8 April 2025

ALPHA TORBANITE PROJECT, QUEENSLAND – TESTWORK UPDATE

TEST PROGRAM 6 DELIVERS POSITIVE RESULTS WITH HIGHEST PRODUCT CONVERSION TO DATE AND THE INTRODUCTION OF CATALYSTS IMPROVING VISCOSITY OF THE FINAL PRODUCT

Key Points:

- **Liquefaction Test Program 6 successfully completed by The University of Jordan (UofJ). Asphaltene conversion increased to highest levels to date and viscosity levels lowered moving us closer to meeting the premium C170 requirements.**
- **The purpose of Test Program 6 was to optimise test conditions by introducing different catalysts to enhance the viscosity of the final bitumen product in order to achieve a premium-grade C170 product from the Alpha Project. With the lower viscosity we believe are now close to C170 requirements Test Program 7 will confirm this.**
- **The introduction of catalysts improved overall conversion and increased the asphalt material content under optimal conditions. The introduction of catalyst Zn to the Tolune carrier 38.9% (wt%) conversion of product was achieved, which is the highest conversion to date.**
- **Substituting THF (tetrahydrofuran) for toluene as a solvent had a significant positive impact on asphalt material conversion. With no introduction of catalyst reaching 36.2% (wt%) conversion of product, lowered viscosity and lowest gas yields.**

Greenvale Energy Limited (ASX: **GRV**, "**Greenvale**" or "**the Company**") is pleased to advise that Liquefaction Test Program 6 for its 100%-owned Alpha Torbanite Project in Queensland has been completed, with the program delivering further positive results that mark another step towards the Company being able to achieve a commercial C170 grade bitumen product.

Liquefaction Test Program 6 was undertaken by the University of Jordan (UofJ), a world-class institution with significant expertise in geotechnical/chemical engineering, liquefaction studies and bituminous products.

REGISTERED OFFICE:
Level 6, Suite 606 10 Market Street, Brisbane, Queensland 4000
+61 7 3212 6299 | admin@greenvaleenergy.com.au | www.greenvaleenergy.com.au

ABN 54 000 743 555

Test Program 6 was designed to enhance the work undertaken in Test Program 5 (see ASX Announcement 24 October 2024), which indicated that with fine tuning of the experimental parameters – particularly pressure, temperature and catalyst selection – it could achieve a viscosity in the range of C170 asphalt.

Test Program 6 – Overview

Test Program 6 (TP6) focused on the detailed examination of the liquefaction process with different catalysts applied to core sample GM14, sourced from the Alpha deposit. TP6 utilised blended samples from core hole GM14 to ensure that a true assessment of the results from Test program 5 GM14 could be undertaken.

TP6 involved a broad spectrum of studies which included numerous experimental runs on GM14, specifically designed to explore the behaviour and efficiency of the liquefaction process under varying conditions. The primary technique employed in TP6 involved the liquefaction of Alpha core sample using toluene and THF (tetrahydrofuran) as a solvent within a specialised reactor system.

One of the main objectives of these experiments was to generate a high yield of bitumen material with superior quality. To achieve this, blended samples were subjected to a series of experiments designed to optimise bitumen production.

A range of experimental variables was explored to determine the ideal conditions for maximising both the quantity and quality of the bitumen produced. Variables including the effect of catalysts using toluene as carrier and using THF as carrier without catalyst represented another significant factor that was investigated to assess their impact on the liquefaction process and the resulting bitumen yield.

Summary of Results

This test program focused on optimizing the conversion of oil shale into asphalt materials by examining the effect of using THF as a carrier without a catalyst and employing catalysts under toluene as a carrier. TP6 consisted of 11 experiments in total and the results from these are presented in Appendix 1. Four catalysts—Fe, Sn, Cu, and Zn—were tested. The findings showed that conversion and useful product yield improved under optimal conditions (400˚C), with Zn achieving the highest conversion of asphalt materials 38.9 (wt%), which is the highest conversion to date. Notably, pre-asphaltene conversion increased significantly in the catalytic runs with Sn and Zn. The asphaltene content remained nearly identical across all experiments but was significantly lower than in the toluene run without a catalyst. Additionally, the THF run without a catalyst showed higher conversion than the toluene run without a catalyst. It is also worth noting that gas conversion was lower compared to the toluene runs.

The viscosity of the catalytic runs under toluene was significantly lower than that of the toluene run without a catalyst, due to the catalyst's effect on product characteristics. Among all experiments, the THF run exhibited the lowest viscosity. However, it should be noted that viscosity measurements carry a degree of uncertainty due to the limited sample size and the necessity of THF dilution.

Given the lower viscosity and higher conversion of product yield gives us confident that we are close to the optimal conditions to achieve the aim of producing C170 grade bitumen. The next stage of testing using larger bulk samples will give more conclusive results.

Next stage Test Program 7

Greenvale is working with Monash University (Monash) to plan Test Program 7. What test program 6 has highlighted is that modifications are required to the Monash liquefaction test apparatus to enable it to replicate the test conditions of Test Program 6. Monash University is currently working with a third party to implement these required modifications.

Greenvale expects to have an update soon from Monash on when these modifications will be implemented, which will allow Test Program 7 to commence.

Test Program 7 will be designed to further enhance the conversion of useful materials and better understand final product characteristics. As part of this program, bulk samples will be produced under varied reaction conditions to generate sufficient asphalt materials for a comprehensive study, particularly focusing on viscosity and penetration.

Management Comment

Greenvale Executive Chairman, Neil Biddle, said: *"We are encouraged by the results of Test Program 6, which mark an important step towards achieving the viscosity levels required to deliver a premium-grade C170 final bitumen product from Alpha. The results give us a clear pathway to move forward with Test Program 7 at Monash University. The team is working to refine these parameters and we will provide further updates as the program advances.*

"While Greenvale's focus is on advancing the exploration of our high-potential Australian uranium portfolio, this work is aimed at unlocking the significant value of the Alpha Torbanite Project for our shareholders."

Authorised for Release

This announcement has been approved by the Board for release.

For further information please contact:

Investors: Neil Biddle Executive Chairman — **P** +61 (0) 418 915 752
Media: Nicholas Read — **P** +61 (0) 419 929 046
Engage and Contribute: Investor Hub

Greenvale Energy Interactive Investor Hub

Engage with Greenvale directly by asking questions, watching video summaries and seeing what other shareholders have to say about this, as well as past announcements.

Join our Investor Hub

Visit https://greenvaleenergy.com.au/

Competent Person's Statement:
The information in this report that relates to Exploration Results (Liquefaction Testwork 6 and yield data) is based on information reviewed 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.

Appendix 1: Liquefaction Test Program 5 and 6 Results

	Trial number	Sample Name	Catalyst	Solvent	Temperature (°C)	Pressure (MPa)			Conversion yield (wt%)	Gas yield (wt%)	Hexane soluble (wt%)	Toluene soluble + THF soluble (wt%)	Toluene soluble (wt%)	THF soluble (wt%)
						Initial	Max	After						
Test Program 5	0		" Blank"	Toluene	400	7.8	18.0	6.5	3.6	-	-	-	-	-
	1	GM 21	No catalyst			0.7	6.9	1.2	12.8	8.2	2.3	2.3	2.2	0.1
	2	GM 21	No catalyst			1.1	7.9	1.0	14.8	11.1	1.0	3.0	3.0	0.0
	3	GM 21	No catalyst			5.0	12.1	4.5	28.0	15.1	0.8	10.8	9.8	1.0
	4	GM 21	No catalyst			5.0	14.1	3.9	27.6	15.9	0.2	11.9	11.1	0.8
	5	GM 21	No catalyst			8.7	17.0	6.0	32.0	17.8	0.2	14.0	13.0	1.0
	6	GM 21	No catalyst			9.4	20.5	8.1	32.9	16.3	0.1	16.7	14.7	2.0
	7	GM 21	No catalyst			8.9	20.3	7.6	34.0	17.4	0.0	17.9	16.5	1.4
	8	GM 21	No catalyst			10.0	26.4	8.4	33.3	17.5	0.2	15.9	15.3	0.7
	9	GM 14	No catalyst			10.7	26.0	9.3	49.0	18.3	1.0	31.0	29.2	1.8
	10	GM 14	Fe2O3			9.8	24.0	8.8	56.6	24.3	0.2	32.1	30.0	2.1
	11	GM 14	Sn			10.2	24.0	8.6	57.4	23.5	0.6	33.3	28.1	5.2
	12	GM 21	No catalyst		425	1.3	12.0	1.2	17.0	13.4	0.2	4.8	4.7	0.1
	13	GM 21	No catalyst			5.4	18.4	4.0	32.9	22.7	0.3	10.4	10.1	0.3
	14	GM 21	No catalyst			5.1	17.7	3.6	33.1	19.7	0.1	13.5	13.4	0.1
	15	GM 21	No catalyst			8.5	22.2	6.1	36.1	20.4	1.4	16.7	15.3	1.4
	16	GM 21	No catalyst			9.0	22.0	7.5	37.6	20.5	0.1	17.0	16.3	0.7
	17	GM 21	No catalyst			9.9	26.7	9.3	45.8	21.6	0.1	24.5	23.5	0.9
	18	GM 21	No catalyst			10.1	26.0	8.5	46.1	21.6	0.1	24.1	22.9	1.2
	19	GM 21	No catalyst		450	9.2	24.0	7.7	51.3	27.6	0.2	23.9	23.2	0.7
	20	GM 14	No catalyst			9.1	28.0	7.5	58.1	37.7	0.8	20.5	20.3	0.2
Test Program 6	1	GM 14	No catalyst	Toluene	400	26			49.0	18.3	1.0	31.0	29.2	1.8
	2		Fe2O3			24			56.6	24.3	0.2	32.1	30.0	2.1
	3		Fe2O3			25			56.9	24.9	0.5	31.5	29.5	2.0
	4		Sn			24			57.4	23.5	0.6	33.3	28.1	5.2
	5		Sn			23			57.6	23.9	0.8	32.9	28.0	4.9
	6		Cu(CH3COO)2			24			50.8	20.7	0.1	30.0	28.4	1.6
	7		Cu(CH3COO)2			25			54.7	22.1	0.4	32.1	29.9	2.2
	8		Zn(CH3COO)2			23			60.0	20.4	1.1	38.9	32.6	6.3
	9		Zn(CH3COO)2			24			59.4	21.8	1.4	36.3	31.1	5.2
	10		No catalyst	THF		22			45.2	4.1	4.9	36.2		
	11		No catalyst			24			46.9	5.9	5.7	35.3		

Appendix 2 Summary of asphaltene (SARA) and viscosity of asphalt materials

	Catalyst	Solvent	SARA (wt%)	Viscosity (Pa.s)
GM 14	Without a catalyst	Toluene	87.6	426
	Fe_2O_3		52.7	217
	$Cu(CH_3COO)_2$		48.0	226
	$Zn(CH_3COO)_2$		55.0	210
	Sn		47.7	264
	Without a catalyst	THF	53.9	117

The above table summarizes the asphaltene content (SARA) and viscosity of the asphalt materials under optimum conditions. The asphaltene content of the asphalt materials for catalytic runs and THF run were in the range of 47-55 wt%, which is much less than the toluene without a catalyst.

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 downhole 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 sample 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.	The samples refer to in this announcement were taken from the 2021 partly cored (4C – 100mm diameter) hole drilling program on a nominal 250 x 250m grid for the purpose of obtaining torbanite and cannel coal quality samples from the Upper and Lower seams. Refer to ASX Announcement date – 9 March 2022.
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 this announcement

Criteria	JORC Code explanation	Commentary
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 this announcement
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.	Not applicable to this announcement

Criteria	JORC Code explanation	Commentary
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.	8 Core samples from different holes in total have been prepared and held as sub 200 micron by ply. Subsamples have been cut from the separate sub 200 micron samples of each ply which have been held in refrigeration for test program 5 including samples to University of Jordan. Only 2 core samples were used as part of test program 5 GM 14 and GM 21. Test Program 5 only used GM14
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.	Test Program 6 involved repeating the tests conducted on core material in test program 5 but only used GM14 Blend L1, LT, L2 A detailed range of tests have been performed to understand the core material and liquefaction tests using oil and water-based carriers have been conducted on the subsamples using standardised test procedures. Refer to ASX Announcement date – 24 October 2024.
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.	Torbanite and cannel coal quality results were verified by experienced SRK personnel before inclusion in the geological model and resource estimate and representative samples provided. Core samples from 8 wells has now been used from Greenvale storage sites and split by Greenvale contractors, prepared as sub 200 micron for each ply and held in closed labelled plastic bags and stored in a freezer.
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.	The wells chosen was GM14.

<table>
<tr><th>Criteria</th><th>JORC Code explanation</th><th>Commentary</th></tr>
<tr><td></td><td>Specification of the grid system used.
Quality and adequacy of topographic control.</td><td>
<table>
<tr><th>Well</th><th>Easting</th><th>Northing</th></tr>
<tr><td>9</td><td>482757</td><td>7333602</td></tr>
<tr><td>14</td><td>482872</td><td>7333231</td></tr>
<tr><td>21</td><td>483334</td><td>7332843</td></tr>
<tr><td>28</td><td>483813</td><td>7332150</td></tr>
<tr><td>19</td><td>482251</td><td>7332674</td></tr>
<tr><td>128</td><td>484816</td><td>7331276</td></tr>
<tr><td>137</td><td>480843</td><td>7332637</td></tr>
<tr><td>138</td><td>481532</td><td>7333468</td></tr>
</table>
There is high confidence in the location of data points associated with this announcement.
Refer to ASX Announcement date – 27 December 2023.</td></tr>
<tr><td>Data spacing and distribution</td><td>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.</td><td>The wells were chosen to span the resource and intersect both seams and all 4 ply.</td></tr>
<tr><td>Orientation of data in relation to geological structure</td><td>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.</td><td>All drill holes were drilled at 90° to the surface and are assumed to be vertical. Downhole verticality survey is available for all drill holes.</td></tr>
<tr><td>Sample security</td><td>The measures taken to ensure sample security.</td><td>Samples have been stored in dedicated freezers from the time the sample was acquired.</td></tr>
</table>

Criteria	JORC Code explanation	Commentary
		Sample transfer documents have been provided by the core holding laboratories and have been prepared to sub 200 microns and stored separately in labelled plastic bags in a Freezer.
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 section 1 also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	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.	MDL 330 is held by Alpha Resources Pty Ltd, a subsidiary of Greenvale Energy Limited. MDL 330 was first granted on 1 February 2002. An application for a renewal for an additional 5-year term was submitted in July 2021 and approved in July 2022. The current 5-year term expires on 31 January 2027. MDL 330 covers an area of 1,904.5 ha.
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	Refer to ASX Announcement – 9 March 2022 and 13 November 2023.
Geology	Deposit type, geological setting and style of mineralisation.	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. The geology of the deposit consists of an Upper and Lower seam of cannel coal with a torbanite lens present in the lower seam. The Colinlea Sandstone is thought to be a lower delta plain deposit with the coal deposited in swamps and shallow lakes in this near shore environment. The torbanite is thought to have been deposited from algae in a lacustrine environment when water entering the system held little sediment or organic material.
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	Not applicable to this announcement

Criteria	JORC Code explanation	Commentary
	downhole 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.	
Data aggregation methods	In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. 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.	Liquefaction tests are being conducted using samples from each seam, and blend samples representing the seams within a given borehole. The blend samples are prepared in portions relative to the thickness of each seam within a specific borehole.
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 downhole lengths are reported, there should be a clear statement to this effect (e.g. 'down hole length, true width not known').	Not applicable to the announcement
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 to the announcement
Balanced reporting	Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high	Not applicable to the announcement

Criteria	JORC Code explanation	Commentary
	grades and/or widths should be practiced avoiding misleading reporting of Exploration Results.	
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.	Test program 5 had been undertaken at 400C, 425C, 450C and 5, 9 and up to 10.7 MPa starting hydrogen overpressure. Sample sizes are approximately 10 grams and 2 wt % catalyst also added, in 30 grams of carrier oil with residence time of 60 minutes generally (after target temperature reached). Test program 6 has been undertaken at 400C. Sample sizes are approximately 10 grams and 2 wt % catalyst also added, four different catalyst were used Fe, Sn, Cu, and Zn in 30 grams of carrier oil with residence time of 60 minutes generally (after target temperature reached). Full tables of test program 5 and 6 results are shown in Appendix 1 & 2 Also Refer to ASX Announcement – 17 May 2023
Further work	The nature and scale of planned further work (e.g. 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.	Bulk testwork is being considered to further optimize results and measure bitumen properties. .