaken immediately prior to the tests being conducted. • Subsamples were cut and placed under nitrogen and forwarded to Jordan for the test program at the University of Jordan

Quality of assay data and laboratory tests	• *The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.* *For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.* • *Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.*	• The subsamples had been held in refrigeration below zero in sealed bags. • Post pulverisation the samples held under nitrogen overpressure until used. • A range of tests were conducted on the carrier oil and the sample types to ensure the program could be meaningfully executed. Subsequent tests were then undertaken to a standard set of procedures. In all 19 tests were conducted to establish the set of 12 test result sets. • Laboratory tests were conducted based on standard analytical techniques such as TGA, Proximate and Ultimate.
Verification of sampling and assaying	• *The verification of significant intersections by either independent or alternative company personnel.* • *The use of twinned holes.* • *Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.* • *Discuss any adjustment to assay data.*	• Outcrop sample has been observed by multiple personnel including Engineers, Geologists and Greenvale employees have been involved in the sample acquisition.
Location of data points	• *Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.* • *Specification of the grid system used.* • *Quality and adequacy of topographic control.*	• The sample was taken from a subcrop of Torbanite and Cannel coal in a tributary known as 'Mine Gully'. Although yet to be formally surveyed, the approximate location of 483520 E and 7333321 N in Coordinate system MGA55 GDA94 datum is expected to be accurate to +/- 30m
Data spacing and distribution	• *Data spacing for reporting of Exploration Results.* • *Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.* • *Whether sample compositing has been applied.*	• Not relevant to the outcrop sample and retort test work.

Orientation of data in relation to geological structure	• *Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.* • *If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.*	• Not relevant to the outcrop sample and retort test work.
Sample security	• *The measures taken to ensure sample security.*	• Samples have been stored in dedicated freezers from the time the sample was acquired.
Audits or reviews	• *The results of any audits or reviews of sampling techniques and data.*	• No audits have been undertaken.

Section 2 Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

<table>
<tr><th>Criteria</th><th>JORC Code Explanation</th><th>Commentary</th></tr>
<tr><td>Mineral tenement and land tenure status</td><td>Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.
The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.</td><td>Mineral Development Lease (MDL) 330 was granted to Alpha Resources Pty Ltd on the 27th of August 2007 and an extension of a further five years has now been granted ending 31/01/2027.
MDL 330 covers an area of 1,904.5 ha.</td></tr>
<tr><td>Exploration done by other parties</td><td>Acknowledgment and appraisal of exploration by other parties.</td><td>Refer to Table 1 below which shows there has been appraisal and evaluation undertaken since 1939.
Held by Alpha Resources Pty Limited since 2002.
<table>
<tr><th>Asset Name</th><th>License Holder</th><th>License Type</th><th>Date</th></tr>
<tr><td>Anderson</td><td>H Anderson</td><td>EPM 134</td><td>1939</td></tr>
<tr><td>Anderson & other</td><td>H Anderson & others</td><td>EPM 137</td><td>1940</td></tr>
<tr><td>Anderson</td><td>H Anderson</td><td>ML 90-95</td><td>1941 - 1942</td></tr>
<tr><td>IMC Alpha</td><td>International Mining Corporation</td><td>EPM 2240</td><td>1979 - 1982</td></tr>
<tr><td rowspan="3">Alpha Oil Shale Project</td><td rowspan="3">Greenvale Mining & Esperance Minerals</td><td>EPM 2203</td><td>1978 -1985</td></tr>
<tr><td>EPM 4023</td><td>1985 - 1996</td></tr>
<tr><td>MDL 211</td><td>1996 -2001</td></tr>
<tr><td>Alpha Torbanite Project</td><td>Alpha Resources Limited</td><td>MDL 330</td><td>2002 - present</td></tr>
</table></td></tr>
</table>

Geology	• *Deposit type, geological setting, and style of mineralization.*	• The deposit is a Torbanite and Cannel coal formation which is formed in a sedimentary environment; • The Alpha deposit lies within the axis of the Glen Avon Syncline, a southwest plunging fold structure that occurs on the eastern flank of the Galilee Basin; • The deposit is part of the Permian Colinlea Sandstone, which contains 150 m of cross-bedded sandstones with minor conglomerates, siltstones and mudstones.

Drill hole Information	• *A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes:*
	  ○ *easting and northing of the drill hole collar*
	  ○ *elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar*
	  ○ *dip and azimuth of the hole*
	  ○ *down hole length and interception depth*
	  ○ *hole length.*
	• *If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.*
		• Not applicable to this announcement

Data aggregation methods	• *In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually Material and should be stated.* • *Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.* • *The assumptions used for any reporting of metal equivalent values should be clearly stated.*	• Not applicable as reporting outcrop sampling only.

Relationship between mineralisation widths and intercept lengths	• *These relationships are particularly important in the reporting of Exploration Results.* • *If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.* • *If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').*	• Not applicable as reporting outcrop sampling only.
Diagrams	• *Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.*	• Not applicable as reporting outcrop sampling only.
Balanced reporting	• *Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.*	• Not applicable as reporting outcrop sampling only. • Comprehensive reporting of drilling results will be reported separately in future.
Other substantive exploration data	• *Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.*	• Supported by a base lube oil free or additives and then jointly subjected to pressure and one temperature under a hydrogen atmosphere with varying amounts of an industry standard catalyst. The program focussed on three subsamples of cannel coal. The same procedure was applied. • The results showed that the cannel coal sample weight loss continues to increase at progressively higher temperatures, 365C, compared with the first test campaign at 348C and with a different catalyst at increasing catalyst concentration. • Cannel coal weight loss increased from about 22% (increased from 19% without toluene wash) to about 39% on the basis of tests including an additional wash of the resultant solids in toluene to remove adhered asphaltenes. • Weight loss due to gas evolution remains low. • The results focused on achieving higher reactor temperatures using the outcrop samples as in previous programs. • The results for Cannel Coal and Torbanite and respective blends demonstrate a continued improvement at higher temperature such that the conversions rates of 52%, 63, and 67wt% respectively with

		no added catalyst on an as received basis, which converted to 67%, 66% and 56wt% on the addition of 2wt% catalyst all at 400ºC. • All tests showed conversion to Asphaltenes and Pre-Asphaltenes of over 10 wt%. • TGA tests have been conducted on the resultant solids post reaction and solvent extraction. Some hydrocarbon volatiles remain and so future programs will investigate this further.
Further work	• *The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).* • *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.*	• The successful test program at the University of Jordan has confirmed the improvements with temperature. The focus now will be on repeating the tests on core samples to confirm the finding and how they relate to the prime ore body. • Larger samples will be produced to enable more detailed analysis of the spent solids and quantification of the oil production per tonne of ore. The current spent solids appear to have sufficient volatiles to provide a heat source for the project if tests show that this material can not be recovered as products. This will be investigated further. • An explorative set of tests were conducted on the three standard samples using water as carrier. Optimal conditions were not achieved, however encouraging conversions were still achieved. Further tests will be conducted to investigate this option as this will potentially reduce processing costs.

Table 1: Historical exploration work undertaken at Alpha

Company	Work	Year	Remarks
Local Syndicates	Shaft	1939-1945	Prospecting, not systematic and not recorded
Queensland Department of Mines	Series QDM drilling	1942-1944	Government geological supervision; 15 holes
International Mining Corporation (IMC)	Series GA/ RDH drilling	1979-1981	McElroy Bryan & Associates; supervision 16 holes
JFH Murray & Associates	Survey	1980	Establish benchmarks and survey for drilling
Greenvale Esperance	GE 1-8	1980-1984	Resource definition with geological supervision
Queensland Nickel	Analyses	1981	Oil shale as chemical reductant in nickel ore processing
Petrobras Brasil	Analyses	1981	Retorting studies on 100 kg sample
Tosco USA	Analyses	1981	Retorting studies on 100 kg sample
BKS Surveys	Survey	1983	Benchmark survey and drill collars for ARL
Rankin & Hill	Resource estimation	1984	Engineering study
Greenvale Esperance	GE 9-38	1985-1987	Resource definition with geological supervision
Coal and Carbon Industries	Analyses	1987	Retorting studies produced gasoline, kerosene,
Bitumen Study	Market study	1987	Used for road surface, Alpha deposit could supply Queensland's Annual requirements
CSIRO	Analyses	1988	Bench-scale retort tests
Inland Oil Refineries	Microstill	1989	Mini refining concept for remote fuel supply
Daniel Madre	Open pit study	1990	10-year preliminary mine plan to produce 200,000 Barrels oil/year
Northlake Industries Inc.	Analyses	1992	Retorting tests
University of Kentucky	Analyses	1994	Production potential for activated carbon

Source: Madre, D A, 2016. EPM25795 Annual Report of Exploration Work from 22 December 2014 to 21 December 2015, report prepared for Alpha Resources Pty Ltd (internal report)