KOPPAR RESOURCES

Acquisition of disruptive, EU focussed, Vulcan Lithium Project

Highlights

- **Koppar to acquire potentially large, Lithium-Rich Brine Project in Germany via acquisition of Vulcan Energy Resources**
- **Vulcan Lithium Project aiming for unique, Zero-Carbon Lithium Production through Dual-Purpose wells & very short distance to potential markets**
- **Location close to Stuttgart, home to major German car manufacturers, means Vulcan Project positioned to provide much-needed secure, domestic lithium supply to the burgeoning European EV market**
- **Geological similarities to Hell's Kitchen lithium project in California, which is advancing to production with Controlled Thermal Resources**
- **Strong in-country technical team established, led by Dr Horst Kreuter**
- **Dr Francis Wedin, founder of Vulcan, proposed to join board as MD with Gavin Rezos proposed to join as Chairman**

Koppar Resources Limited (ASX:KRX) (**Koppar** or the **Company**) is pleased to announce that it has signed a binding heads of agreement to acquire 100% of Vulcan Energy Resources, owner of the Vulcan Lithium Project.

Vulcan Lithium Project Summary

The Vulcan Lithium Project is in the Upper Rhine Valley (URV) geothermal field in Germany, an area **uniquely endowed with lithium-rich, hot sub-surface brines**. These brines have been sampled extensively at multiple locations throughout the URV, **with lithium grades often above 150mg/l Li and up to 210mg/l Li** (average 161 mg/l, Table 1). These concentrations are similar to the Hell's Kitchen lithium project in California (owned by Controlled Thermal Resources).

The aim will be to explore and develop the Vulcan Project to produce **battery-grade lithium hydroxide** from geothermal brines. Subject to confirmation in proposed study work, a **direct precipitation process** will be used for lithium processing which is **quicker and less water and carbon-intensive** relative to the evaporative method used in South American salars. The temperature of the brines is anticipated to be an advantage in the development of the processing method.

Subject to entry into an offtake or joint venture agreement with a geothermal power producer, as a by-product of the production process, renewable geothermal energy could be generated from dual-purpose wells that fully offsets energy consumed in lithium production & processing, providing a premium, **"Zero Carbon Lithium"** product for the EV market.

The project comprises two granted licenses and three license applications covering a total area of approximately 78,600ha (Figure 1, Table 2). The Upper Rhine Valley brine field has been extensively studied due to its geological and geothermal characteristics, including exploration for oil and gas. As a consequence, the Company is acquiring a project in a very well understood brine field with considerable amounts of existing seismic and drilling data potentially available for exploration and resource evaluation.

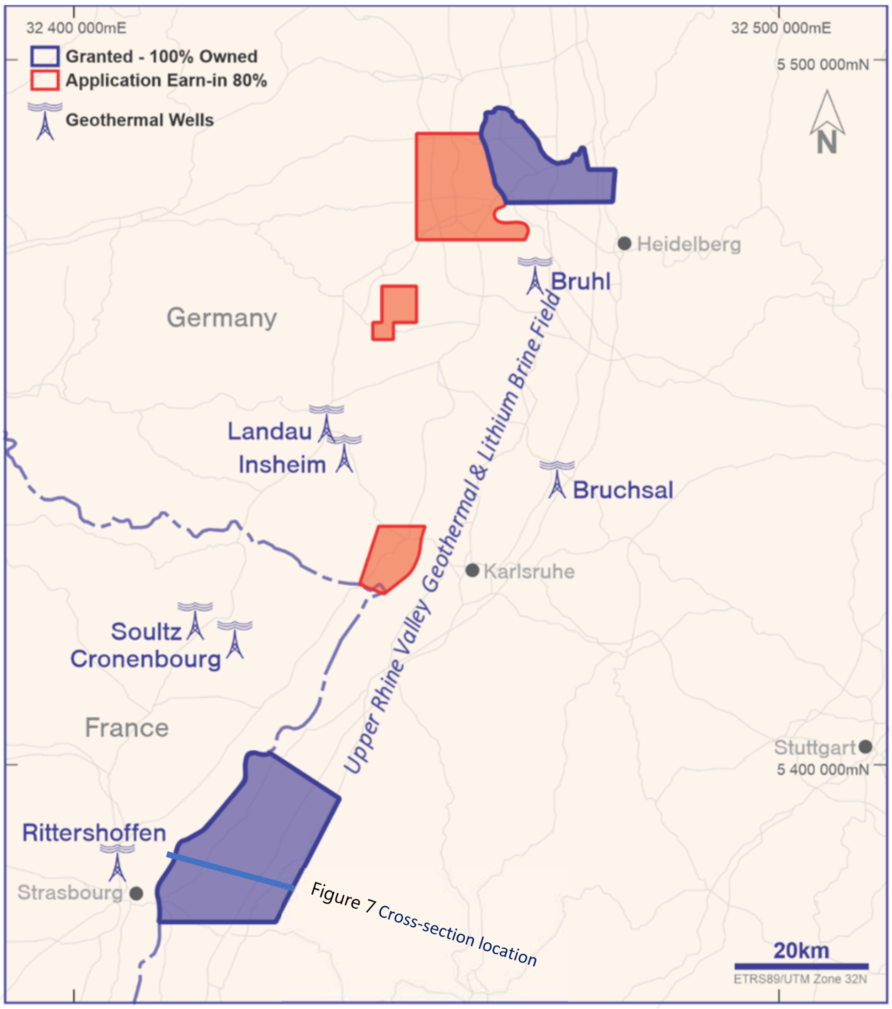

Figure 1: Location of Vulcan Project and sampled geothermal wells mentioned Table 1.

*Table 1: Lithium concentrations in geothermal brine sampling in the Upper Rhine Valley (references detailed in Appendix 1). Note that chemical concentrations relate to the Upper Rhine Valley brine field but not specifically within the Vulcan Project itself. Based on a geological review of extensive studies of the area, it is considered to be a reasonable assumption that the mineralised brine fluids will also be present in the Vulcan Project licenses. *Since Brühl sample was taken during production and circulation tests, it may not be representative data, due to admixture of remaining drilling fluid, freshwater from injection test etc. Therefore, the lithium concentration of the Brühl reservoir is expected to be higher during operation.*

Name	Lat	Long	Depth m	Temperature at BOH	Li mg/l	K mg/l	Mg mg/l
Landau Geothermal Well Head 2011 Sample	49.1856	8.12251	3,044	160	179	4000	76
Landau Geothermal Well Head 2013 Sample	49.1856	8.12251	3,044	160	182	3795	85
Insheim Geothermal Well Head	49.1537	8.15373	3,600	165	168	3816	99
Soultz Geothermal Well Head	48.9330	7.88117	5,000	200	173	3195	131
Rittershoffen Geothermal Well Head	48.8966	7.94340	2,580	160	190	3789	138
Cronenbourg Geothermal Well Head	48.6011	7.72451	2,870	140	210	4030	126
Bruchsal Geothermal Well Head 2012 Sample	49.1309	8.57618	2,542	120	159	3113	301
Bruchsal Geothermal Well Head 1992 Sample	49.1309	8.57618	2,542	120	166	2200	434
Brühl Geothermal Well Head*	48.6984	8.13125	2,655	115	41	494	1930

Table 2: Licenses Comprising the Vulcan Project

Name	Area (ha)	Status	Date Granted / Applied for	Ownership
Ortenau	37,360	Granted	03/2019	100%
Mannheim	14,427	Granted	06/2019	100%
Taro	3,268	Application	03/2019	Earn in to 80%
Ludwig	17,716	Application	04/2019	Earn in to 80%
Rheinaue	5,848	Application	04/2019	Earn in to 80%

Further information on the Vulcan Project and its geological setting can be found in Appendix 2.

Need for a European, Low-Carbon Lithium Supply Chain

Hard-rock lithium operations are generally high OPEX and have high carbon footprint from processing methods and distance to markets. There is a bottleneck of lithium mineral concentrate processing to downstream, battery-grade lithium chemicals which as a consequence has reduced spodumene prices.

Salar lithium operations in South America, typically at over 3000m above sea level, use large quantities of soda ash mined in the USA that needs to be transported to remote locations, resulting in a substantial carbon footprint. Salar operations also use large amounts of water in some of the driest places on earth. The salar evaporation process takes a long time (up to 12 months) and is vulnerable to weather events.

Electric Vehicle (EV) battery raw material supply chains have a carbon footprint problem. OEMs are **actively trying to reduce the carbon footprint** of their battery supply chains to bolster the credibility of their EV offerings. For example, **Volkswagen is placing great importance on having a CO_2-neutral production supply chain** for its new EV line-up, with **its sustainability metric for suppliers planned to be on par with price** (Volkswagen ID Presentation, 2019).

Global lithium demand, driven by high annual compound growth in lithium-ion battery manufacture and usage in vehicles and stationary storage, is set to increase to 1.85 million tonnes LCE by 2028, from a present level of around 0.3 million tonnes (Benchmark Mineral Intelligence, 2019). New lithium processing supply capacity is estimated to be around 1.7 million tonnes by 2028 (Roskill, 2019), **indicating a significant shortage**. This also assumes that current stated plans for increased capacity will progress on track without technical ramp-up issues, something that has not occurred to date (Roskill, 2019).

This presents an imminent problem for the lithium-ion battery industry, and thus the electric vehicle and stationary storage industries, who are committing multibillion-dollar CAPEX investments to achieve a total of 1.7TWh battery production capacity by 2028 (Benchmark, 2019).

The EU production of battery-grade lithium hydroxide or lithium carbonate is currently nil, yet the EU will require **150kt per annum of LCE by 2023, and 290kt by 2028** (Benchmark, 2019). The **majority of lithium supply** is controlled by just five companies, all of which are **non-EU** (SQM, Albemarle, Livent, Tianqi, Ganfeng, Source: Bloomberg).

Auto-**manufacturers require security of lithium supply** in the 21st Century for the transition to EVs, instead of relying solely on South American and Chinese production.

The Vulcan Lithium Project presents a potential solution to this problem. Situated in a geothermal field of operational geothermal plants currently producing stable baseload, renewable energy, the URV field is one of the only heated brines globally that is uniquely enriched in lithium (detailed below). Subject to entry into an offtake or joint venture agreement with a geothermal power producer, the Vulcan Lithium Project aims to:

- **utilise dual-purpose geothermal energy and lithium-production wells to produce battery-grade lithium hydroxide,** in the heartland of EU battery EV manufacture, and

- produce more renewable energy than it consumes during lithium processing, which would effectively render it the first **zero-carbon lithium** project in the world (Figure 3).

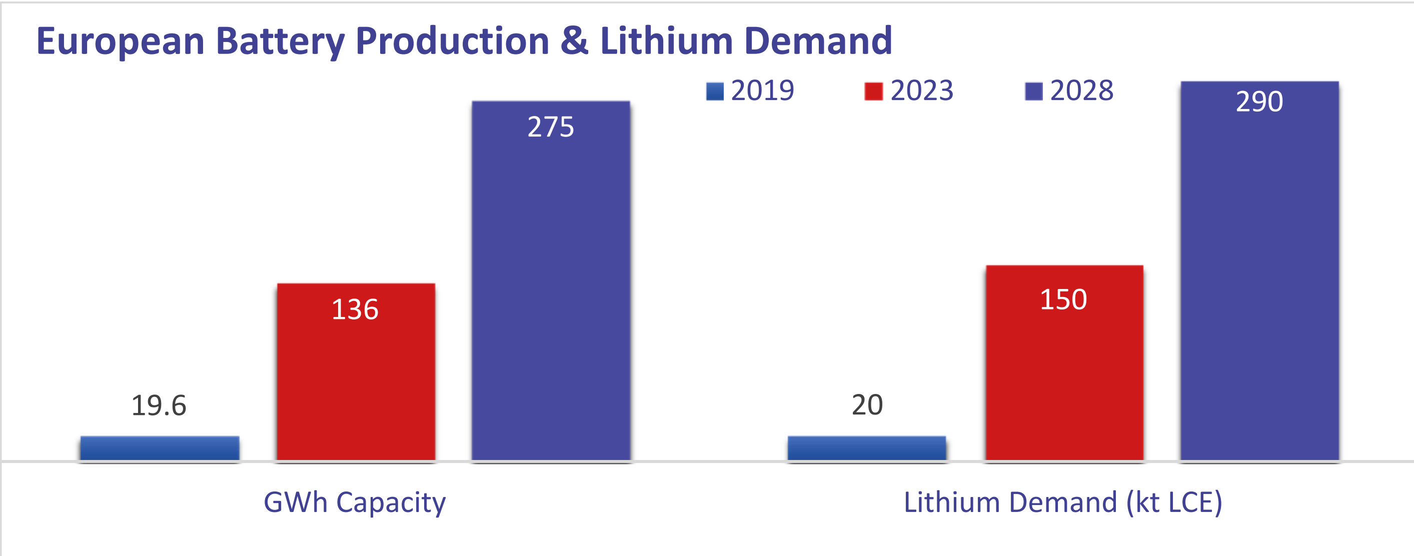

Figure 2: European forecast Li-ion production and associated lithium demand (Benchmark, 2019)

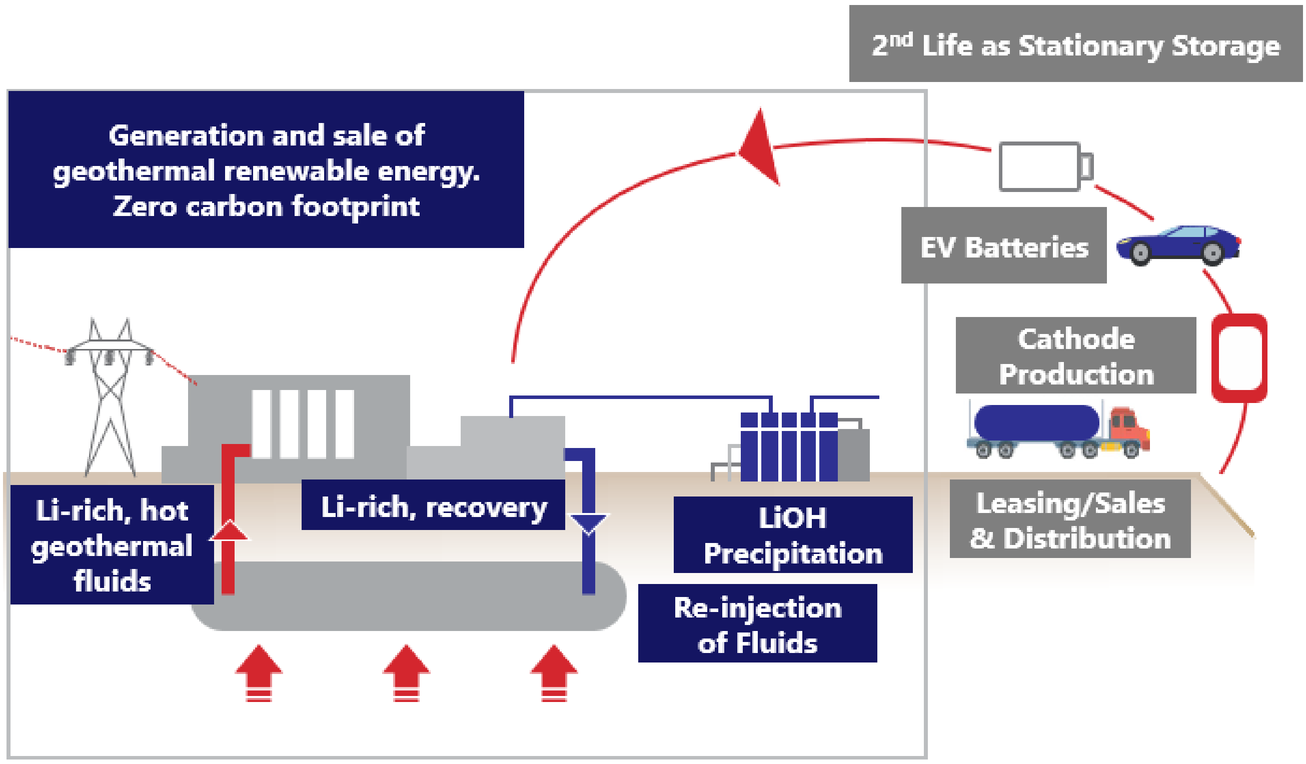

Figure 3: Planned process to produce Zero Carbon Lithium at the Vulcan Lithium Project

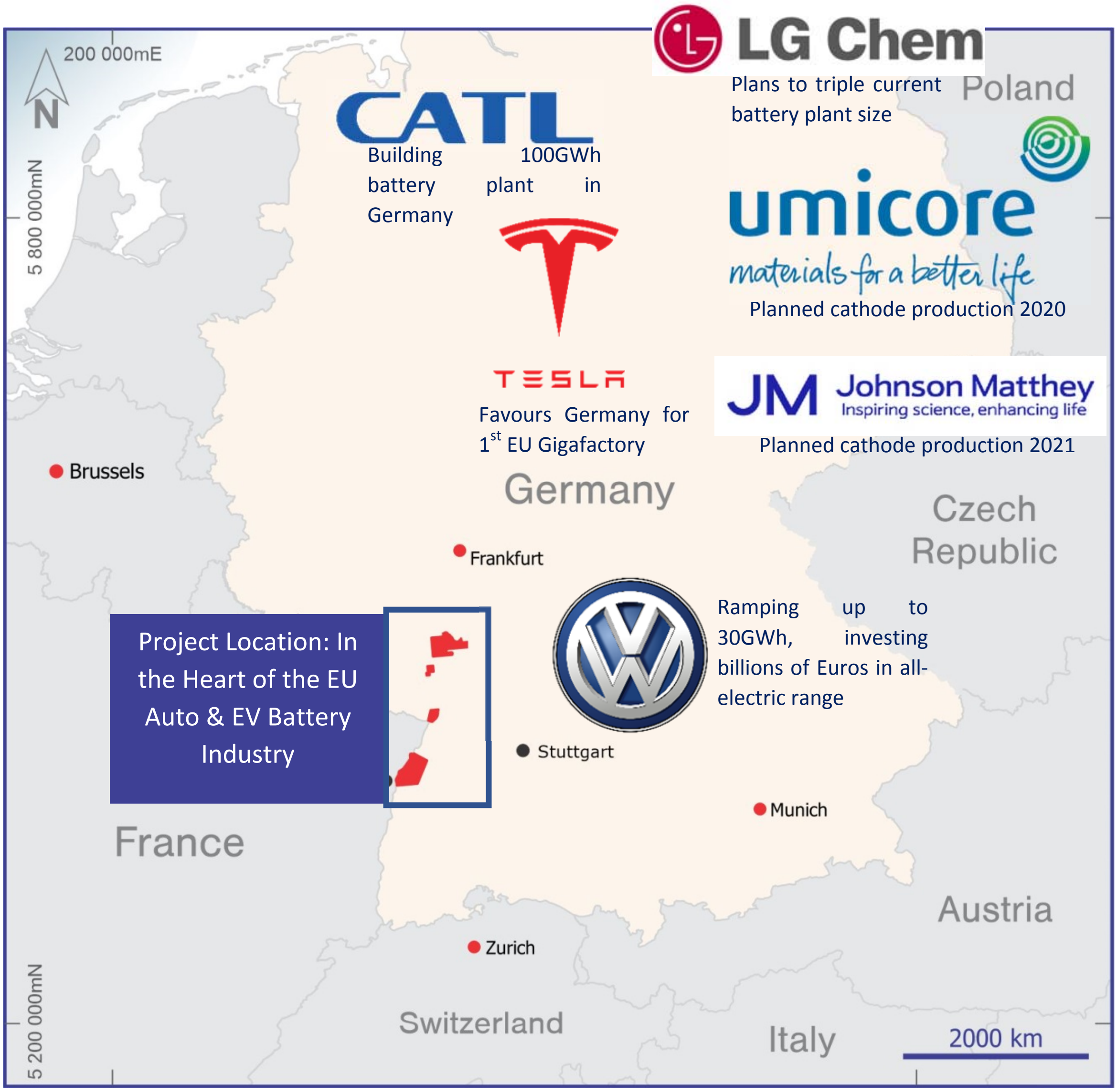

Figure 4: Vulcan project location, in the heart of European battery electric vehicle production

Lithium in Geothermal Brines

Globally, geothermal brines are relatively common, but the fluids are rarely lithium rich. Typical geothermal brine fields have Li values in the order of 1-10mg/l Li (Figure 5). The Upper Rhine Valley geothermal brine field, in which the Vulcan Lithium Project is located, exhibits lithium values one to two orders of magnitude greater: **up to 210mg/l Li,** with an average of 161mg/l Li from geothermal fluids sampled over extended periods of time from multiple locations (Sanjuan et al, 2016; Pauwels & Fouillac, 1993; refer Appendix 1). The Vulcan Lithium Project includes a commanding land position in the brine field of over 78,600 Ha licenses, of which over 51,000Ha is already granted. The overall brine field is well understood due to historical petroleum exploration, with considerable amounts of existing seismic and drilling data potentially available for purchase, exploration and resource evaluation.

The only other known geothermal field in the world with similar lithium grades is the Salton Sea, California, where Controlled Thermal Resources is **developing the US$1.8B CAPEX Hell's Kitchen** lithium-geothermal deposit (Global Geothermal News, 2018). Berkshire Hathaway Renewables are also reported to be planning to extract lithium from their geothermal operations in the same field in California (Financial Times, 2019).

The Upper Rhine Valley and the Salton Sea uniquely exhibit the same order of magnitude of Li grade as South American lithium salar brines, but with the processing advantage for the Direct Precipitation method of being already heated.

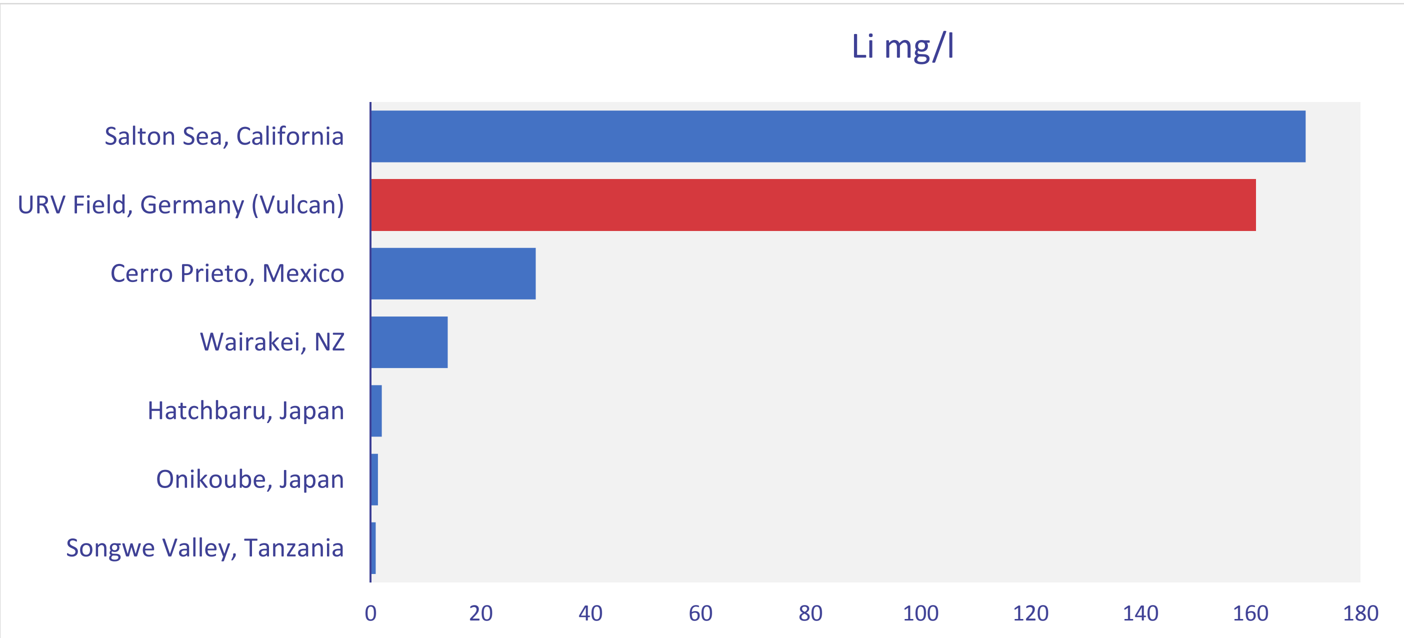

Figure 5: Comparison of Lithium Concentrations in heated brines, from Sanjuan et al (2016), Pauwels & Fouillac (1993), Pauwels et al (1989), Elders & Cohen (1983), Mnzava & Mayo (2013). Sources in Appendix 3.

Work Program

Koppar plans to rapidly advance the Vulcan Lithium Project to a Scoping Study over the next 12 months. Work programmes will commence with acquisition of all available seismic and geochemical data from the region.

The company will also commence processing test work on brine samples taken from existing wells within the Upper Rhine Valley.

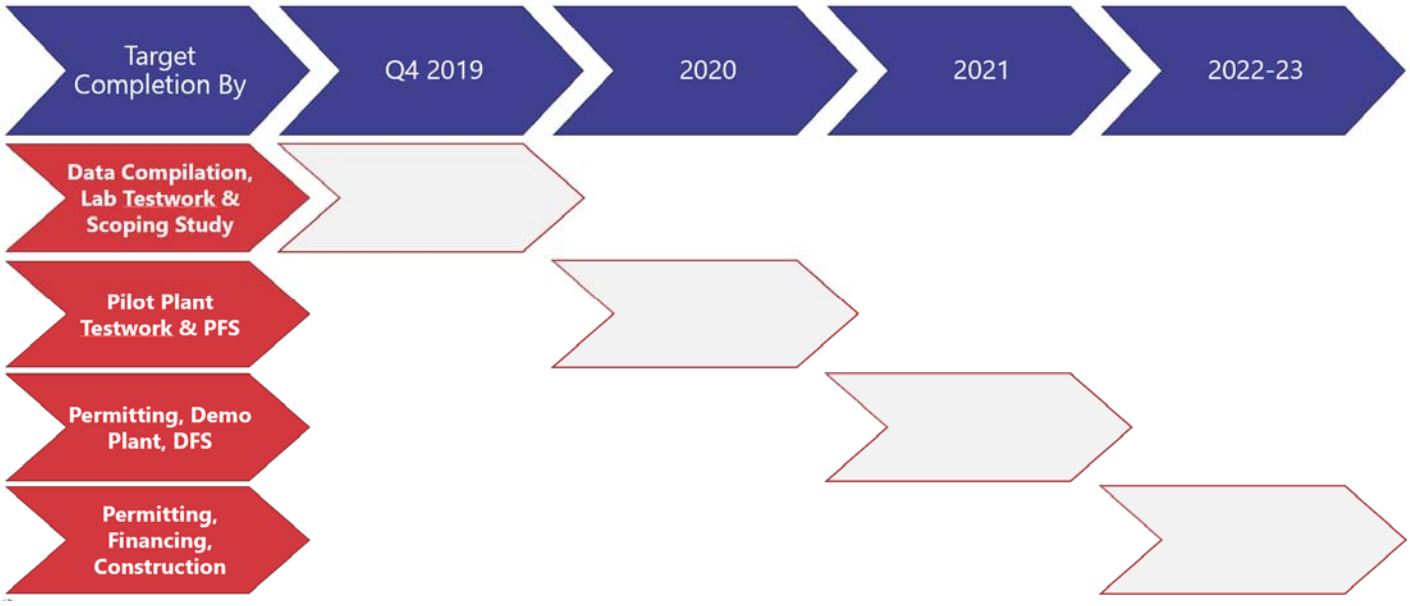

Figure 6: Planned work programme for Vulcan Lithium Project, pending exploration success at each stage.

Management Changes

Dr Francis Wedin, founder and major shareholder of Vulcan Energy Resources is proposed to join the board of Koppar as Managing Director. Dr Wedin is currently Executive Director of successful ASX-listed Exore Resources Ltd (ASX:ERX). He previously discovered and defined two new JORC lithium resources, on two continents, in under a year, including Lynas Find, which was bought by Pilbara Minerals to become part of its very large Pilgangoora Lithium Project (ASX:PLS).

Francis has a PhD and BSc (Hons) in mineral exploration, is a Fellow of the Geological Society, London, and a member of the Australasian Institute of Mining and Metallurgy. He is bilingual in English and Turkish, with proficiencies in other languages. He is currently studying a part-time MBA.

Mr Wedin's proposed terms of engagement are detailed in Appendix 4.

Following completion of the transaction **Mr Gavin Rezos** is proposed to join the board as Chairman. As a Principal of Viaticus Capital for almost 20 years, Gavin has helped start-up companies in the technology and resources sectors move to public listings on the ASX, NASDAQ, AIM and Frankfurt Exchanges. In that role, Gavin has held Executive Chairman or CEO positions of two companies that grew from start ups to entry into the ASX 300.

Gavin has also held Director positions of public listed companies in the technology or resources sectors in Australia, the UK and the US. Gavin is currently Chairman of Resource and Energy Group (ASX:REZ) and a principal of Viaticus Capital. Gavin was also previously a Non-Executive Director of Iluka Resources (ASX:ILU), Chairman of Alexium International Group, Non-Executive Director of Metalysis Plc and of Rowing Australia, the peak Olympics sports body for rowing in Australia.

The Company has agreed to issue Shares and Performance Rights to Mr Rezos as a term of his appointment. See Appendix 5 for further details.

The Company has also agreed to appoint Viaticus Capital, a related body corporate of Mr Rezos who is based in Europe, as an investor relations advisor and to introduce the company to European and US based sophisticated and institutional investors. See below for further details.

The other director of Vulcan Energy Resources, **Dr Horst Kreuter**, will join the Company as a Consultant. Dr Kreuter is an engineering geologist with a long career in geothermal energy. He is CEO of Geothermal Group Germany GmbH and GeoThermal Engineering GmbH (GeoT). He has been successful in geothermal project development and permitting in Germany and worldwide. Based in Karlsruhe, Dr Kreuter is local to Vulcan's project area in the Upper Rhine Valley and has a widespread political, investor and industry network in Germany and Europe.

Terms of Acquisition

The material terms of the Acquisition are as follows:

(a) (**Consideration**): The consideration payable for the Acquisition is:

(i) 6,666,667 fully paid ordinary shares in Koppar (**Shares**) to be issued to the shareholders of Vulcan, Dr Francis Wedin and Dr Horst Kreuter (**Vendors**) (**Consideration Shares**); and

(ii) 13,200,000 Performance Shares to be issued to the Vendors, which will each convert into a Share on a one for one basis on satisfaction the following milestones:

(A) 4,400,000 Shares on the Company announcing a positive scoping study in relation to the Vulcan Lithium Project, confirming the Vulcan Lithium Project is commercially viable within 12 months of completion of the Acquisition (**Milestone 1**);

(B) 4,400,000 Shares on the Company announcing a positive preliminary feasibility study in relation to the Vulcan Lithium Project, confirming the Vulcan Lithium Project is commercially viable within 24 months of completion of the Acquisition (**Milestone 2**); and

(C) 4,400,000 Shares on the Company announcing that it has secured an off-take or downstream joint venture partner in relation to the Vulcan Lithium Project within 36 months of completion of the Acquisition (**Milestone 3**), (together, the **Performance Shares**).

The terms of the Performance Shares are subject to ASX approval. The full terms will be set out in the Notice of Meeting to be issued in relation to the shareholder approvals referred to below.

(b) (**Conditions Precedent**): The key outstanding conditions precedent to completion of the Acquisition are:

(i) completion of confirmatory due diligence on Vulcan and its assets and operations by the Company to its satisfaction;

(ii) the Company obtaining all necessary regulatory, shareholder and third-party approvals to allow the Company to lawfully complete the Acquisition, including:

(A) shareholder approval for the issue of the Consideration Shares, the Performance Shares and the other securities to be issued on completion of the Acquisition (see below for further details); and

(B) ASX approval of the terms of the Performance Shares;

(iii) Vulcan and Koppar obtaining any regulatory approval required to implement the Acquisition, including confirming to Koppar's reasonable satisfaction that the change in control of Vulcan which will result from the Acquisition will not result in the relevant regulator withdrawing or otherwise altering the licences comprising the Vulcan Lithium Project; and

(iv) there being no material adverse change to Vulcan and the Vulcan Lithium Project prior to the satisfaction (or waiver) of the conditions in paragraphs (i) to (iii) above, as determined by Koppar acting reasonably.

(c) (**Introducer Fee**): The Company will also pay the following by way of an introduction and facilitation fee to parties involved in introducing the Acquisition to the Company:

(i) 1,000,000 Shares to be issued on completion of the Acquisition; and

(ii) subject to Koppar shareholder approval, 1,980,000 Shares to be issued as follows:

(A) 660,000 Shares to be issued on satisfaction of Milestone 1;

(B) 660,000 Shares to be issued on satisfaction of Milestone 2; and

(C) 660,000 Shares to be issued on satisfaction of Milestone 3.

In the event Koppar shareholders do not approve the issue of some or all of the Shares referred to in paragraph (c)(ii) above, Koppar will pay a cash amount to the relevant parties equal to the number of Shares which would have been issued on satisfaction of the relevant Milestone, multiplied by $0.15 (being the issue price under the Placement referred to below).

Capital Raising

In parallel with the transaction the Company proposes to raise A$1.1 million at $0.15 per share ("Placement"). The proceeds from the Placement will be used to fund due diligence and initial work at the Vulcan Lithium Project which will comprise seismic data acquisition and initial processing testwork.

Xcel Capital Pty Ltd acted as Lead Manager to the Placement which is being completed at a 5% discount to the 5-day VWAP of $0.157.

The Placement of 7,333,333 new shares will be completed in a single tranche comprising 3,175,000 pursuant to ASX Listing Rule 7.1A and 4,158,333 pursuant to ASX Listing Rule 7.1. The Placement is expected to settle on 17th July 2019 and quotation of the Placement shares is expected to occur on the 18th July 2019. Koppar is paying the Lead Manager a Placement Fee of 6% of the funds raised via the Placement (other than funds raised from Mr Gavin Rezos as outlined below).

Proposed Chairman Mr Gavin Rezos has agreed to subscribe for $150,000 shares under the Placement (subject to shareholder approval if required). Under the terms of the Company's agreement with Viaticus Capital (a company controlled by Mr Rezos), Viaticus Capital is entitled to a 6% capital raising fee on the amount of this subscription. As noted above, no fee will be paid to the Lead Manager in relation to this subscription. Please see below for further details of the Company's agreement with Viaticus Capital.

Appointment of Viaticus Capital as Corporate Adviser

The Company has appointed Viaticus Capital Pty Ltd, a related body corporate of Gavin Rezos, to provide investor relations advice in Europe and the US. The appointment is for an initial term of 12 months, or such longer period as the parties may agree. The terms of the appointment are set out in Appendix 5.

Norway

As noted above, the Company intends to use the Placement funds for due diligence and initial work at the Vulcan Lithium Project.

The Company currently intends to continue to apply its existing cash towards its existing projects in Norway, being the Tverrfjellet, Undal, Vangrofta and Grimsdal Projects.

As previously announced, the Company is planning to complete airborne EM and ground geophysical and geochemical surveys at Tverrfjellet as well as drilling at Grimsdal (if and when the required drilling permits for Grimsdal can be obtained from the relevant authority). The Company also intends to complete field programmes at both Tverrfjellet and Undal to investigate mapped mineralisation occurrences. Further details on the proposed work programmes can be found in the ASX Announcements of 12th April 2019 and 11th June 2019.

About Koppar

Koppar is a junior exploration company established with the purpose of exploring and developing copper, zinc and other mineral opportunities. The Company owns mineral exploration projects located in the Trøndelag region of Norway, namely the Tverrfjellet Project, Grimsdal Project, Vangrøfta Project, and Undal Project. The Projects are located in a historic mining area, and mining has been previously carried out on several of the projects.

For further information visit www.kopparresources.com

Competent Persons Statement

The technical information in this announcement complies with the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (**JORC Code**) and has been compiled and assessed under the supervision of Dr Francis Wedin, Proposed Managing Director of Koppar Resources Ltd. Dr Wedin is a Member of the Australasian Institute of Mining and Metallurgy and a Fellow of the Geological Society, London. He 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 JORC Code. Dr Wedin consents to the inclusion in this announcement of the matters based on his information in the form and context in which it appears.

Disclaimer

Some of the statements appearing in this announcement may be in the nature of forward looking statements. You should be aware that such statements are only predictions and are subject to inherent risks and uncertainties. Those risks and uncertainties include factors and risks specific to the industries in which Koppar operates and proposes to operate as well as general economic conditions, prevailing exchange rates and interest rates and conditions in the financial markets, among other things. Actual events or results may differ materially from the events or results expressed or implied in any forward-looking statement. No forward-looking statement is a guarantee or representation as to future performance or any other future matters, which will be influenced by a number of factors and subject to various uncertainties and contingencies, many of which will be outside Koppar's control.

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Appendix 1

References, Including Sources of Geochemical Analyses

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Details of the sampling and analytical techniques are included in Appendix 6 in the format prescribed by the JORC Code. The Competent Person is not aware of any new information or data that materially affects the information contained in the above sources or the data contained in this announcement.

APPENDIX 2

Geological Setting

(Adapted from Sanjuan, 2016 and GeoT, 2018): The Upper Rhine Valley, also known geologically as the Upper Rhine Graben, is between 30 to 40km wide and 300km long, stretching from Frankfurt (Germany) in the north to Basel (Switzerland) in the south, and is located in the upper–middle Rhine river basin. It was formed by WSW-ENE intra-continental crustal extension 45-60 million years ago, with associated up-doming and magmatic intrusions at between 80-100km depth, which raised the sub-surface temperature of the area (Weber et al, 2016). This resulted from the collision of the European and African plates during the Palaeogene. The Upper Rhine Valley represents a hydrothermal type geothermal reservoir, with the main targets being in the Upper Muschelkalk, Bunter (or Buntsandstein) sedimentary geological formations and the underlying Rotliegend formation. The lithium-bearing brines in the Upper Rhine Rift are NaCl-dominated fluids. The majority of those fluids occur in four lithologically differing chronostratigraphic units: Muschelkalk (middle Triassic limestone), Buntsandstein (lower Triassic sandstone), Rotliegendes (Permian arkose = feldspar-rich sandstone and volcanic rocks) and the Crystalline Basement (Carboniferous granites and gneisses).

The fluids occurring in Tertiary sediments can be excluded for exploration targeting for two reasons:

(i) It is not possible to achieve a reasonably high flow rate

(ii) The concentrations of lithium in these oil-field brines are <100 mg/L (Sanjuan et al. 2016)

There is extensive 2D and 3D seismic information available over the Upper Rhine Valley, with extent of coverage visible online (Geotis.de, 2019). This has also enabled the construction of sub-surface cross-sections, mapping the geothermal potential of the field and the thickness of the key geological units.

The graben forms a complex evaporite setting in which the rifting process played a major role by a) providing the physical space for sedimentation, b) creating a series of intermediate basins, and c) facilitating a network of faults along the active rift margins that promoted fluid circulation and controlled water exchanges with other basins and/or the open sea. The graben's Palaeozoic crystalline basement, underlying a Mesozoic to Cenozoic sedimentary cover as much as 4–5 km thick in its asymmetrical centre, comprises massive granite (334±3.8Ma; Cocherie et al., 2004, in Sanjuan, 2016), the top of which, where unaltered, is a porphyritic granite with quartz, K-feldspar megacrysts, plagioclase, biotite, hornblende and accessory titanite and magnetite. The overlying sedimentary sequences, which are relatively well known from several oil- and mineral exploration studies and from the drilling of numerous oil wells (Le Masne and Lambert, 1993, in Sanjuan, 2016), consist of Cenozoic evaporites and claystone underlain by Mesozoic limestone and sandstone. Intervals of relatively high permeability within the sedimentary succession make up the major aquifers, of which the most important is the Triassic Buntsandstein composed of continental conglomerate to siltstone with interbeds of claystone and dolomite (Aquilina et al., 1997, in Sanjuan, 2016).

The general tectonic structure of the Rhine Graben is represented by a series of N10°E-striking faults, despite the area's complex tectonic history indicating the existence of old sutures or faults with other strike directions (NE-SW or NW-SE, for example; Dezayes et al., 2015, in Sanjuan, 2016). In its southern part, the graben is limited by a system of faults placing the Hercynian massifs and Triassic deposits into contact with the Paleogene fill, while in the north, a complex system of structures brings the basin into contact with Triassic, Jurassic and Permian material. The sedimentary deposits of the rift sequence are asymmetrical, with the deeper parts located in the southwestern and north-eastern parts of the graben, and the Paleogene fill lying directly on the Jurassic basement. The salinities of the geothermal brines discussed in Sanjuan (2016) from the granite basement, their similar chemical compositions, their Li, B and Sr isotopic signatures and the geothermometer results all suggest that these fluids have reacted with sedimentary rock at temperatures close to 225 ± 25 °C. Given these constraints, plus the location of most of the geothermal sites from where geochemical samples have been historically collected, the main reservoirs are likely to be located further east, towards the graben's centre where the sedimentary Triassic Buntsandstein is deepest and hottest (Sanjuan et al., 2010, in Sanjuan, 2016). The most promising Li-bearing fluids with reasonable flow rate occur in the proven depth range between 2000 and 3600 m below earth surface. Additionally, the Li-concentration depends on the type of the country rock where the water-rock-interaction has taken place (given the long residence time and high temperature; Grimmer et al. 2016 in GeoT, 2018). These areas are the primary target of the Vulcan Lithium Project.

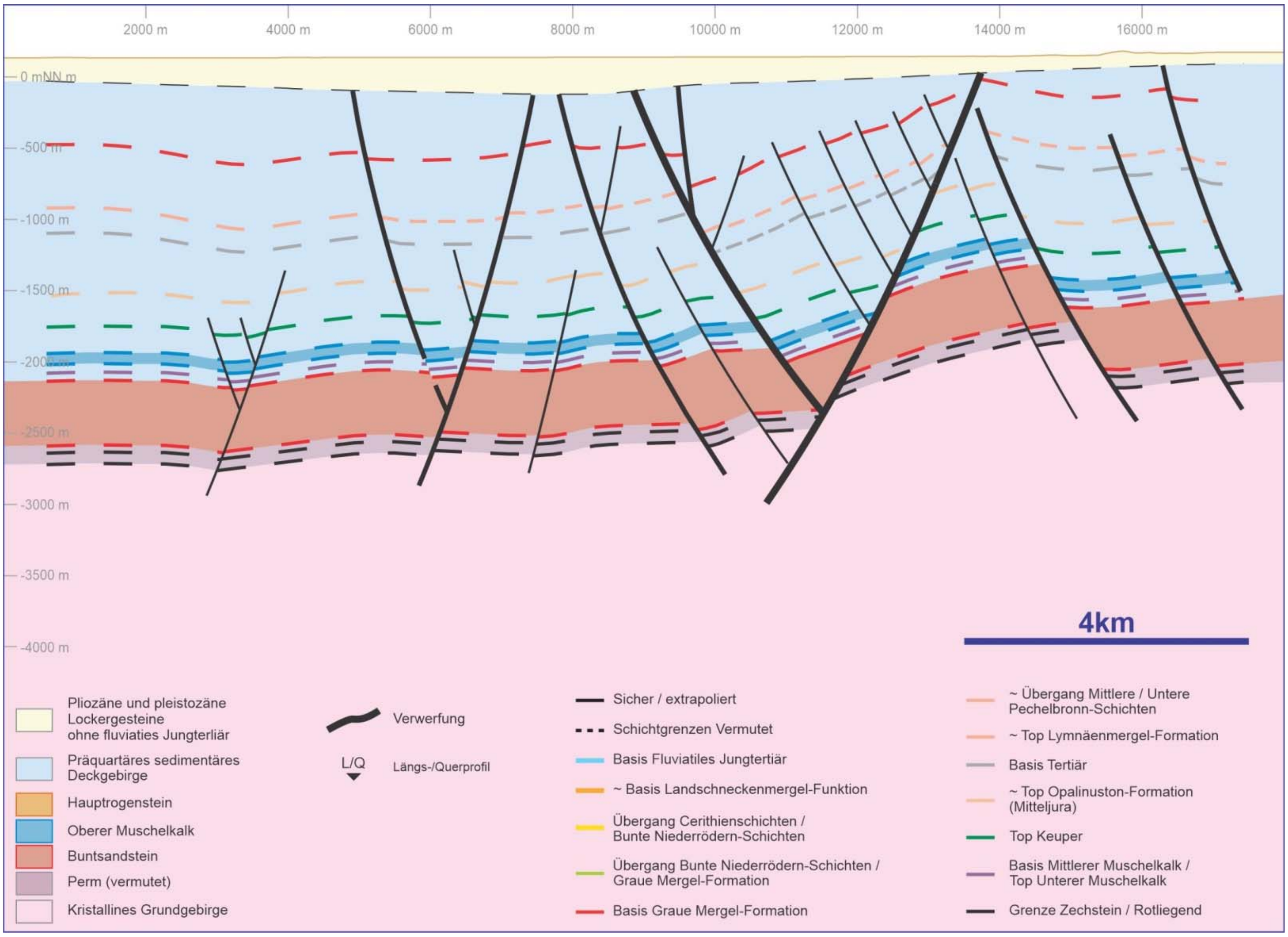

Figure 7: Cross-Section through Mannheim license in Upper Rhine Valley, showing Upper Muschelkalk (dark blue) and Buntsandstein (orange) target sedimentary formations. Cross section location is shown in Figure 1*. Publicly available from GeotIS.de*

Appendix 3

Sources of Information for Comparison in Figure 5

Elders, W., Cohen, L., (1983) *The Salton Sea Geothermal Field, California*, Technical Report. Institute of Geophysics and Planetary Physics, University of California

Pauwels, H., Fouillac, C., Brach M. (1989) *Secondary production from geothermal fluids processes for Lithium recovery 2nd progress report*. Bureau de Recherches Geologiques et Minieres Service Geologique National

Pauwels, H. and Fouillac, C. (1993) *Chemistry and isotopes of deep geothermal saline fluids in the Upper Rhine Graben: Origin of compounds and water-rock interactions*. Geochimica et Cosmochimica Acro Vol. 51, pp. 2737-2749

Sanjuan, B., Millot, R., Innocent, C., Dezayes, C., Scheiber, J., Brach, M., (2016) *Major geochemical characteristics of geothermal brines from the Upper Rhine Graben granitic basement with constraints on temperature and circulation*. Chemical Geology 428 (2016) 27–47

Mnzava, L., and Mayo, A. (2013). Geochemical investigation of geothermal power potential exploration of hot springs in South western Tanzania. International Journal of Water Resources and Environmental Engineering Vol. 5(10), pp. 597-607

The Competent Person is not aware of any new information or data that materially affects the information contained in the above sources or the data contained in this announcement

Appendix 4

Terms of Engagement | Managing Director

Commencement Date	Completion of the Acquisition
Term	12 months from the Commencement Date, unless extended by agreement and subject to termination by either party (see termination and notice below)
Fixed Remuneration	$225,000 per annum comprising base salary and superannuation
Performance based bonuses	The Company may pay performance-based bonuses from time to time over and above the fixed remuneration at the discretion of the Board.
Incentive securities	Subject to ongoing service Dr Wedin may be entitled to participate in the Company's incentive securities schemes from time to time as determined by the Board.
Termination and Notice	The Company or Dr Wedin may terminate the agreement without cause with 3 months' notice. The Company may elect, at its discretion to make payment in lieu.

Appendix 5

Terms of Engagement | Viaticus Capital

Commencement Date	Completion of the Acquisition
Term	12 months from the Commencement Date, unless extended by agreement and subject to termination by either party (see termination and notice below)
Retainer	$5,000 per month
Performance based bonuses	A total of 750,000 Performance Rights[1] to be issued to Viaticus (or its nominee), which will each convert into a Share on a one for one basis on satisfaction the following milestones: (i) 250,000 Shares on satisfaction of Milestone 1; (ii) 250,000 Shares on satisfaction of Milestone 2; (iii) 250,000 Shares on satisfaction of Milestone 3; and
Fees on Capital Raisings	A 6% fee on any amount invested by an investor introduced by Viaticus and based outside Australia into any Koppar capital raising and a 1% fee on any amount raised for Koppar by any licensed broker or fund investor introduced by Viaticus.
Termination and Notice	The Company or Viaticus Capital may terminate the agreement with three months' notice.

[1]The full terms of the Performance Rights will be set out in the Notice of Meeting referred to above.

Securities to be issued to Mr Rezos

As stated above, subject to shareholder approval, the Company has agreed to issue the following securities to Mr Gavin Rezos as an incentive in connection with his appointment as Chairman:

(a) 750,000 Shares; and

(b) a total of 3,000,000 Performance Rights to be issued to Mr Rezos (or his nominee), which will each convert into a Share on a one for one basis on satisfaction the following milestones:

  (i) 1,000,000 Shares on satisfaction of Milestone 1;

  (ii) 1,000,000 Shares on satisfaction of Milestone 2; and

  (iii) 1,000,000 Shares on satisfaction of Milestone 3.

The full terms of the Performance Rights will be set out in the Notice of Meeting referred to above.

APPENDIX 6

JORC TABLE 1

The following Tables are provided to ensure compliance with the JORC Code (2012 Edition) requirements for the reporting of Exploration Results.

Section1 Sampling Techniques and Data

Criteria	JORC Code explanation	Commentary
Sampling technique	• *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 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 1m samples from which 3kg was pulverised to produce a 30g 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.*	Reported brine geochemistry is entirely sourced from historical academic literature, being: - Pauwels, H. and Fouillac, C. (1993) Chemistry and isotopes of deep geothermal saline fluids in the Upper Rhine Graben: Origin of compounds and water-rock interactions. Geochimica et Cosmochimica Acro Vol. 51, pp. 2737-2749 - Sanjuan, B., Millot, R., Innocent, C., Dezayes, C., Scheiber, J., Brach, M., (2016) Major geochemical characteristics of geothermal brines from the Upper Rhine Graben granitic basement with constraints on temperature and circulation. Chemical Geology 428 (2016) 27–47 In the case of Pauwels and Fouillac (1993): the fluids collected were sampled between 1986 and early 1991, at the well head or at the spring discharge point. The fluids of all samples passed through a 0.45µm filter. A few parameters were determined on site, such as pH, total alkalinity, and GLR (gas/liquid volume ratio discharged during production). The sample fraction reserved for determining cations was acidified to pH = 2 with ultrapure HNO_3. Cadmium acetate was added to the solutions used for sulphur-isotope determinations and water isotopes were determined on a non-filtered fraction. All analyses were made at BRGM. Chemical analysis of the Cronenbourg fluids was done at the geochemical laboratory of the Centre de Geochimie de la Surface (CNRS) at Strasbourg and the isotope analyses of the same samples were done at BRGM. In the case of Sanjuan et al (2016): Between 2012 and 2013 several fluid samples were collected from a) the geothermal wells drilled down to the granite basement at Landau, Insheim and Rittershoffen, and b) other geothermal or oil wells supplied in hot water from shallower Mesozoic or Cenozoic aquifers – i.e. the Bruchsal and Riehen geothermal wells,. Collection of the fluid samples in the field was accompanied by appropriate on-site measurements such as fluid temperature, conductivity, pH redox potential, alkalinity and H2S detection. The temperature, conductivity, pH and redox

Criteria	JORC Code explanation	Commentary
		potential measurements were performed on the raw fluid samples, whereas alkalinity was analysed on fluid samples filtered at 0.45 µm. Collection and conditioning of all the brine samples followed the classical procedures recommended for each of the chemical and isotopic analyses to be performed. Thus, for the chemical analysis of major anions and some trace elements the water samples were filtered at 0.45 µm and collected in 100 ml polyethylene bottles. For the chemical analysis of major cations, the water samples were filtered at 0.45 µm, then acidified and collected in 100 ml polyethylene bottles. In order to avoid silica precipitation, the samples of hot water for silica analysis were collected in 50 ml polyethylene bottles and immediately diluted by a factor of 10 using Milli-Q water. For the chemical analysis of the other trace elements, such as B, Sr, Li, Ba, Mn, Fe, Al, Cs, Rb, Ge, As, Nd, Ag, Cd, Co, Cr, Cu, Ni, Pb and Zn, as well as for the isotopic Li and Sr analyses, the water samples were filtered at 0.1 µm, then acidified and collected in 100 ml polyethylene bottles. For the isotopic analysis of B, the water samples were filtered at 0.1 µm, then acidified using Suprapur HNO_3 and collected in 1l polyethylene bottles.
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.).*	No drilling results are reported. Historical geochemical samples reported in academic literature were taken from brines from existing geothermal production wells at well head. No further details are provided in the literature of the drilling techniques used to drill the wells.
Drill sample recovery	• *Method of recording and assessing core and chip sample recoveries and results assessed* • *Measurements taken to maximise sample recovery and ensure representative nature of the samples.* • *Whether a relationship exists between sample recovery and grade and wether sample bias may have occurred due to preferential loss/gain of fine/coarse material.*	No drilling results are reported. Historical geochemical samples reported in academic literature were taken from brines from existing geothermal production wells at well head. No further details are provided in the literature of the drill sample recovery in the wells.

Criteria	JORC Code explanation	Commentary
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*	No drilling results are reported. Historical geochemical samples reported in academic literature were taken from brines from existing geothermal production wells at well head. No further details are provided in the literature of the drill logging in the wells.
Sub-sampling techniques and sample preparation	• *If core, whether cut or sawn and wether quarter, half or all core taken.* • *If non-core, whether riffles, tube sampled, rotary split, etc. and whether sampled wet or dry.* • *For all sample types, 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.*	According to Sanjuan et al (2016), collection and conditioning of all the water samples followed the classical procedures recommended for each of the chemical and isotopic analyses to be performed Thus for the chemical analysis of major anions and some trace elements, such as Cl, SO4, Br, F,NH4 and PO4, the water samples were filtered at 0.45 µm and collected in 100 ml polyethylene bottles. For the chemical analysis of major cations, the water samples were filtered at 0.45 µm, then acidified using SuprapurHNO3 and collected in 100 ml polyethylene bottles. In order to avoid silica precipitation, the samples of hot water for silica analysis were collected in 50 ml polyethylene bottles and immediately diluted by a factor of 10 using Milli-Q water. For the chemical analysis of the other trace elements, such as B, Sr, Li, Ba, Mn, Fe, Al, Cs, Rb, Ge, As, Nd, Ag, Cd, Co, Cr, Cu, Ni, Pb and Zn, as well as for the isotopic Li and Sr analyses, the water samples were filtered at 0.1 µm, then acidified using Suprapur HNO3 and collected in 100 ml polyethylene bottles. It is unknown whether measures were taken to ensure *in situ* material was collected, such as field duplicate sampling. However, multiple samples were taken from the same location at different times, with materially similar results.
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.*	All the chemical analyses for both major and trace elements in the collected water samples were done in the BRGM laboratories using standard water analysis techniques such as Ion Chromatography, Inductively Coupled Plasma-Atomic Emission Spectroscopy (ICP-AES), Inductively Coupled Plasma-Mass Spectrometry (ICP-MS), Flame Emission Spectrophotometry, TIC analysis and Colorimetry (Sanjuan et al, 2016). No information was provided regarding quality control procedures.

Criteria	JORC Code explanation	Commentary
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 (physically and electronic) protocols.* • *Discuss any adjustment to assay data.*	No drilling results are being presented. Historical brine geochemistry results are presented as a regional indicator of the presence of mineralisation, therefore this is not material. No adjustment to assay data has been carried out.
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 Resources estimation.* • *Specification of the grid system used.* • *Quality and adequacy of topographic control.*	Coordinates of the sampled well-heads are provided in a table in the body of the announcement. The accuracy and quality of surveys used to locate these points is not known, due to the age of the data, however the drill sites are well known publicly. The points are provided in latitude/longitude decimals. The quality and adequacy of topographic control is not known due to the age of the data. Geochemical samples reported here were collected within the Upper Rhine Valley geothermal field as an indicator of lithium grades hosted within the sedimentary aquifers within the field, but outside the licenses held by Vulcan Energy Resources.
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 Reserve and Ore Reserve estimation procedure(s) and classifications applied.* • *Whether sample compositing has been applied.*	The samples taken are wide and irregularly spaced, with seven sample locations from an area of the brine field 100km long and 35km wide. No Mineral Reserve estimation procedure has been applied. No sample compositing has been applied.
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.*	The orientation of the geothermal production wells is not known.
Sample security	• *The measures taken to ensure sample security.*	Not known due to historical nature of sampling
Audits or reviews	• *The results of and audits or reviews of sampling techniques and data.*	Not known due to historical nature of sampling

Section2 Reporting of Exploration Results

<table>
<tr><th>Criteria</th><th>JORC Code explanation</th><th>Commentary</th></tr>
<tr>
<td>Mineral tenements 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 interest, 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>Vulcan holds two, 100%-owned granted licenses within the Upper Rhine Valley geothermal field, called Mannheim and Ortenau. It also has an agreement with Global Geothermal Holding (GGH) to earn a joint venture (JV) interest into 80% of three other license applications in the Upper Rhine Valley geothermal field. Although it is expected that these license applications will be successful, there is no guarantee that these applications will be granted to GGH. A summary of these licenses is shown below.
<table>
<tr><th>Name</th><th>Area (ha)</th><th>Status</th><th>Date Granted / Applied for</th><th>Ownership by Vulcan Energy Resources Pty Ltd</th></tr>
<tr><td>Ortenau</td><td>37,360</td><td>Granted</td><td>03/2019</td><td>100%</td></tr>
<tr><td>Mannheim</td><td>14,427</td><td>Granted</td><td>06/2019</td><td>100%</td></tr>
<tr><td>Taro</td><td>3,268</td><td>Application</td><td>03/2019</td><td>Earn in to 80%</td></tr>
<tr><td>Ludwig</td><td>17,716</td><td>Application</td><td>04/2019</td><td>Earn in to 80%</td></tr>
<tr><td>Rheinaue</td><td>5,848</td><td>Application</td><td>04/2019</td><td>Earn in to 80%</td></tr>
</table></td>
</tr>
<tr>
<td>Exploration done by other parties</td>
<td>Acknowledgement and appraisal of exploration by other parties.</td>
<td>According to information publicly available from Geotis.de, a geothermal information website, there has been extensive exploration conducted in the Upper Rhine Valley geothermal field for oil and gas, as well as for geothermal energy, including 2D and 3D seismic data collection and exploration well drilling. As part of its initial work in the project, KRX aims to ascertain the parties who carried out the exploration and own the data.</td>
</tr>
<tr>
<td>Geology</td>
<td>Deposit type, geological settings and style of mineralisation.</td>
<td>The Upper Rhine Valley contains hot, lithium-rich brines hosted within Triassic sedimentary aquifers. The majority of those fluids occur in four lithologically differing chronostratigraphic units: Muschelkalk (middle Triassic limestone), Buntsandstein (lower Triassic sandstone), Rotliegendes (Permian arkose = feldspar-rich sandstone and volcanic rocks) and the Crystalline Basement (Carboniferous granites and gneisses).</td>
</tr>
<tr>
<td>Drill hole information</td>
<td>A summary of all information material for 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) and the</td>
<td>No drilling results are being presented. Coordinates and depths of sampled geothermal well heads are provided in the body of the announcement.</td>
</tr>
</table>

Criteria	JORC Code explanation	Commentary
	drill hole collar o *Dip and azimuth of the hole* o *Down hole length and interception depth* o *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.*	No drilling results are being presented. Coordinates and depths of sampled geothermal well heads are provided in the body of the announcement.
Data aggregation methods	• *In reporting Exploration results, weighing 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.*	No data aggregation has been carried out. An overall average of the lithium results was calculated and reported in the body of the announcement to provide an indication of the order of lithium mineralisation within the geothermal brines in the Upper Rhine Valley field. This was calculated from the mean of samples at each well-head location. Due to an outlier value at the Bruhl plant, where the sample was thought to be contaminated and thus an outlier, a median value was calculated of Mg:Li ratios.
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 (e.g. 'down hole length, true width not known')*	These are essentially point samples so there are no widths or lengths reported.

Criteria	JORC Code explanation	Commentary
Diagrams	• *Appropriate maps and sections (with scales) and tabulations of intercepts would be included for any significant discovery being reported. These should include, but not be limited too plan view of drill hole collar locations and appropriate sectional views.*	Tables 1 and 2 in the body of this announcement contain all known details of the sampling.
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.*	Reporting of these historical sample results is considered balanced.
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 containing substances.*	There is no other substantive data to disclose.
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, providing this information is not commercially sensitive.*	A comprehensive compilation of historical data, including purchase of 2D and 3D seismic data where possible, will be carried out. New verification sampling of well heads will be carried out where possible.