BCI MINERALS LIMITED

KALIUM LAKES

ASX Release

Friday 27 July 2018

Scoping Study Completed with Maiden Resource and Exploration Target for the Carnegie Potash Project

Kalium Lakes Limited (KLL) (**Kalium Lakes**) and BCI Minerals Limited (BCI) (**BCI Minerals**) (together the **JV Companies**), the owners of the Carnegie Potash Project (CPP) via the Carnegie Joint Venture (CJV), are pleased to announce the completion of the Scoping Study and a maiden Resource and Exploration Target for the CPP in Western Australia. A summary is detailed below and further information is contained within the attached JORC (2012) and NI 43-101 Technical Report, compiled by German Potash Experts and Competent Persons, K-UTEC AG Salt Technologies (K-UTEC).

Highlights

1. Scoping Study, Maiden Resource and Exploration Target confirm the CPP has potential to be a technically and economically viable project.
2. Scoping Study leveraged the significant technical knowledge, experience and intellectual property developed by Kalium Lakes in advancing their Beyondie Sulphate of Potash Project.
3. Inferred Resource of 0.88 Mt SOP @ 3,466 mg/l K[1] (equivalent to 7,724 mg/l SOP) based only on the top 1.7 metres of the 27,874 hectare surficial aquifer on granted tenement E38/2995 plus an Exploration Target[2] for material below the top 1.7 metres.
4. A further 82,000 hectares of lake surface on pending tenements is not included in the current Inferred Resource or Exploration Target, providing further resource upside potential.
5. BCI Minerals has now earned a 30% CJV interest and Kalium Lakes holds a 70% interest.
6. The JV Companies have endorsed proceeding to a staged Pre-Feasibility Study, with an initial focus on securing tenure and access to all required tenements.

Kalium Lakes' Managing Director, Brett Hazelden, commented: "*Results from this Scoping Study on the Carnegie Potash Project support potential technical and economic viability of the project and form part of Kalium Lakes' longer-term plan for sustainable SOP production.*

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[1] Refer to JORC Table 1 in the technical report titled "JORC (2012) and NI 43-101 Technical Report" for further details.
[2] Refer to Table 1 at page 5 below and to JORC Table 1 in the technical report titled "JORC (2012) and NI 43-101 Technical Report" for further details. The Exploration Target is conceptual in nature, as there is insufficient exploration to define a Mineral Resource. It is uncertain if further exploration will convert an Exploration Target to a Mineral Resource.

"With the Carnegie Potash Project being part of the Kalium Lakes portfolio, we are not only on track to become Australia's first SOP producer from Beyondie, but are also setting up a strategic growth path, with the goal of becoming one of the world's top tier SOP producers," he said.

BCI Minerals' Managing Director, Alwyn Vorster, commented: "Completion of the Scoping Study is a significant milestone for the Carnegie Potash Project and follows closely after BCI's recent announcement of the positive Pre-Feasibility Study for the Mardie Project. These projects form the core of BCI's commitment to develop a substantial salt and potash business."

Cautionary Statement

The JV Companies advise that the CPP currently comprises of Inferred Mineral Resources and Exploration Targets. In respect of Inferred Mineral Resources, there is a lower level of geological confidence associated with Inferred Mineral Resources and there is no certainty that further exploration work will result in the determination of Indicated Mineral Resources or that the Inferred Mineral Resources will add to the economics of the CPP. In respect of Exploration Targets, the potential quantity and grade of an Exploration Target is conceptual in nature, there has been insufficient exploration to determine a Mineral Resource and there is no certainty that further exploration work will result in the determination of Mineral Resources or that the Exploration Target will add to the economics of the CPP. The Scoping Study referred to in this announcement is based on low-level technical and economic assessments, and is insufficient to support estimation of Indicated Resources, Measured Resources or Mineral Reserves or to provide assurance of an economic development case at this stage, or to provide certainty that the conclusions of the Scoping Study will be realised.

In accordance with ASX Interim Guidance: Reporting Scoping Studies, the ASX Listing Rules and ASIC Information Sheet 214, the JV Companies understand that Mineral Resource classification is a determining factor in project viability and the Mineral Resource and Exploration Target estimates for the CPP will need to be upgraded before a production target or forecast financial information based on a production target is reported. Given the uncertainties involved, investors should not make any investment decisions based solely on the Scoping Study.

Scoping Study Background

The Scoping Study has been prepared by Kalium Lakes as manager of the CJV in conjunction with leading industry specialists including K-UTEC, DRA Global, Shawmac, Wyntak and Preston Consulting as the principal technical consultants, as well as RSM, DLA Piper Australia and BurnVoir Corporate Finance as accounting, legal, commercial and financial advisors.

The Scoping Study complies with the JORC 2012 Code and also adheres to the Canadian Institute of Mining, Metallurgy and Petroleum Best Practice Guidelines for Resource and Reserve Estimation for Brines (CIM Guidelines).

In addition, Kalium Lakes is part of the Association of Mining and Exploration Companies Potash Working Group which has developed guidelines to define a brine Mineral Resource and Ore Reserve, in order to increase the certainty, clarity and transparency in reporting of these resources.

The CJV plans to follow a gated project investment evaluation process that is accepted as industry best practice as illustrated in Figure 1. The Scoping Study is an initial step in this process and aims to present information at the necessary level of definition and accuracy in accordance with the JORC 2012 Code and the AACE International® guidelines for developing a Class 5 (Scoping Study) estimate.

Figure 1 – CJV Gated Investment Evaluation Process

Carnegie Potash Project Production Process

Sulphate Of Potash (SOP) is a widely-used agricultural fertiliser with annual global consumption of 6Mtpa. Currently, Australia imports 100% of its potash requirements from overseas producers.

SOP can be produced by extracting brine (hypersaline water) from underground aquifers, then evaporating the water to precipitate mixed potassium salts which are, in turn, purified to produce the SOP fertiliser. This production process is summarised below and illustrated in Figure 2:

(a) **Brine Pumping:** brine is extracted from basal sands (or the lower aquifer) using submersible bores, as well as pumping of trenches from the upper aquifer;

(b) **Brine Solar Evaporation:** brine is pumped to solar evaporation ponds where it sequentially precipitates calcium, sodium, potassium and magnesium mixed salts in separate ponds;

(c) **Salt Harvesting:** the mixed potassium salts that have crystallised from the solar evaporation ponds are mechanically harvested and stockpiled;

(d) **Purification Processing:** the mixed potassium salts are fed into a purification plant facility where the potassium salts are converted into schoenite and separated from halite via flotation. The resultant schoenite slurry undergoes thermal decomposition into SOP; and

(e) **SOP Fertiliser:** after drying and compaction in a purification plant, the SOP is ready to be used and sold as a final product.

Figure 2 – SOP Production Process

Key Parameters, Assumptions and Statistics

The CPP project location and tenements are shown in Figures 3, 4 and 5 as well as existing transport infrastructure and access route options.

A summary of the key parameters, assumptions and statistics is presented in Table 1.

Conclusion and Next Steps

The results of the Scoping Study confirm that the Carnegie Potash Project has the potential to be a fundamentally viable and financially attractive operation (subject to a number of sensitivities / modifying factors) and justify undertaking a staged Pre-Feasibility Study (PFS).

The Project will progress PFS activities during the next 12-18 months. The initial focus will be on securing tenure and access to all CPP tenements, followed by various approvals to undertake site based exploration activities, including drilling, trenching and test pumping, with the aim of expanding the Resource (including from conversion of the Exploration Target).

Key activities during the PFS include:

- Native Title agreements and Section 18 heritage approvals;
- Various stakeholder discussions, approvals and permits to allow PFS field works to be undertaken, including Programme of Work approvals, Native Vegetation Clearing Permits and 26D and 5C water bore approvals;
- Secure the grant of the exploration tenement applications, to facilitate a PFS on the full extent of the Carnegie lake system;
- Drilling, trenching and test pumping to expand the current Resource;
- Pond, purification plant and infrastructure design; and
- Completion of a PFS.

Table 1 - Key Parameters, Assumptions and Statistics

Facility	Key Area / Characteristic	Details/Comments	
Location	Mine	Carnegie Lakes, 220km North-East of Wiluna along the Gun Barrel Highway	
	Tenements	Granted - E38/2995 Pending - E38/3297, E38/3296, E38/3295, E38/2973 and E38/2982	
Marketing	Product Sales K_2SO_4	Australia, New Zealand and export into Asian Markets	
		No current Australian production of Potash	
Resource & Exploration Target	Potassium Grade	3,466 mg/L K, 11,715 mg/L SO_4	
	Na:K Ratio	23 : 1	
	K_2SO_4 Mineral Resource (JORC/CIM)	Inferred:	0.88 Mt SOP @ 3,466 mg/L K,
		Exploration Target:	3.47 - 7.33 Mt SOP @ 3,410 – 3,420 mg/L K
Pumping	Method	Trenches and Bores	
	Equipment	Diesel/Solar Powered Brine Extraction Pumps and Piping	
	Communications	Bore and Pump Station telemetry	
Evaporation	Evaporation ponds	located off the lake surface to minimise pond leakage	
	Pond Seal	1mm HDPE liner	
	Equipment	Trucks, harvesting equipment, pipes, pumps and telemetry	
	Potassium Recovery	87%	
	Operating hours	8,760 hours per year	
	Excess Salt Stockpile	Stockpiled on lake and/or sold as a product	
Processing	SOP Plant Summary	Front end loader (FEL) reclaim from raw salt stockpile, crushing, flotation, conversion, crystallisation, compaction, product stockpiling and packaging	
	Potassium Recovery	70-85%	
	Operating hours	7,200 hours per year, 85% asset utilisation	
	Product Packaging	1-2 tonne Bulk Bags and/or Container Bulk and/or Bulk Product	
Infrastructure	General	Facilities for construction, processing, transport, port and maintenance operations	
	Support Infrastructure	Cooling towers, chillers, condensers and steam production	
	Communications	Satellite & microwave data plus mobile data communications	
	Water Supply	Water bores, pipeline and water treatment plants	
	Waste Water Treatment (WWT)	WWT plant located at village. Septic tanks at all other locations	
	Operations Accommodation	Permanent village for operations inclusive of shut down & visitor allowance	
	Gas Supply	LNG or CNG	
	Power Generation	Gas or Diesel	
	Diesel Storage	Self-bunded diesel tanks	
Access	Access Road & Product Haulage	Various access and product haulage route options (Figure 3 and Figure 4)	
Port	Port Location	Geraldton, Esperance and/or Fremantle (refer Figure 3)	
	Product Delivery	Break Bulk (i.e. 1-2 tonne Bulk Bags) / Container Bulk / Bulk	
	Storage	Single shed at Geraldton, Esperance and/or Perth	
	Shipping	Sea Container, Break Bulk Cargo, Bulk Cargo Facility	
Operating Personnel	Roster	2 weeks on and 2 weeks off (family friendly)	
	Airport	Wiluna chartered or scheduled domestic flights	
Climate	Rainfall	Average annual mean rainfall of 266 mm	
	Temperature	Average annual mean minimum temperature is 14˚C	
		Average annual mean maximum temperature is 29˚C	
	Evaporation	Average annual evaporation is estimated to be 3,500 to 4,100 mm	
	Relative humidity	19% to 65%	
	Winds	Predominantly North-Easterlies	

Figure 3 – Carnegie Potash Project Location – Western Australia

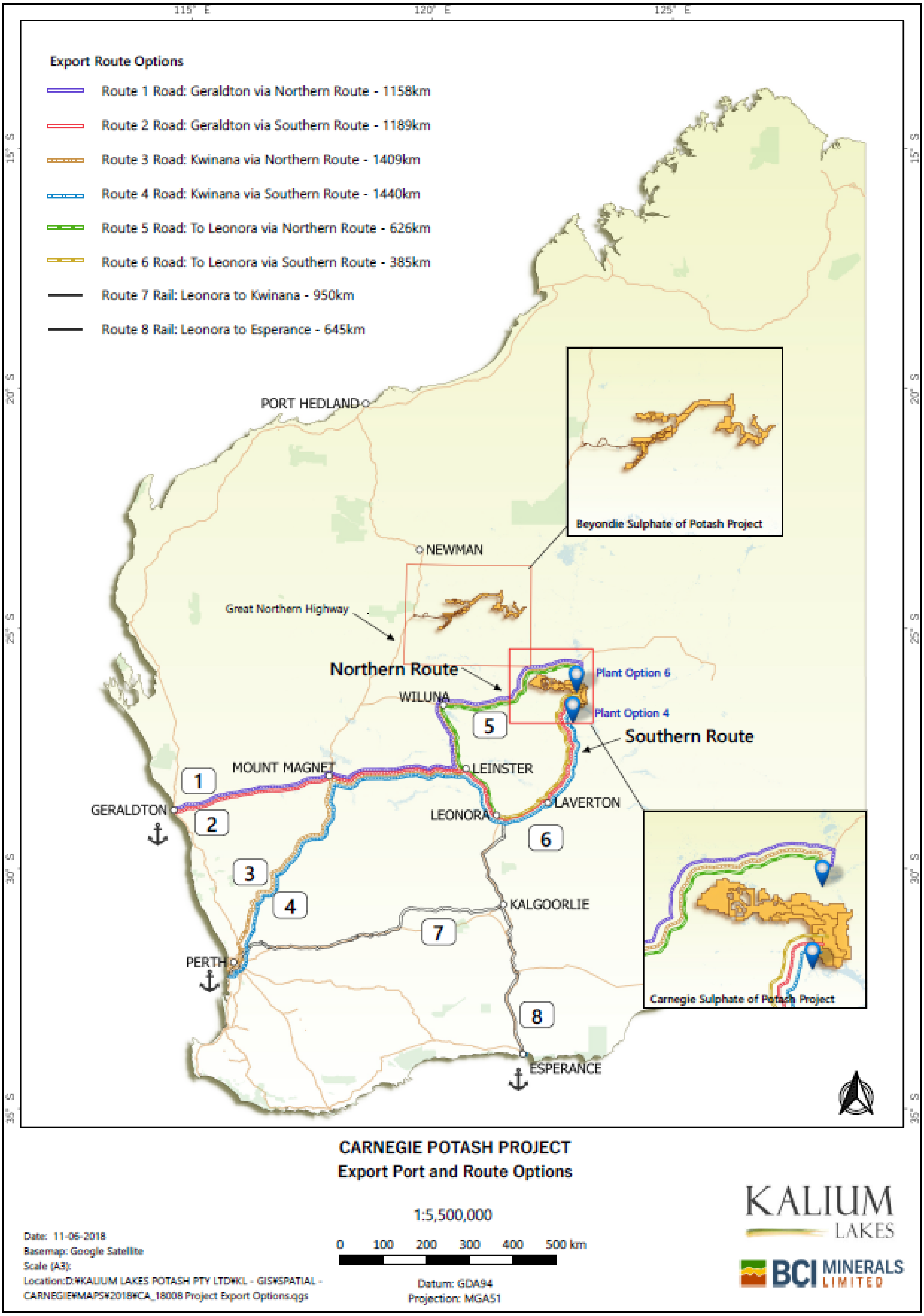


Figure 4 – Carnegie Potash Project – Regional Location

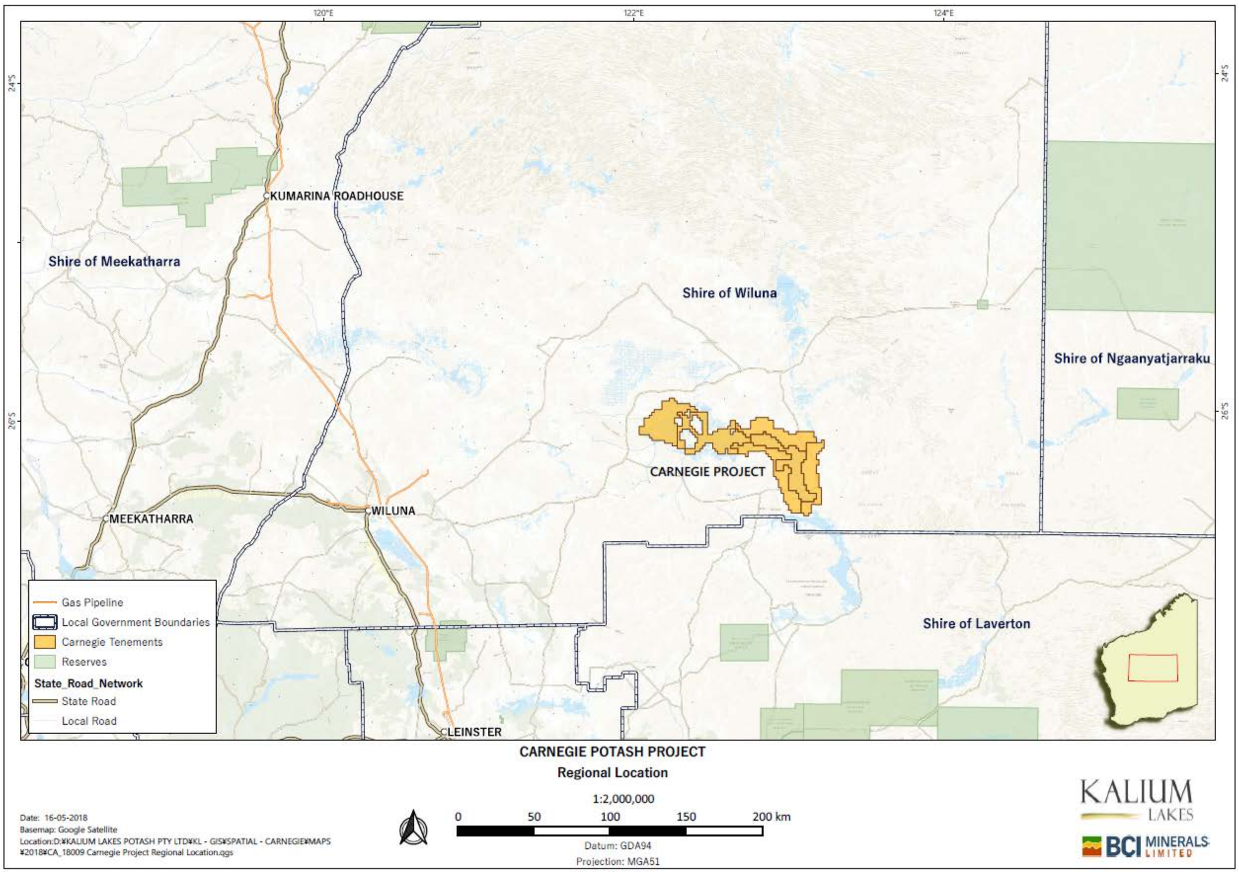
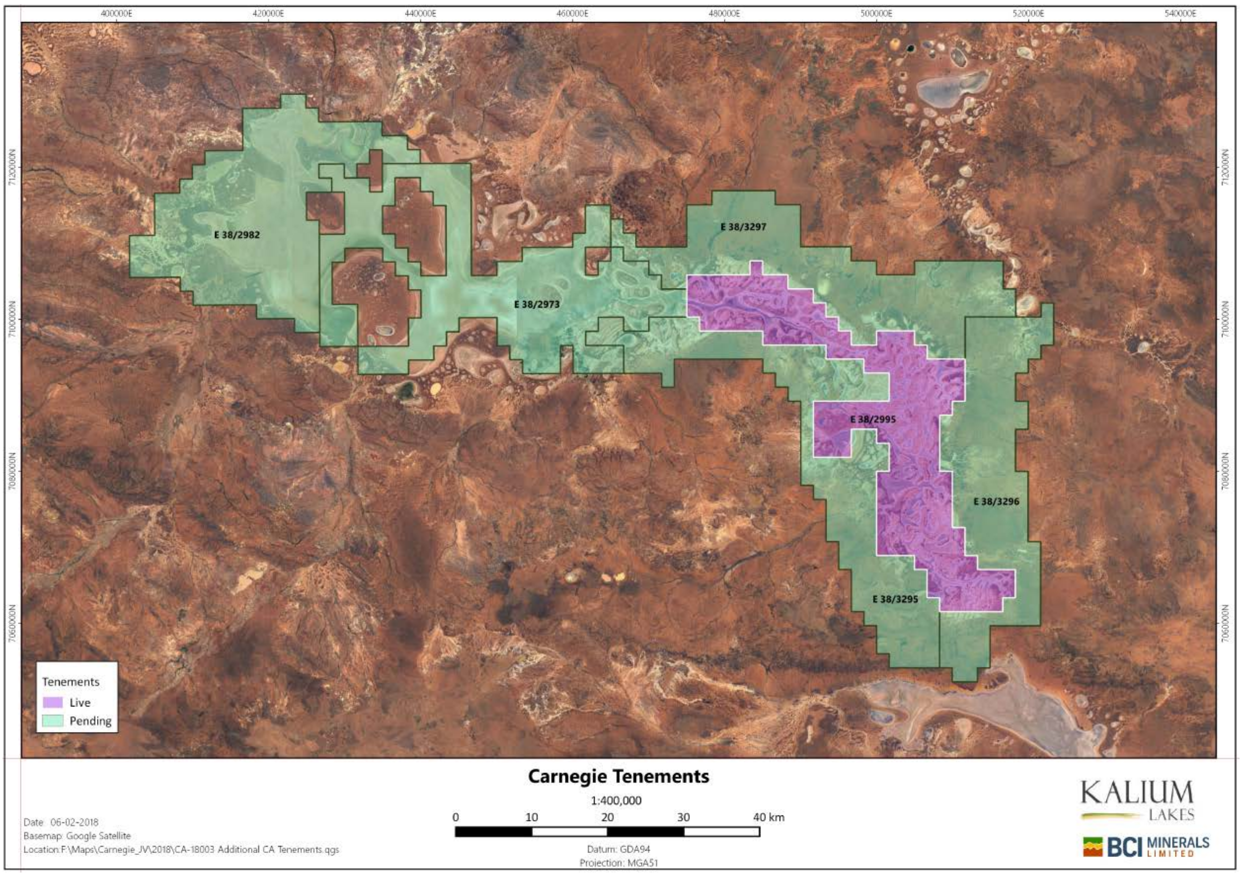


Figure 5 – Carnegie Potash Project Tenements



Competent Persons Statement

The information in this ASX announcement and the accompanying Report that relates to Exploration Targets, Exploration Results, Mineral Resources and Mineral Reserves is based on information compiled by Thomas Schicht, a Competent Person who is a Member of a 'Recognised Professional Organisation' (RPO), the European Federation of Geologists, and a registered "European Geologist" (Registration Number 1077) and Anke Penndorf, a Competent Person who is a Member of a RPO, the European Federation of Geologists, and a registered "European Geologist" (Registration Number 1152). Thomas Schicht and Anke Penndorf are full-term employees of K-UTEC AG Salt Technologies (K-UTEC).

K-UTEC, Thomas Schicht and Anke Penndorf are not associates or affiliates of Kalium Lakes, BCI Minerals Limited or any of its affiliates. K-UTEC will receive a fee for the preparation of the Report in accordance with normal professional consulting practices. This fee is not contingent on the conclusions of the Report and K-UTEC, Thomas Schicht and Anke Penndorf will receive no other benefit for the preparation of the Report. Thomas Schicht and Anke Penndorf do not have any pecuniary or other interests that could reasonably be regarded as capable of affecting their ability to provide an unbiased opinion in relation to the Carnegie Potash Project. K-UTEC does not have, at the date of the Report, and has not had within the previous years, any shareholding in or other relationship with Kalium Lakes Limited, BCI Minerals Limited or the Carnegie Potash Project and consequently considers itself to be independent of Kalium Lakes Limited and BCI Minerals Limited.

Thomas Schicht and Anke Penndorf have 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 JORC 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Thomas Schicht and Anke Penndorf consent to the inclusion in the Report of the matters based on their information in the form and context in which it appears.

Cautionary Statement Regarding Forward-Looking Information

Statements regarding plans with respect to Kalium Lakes Limited and BCI Minerals Limited mineral properties may contain forward looking statements. Statements in relation to future matters can only be made where the Kalium Lakes Limited and BCI Minerals Limited have a reasonable basis for making those statements. This announcement has been prepared in compliance with the current JORC Code 2012 Edition and the current ASX Listing Rules. Kalium Lakes Limited and BCI Minerals Limited believe there is a reasonable basis for making the forward-looking statements in this announcement, based on the information contained in this announcement and in particular the JORC 2012 and NI 43-101 Technical Report.

All statements, trend analysis and other information contained in this document relative to markets for Kalium Lakes Limited and BCI Minerals Limited, trends in resources, recoveries, production and anticipated expense levels, as well as other statements about anticipated future events or results constitute forward-looking statements. Forward-looking statements are often, but not always, identified by the use of words such as “seek”, “anticipate”, “believe”, “plan”, “estimate”, “expect” and “intend” and statements that an event or result “may”, “will”, “should”, “could” or “might” occur or be achieved and other similar expressions. Forward-looking statements are subject to business and economic risks and uncertainties and other factors that could cause actual results of operations to differ materially from those contained in the forward-looking statements. Forward-looking statements are based on estimates and opinions of management at the date the statements are made. Kalium Lakes Limited and BCI Minerals Limited does not undertake any obligation to update forward-looking statements even if circumstances or management’s estimates or opinions should change. Investors should not place undue reliance on forward-looking statements.

*** ENDS***

Carnegie Joint Venture Profile (as at 26 July 2018)

The Carnegie Joint Venture (CJV) is focussed on the exploration and development of the Carnegie Potash Project (CPP) in Western Australia, which is located approximately 220 kilometres east-north-east of Wiluna. The CJV comprises one granted exploration licences (E38/2995) and five (5) exploration licence applications (E38/2973, E38/2982, E38/3297, E38/5296 and E38/3295) covering a total area of approximately 3,081 square kilometres.

This Project is prospective for hosting a large sub-surface brine deposit which could be developed into a solar evaporation and processing operation that produces sulphate of potash (SOP). The Carnegie Potash Project tenements are located directly north of Salt Lake Potash Limited's (SO4) – Lake Wells tenements and Australian Potash Limited's (APC) – Lake Wells tenements.

The CJV is a Joint Venture between Kalium Lakes (KLL, 70% Interest) and BCI Minerals (BCI, 30% interest). Under the terms of the agreement BCI can earn up to a 50% interest in the CJV by predominantly sole-funding exploration and development expenditure across several stages. KLL is the manager of the CJV and will leverage its existing Intellectual Property to fast track work.

1. Stage 1 - BCI earned 30% interest by sole funding the $1.5M Scoping Study Phase,
2. Stage 2 - BCI can elect to earn a further 10% interest by sole funding a further $3.5M Pre-Feasibility Study Phase,
3. Stage 3 - BCI can elect to earn a further 10% interest by sole-funding a further $5.5M Feasibility Study Phase,
4. By end of the Feasibility Study the CJV would have an ownership of 50% KLL and 50% BCI

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CARNEGIE POTASH PROJECT, AUSTRALIA

JORC (2012) and NI 43-101 TECHNICAL REPORT

Client:	**Carnegie Joint Venture** c/o Kalium Lakes Potash Pty Ltd (Manager) Unit 1, 152 Balcatta Road Balcatta, WA 6021 and BC Potash Pty Ltd Level 1, 25 Rheola Street West Perth WA, 6005
Contractor:	**K-UTEC AG Salt Technologies** Am Petersenschacht 7 99706 Sondershausen
Person in Charge:	EurGeol Thomas Schicht, Qualified Geophysicist EurGeol Anke Penndorf, Qualified Geologist

Sondershausen, 30.06.2018

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K-UTEC Project Team (Geology, Resources, Geophysics)

EurGeol Thomas Schicht, Qualified Geophysicist
EurGeol Anke Penndorf, Qualified Geologist

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Abbreviations

Abbreviation	Full description	Abbreviation	Full description
%	Percent	**m^2**	Square metre
°C	Degree Celsius	**m^3**	Cubic metre
Ag	Silver	**Ma**	Million years
Al	Aluminium	**Mg**	Magnesium
As	Arsenic	**MGA94**	Map Grid of Australia (1994)
asl	Above Sea Level	**$MgCl_2$**	Magnesium Chloride
Au	Gold	**mg/l**	Milligrams per litre
AUD	Australian Dollar, Unit of Australian currency	**Mn**	Manganese
B	Boron	**Mo**	Molybdenum
Ba	Barium	**Na**	Sodium
Be	Beryllium	**NaCl**	Sodium Chloride
Bi	Bismuth	**Nb**	Niobium
BOM	Bureau of Meteorology	**Ni**	Nickel
Br	Bromine	**NI**	National Instrument
Ca	Calcium	**P**	Phosphorus
$CaSO_4$	Gypsum, Calcium Sulfate	**Pb**	Lead
Cd	Cadmium	**Pd**	Palladium
Ce	Cerium	**ppb**	Parts per billion
Co	Cobalt	**ppm**	Parts per million
Cr	Chromium	**Pr**	Praseodymium
Cs	Caesium	**Pt**	Platinum
Cu	Copper	**Rd**	Rubidium
CIM	Canadian Institute of Mining, Metallurgy and Petroleum	**Re**	Rhenium
Cl	Chloride	**S**	Sulphur
Er	Erbium	**Sb**	Antimony
Eu	Europium	**Sn**	Tin

Abbreviation	Full description	Abbreviation	Full description
EurGeol	European Geologist	**Si**	Silicon
Fe	Iron	**Sm**	Samarium
Ga	Gallium	**SO_4**	Sulphate
Gd	Gadolinium	**SOP**	Sulphate of Potash
Ge	Germanium	**Sr**	Strontium
Hf	Hafnium	**Sy**	Specific Yield
Hg	Mercury	**t**	tonnes
Ho	Holmium	**Ta**	Tantalum
In	Indium	**Tb**	Terbium
JORC	Joint Ore Reserves Committee	**Te**	Tellurium
K	Potassium	**Th**	Thorium
K_2SO_4	Potassium Sulphate (or SOP)	**Ti**	Titanium
KCl	Potassium Chloride	**Tl**	Tallium
kg	Kilogram	**Tm**	Thulium
km	Kilometre	**U**	Uranium
km^2	Square kilometre	**V**	Vanadium
ktpa	Kilotonnes per annum	**W**	Tungsten
La	Lanthanum	**Y**	Yttrium
Li	Lithium	**Yb**	Ytterbium
LOM	Life of Mine	**Zn**	Zinc
Lu	Lutetium	**Zr**	Zirconium
m	Metre		

Short Glossary

Term	Full description
Assessment work	The amount of work specified under mining law that must be performed each year in order to retain legal control of mining and exploration claims.
Competent Person	A 'Competent Person' is a minerals industry professional who is a Member or Fellow of The Australasian Institute of Mining and Metallurgy, or of the Australian Institute of Geoscientists, or of a 'Recognised Professional Organisation' (**RPO**), as included in a list available on the JORC and ASX websites. These organisations have enforceable disciplinary processes including the powers to suspend or expel a member. A Competent Person must have a minimum of five years relevant experience in the style of mineralisation or type of deposit under consideration and in the activity which that person is undertaking.
Scoping Study	A Concept Study or Scoping Study stands at the very early stage of a project to identify all possibilities and conditions to develop this project.
CIM	CIM Best Practice Guidelines for Resource and Reserve Estimation for Lithium Brines - A professional code of practice established by the Canadian Institute of Mining, Metallurgy and Petroleum, which is a guideline for Public Reporting of minerals Exploration Results, Mineral Resources and Ore Reserves especially for brines,
Deposit	Body of rock or Brine containing a concentration of minerals.
Exploration Target (JORC)	An "Exploration Target" is a statement or estimate of the exploration potential of a mineral deposit in a defined geological setting where the statement or estimate, quoted as a range of tonnes and a range of grade (or Quality), relates to mineralisation for which there has been insufficient exploration to estimate a Mineral Resource.
Feasibility Study (JORC / CIM)	A Feasibility Study is a comprehensive technical and economic study of the selected development option for a mineral project that includes appropriately detailed assessments of applicable Modifying Factors together with any other relevant operational factors and detailed financial analysis that are necessary to demonstrate, at the time of reporting, that extraction is reasonably justified (economically mineable). The results of the study may reasonably serve as the basis for a final decision by a proponent or financial institution to proceed with, or finance, the development of the project.

Term	Full description
High grade	Rich concentration of the mineral in the deposit.
Indicated Resource (CIM)	An Indicated Resource is that part of a Mineral Resource for which quantity, grade or quality, densities, shape and physical characteristics can be estimated with a level of confidence sufficient to allow the appropriate application of technical and economic parameters, to support mine planning and evaluation of the economic viability of the deposit.
Indicated Resource (JORC)	An 'Indicated Mineral Resource' is that part of a Mineral Resource for which quantity, grade (or quality), densities, shape and physical characteristics are estimated with sufficient confidence to allow the application of Modifying Factors in sufficient detail to support mine planning and evaluation of the economic viability of the deposit. Geological evidence is derived from adequately detailed and reliable exploration, sampling and testing gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes and is sufficient to assume geological and grade (or quality) continuity between points of observation where data and samples are gathered. An Indicated Mineral Resource has a lower level of confidence than that applying to a Measured Mineral Resource and may only be converted to a Probable Ore Reserve.
Inferred Resource (CIM)	An Inferred Mineral Resource is that part of a Mineral Resource for which quantity and grade or quality are estimated on the basis of limited geological evidence and sampling. Geological evidence is sufficient to imply but not verify geological and grade or quality continuity. An Inferred Mineral Resource has a lower level of confidence than that applying to an Indicated Mineral Resource and must not be converted to a Mineral Reserve. It is reasonably expected that the majority of Inferred Mineral Resources could be upgraded to Indicated Mineral Resources with continued exploration.
Inferred Resource (JORC)	An 'Inferred Mineral Resource' is that part of a Mineral Resource for which quantity and grade (or quality) are estimated on the basis of limited geological evidence and sampling. Geological evidence is sufficient to imply but not verify geological and grade (or quality) continuity. It is based on exploration, sampling and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes. An Inferred Mineral Resource has a lower level of confidence than that applying to an Indicated Mineral Resource and must not be converted to an Ore Reserve. It is reasonably expected that the majority of Inferred Mineral Resources could be upgraded to Indicated Mineral Resources with continued exploration.
JORC Code (2012)	A professional code of practice established by the Australasian Joint Ore Reserves Committee.that sets minimum standards for Public Reporting of minerals Exploration Results, Mineral Resources and Ore Reserves.
Measured Resource (CIM)	That part of a Mineral Resource for which quantity, grade or quality, densities, shape, and physical characteristics are so well established that they can be estimated with confidence sufficient to allow the appropriate application of technical and economic parameters, to support production planning and evaluation of the economic viability of the deposit.
Measured Resource (JORC)	A 'Measured Mineral Resource' is that part of a Mineral Resource for which quantity, grade (or quality), densities, shape and physical characteristics are estimated with confidence sufficient to allow the application of Modifying Factors to support detailed mine planning and final evaluation of the economic viability of the deposit. Geological evidence is derived from detailed and reliable exploration, sampling and testing gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes and is sufficient to confirm geological and grade (or quality) continuity between points of observation where data and samples are gathered. A Measured Mineral Resource has a higher level of confidence than that applying to either an Indicated Mineral Resource or an Inferred Mineral Resource. It may be converted to a Proved Ore Reserve or under certain circumstances, to a Probable Ore Reserve.
Mineral Reserve (CIM)	A Mineral Reserve is the economically mineable part of a Measured and/or Indicated Mineral Resource. It includes diluting materials and allowances for losses, which may occur when the material is mined or extracted and is defined by studies at Pre-Feasibility or Feasibility level as appropriate that include application of Modifying Factors. Such studies demonstrate that, at the time of reporting, extraction could reasonably be justified. The reference point at which Mineral

Term	Full description
	Reserves are defined, usually the point where the ore is delivered to the processing plant, must be stated. It is important that, in all situations where the reference point is different, such as for a saleable product, a clarifying statement is included to ensure that the reader is fully informed as to what is being reported. The public disclosure of a Mineral Reserve must be demonstrated by a Pre-Feasibility Study or Feasibility Study.
Mineral Resource (JORC)	A 'Mineral Resource' is a concentration or occurrence of solid material of economic interest in or on the Earth's crust in such form, grade (or quality), and quantity that there are reasonable prospects for eventual economic extraction. The location, quantity, grade (or quality), continuity and other geological characteristics of a Mineral Resource are known, estimated or interpreted from specific geological evidence and knowledge, including sampling. Mineral Resources are sub-divided, in order of increasing geological confidence, into Inferred, Indicated and Measured categories.
Modifying Factors	'Modifying Factors' are considerations used to convert Mineral Resources to Ore Reserves. These include, but are not restricted to, mining, processing, metallurgical, infrastructure, economic, marketing, legal, environmental, social and governmental factors.
National Instrument 43-101	Canadian rule that governs how issuers disclose scientific and technical information about mineral projects to the public.
Ore Reserve (JORC)	An 'Ore Reserve' is the economically mineable part of a Measured and/or Indicated Mineral Resource. It includes diluting materials and allowances for losses, which may occur when the material is mined or extracted and is defined by studies at Pre-Feasibility or Feasibility level as appropriate that include application of Modifying Factors. Such studies demonstrate that, at the time of reporting, extraction could reasonably be justified. The reference point at which Reserves are defined, usually the point where the ore is delivered to the processing plant, must be stated. It is important that, in all situations where the reference point is different, such as for a saleable product, a clarifying statement is included to ensure that the reader is fully informed as to what is being reported.
Potash	Potassium bearing mineral salt deposits; here as a brine.
Pre-Feasibility Study (JORC / CIM)	A Pre-Feasibility Study is a comprehensive study of a range of options for the technical and economic viability of a mineral project that has advanced to a stage where a preferred mining method is established and an effective method of mineral processing is determined. It includes a financial analysis based on reasonable assumptions on the Modifying Factors and the evaluation of any other relevant factors which are sufficient for a Qualified Person, acting reasonably, to determine if all or part of the Mineral Resource may be converted to a Mineral Reserve at the time of reporting.
Probable Reserve (JORC)	A 'Probable Ore Reserve' is the economically mineable part of an Indicated, and in some circumstances, a Measured Mineral Resource. The confidence in the Modifying Factors applying to a Probable Ore Reserve is lower than that applying to a Proved Ore Reserve.
Proved Reserve (JORC)	A 'Proved Ore Reserve' is the economically mineable part of a Measured Mineral Resource. A Proved Ore Reserve implies a high degree of confidence in the Modifying Factors.
Proven Reserve (CIM)	The economically mineable part of a Measured Mineral Resource demonstrated by at least a Preliminary Feasibility Study. This Study must include adequate information on mining, processing, metallurgical, economic, and other relevant factors that demonstrate, at the time of reporting, that economic extraction is justified.

Compliance Statement

The information in this report that relates to Exploration Targets, Exploration Results, Mineral Resources or Ore Reserves is based on information compiled by Thomas Schicht, a Competent Person who is a Member of a 'Recognised Professional Organisation' (**RPO**), the European Federation of Geologists and a registered "European Geologist" (Registration Number 1077) and Anke Penndorf, a Competent Person who is a Member of a RPO, the European Federation of Geologists, and a registered "European Geologist" (Registration Number 1152).

Thomas Schicht and Anke Penndorf are full-term employees of K-UTEC AG Salt Technologies (K-UTEC).

K-UTEC, Thomas Schicht and Anke Penndorf are not associates or affiliates of Kalium Lakes Limted, BCI Minerals Limted or any of its affiliates. K-UTEC will receive a fee for the preparation of the Report in accordance with normal professional consulting practices. This fee is not contingent on the conclusions of the Report and K-UTEC, Thomas Schicht and Anke Penndorf will receive no other benefit for the preparation of the Report. Thomas Schicht and Anke Penndorf do not have any pecuniary or other interests that could reasonably be regarded as capable of affecting their ability to provide an unbiased opinion in relation to the Carnegie Potash Project.

K-UTEC does not have, at the date of the Report, and has not had within the previous years, any shareholding in or other relationship with Kalium Lakes Limted, BCI Minerals Limted or the Carnegie Potash Project and consequently considers itself to be independent of Kalium Lakes Limted and BCI Limited.

Thomas Schicht and Anke Penndorf have 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 JORC 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Thomas Schicht and Anke Penndorf consent to the inclusion in the Report of the matters based on their information in the form and context in which it appears.

Sondershausen, 15.06.2018

Thomas Schicht
European Geologist (EurGeol)

Anke Penndorf
European Geologist (EurGeol)

0 Executive Summary

Kalium Lakes Limited (**Kalium Lakes** or **KLP**) and BCI Minerals Limited (**BCI**) are both ASX listed public companies who have formed the Carnegie Joint Venture (**CJV**) to explore the Carnegie Potash Project (**CPP**) within the Carnegie lakes system located in the shire of Wiluna for extraction of brines suitable to produce Sulphate of Potash (**SOP**). The CPP is located approximately 220 kilometres north-east of Wiluna and it comprises one granted exploration licence and five exploration licence applications (see Table 1 and Figure 1) covering a total area of 3,053 km^2. The CPP extends over 135 km in length and up to 30 km in width. The area is prospective for potassium rich brine with noticeable potassium finds reported from surrounding lake systems.

Table 1: CPP Tenement Summary

Tenement Name	Tenement #	Status
Carnegie East	E38/2995	Granted
	E38/3297	Pending
	E38/3296	Pending
	E38/3295	Pending
Carnegie Central	E38/2973	Pending
Carnegie West	E38/2982	Pending

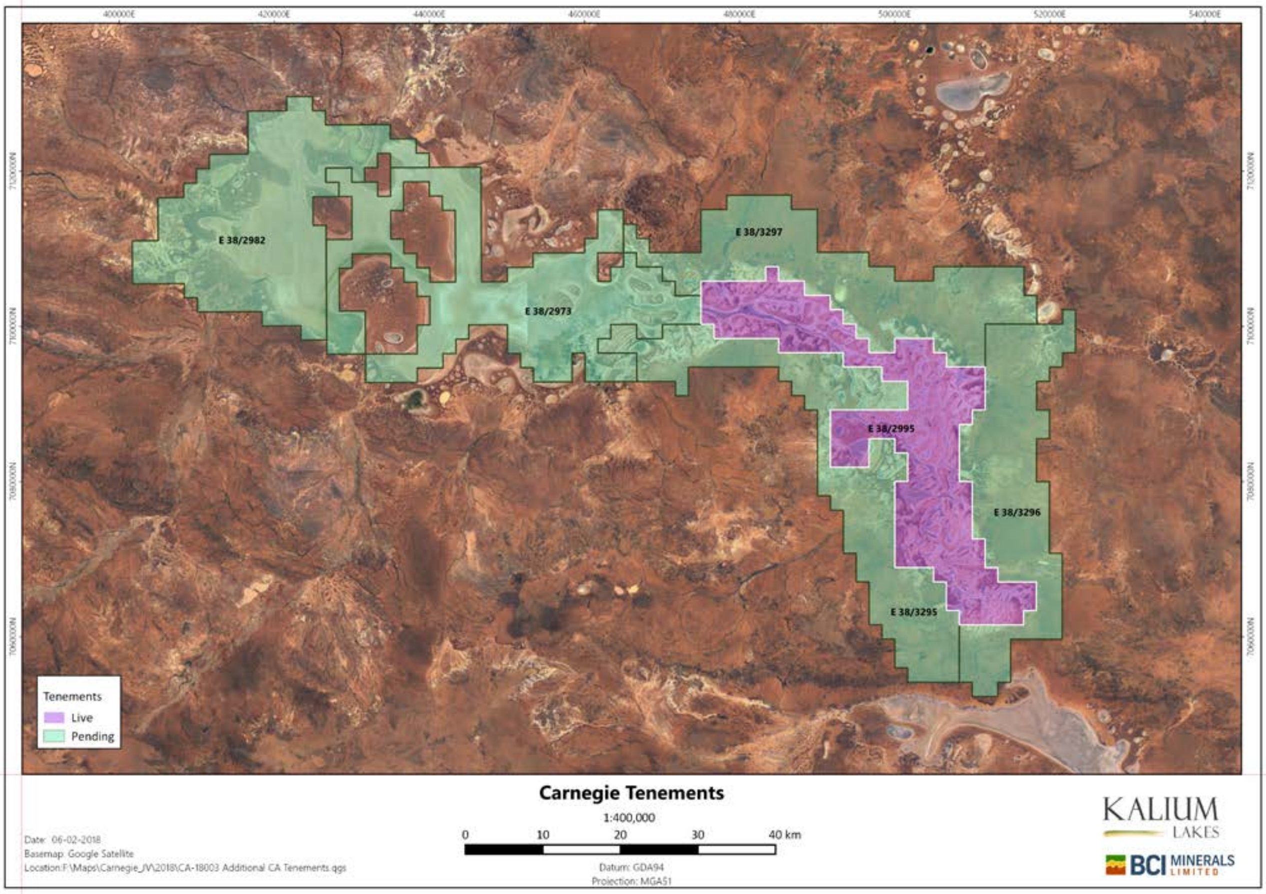

Figure 1: CPP Tenements

Lake Carnegie is located within the Wells / Carnegie palaeodrainage system. Lake Wells is currently being explored by Salt Lake Potash and Australian Potash, which is located approximately 10 km to the south of the southern extent of CPP.

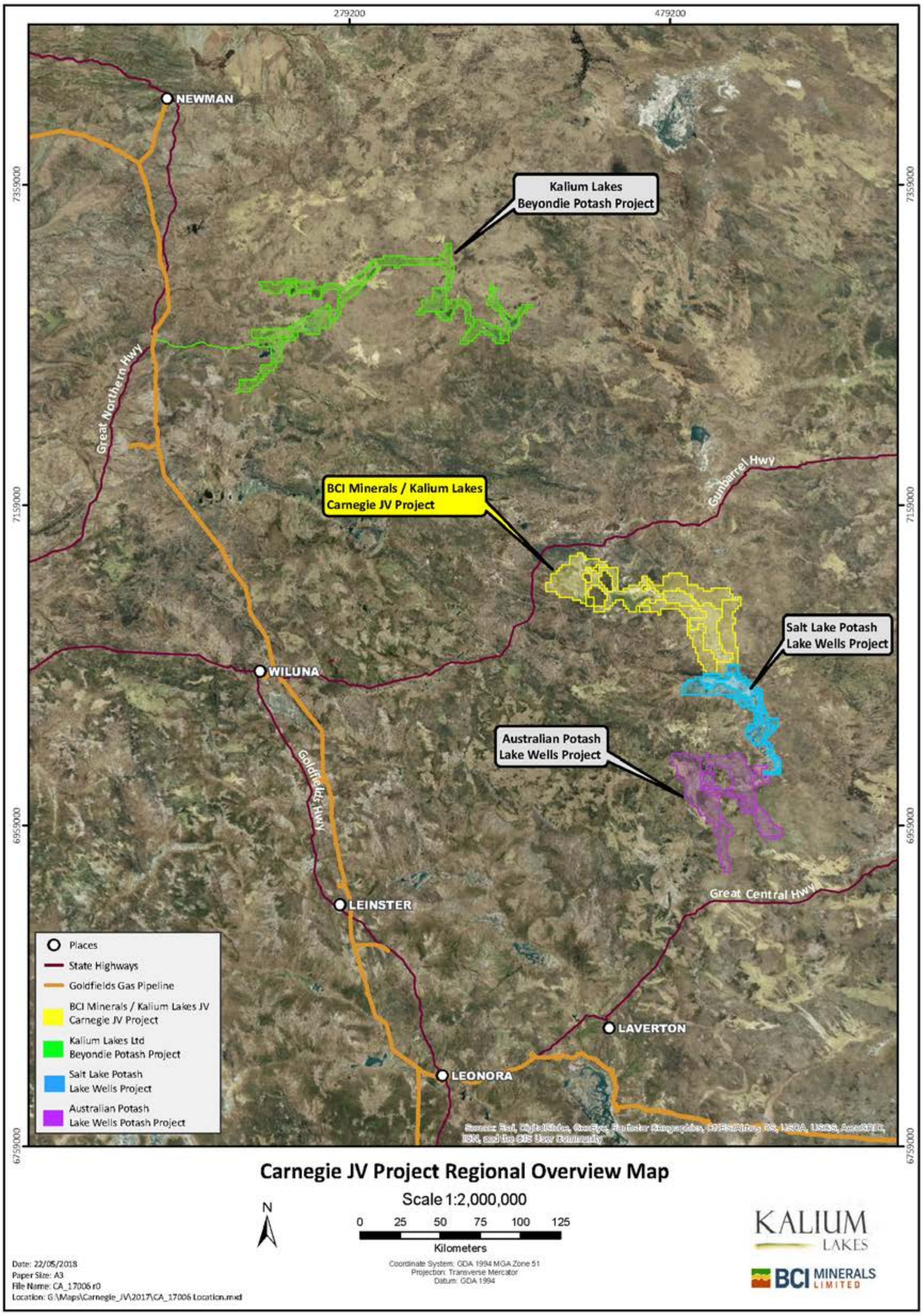

Figure 2: CPP Regional Location

Both explorers have generated Resource estimates for SOP and demonstrated productive aquifers at shallow depths associated with the recent playa lake surface and at depth within a sandy Palaeochannel. It is considered that both these aquifers are likely to be present at the CPP and that concentrations of SOP may be of a similar grade, based on results seen from the works done for the CPP Scoping Study (**SS**). Exploration activities are planned or in progress with the aim to accelerate the development of the CPP following execution of relevant land access agreements. This initial phase of the project is to complete a SS and preliminary exploration to determne potential technical and economic viability of the CPP and define an Inferred Resource and Exploration Target.

Kalium Lakes Potash Pty Ltd (**KLP**), a wholly owned subsidiary of Kalium Lakes Limted and manager of the CJV, entered into an agreement with K-UTEC AG Salt Technologies to prepare a Technical Report according to the guidelines of the JORC Code 2012 [1] with reference to the CIM Best Practice Guidelines for Resource and Reserve Estimation for Lithium Brines [2]. The description of the regional geology, local geology and hydrogeology as well as site settings was determined in a Desktop Study by Advisian [3].

Initial augering (64 auger holes) and drilling (4 boreholes) with brine and lithological sampling, geophysical fieldwork (gravity traverses) and laboratory analysis were completed for the SS. The results of the deposit exploration show the differences of the chemical composition of the brine from different well depths as well as laterally, mostly from auger holes. The results of the chemical analysis of the brine, grain size analysis, borehole tests and geophysical investigations, have lead to values for Inferred Resource classification for the surficial aquifer, converting the top 1.7m of a lake surface area of 27,874 ha on granted tenement E38/2995, as shown in Table 2. Other lakes in the area assume lake surface resource depth of 8 m – 18 m associated with trenching and shallow bore holes, thus it is reasonable to anticipate future growth in resources.

Table 2: Mineral Resources Summary

Level	Drainable Brine Volume (10^6 m^3)	K Grade (mg/L)	K (10^6 tonnes)	SO_4 (10^6 tonnes)	SOP (10^6 tonnes)
Inferred Resource	113.55	3,466	0.39	1.33	0.88
Exploration Target	459 - 960	3,410 – 3,420	1.56 – 3.29	5.77 – 12.30	3.46 – 7.33

A further 82,000 ha of lake surface is in the pending tenements that is not included in the current Inferred Resource and exploration target. Values for additional exploration target potential have been extrapolated from the existing data and knowledge of the lake system with the underlying palaeochannel. As exploration work continues, the database as well as the classification of the resources and size of the resource may be increased. Indicated and Measured Resources and Mineral Reserves cannot be estimated until further work is complete.

1 Introduction

The purpose of this report is to provide the Carnegie Joint Venture with an NI 43-101 and JORC (2012) compliant Mineral Resource estimate (Scoping Study phase) as basis for a future Mineral Resource and Reserve estimation. The scope of the report covers the work and activities undertaken at the investigation area, the results and review of the results by the Qualified Persons/Competent Persons.

The sources of information and data in this report are varied, please refer to Section 25: References, for authors of works referenced in this report.

The K-UTEC Competent Persons visited the exploration area in January/February 2018 and were able to inspect the deposit on site (overview from helicopter) and to stop at some stream outlets at the lake side for inspecting sampling. The K-UTEC competent persons were also able to meet and discuss with the consulting hydrogeologists from Advisian and the consulting geophysicist from Western Geophysics (site visit report [25]).

2 Reliance on other Experts

In preparing this report, the authors had to rely on reports not prepared under their supervision. These reports will be hereinafter identified as being third-party reports. This report includes mainly the contents of the Desktop Study (November 2017, [3]), a study compiled by Advisian.

K-UTEC has been independently engaged to provide specialist knowledge on the development of potash brine deposits around the world, specifically the Competent Person role related to the process of the brine. The K-UTEC experts have sufficient experience in the exploration of potash and resource estimation for potash deposits as required by the JORC Code, 2012 [1] and the CIM Standards/Guidelines [2].

International engineering consultants DRA Global have provided a report on the CPP infrastructure, DRA Global is a leader in delivering process plant design, infrastructure and engineering projects.

3 Location and Property Description

Lake Carnegie is located approximately 200 km east-northeast of the town of Wiluna. The project area is sparsely populated, and the few permanent residents are engaged in the pastoral industry at a number of widely scattered sheep and cattle stations. The pastoral stations of Prenti Downs, Windidda, Wongawol and Carnegie surround the lake system. The project location is presented in Figure 3 and Figure 4. The Gunbarrel Highway commences at Wiluna and runs to the west and north of Lake Carnegie. Most pastoral stations are serviced by graded roads and a network of station and exploration-company tracks provides moderately good local access to most areas of interest. Off-road driving by suitably equipped four-wheel-drive vehicles is feasible, except in the most rugged hill areas. Summer storms result in localised sheet flooding, making main road and track access impassable.

3.1 Coordinate System

The grid system used is the MGA94, Zone 51 coordinate system. All coordinates for tenement areas, boreholes, auger holes and geophysical traverses were given in this system. All overview maps and thematic maps, which have been generated by KLP, CJV consultants or K-UTEC, used this coordinate system.

3.2 Property Description

The Project comprises one granted exploration licence (E38/2995) and five exploration licences applications (E38/3295, E38/3296, E38/3297, E38/2973 and E38/2982) that cover a total area of approximately 3,053 km^2. Figure 3 shows the general location of the Lake Carnegie Potash Project.

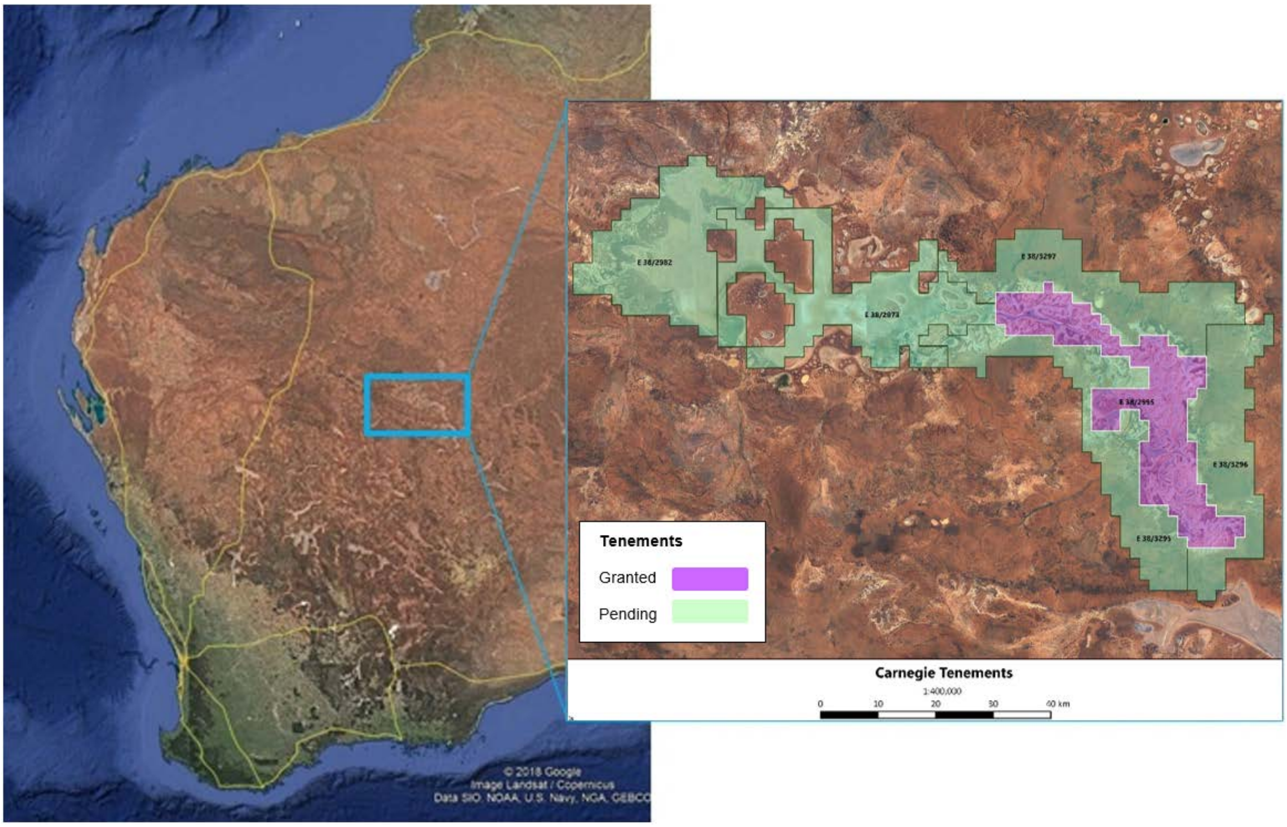

Figure 3: Lake Carnegie Potash Project Outlines (maps: google earth)

3.3 Permits to Conduct Work

The CJV has obtained two granted Programmes of Work (**POW**) from the Department of Mines, Industry Regulation and Safety (**DMIRS**) to undertake exploration activities on tenement E38/2995.

Additionally, consent pursuant to Section 18(3) of the Aboriginal Heritage Act 1972 has been obtained for the purpose of soil sampling and test pumping on tenement E38/2995.

4 Accessibility, Climate, Physiography, Vegetation, Local Resources & Infrastructure

4.1 Accessibility

The CPP is located about 200 km east-north-east of Wiluna. Existing nearby infrastructure for site access, transit of personnel and product delivery, includes the Gunbarrel Highway and several graded roads as shown in Figure 4.

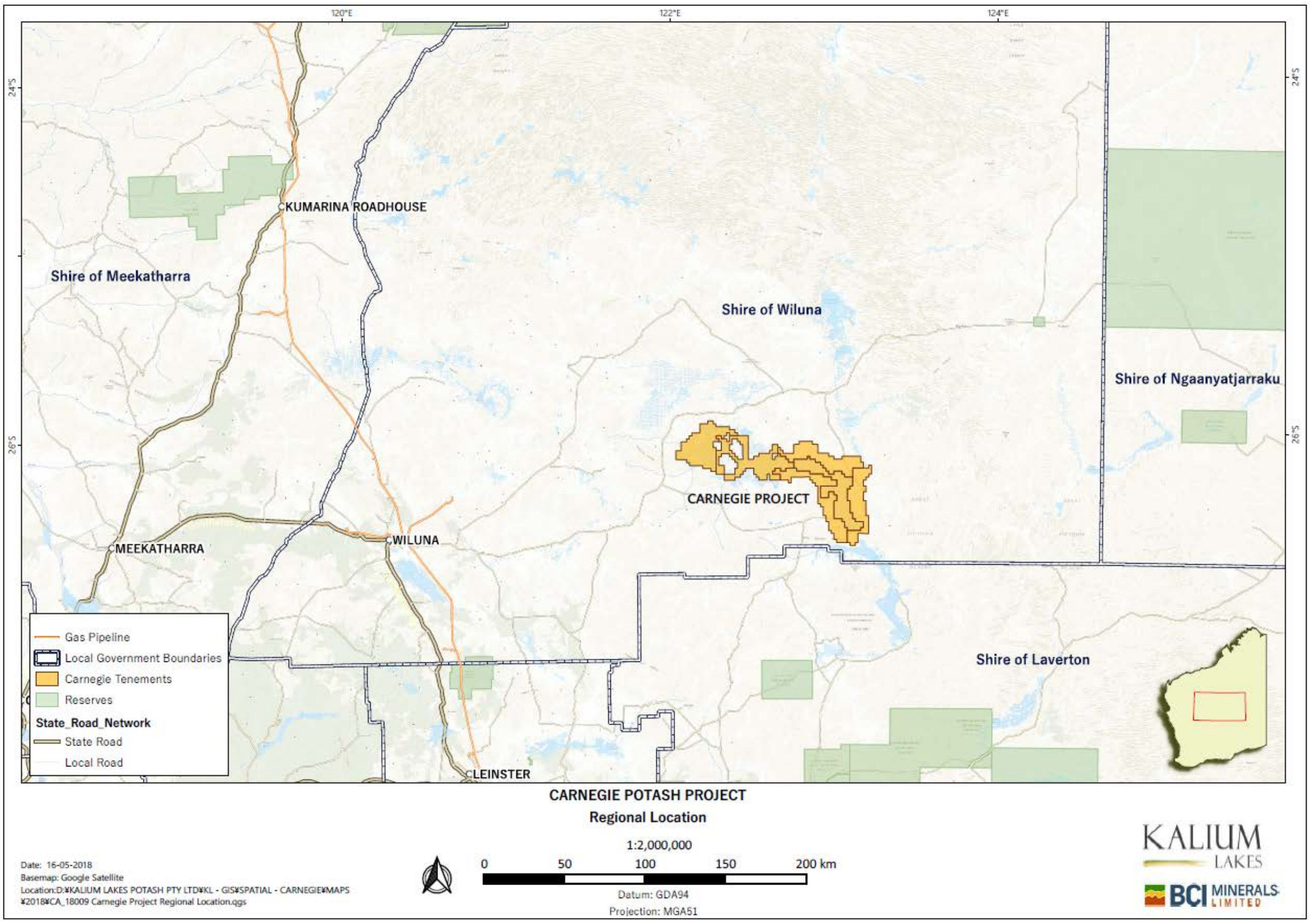

Figure 4: Regional Overview Map with Main Infrastructure

4.2 Climate

The climate is semi-arid to arid; the mean annual rainfall is between 200 and 260 mm and can be highly variable. The area is subject to periods of drought as well as localised short-term floods, and rain may come from rare summer cyclones and winter cold fronts. Average annual evaporation is between 3,000 and 4,100 mm and Summers are very hot, with an average January maximum of between 35 and 40°C, and a minimum of between 20 and 23°C. Winters are mild, with an average July maximum of 20°C and minimum of 6°C. Frosts are common on cloudless nights in winter.

Figure 5 and Figure 6 show the Australian Continental Evaporation and Humidity maps with the location of the Lake Carnegie site. These figures indicate the Carnegie Potash Project is located within an area expected to have some of the lowest humidity and highest evaporation rates in the country.

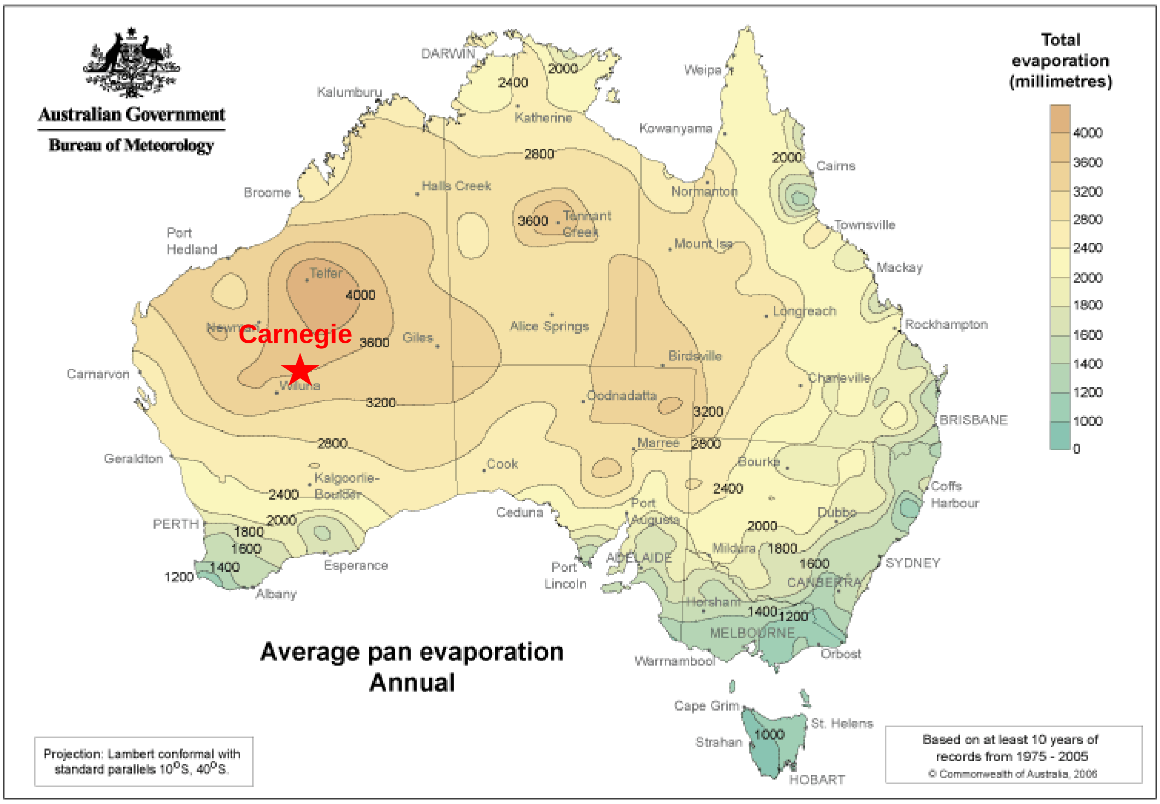

Figure 5: Australian Continental Evaporation [4]

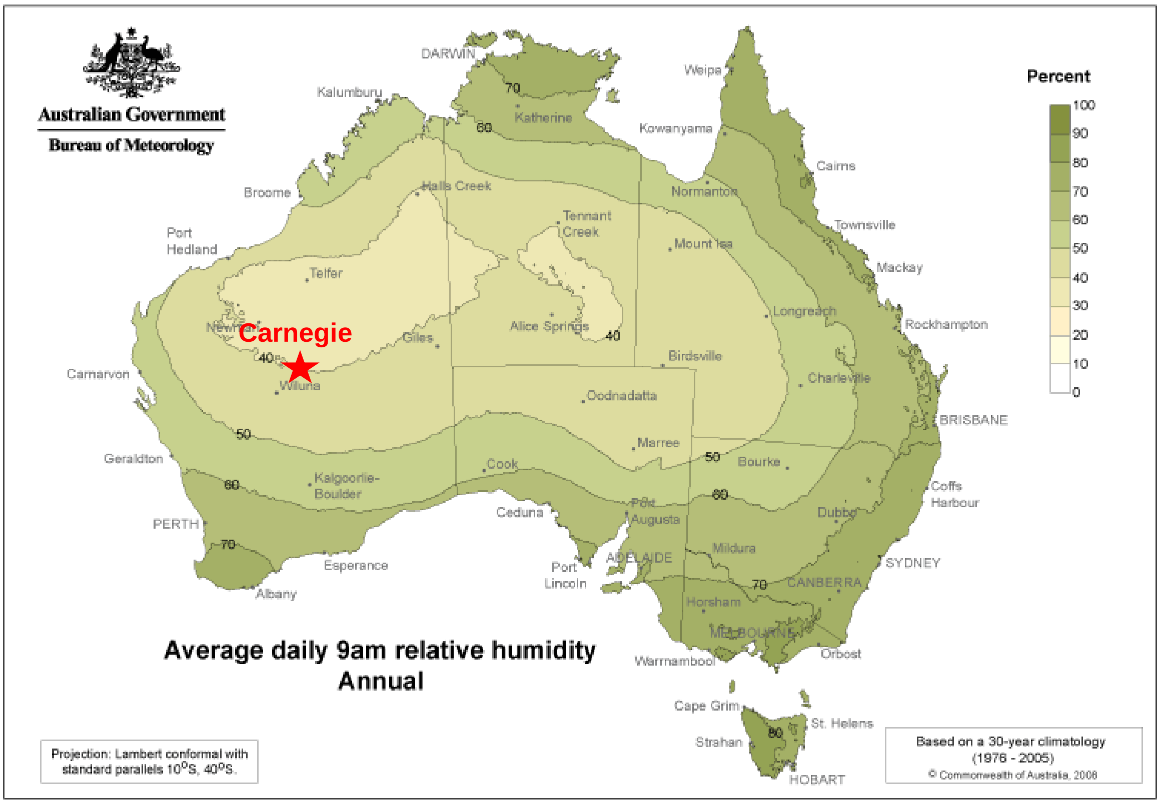

Figure 6: Australian Continental Humidity [4]

A composite estimate of meteorological conditions at the CPP has been created based on the average meteorological conditions at Carnegie, Prenti Downs and Wongawol stations. This summary is shown below in Table 3..

Table 3: CJV Area Weather Summary

CJV Potential Process plant	Elevation 500 m												
Estimated	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Annual**
Mean max temp (°C)	38.6	37.0	34.2	30.2	25.3	21.2	21.3	24.2	28.7	33.1	35.6	37.5	30.6
Mean min temp (°C)	23.9	22.9	20.1	16.2	10.9	7.1	6	7.3	11.5	16.5	19.4	22.2	15.3
Mean rainfall (mm)	34.8	54.1	32.8	22.6	16.5	15.3	12.2	6.8	3.6	6.5	13.0	23.6	241.4
Evaporation (mm)	480	360	350	260	175	125	125	175	250	350	450	440	3,520

Available wind data from the Carnegie weather station shows a predominantly easterly direction as shown in Figure 7.

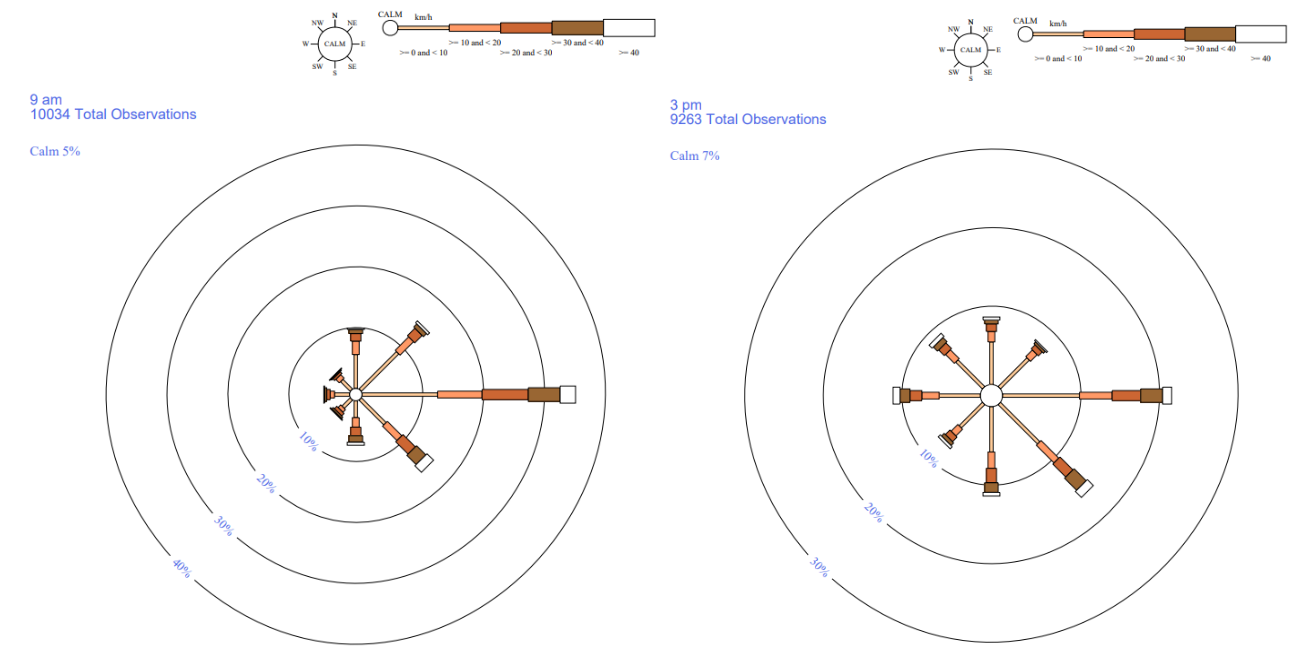

Figure 7: Wind Roses from Carnegie station (BOM) at 9:00 AM and 3:00 PM

The annual solar exposure for the period of one year from 1 September 2014 to 31 August 2015 was between 20 and 22 MJ/m^2 as shown in Figure 8. Due to this type of climate, the operations could be continuous with solar evaporation occurring all year and the process plant operating full-time other than for maintenance downtime.

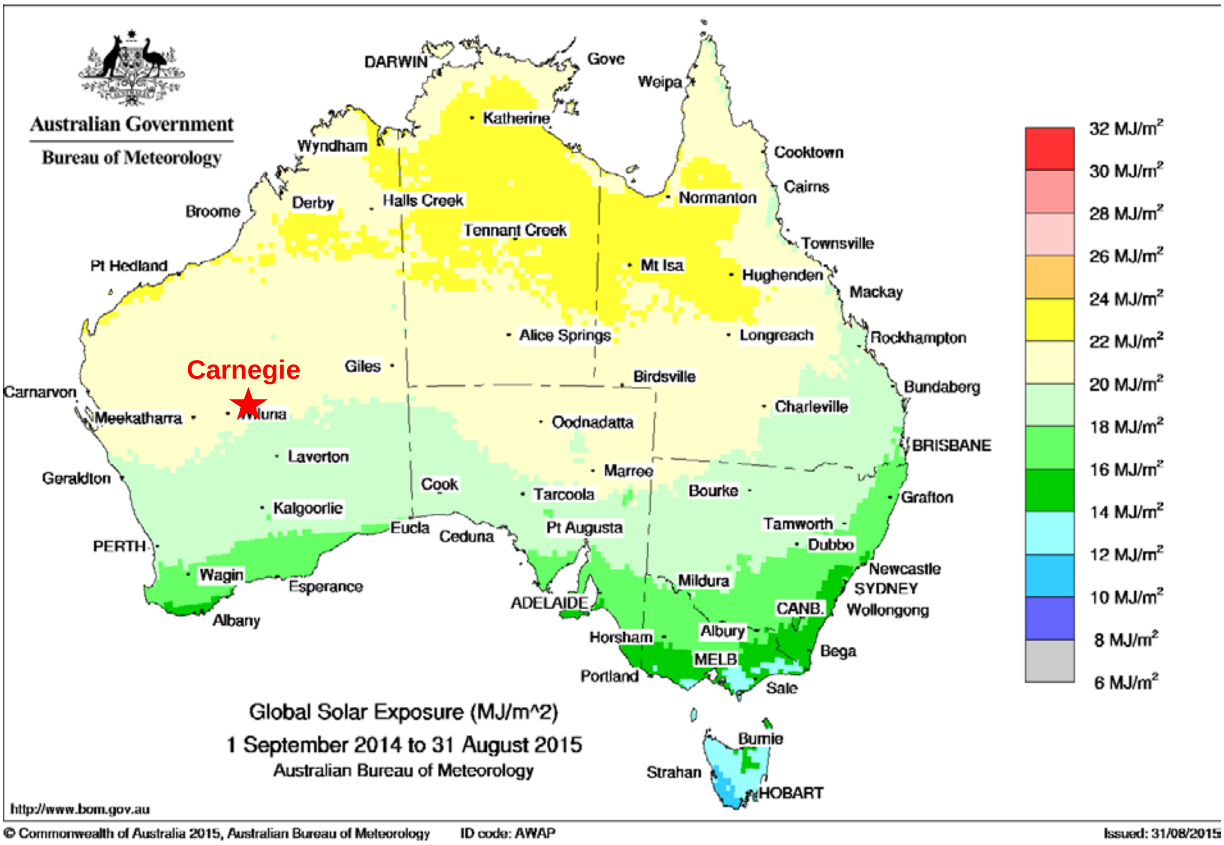

Figure 8: Solar Exposure [4]

4.3 Hydrology

Advisian (2017) completed a preliminary hydrological assessment [3] to provide an understanding of the hydrological characteristics of the CPP and the potential catchment surface water runoff discharge into the lake system.

Lake Carnegie is a large ephemeral lake with an approximate surface area of 2,300 km^2. It has a combined 10,200 km^2 catchment with runoff contribution from nine surrounding major creeks.

Lake Carnegie is located in the hydrological Arid Interior / North West zone which is characterized by low average annual rainfall, frequent flood events resulting from localised thunderstorms or tropical upper air disturbances causing widespread low intensity rainfall and rare flood events, caused by tropical cyclones which produce high intensity rainfalls.

There is little available streamflow data in the arid interior making the prediction of rainfall, runoff and flooding of the lake somewhat problematic. Advisian (2017) suggested that large rainfall events over short periods have potential to inundate the lake surface with large volumes of surface runoff.

This inundation potential was observed in January 1973 associated with Tropical Cyclone Kerry. There were media reports that flooding was widespread in the central parts of the State and that the area between Wiluna and Lake Carnegie was described as a 'huge lake'. The two closest stations which are located south of Lake Carnegie, Windidda Station and Prenti Downs, recorded cumulative rainfall depths of 310 mm and 209 mm respectively from 19 to 25 January 1973 (168 hours).

Based on the available rainfall depth record, Tropical Cyclone Kerry generated a flood event which was greater than the 1% annual exceedance probability (AEP). This suggests that the flooding associated with Tropical Cyclone Kerry was equivalent to a 1 in 100 year event.

A smaller rainfall event were observed during the K-UTEC and Advisian site visit from January 30th to 31st 2018 with cumulative rainfall depths of approximately 80 mm. The surrounding creeks, like Sholl Creek and Wongawol Creek, were impassable in some parts for a couple of days and the Lake surface were flooded. No lake inundation depth observations have been made to date.

4.4 Physiography and Vegetation

The topographic relief is typically subdued, with elevations ranging from 440 m Australian Height Datum (**AHD**) in low-lying areas within Lake Carnegie to approximately 600 m AHD in areas such as the Princess Ranges to the south of the lake. Local relief is seldom more than 100 m.

The more topographically elevated regions are dominated by resistant sedimentary rocks of the Proterozoic Earaheedy Group. Resistant rocks, such as quartzite and iron-formation, form cuestas where the rocks are gently dipping (e.g. Princess Ranges, Frere Range, Timperley Range), or elongate hills and ridges where they dip more steeply (e.g. Mudan Hills, Lee Steere Range). Flatlying units of the Permian Paterson Formation, which are capped by iron- and silica-rich duricrusts, form mesas and breakaways. Shale units form low rounded hills.

Gently sloping pediments of rock fragments in loamy soil surround most outcrop areas. These pass downslope into extensive sheet-wash plains, where soils are thicker and rock fragments are less abundant. Broad, ill-defined drainages are filled with alluvium, and in their lower reaches, incised watercourses (typically lined with large eucalypts) have been cut into the alluvium.

All streams and lakes in the area are ephemeral, and flow occurs only after heavy rain. Some drainage lines are now inactive, and, together with the major salt-lake systems, they form part of an extensive palaeodrainage system which ceased significant flow in the middle Miocene (van de Graaff and others, 1977 [24]). Tributary drainages are preserved on the lateritized Tertiary erosion surface. Saline playa lakes represent the infilling of the trunk drainages of the palaeodrainage system and receive most of the current drainage.

The landscape is dominated by a major playa-lake system consisting of Lakes Gregory, Nabberu, Teague, Carnegie and Wells. Although now broken into several internally-draining basins, the entire system represents a major palaeodrainage which is considered to once have flowed into either the Cretaceous sea in the Officer Basin to the north-west or to the Eucla Basin in the south east of Western Australia. In these trunk-drainage systems, three physiographic units are present including (a) flat, bare, salt lakes, which are covered with up to a few centimetres of water after heavy rain; (b) dunes and sheets of eolian and alluvial material marginal to the salt lakes; and (c) calcreted valley floors, usually tributaries of, or marginal to the main salt lakes.

Vegetation communities (mapped by Beard, 1974 [6]) correspond closely to physiographic units; Stony hills and colluvium support low mulga (*Acacia aneura*) and other small shrubs, or soft spinifex and wattle. Sheetwash plains and flood plains are covered with open mulga woodland and a ground cover of grasses, whereas major watercourses are commonly lined with tall river gums (*Eucalyptus camaldulensis*) and have an understory of *Eremophila sp*. Desert sand plain is covered with spinifex (*Triodia sp*.) and scattered low mallee (*Eucalyptus sp*.). Areas marginal to salt lakes support halophytes, such as samphire (*Arthrocnemum sp.)* and saltbush (*Atriplex sp*.) and fringing vegetation of *Casuarina sp.* in alluvial channels and calcrete areas.

4.5 Local Resources and Infrastructure

The area of the Carnegie Potash Project is sparsely inhabited. The pastoral stations of Prenti Downs, Windidda, Wongawol and Carnegie surround the lake system. Main access is given by the Gunbarrel Highway from Wiluna and several other graded roads and fuel for power generation can be sourced from diesel, Liquified Natural Gas (**LNG**) or Comnpressed Natural Gas (**CNG**) supplied by road train. The closest gas pipeline is located at Jundee, approximately 150 km's from the western edge of Lake Carnegie. Figure 9 shows existing tracks connected to the Gungarrel Highway around Lake Carnegie.

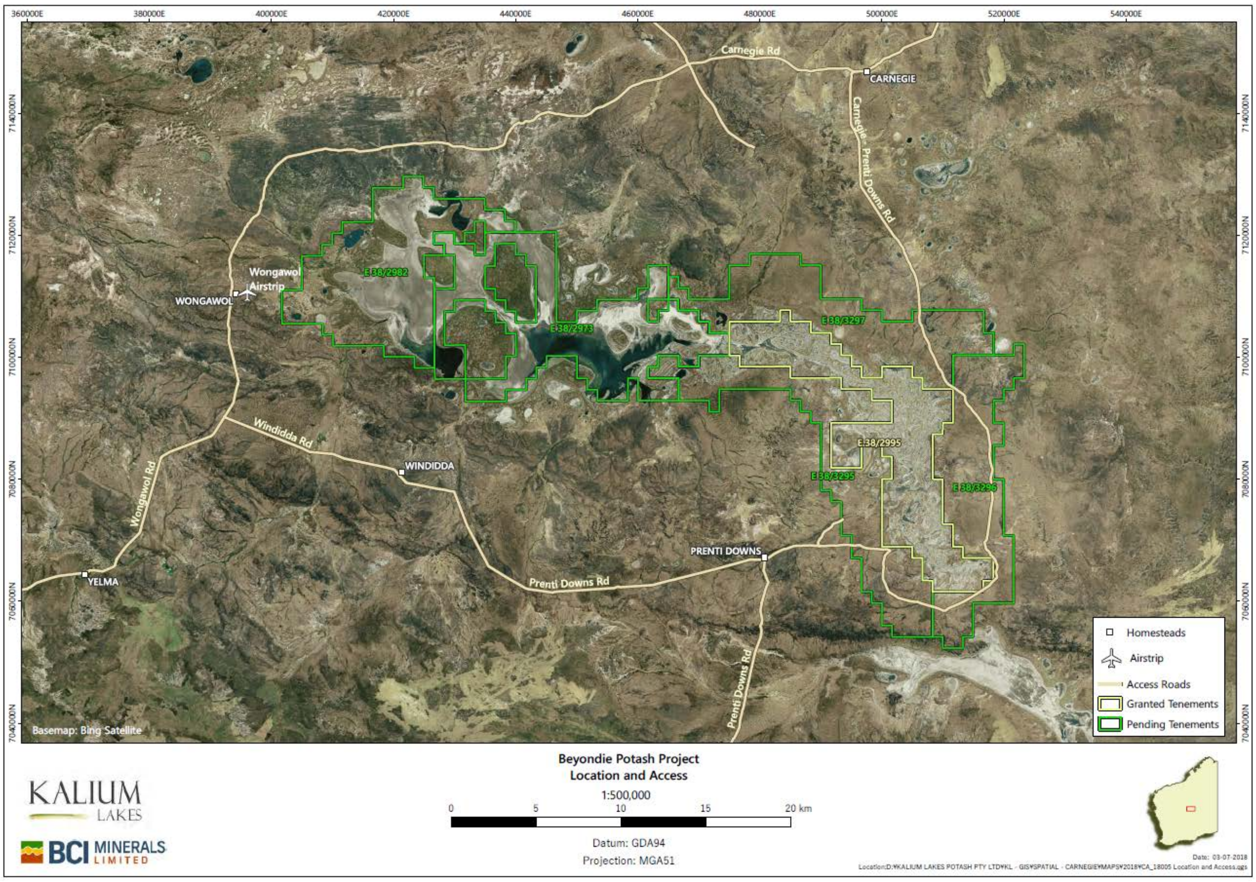

Figure 9: Access roads and tracks around Lake Carnegie

5 Previous Investigations

5.1 Government

Systematic mapping at 1:250,000 scale by the Geological Survey of Western Australia (GSWA) was carried out between 1975 and 1977. Explanatory notes and geological maps were produced for three 1:250,000 sheet areas that cover Lake Carnegie – these include Stanley (Commander et al., 1982 [9]) in the north, Kingston (Bunting, 1980 [7]) in the southwest, and Robert (Jackson, 1970 [12]) in the southeast.

Bunting (1980) [7] presented a preliminary synthesis of the field mapping work with a focus on the geological information of the eastern part of the Nabberu Basin, which coincides with this study area, giving particular emphasis to sedimentation and structural development. This document has been widely used to describe the regional geology and those individual geological units of significance.

Regolith and geochemical mapping at 1:250,000 scale by the GSWA was undertaken in 2000. The Kingston (Pye et al., 2000 [21]) and Stanley (Morris et al., 2000 [17]) 1:250,000 sheets were completed that cover the western portion of Lake Carnegie however, the Robert 1:250,000 sheet was not completed.

There have been no significant hydrogeological reports or publications for this part of the State. A hydrology survey was completed for the area between Lorna Glen and Wiluna by Chapman (1962) [8] to assess the groundwater resource potential of the calcrete aquifer for horticultural development. Johnson et al. (2000) [13] completed a groundwater resource assessment of the Northern Goldfields, which presented an understanding of the hydrogeology associated with the Tertiary-filled palaeochannels. This understanding is relatable to the palaeochannels that are potentially present beneath Lake Carnegie.

5.2 Mining companies

A search was undertaken of open-file mineral exploration reports held on the WAMEX database, which is managed by DMIRS. There was very little information in the reports on the geology and hydrogeology associated with Lake Carnegie. A range of different mineral exploration has been undertaken in the area however, it is noticeably less than other parts of the Northern Goldfields.

Northling Pty Ltd undertook exploration for diamonds based on previous work by Western Mining Corporation Ltd that suggested the presence of chromite and garnet with a kimberlitic affinity (Geach, 1995 [10]). Geological mapping was undertaken showing the presence of a major Tertiary drainage basin that likely-contained buried gravels associated with Lake Carnegie and it was suggested that the palaeodrainage flowed to the southeast. Despite the mapping, there was no significant information on the nature and extent of the palaeochannel thalweg.

5.3 Other potash companies

There has been a range of groundwater exploration undertaken on Lake Wells by two other potash project developers - Australian Potash and Salt Lake Potash. Australian Potash has tenements in the southwest portion of Lake Wells; whereas, Salt Lake Potash has tenements in the northern portion of the lake. These studies have yielded results that are released to the public as ASX (Australian Stock Exchange) announcements, which provide insight into the hydrogeological conditions encountered at these sites.

5.4 WIN Database Search

The Department of Water and Environmental Regulation (**DWER**) manages the water point database for the State. A search of this database was undertaken by Advisian [3] for the Lake Carnegie area with 34 data points being located within a 20 km radius of the lake shoreline. The data points relate to pastoral bores and wells that are historical, have been used for stock watering and typically equipped with a windmill. The data is of variable quality with some measurements of depth to water table, indicative bore yields and groundwater salinity, which enables some broad / regional trends and observations to be made.

There is no data that is of relevance to the groundwater conditions beneath the lake; hence, it is only useful for providing an indication of water supply potential and salinity of shallow groundwater resources in the catchment surrounding the lake. The depth to water table is typically between 5 and 10 m bgl with shallower depths closer towards the lake and increasing depth away from the lake in more elevated areas. The salinity tends to increase in the direction of regional groundwater flow with lower salinity in elevated areas and higher salinity towards the lake. Bore yields are closely linked to the thickness and nature of alluvium/colluvial cover and underlying fractured-rock aquifer.

Pastoral bores to the north of the lake overlying the Kulele Limestone have bore yields of between 0.6 and 1.3 l/s and groundwater salinities of between 700 and 1,500 mg/L TDS. This would suggest that the Kulele Limestone has fresh to brackish groundwater potential that should be further investigated for meeting process and/or potable groundwater requirements. In contrast, pastoral bores towards the south east of the lake overlying the Princess Range Member have similar bore yields of between 0.6 and 1.3 L/s, but the salinities are slightly higher at between 1,300 and 4,700 mg/L TDS. Bores that are overlying the Wongawol Formation tend to have lower yields and higher salinity.

All data of relevance has been compiled and is presented in Appendix 1.

6 Geological Setting and Mineralisation

The following description of the geological settings is taken from Advisian's Desktop Study [3].

6.1 Regional Geology

The geology is dominated by the sediments of the Nabberu Basin. The basin is exposed over an area of approximately 60,000 km^2 and is 600 km long by 120 km wide. The total stratigraphic thickness is about 15,000 m, of which the top 4,000 m occurs mainly in the Earaheedy Sub-basin and the basal 7,000 m occurs mainly in the Glengarry Sub-basin.

None of the present boundaries represents the original depositional extent of the basin. To the south, the boundary is the unconformity with the underlying granitoid and metamorphic rocks of the Yilgarn Block and a few outliers of Proterozoic sedimentary rocks on the Yilgarn Block almost certainly were once part of the basin. On its western and northwestern sides, the Nabberu Basin becomes increasingly affected by the tectonism and plutonism of the Gascoyne Province.

The Nabberu Basin contains two sub-basins namely the Glengarry Sub-basin in the west and the Earaheedy Sub-basin in the east – the latter is present under Lake Carnegie. The Earaheedy Subbasin is largely occupied by the Earaheedy Group consisting of the Tooloo Subgroup (quartz arenite, iron-formation, chert, shale, and carbonate) and the overlying Miningarra Subgroup (sandstone, shale, and carbonate).

Dolerite of at least two different ages intrudes the sediments of the Nabberu Basin. In the eastern part of the Earaheedy Sub-basin, dolerite sills intruding the Earaheedy Group have been dated at about 1.03 Ga.

The youngest rocks in the vicinity of the Nabberu Basin are sediments of the Officer Basin, which lap on to the eastern edge. The Early Permian Paterson Formation consists of glacigene rocks (tillite, lacustrine claystone, and fluvial sandstone). These sediments typically form elevated outliers that are present as mesas and in breakaways and appear to be perched on top of the sediments of the Earaheedy Group.

Lake Carnegie is part of an extensive palaeodrainage system that was active in the area until the middle Miocene. The palaeodrainages are infilled with a basal palaeochannel sand that is overlain by dense plasticine clay, and a variable thickness of alluvium and colluvium. Numerous tributaries incising the Earaheedy Group and draining towards Lakes Carnegie and Wells were once connected to this system and are now represented by calcrete-rich valley floors, and isolated areas of playas and associated material.

There are also a wide range of weathering profiles and weathering products derived from the basement lithologies, as well as associated with the deposition of the lake systems. Valley floors and marginal sloping areas contain large areas of depositional regime regolith including colluvial, sheetwash, floodplain and alluvial material. In places, calcrete has developed in the major valleyfloors and drainage systems and is well developed in floodplain deposits. Distal sheetwash and colluvium grades into dune and playa terrain associated with Lake Carnegie.

A summary of the key stratigraphy in the vicinity of Lake Carnegie is presented in Table 4. It includes all lithologies that provide an understanding of the regional geology and are important from a hydrogeological perspective.

Table 4: Stratigraphy in vicinity of Lake Carnegie

<table>
<tr><th>Age</th><th>Group/Subgroup</th><th>Formation/Member</th><th>Dominant lithologies</th></tr>
<tr><td>Quaternary</td><td></td><td></td><td>Lake sediments</td></tr>
<tr><td>Pleistocene</td><td></td><td></td><td>Alluvium / colluvium</td></tr>
<tr><td>Pliocene/Miocene</td><td></td><td></td><td>Calcrete</td></tr>
<tr><td>Early Tertiary</td><td></td><td></td><td>Palaeochannel sediments</td></tr>
<tr><td>Early Permian</td><td></td><td>Patterson Formation</td><td>Glacial tilite, sandstone, siltstone</td></tr>
<tr><td>Middle Proterozoic</td><td></td><td></td><td>Dolerite</td></tr>
<tr><td rowspan="7">Early Proterozoic</td><td rowspan="5">Earaheedy Group / Miningarra subgroup</td><td>Mulgarra Sandstone</td><td>Sandstone, shale, limestone</td></tr>
<tr><td>Kulele Limestone</td><td>Limestone, sandstone</td></tr>
<tr><td>Wongawol Fm.</td><td>Sandstone, shale</td></tr>
<tr><td>Chiall Fm. / Princess Range Member</td><td>Orthoquarzite</td></tr>
<tr><td>Chiall Fm. / Wandiwarra Member</td><td>Sandstone, shale</td></tr>
<tr><td rowspan="2">Earaheedy Group / Tooloo subgroup</td><td>Windidda Fm.</td><td>Dolomite, limestone</td></tr>
<tr><td>Frere Fm.</td><td>BIF, shale, chert</td></tr>
<tr><td>Archaean</td><td></td><td></td><td>Granite, greenstone</td></tr>
</table>

6.1.1 Dolerite

Dolerite and gabbro sills and dykes are widespread, where they outcrop as concordant or slightly discordant intrusions. These intrusive rocks are fresh to weakly altered, and largely composed of plagioclase (locally sericitized), clinopyroxene, and titanomagnetite. Accessory amounts of apatite and pyrite are found in parts. Several dolerites have well-developed granophyric layers and veins at the top. AGSO airborne magnetic data indicate the likelihood of a large subsurface dolerite sill near Top Fourteen Mile Well along the southern shoreline of Lake Carnegie (Pye et al., 2000 [22]).

6.1.2 Paterson Formation

The Paterson Formation is an Early Permian, flat-lying glacial and fluvioglacial succession, which can be divided into three lithofacies - tillite (non-bedded, poorly sorted boulder conglomerate to pebbly, clayey siltstone), cross-bedded conglomeritic sandstone of fluvioglacial origin, and lacustrine siltstone. Deep weathering is common, and in many places a resistant silcrete or laterite cap has developed resulting in mesas with steep-sided breakaways. Locally developed crossbedding indicates a north to north-northeast transport direction, with many rock types sourced from the Archaean Yilgarn Craton (Bunting, 1980 [7]). The bedrock geology is presented in Figure 10 below.

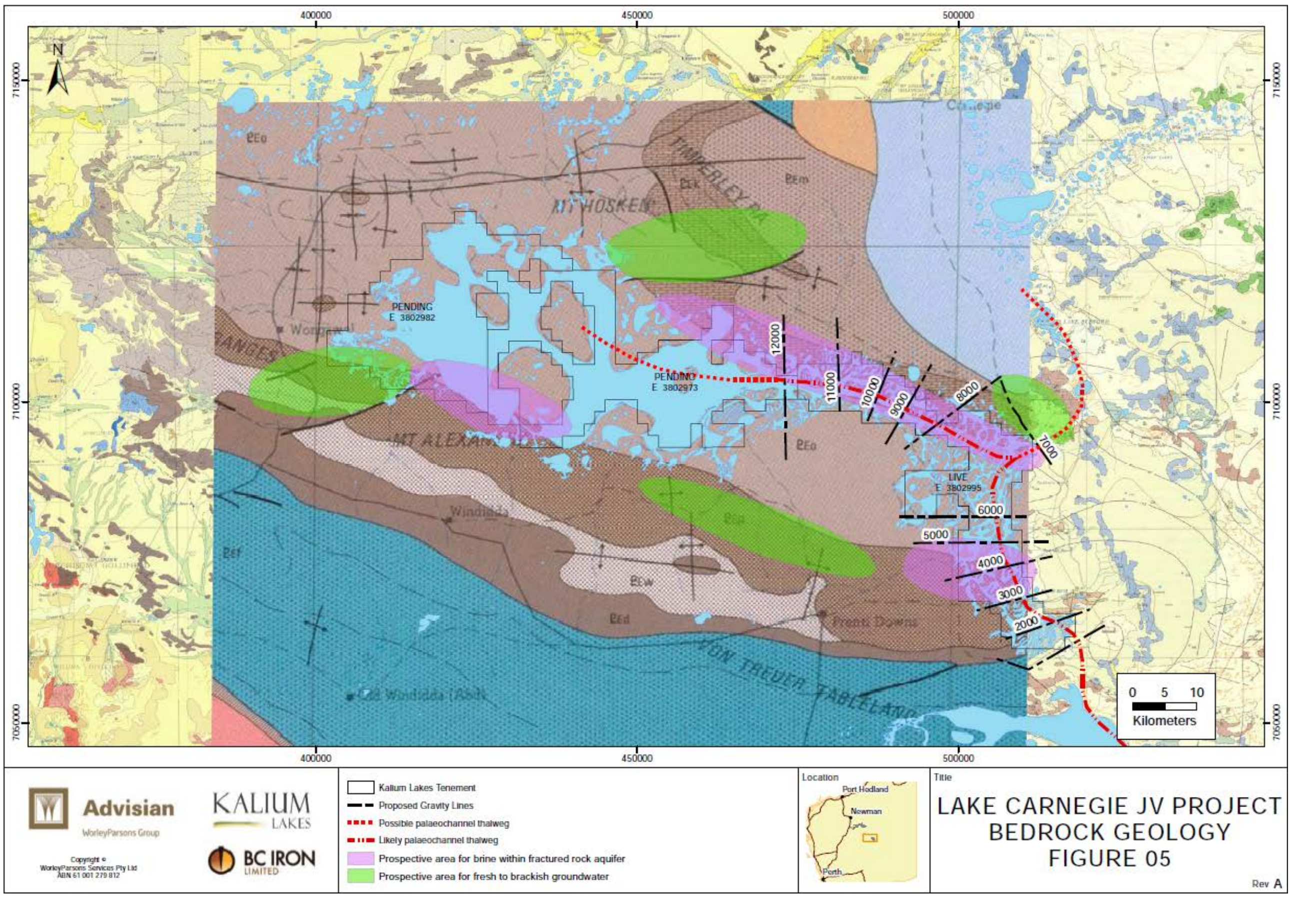

Figure 10: Bedrock Geology

6.1.3 Cenozoic sediments

Early Tertiary sedimentary deposits of Middle to Late Eocene age have infilled the Cretaceous or Early Tertiary valleys. The sediments typically comprise a basal fluvial sand overlain by lacustrine clay. These are overlain by an interfingering sequence of alluvium and minor colluvium of later age, possibly Late Tertiary that is locally replaced or displaced by calcrete.

Alluvial deposits form a thin veneer over most basement rocks in the area. The alluvium form outwash fans on the flanks of the trunk valleys. Thicker deposits of colluvium also occur in tributaries, especially within the greenstone belts where the valley sides are steep.

6.1.3.1 Early Tertiary sediments

The stratigraphy of the Early Tertiary sediments is likely to be similar to those in the Northern Goldfields for the Carey and Raeside Palaeodrainages, as described by Johnson et al. (2000 [13]). The sediments comprise a basal sand overlain by an interbedded sequence of dense, plastic clay with minor interfingering sand lenses. The palaeochannel sand at the base of the sequence occurs as a sinuous stringer sand unit, bounded by relatively steep topography, on the underlying bedrock surface.

The palaeochannel sand consists of predominantly very fine to coarse-grained quartz sand with minor silt, gravel and carbonaceous horizons, which were deposited in a combination of fan-type and braided channel-type alluvial structures. They may be up to 40 m thick, from 100 to 1,000 m in width and in sections of the palaeodrainage become locally thicker, broader and coarser. A thin bed of rounded grey quartz cobbles often occurs at the base of the unit.

The overlying clay, possibly of lacustrine origin, rests on the basal sand with a gradational contact comprising several metres of dark-grey clayey sand. The unit grades downward from sandy clay to a uniform, light-grey plastic clay interfingering sand horizons up to 10 m thick occur throughout the clay and are believed to have been contributed from lateral tributaries. In the Northern Goldfields, the clay is present only in palaeochannels and is not known to outcrop.

6.1.3.2 Calcrete/dolocrete

Partial replacement of valley-fill material has produced extensive areas of cavernous sandy calcrete to dolocrete. Calcrete/dolocrete is a carbonate rock formed by the in-situ replacement or displacement of the alluvial and colluvial deposits by magnesium and calcium carbonate precipitated from percolating carbonate-saturated groundwater (Mann and Horwitz, 1979 [16]). Bodies generally occur at the margins of present-day salt lakes, and locally in some of the main tributaries in the palaeodrainages (Sanders, 1974 [23]). Drilling has suggested that some calcretes overlying sediments within the Officer Basin may be up to 40 m thick (Jackson et al., 1975 [12]).

The calcrete/dolocrete may be nodular, massive or laminated and is typically cavernous (Bunting, 1980 [7]). Karstic features, including sinkholes and gilgai structures, are often developed due to its susceptibility to chemical dissolution via percolating surface water and groundwater movement. Solution cavities are mostly developed near the present water table and are also well developed in deltaic situations, where tributaries adjoin the main trunk drainages.

6.1.3.3 Alluvium and colluvium

Alluvial deposits form the upper portion of the Cainozoic sequence within the palaeodrainages and include interfingering minor colluvium. Alluvium occurs as channel fill associated with palaeodrainages and the lower parts of the tributary valleys. The variation in thickness is largely dependent on position in the drainage system with the thickest sequences often coinciding with the axes of the Tertiary palaeochannels. The depositional environment is like that found in presentday outwash alluvial fans and minor creeks.

6.1.3.4 Lake sediments

There is up to 12 m of shallow Quaternary sediments associated with lake deposition and the reworking owing to deflationary influences. This zone is characterised by playa features that are heavily influenced by extreme salinity, as well as repetitive wetting and drying cycles of the salt lake. Most of the material was deposited by sheet flood and slope wash, but gypsum crystals are precipitating in the lake sediments from the highly saline ground water (Jackson, 1978 [12]). There are likely to be variable thicknesses of gypsiferous sand that are typically saturated and may yield large quantities of brine.

Studies by Salt Lake Potash at Lake Wells, located to the south of Lake Carnegie, have suggested a standardised stratigraphy beneath the lake (Salt Lake Potash, ASX announcement, 16 October 2017). The interpretation of the lithological logs from the drill holes, test pits and trenches suggest four distinct units from shallowest to deepest being a thin layer of evaporate sands; a red-brown silt with high clay content; a grey-olive-yellow mottled clay that is plasticine in nature and stiff to very stiff; and a red-brown clay with varying silt content that is more massive and indurated with depth. It is possible that there is a similar stratigraphy beneath Lake Carnegie.

6.2 Hydrogeology

There are no publications on the hydrogeology of the study area. The interpretation presented is based on observations of similar palaeochannel environments in the Northern Goldfields (Johnson et al., 2000 [13]) and preliminary exploration findings at other projects in the Lake Wells palaeodrainage system by Salt Lake Potash and Australian Potash.

6.2.1 Groundwater occurrence

The Lake Carnegie area is underlain by weathered and fractured Proterozoic bedrock, which forms the eastern part of Nabberu Basin fractured-rock groundwater province. These basement rocks are covered locally by palaeochannel deposits and by widespread alluvium, colluvium and lake deposits.

The fractured basement is characterised by secondary permeability resulting from chemical weathering of tectonic and decompression fracture systems. Fractured-rock aquifers are developed where the secondary permeability is enhanced or improved. There is potential for vuggy weathering profiles to be developed in limestone rocks where there has chemical dissolution – this may be most relevant to Kulele Limestone. The maximum depth of open fractures is likely to be about 100 m with groundwater likely to be present, where associated with major faulting.

The base of the Tertiary sedimentary sequence in the palaeochannels is marked by a fluvial sand aquifer confined beneath a dense clay layer. The palaeochannel sand is highly permeable and contains significant supplies of groundwater, which are fresh to brackish in the tributaries and saline to hypersaline in the main trunk drainages. The sand, however, has limited groundwater storage with most groundwater abstracted being the result of induced leakage from overlying sediments and surrounding fractured-rock aquifers.

The presence of aquifers overlying the Early Tertiary palaeochannels, which include alluvium and calcrete deposits, is hydrogeologically variable. This upper sequence is largely clay-dominated beneath the Lake Wells area explored by Salt Lake Potash, whereas Australian Potash have demonstrated some permeability associated with an upper aquifer in the southern portion of Lake Wells.

Groundwater is likely to occur within the primary porosity of the alluvium, whereas calcrete exhibits increased secondary permeability through chemical dissolution. The alluvium aquifer has low permeability due to its clayey nature, whereas the calcrete can often provide large local supplies of fresh to brackish groundwater from solution cavities. It is possible that there may be increased occurrence of calcrete aquifer at Lake Carnegie owing to the presence of limestone basement rocks with possible improved provenance.

The groundwater occurs in regional flow systems within the major palaeodrainages. It moves under gravity from about the drainage divides towards the salt lakes, and then downstream in the palaeochannels. Groundwater movement is controlled by the location of salt lakes, which determine local discharge areas, and the recharge sites of dense, reflux brine plumes. Hydraulic gradients along the palaeodrainages are generally very low, with steeper gradients occurring in the upper reaches of the catchments.

Groundwater flow systems are maintained by rainfall recharge. Groundwater recharge is difficult to estimate as it constitutes a very small proportion of rainfall, most of which is either directly evaporated or utilised by the native vegetation, with a small component of runoff into claypans and playa lakes. Most recharge is likely to occur during heavy rainfall when it is augmented by recharge from surface runoff and local flooding. Groundwater discharge occurs mainly by evaporation from playa lakes and a relatively small amount by throughflow within the palaeochannels.

6.2.2 Aquifers

6.2.2.1 Lake sediments

There are few aquifers or potential aquifer zones within the lake sediments owing to their clayey nature however, the evaporite sand layers are locally important for yielding brine. These layers have variable lateral extents with some being mappable over large distances, namely the shallow sand layer beneath Lake Wells at 0.5 m to 1 m from surface (Salt Lake Potash, ASX announcement, 16 October 2017), through to deeper layers that appear to be less continuous.

These layers comprise sandy evaporite grains being dominated by gypsum crystals. The grains are formed in-situ and can be highly variable in terms of grain size. The coarser grain sizes tend to produce larger flows of brine. The longevity of these evaporite sand horizons for long-term brine supply is largely unproven across the potash projects in Western Australia, and typically rely on a recharge factor to sustain target production flow rates.

6.2.2.2 Alluvium and colluvium

The alluvium forms an unconfined aquifer with a shallow water table, and an average saturated thickness of between 5 m and 15 m. The permeability of the alluvium is generally low owing to its silty and clayey nature – this is more pronounced where located beneath salt lakes. The hydraulic conductivity can, however, increase quite significantly in permeable sand and gravel horizons, and calcretised sections. In addition, the alluvial aquifer is often partly indurated by siliceous and ferruginous cementation, possibly representing previous water table positions, which have secondary porosity and high permeability developed in bands.

The development of the alluvium and colluvium aquifer at Lake Wells has been limited, as it tends to be more clayey where encountered beneath the salt lakes. Australian Potash suggests that it forms a minor aquifer with brine only being abstractable via deep trenches or low-yielding bores (Goldphyre Resources, ASX Announcement, 7 April 2016). Despite attempts to assess the alluvium and colluvium from a shallow air-core drilling program, Salt Lake Potash indicated that only localised aquifers were associated with evaporite sand layers, and bore yields were typically less than 0.7 L/s but some up to 3 L/s.

6.2.2.3 Calcrete/dolocrete

Calcrete/dolocrete forms a locally high-yielding aquifer owing to its well-developed secondary porosity and high permeability. It occurs low in the drainage systems where the watertable is generally shallow below ground level, and saturated thickness is mostly between 5 m and 10 m. Bore yields are highly variable depending on the nature and extent of karstic development. Yields of up to 50 L/s are possible in highly karstic calcrete/dolocrete but yields are more likely to 5 L/s to 10 L/s (Johnson et al., 2000 [13]).

Groundwater is commonly brackish to saline, between 2,000 and 6,000 mg/L TDS, because of its position in the lower reaches of drainages (Sanders, 1969 [23]). There are however small potable supplies, such as at Wiluna and Yeelirrie, where it receives enhanced groundwater recharge via direct rainfall infiltration and more particularly inundation from surface runoff surrounding catchments during intense rainfall events.

There is little mention of calcrete/dolocrete in the exploration results at Lake Wells for Salt Lake Potash and Australian Potash. There are some outcrops in the vicinity of Lake Carnegie suggesting that calcrete/dolocrete may be present and it may form an important local aquifer.

6.2.2.4 Palaeochannel sand

The palaeochannel sand is an important aquifer that can provide significant groundwater and brine supplies. The sand aquifer is up to 1 km wide, and up to 40 m thick in the trunk palaeochannels, reducing to several hundred metres wide in the tributaries. The sand is confined beneath as much as 80 m of structureless to highly laminated, kaolinitic clay.

Australian Potash reported the results of four air-core holes drilled to basement (Goldphyre Resources, ASX Announcement, 7 April 2016). All holes were drilled to depths of up to 163 m and intersected basal sands at the bottom of the palaeovalley sequence (at the bottom of the hole) with a thickness of between 20 m and 50 m. The presence and width of the basal sands have potential to supply large volumes of the high-grade potash brines.

The nature and thickness of basal sands in the Lake Wells palaeochannel is highly variable, which has implication for bore yields. The palaeochannel sands confirmed by Australian Potash were up to 160 m bgl with a thickness of between 20 and 50 m, and the sands were clean and coarsegrained resulting in constant rate bore yields of 12 to 20 L/s over ten days (Australian Potash, ASX Announcement, 14 December 2016).

In contrast, the palaeochannel sands investigated by Salt Lake Potash were up to 125 m bgl with a thickness of up to 25 m (typically less than 10 m), and the sand is fine to medium grained (less coarse grains) and there is some interfingering of lignitic clay (Salt Lake Potash, ASX Announcement, 31 October 2016). This meant that airlift yields were low typically about 3 L/s with some up to 9 L/s; however, these higher yields have not been replicated during long-term aquifer testing. It is considered the thinner palaeochannel sand and low bore yields are due to the lack of coarse clastic material in the catchment (being largely made up of Proterozoic metasediments and Permian Paterson Formation).

There are also minor sand horizons at the top and throughout the confining clay that have local potential for brine supply. Both Australian Potash and Salt Lake Potash indicated the presence of a sandy layer at the top of the palaeochannel sand. Australian Potash constructed a test production bore (TPB001) with screen intervals between 44 to 50 m and 54 to 58 m to evaluate the upper sand aquifer. It was constant rate tested at 3 L/s for seven days and only 3 m of drawdown (Australian Potash, ASX Announcement, 14 December 2016).

The palaeochannel sand is the most productive and reliable aquifer in the study area. Despite having limited storage, there is potential for a sustainable supply owing to leakage from the overlying lithologies and surrounding weathered basement (Johnson, 2007 [13]). It is probable that the palaeochannel sands at Lake Carnegie will be more like those encountered by Salt Lake Potash, as the catchments are both comprised of Proterozoic sediments.

6.2.2.5 Basement

The fractured-rock aquifers are likely to be present within the Proterozoic sediments of the Nabberu Basin. The sedimentary nature of these sediments may suggest some potential primary porosity and permeability; however, it considered that most groundwater development potential would be associated with fracturing and weathering of these fractures.

These aquifers will be characterised by secondary porosity and permeability associated with complex fracturing systems being enhanced by chemical dissolution along fracture lines. The storativity and hydraulic conductivity of these aquifers is largely related to the degree of fracture intensity. The local geological structure is the dominant feature controlling the occurrence of fractured-rock aquifers, with the lithology of the rocks having limited influence and affecting only the extent of structural development.

There has been no groundwater exploration that is documented on the Proterozoic sediments of the Nabberu Basin. There is potential for groundwater resources associated with sandstone and limestone lithologies, namely the Princess Ranges Member (fracturing of the orthoquartzite) and the Kulele Limestone (particularly if there is karstic development). It should be noted that the Kulele Limestone is present beneath the northern fringe of Lake Carnegie, which may suggest some potential for brine supply.

6.2.3 Hydrogeological Conceptual Model

The following conceptual model (Figure 11) for brine occurrence has been developed by Advisian [3]:

The conceptualisation highlights the most prospective areas for encountering brine that may be abstracted either using conventional trenching activities and/or cased bores. Figure 6 provides a schematic illustration of brine occurrence at Lake Carnegie.

The lake sediments contain brine resources associated with evaporite sand layers. The depth of these layers varies between lakes. Salt Lake Potash at northern Lake Wells encountered a welldeveloped sand layer between 0.5 m and 1 m bgl (Salt Lake Potash, ASX Announcement, 16 October 2017). The extent of these sand horizons and supply of brine has resulted in Salt Lake Potash considering the use of conventional trenching as the more-likely abstraction approach of its potash resource (Salt Lake Potash, ASX Announcement, 29 August 2016). Calcrete and dolocrete has been encountered in the surficial sediments between 5 and 20 m below lake surface (LWTB007) at Lake Wells, which when test pumped at 6 L/s had very high hydraulic conductivity of 250 m/d and a very limited drawdown (Salt Lake Potash, ASX Announcement 31 July 2016).

Underlying the lake sediments, there is a minor aquifer associated with the valley-fill comprised of alluvial and colluvial deposits. The presence of this aquifer beneath Lake Carnegie is unknown. It is poorly developed under the northern portion of Lake Wells being dominated by clayey lithologies; whereas, it forms a minor aquifer with sandy horizons in the southern portion of Lake Wells being explored by Australian Potash.

There is a thin sandy horizon at the top of the Early Tertiary palaeochannel stratigraphy that may be an intermediate brine resource. The sand horizon(s) encountered in the southern Lake Wells area by Australian Potash is about 10 m thick between depths of 44 to 58 m bgl with an aquifer tested yield of 3 L/s (Australian Potash, ASX Announcement, 14 December 2016). Salt Lake Potash have encountered a similar horizon but only silts and fine-grained sand were encountered between 45 m and 60 m bgl and as such low yields of 1 L/s were expected and it was not tested (Salt Lake Potash, ASX Announcement, 31 October 2016).

The palaeochannel sand at the base of the Early Tertiary palaeochannel stratigraphy is considered the primary target for obtaining large volumes and providing sustainable supplies of brine. The presence of a well-developed basal sand aquifer is critical for providing sufficiently large bore yields. It is likely that the palaeochannel sand aquifer will be similar in nature to that encountered in northern Lake Wells as explored by Salt Lake Potash, rather the aquifer in southern Lake Wells explored by Australian Potash.

The palaeochannel sands in northern Lake Wells are up to 125 m bgl with a thickness of up to 25 m (typically less than 10 m), and the sand is fine to medium grained with interfingering lignitic clay (Salt Lake Potash, ASX Announcement, 31 October 2016). Airlift yields tend to be about 3 L/s with some up to 9 L/s, with the better prospects in the far north of the lake. Salt Lake Potash's LWA033 produced the higher airlift yields and intersected the greater thicknesses of sand. Test pumping from this hole was completed over 3 days at 8 L/s, the hydraulic conductivity from the 25 m thick basal sand and gravel aquifer was 1.4 m/d (Salt Lake Potash, ASX Announcement, 10 August 2016), in contrast to the other tests to the south which returned a hydraulic conductivity of 0.5 m/d (Salt Lake Potash, ASX Announcement, 31 July 2016).

There are some additional prospective areas for brine occurrence on the southern and northern edges of Lake Carnegie, where fractured-rock aquifers may be located beneath lake sediments. Quartzite rocks of the Princess Range Member are present beneath the southern edge of the lake; whereas the Kulele Limestone is present beneath the northern edge of the lake. Both lithologies are conducive to the presence of groundwater within any developed fractures.

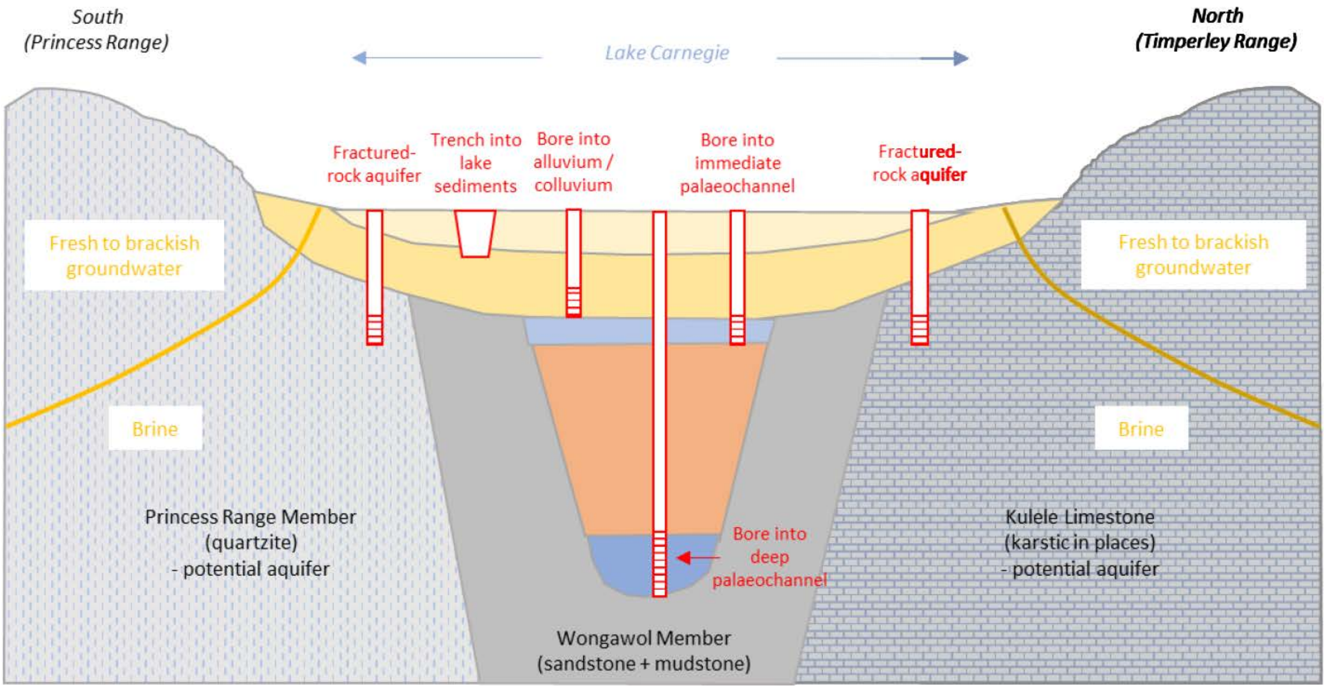

Figure 11: Preliminary Conceptual Hydrogeological Model [3]

6.3 Process Water Supply Search

Advisian states in [3], that an important component of an SOP project is identifying a process water supply. The water demand for processing requirements maybe between 0.5 GLpa and 2 GLpa of fresh to brackish water based on demands of potentially similar size SOP projects.

Given the arid nature of the environments that brine deposits occur in Australia it is naturally difficult to identify a large scale fresh water source. At this early stage of the project it is important that potential fresh water supply sources are located and de-risked.

The WIN database search identified pastoral bores located to the north of the lake overlying the Kulele Limestone with salinities in the range of 700 to 1 500 mg/L TDS. This would suggest that the Kulele Limestone has fresh to brackish groundwater potential and is a potential zone of recharge at outcrop. These locations are subject to some ground-based mapping to identify future exploration targets.

There are also a large number of pastoral wells on the southern and western side of the catchment that have no water quality data. It is recommended that these bores be surveyed, sampled and hydraulically tested to obtain a full understanding of regional water quality, water levels and basic aquifer parameters.

Large areas of calcrete are mapped in the 1:250,000 GSWA map series between Lake Wells and Lake Carnegie as well as the tributaries to the west of the lake. These areas are also highly prospective but may be subject to abstraction restrictions due to potential stygofauna impacts.

To determine the most prospective water supply search areas a pastoral bore survey should be completed in conjunction with geological mapping in the vicinity of prospective targets identified.

7 Deposit Type and Mineralisation

The Lake Carnegie Potash Deposit is a brine, containing the target potassium and sulphate ions that could form a potassium sulphate salt. It has potential for potash mineralisation with a wide range of exploration targets from shallow brine within the lake sediments to deeper brine horizons in the palaeochannel basal sand aquifer. Advisian [3] name five different prospective exploration targets for obtaining brine supplies associated with the Lake Carnegie project, which include:

- Evaporite sand layers in the lake sediments,
- A minor aquifer associated with alluvial and colluvial deposits,
- A sandy horizon at top of palaeochannel stratigraphy,
- Basal palaeochannel sand; and
- Fractured-rock aquifers at the southern and northern edges of the lake.

The shallow brine on the lake surface can be extracted from trenches; the deeper brine can be pumped from wells.

8 Recent Exploration

In December 2017 ground-based gravity measurements on transects from tenement border to tenement border were performed to identify the palaeovalley geometry and locate exploration drill targets.

An initial 64 auger hole drilling and sampling program across the lake surface with brine and soil sampling and assaying was completed in January 2018. Brine samples were sent to Bureau-Veritas Laboratory for analysing. Also brine samples were collected for evaporation and processing testwork.

In late January/early February 2018 the K-UTEC competent persons undertook a site visit to Lake Carnegie to observe the site location, ground conditions, and access and egress.

Aircore exploration drilling was performed in May 2018 and completed in the same month. A total of four holes were drilled to basement, all holes were located within 1 km of the lake edge.

8.1 Geophysical Surface Exploration

An initial geophysical desktop study and geophysical fieldwork comprising 123 km of gravity traverses were completed to identify the palaeovalley geometry and locate exploration drill targets for the deep palaeochannel sands.

With gravity measurements it is not possible to measure an absolute depth of the palaeochannel. This method can give an indication to the deepest part of the palaeovalley (minimum), being the interpreted palaeochannel, as well as the highest point of the surrounding bedrock (maximum). The results can be used to identify the potential deepest parts of the channel which is used to position future exploration boreholes, targeting the deepest sand layers which may yield high volumes of brine.

The traverses were planned to survey across the estimated palaeovalley from one side of the tenement to the other side, as shown in Figure 12 and Figure 13. They identified the likely continuation of a palaeovalley from Lake Wells north through to the CPP tenure.

The raw gravity survey has been modelled by Western Geophysics to reduce the residual gravity anomalie to the palaeovalley sediments and produce modelled sections with the aim of providing a more quantitative assessment of the depth to bedrock [27].

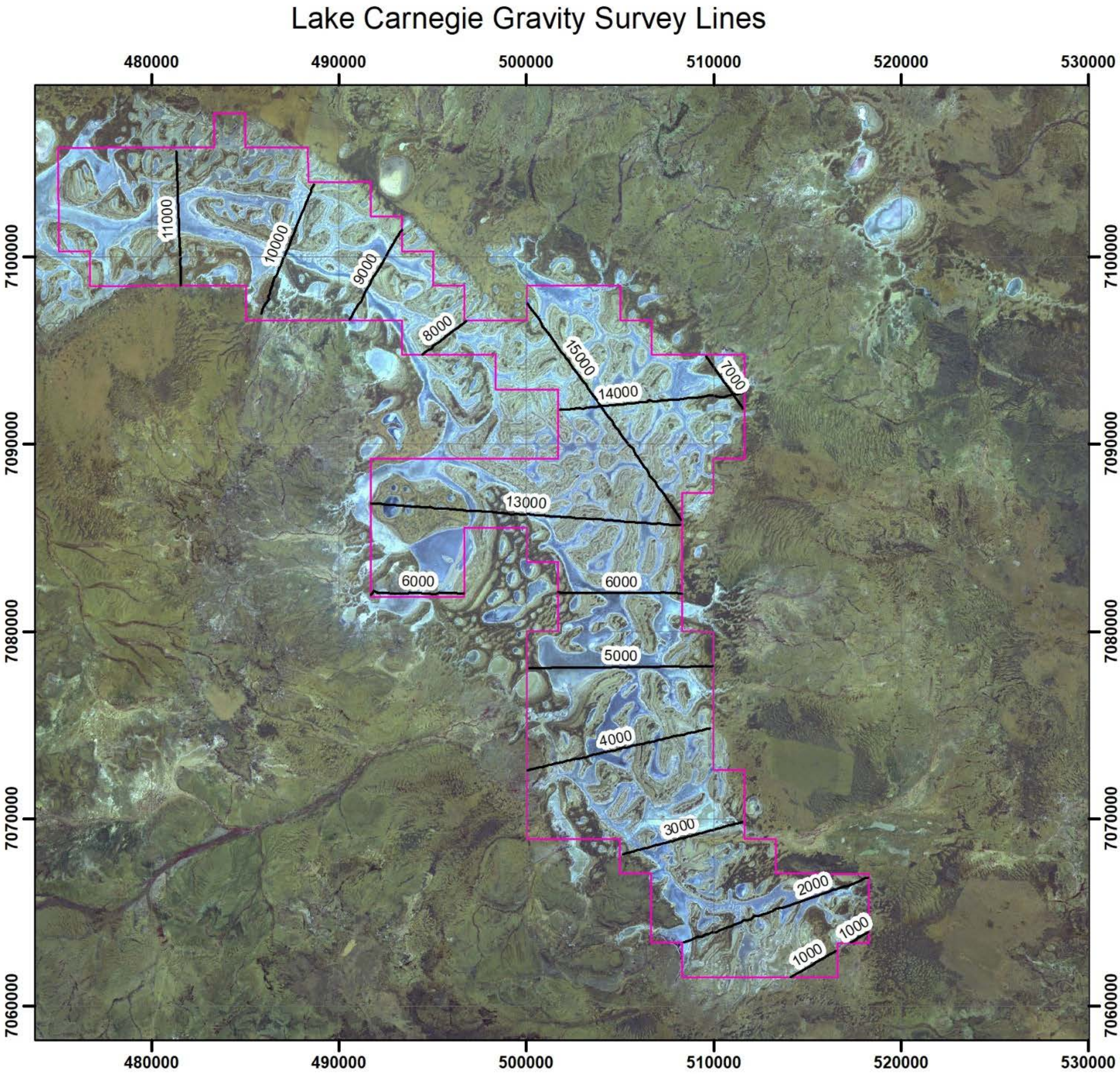

Figure 12: Gravity Traverses across Lake Carnegie [28]

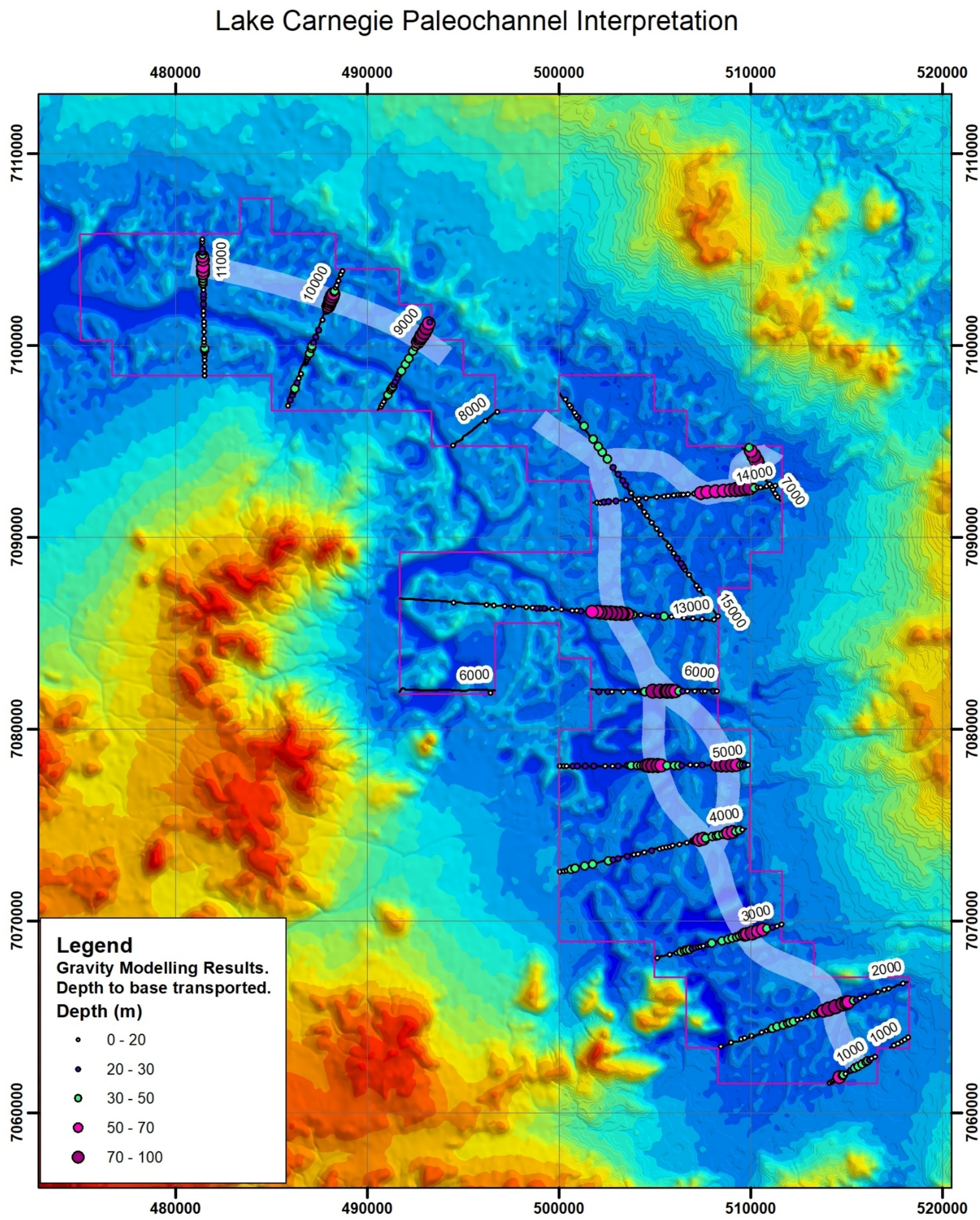

Figure 13: CPP Paleochannel Interpretation [28]

Further geophysical surface surveys will be necessary to provide a better estimation of the palaeochannel extension. Possible other geophysical methods could include helicopter electromagnetic surveys (HEM) or seismic explorations on traverses across the palaeochannel.

8.2 Augering

A 64 auger-hole drilling program was completed up to 2 m depth on an approximate 2 km to 3.5 km sample grid on the lake surface. All auger holes were completed using a motorized, hand held auger. Sampling the brine was undertaken by allowing the hole to fill with brine (generally within 5 minutes) and submerging a sample bottle beneath the water table. When the sediment had settled in the bottle, a clean sample was decanted to a 250 mL bottle, which was then kept cool until delivery to the laboratory for analysis. All drill holes were sampled for lithology per metre of depth.

The laboratory assay results measured potassium concentrations up to 4,790 mg/L, equivalent to an SOP grade of 10,674 mg/L. These results compare with other potash projects in the region. All auger hole potassium concentrations obtained to date are shown in Appendix 2 and presented in Figure 14.

8.3 Drainable Porosity

Laboratory analysis of 1 m interval lithological samples obtained during the auger drilling campaign in 2017 has allowed the first estimates of drainable porosity (specific yield) to be determined for the top 2 m of the lake surface sediments. The samples were submitted for grainsize distribution analysis and the relative percentages of sand, silt and clay were determined. The relationship of these ratios can be used to calculate the specific yield of the sediments using the Saxton-Rawls equation [27]. The results indicate that the top 2 m of the lake sediments mainly comprises gypsiferous sand with varying components of clay and silt, which is consistent with the geological logging of the samples. The typical stratigraphy of these samples comprised 72% sand, 14% silt and 14% clay, equating to an average specific yield of approximately 24%. These results are presented in Appendix 3 and the auger drilling sample locations are provided in Figure 14.

These initial drainable porosity results are not unexpected for the top surface of a salt lake which is typically dominated by gypsiferous sand. Drainable porosity is expected to decrease with depth, as the clay and silt content of the sediments increases with depth in the surface aquifer stratigraphy.

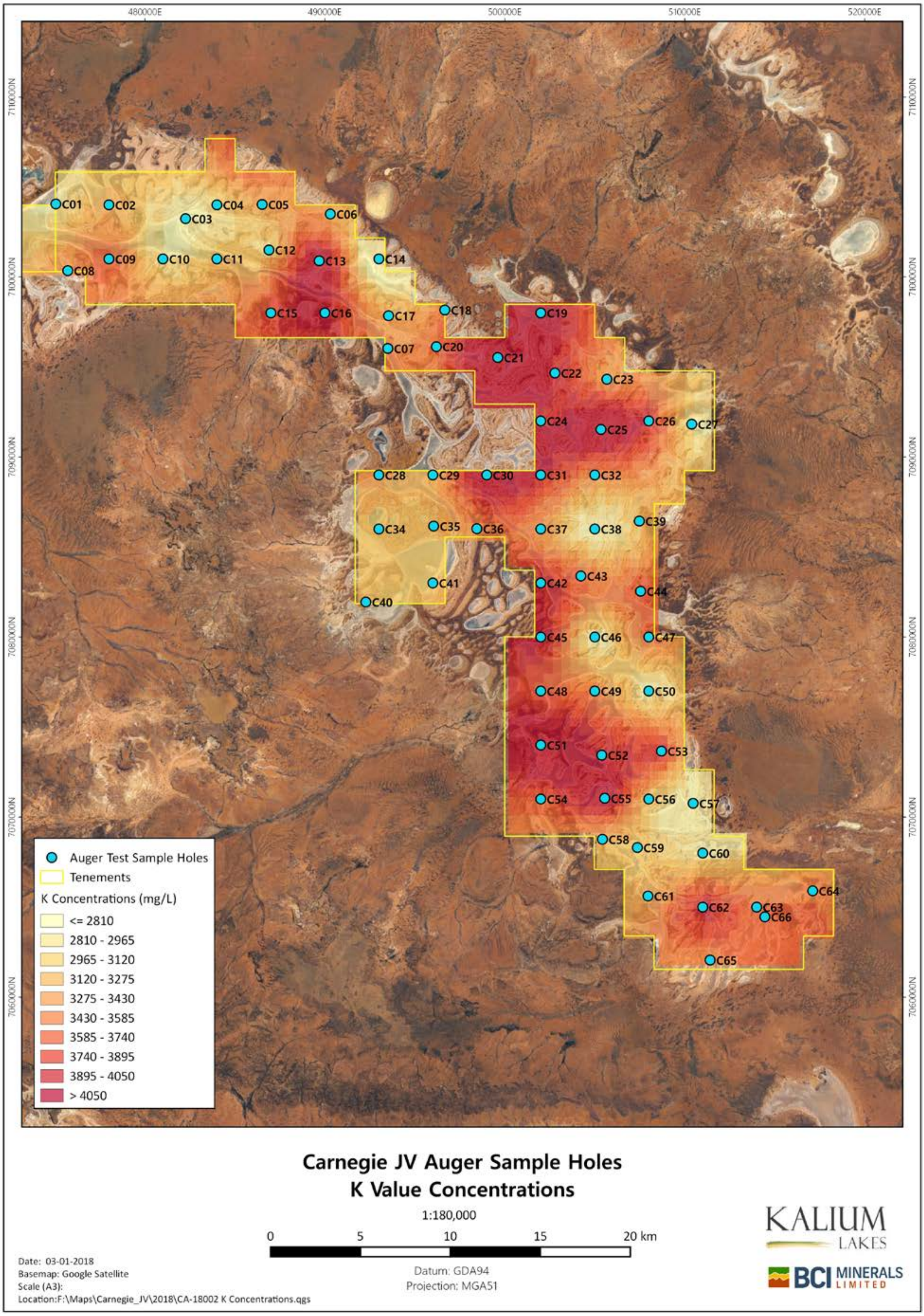

Figure 14: Overview Map of the Auger Hole Locations and Potassium Concentrations

8.4 Drilling

An aircore drilling program was completed from 6 - 11 May 2018 with the aim of characterising the geology of the deep sediments of the project. Four exploration drill holes were completed in locations determined from the gravity survey lows, which had available access. Four drill holes were completed to depths between 63 and 123 m, each hole was drilled to depth and blade refusal. The drilling method used was Aircore drilling at 142 mm diameter.

A qualified geologist from Advisian was on-site during the entire drilling period in order to log drilling returns, obtain samples, measure static water level, and take field salinity and airlift measurements. All geological samples collected during the drilling program were qualitatively logged at 1 m intervals to gain an understanding of the variability in the aquifer materials hosting the brine. Brine yield measurements and samples were obtained at regular intervals downhole, however in some places no sample was returned, due to the low hydraulic conductivity of the lacustrine clays. A geological description with detailed documentation (drill log, brine flow observations and field salinity measurement) was recorded for each borehole.

Lithological samples and brine samples were returned to Perth. Lithological samples were reviewed by senior Advisian staff in Perth and brine samples sent to bureau-veritas minerals for assay.

Refer to Appendix 4 & 5 for drilling assay results and lithology respectively.

Drilling encountered a typical palaeovalley geological sequence, with an upper Quaternary alluvial aquifer of sand, silt and soft clays with variable calcrete from the surface to approximately 20 m depth. A stiff plastic clay was encountered below the alluvial aquifer, representing a low permeability confining aquitard layer up to 80 m in thickness. This layer is considered to be persistent throughout the palaeovalley extent and has been encountered in all drill holes. Palaeochannel sand and gravel was encountered in three of the drill holes of between 7 and 17 m in thickness. Notably airlift yields increased significantly in this zone supporting the high permeability nature of these sediments. A low permeablity siltstone was encountered at the base of the drill holes. The encountered geology is considered to be equivalent to those encountered by Salt Lake Potash in the northern section of Lake Wells. A cross section derived from the drilling and gravity model interpretation is presented in Figure 16 below, the location of this section and the aircore holes are presented in Figure 15.

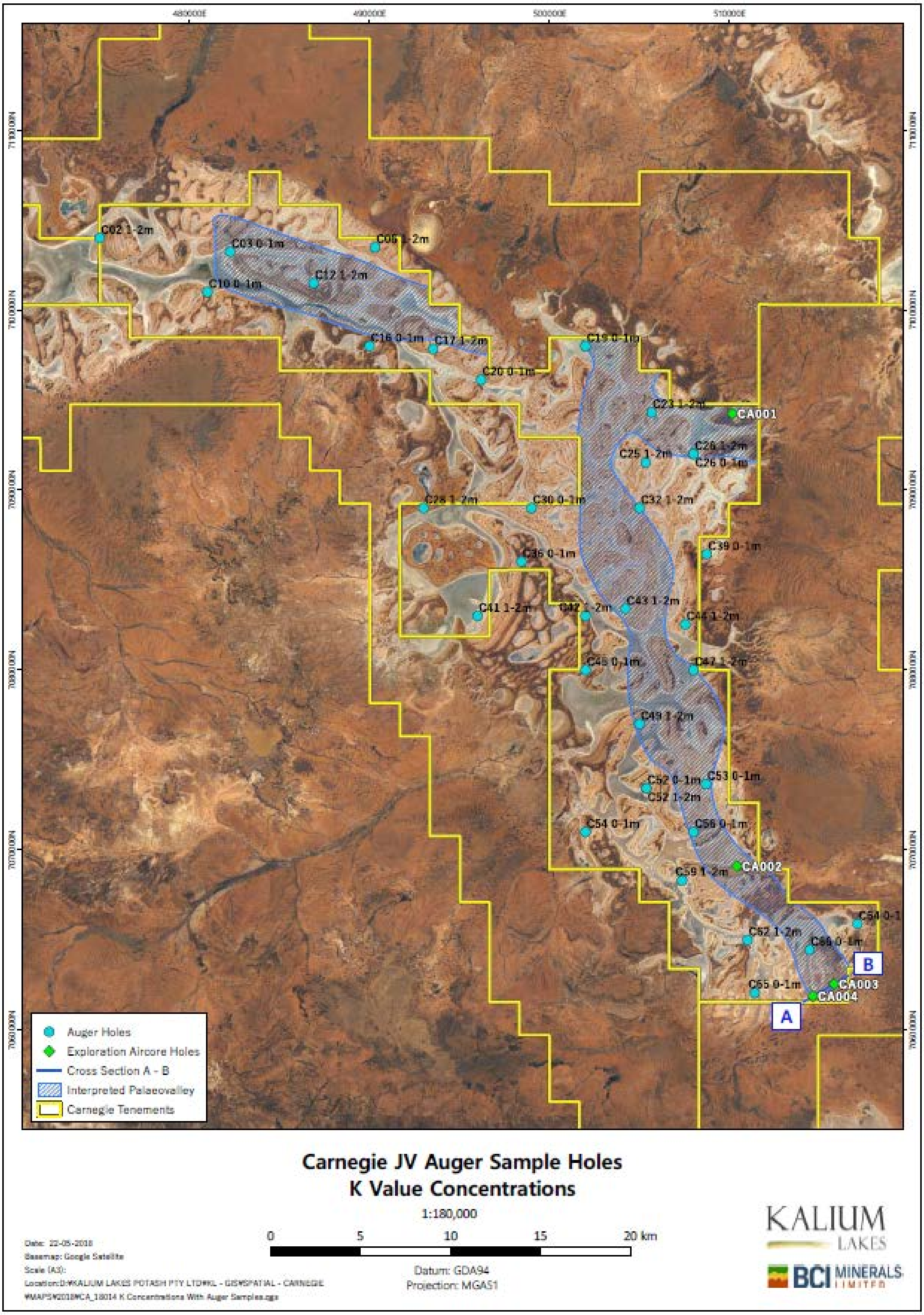

Figure 15: Aircore drill hole locations and Laboratory specific yield sample locations.

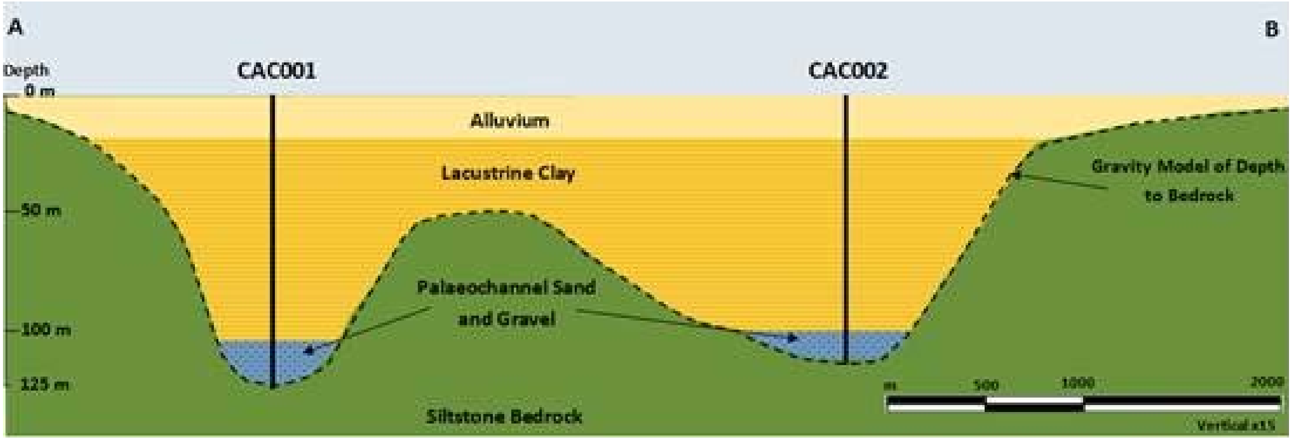

Figure 16: Geological Cross Section

9 Sample Preparation, Analyses and Security

Brine samples, collected from drilling or from augering were hand delivered by KLP personnel back to Perth, then handed over to Bureau-Veritas (BV) for analysis of various parameters. All brine samples collected were kept cool (<20 ºC), until delivery to the laboratory in Perth. Soil samples from the upper aquifer were sent to Soil Water Group and Corelab Laboratories for grain size analysis.

Elemental analyses of brine samples have been performed by a reputable laboratory, BV at Canning Vale. The relationship between KLP and BV is strictly concerned with chemical analysis of samples and cost estimates for an on-site laboratory. Bureau-Veritas is certified to the Quality Management Systems standard ISO 9001. Additionally, it has internal standards and procedures for the regular calibration of equipment and quality control methods. The laboratory equipment is calibrated with standard solutions.

Analysis methods for the brine samples used are Inductively Coupled Plasma Optical Emission Spectrometry (ICP-OES), Inductively Coupled Plasma Mass Spectrometry (ICP-MS), volumetrically, gravimetrically. All samples have been analysed for at least Ca, K, Mg, Na, SO4, Cl. In addition, selected samples have been analysed for a full 68 suite of elements: Au, Ag ,As ,Ba, Be, Bi, Br, Cd, Ce, Co, Cs, Cu, Dy, Er, Eu, Ga, Gd, Ge, Hf, Hg, Ho, In, La, Li, Lu, Mo, Nb, Nd, Ni, Pb, Pd, Pr, Pt, Rb, Rd, Re, Sb, Sc, Se, Sm, Sn, Sr, Ta, Tb, Te, Th, Tl, Tm, U, W, Y, Yb, Zn, Zr, Al, B, Ca, Cr, Fe, K, Mg, Mn, P, S, Si, Ti, V, Br.

The sample preparation and security (no mixed samples, origin of each sample is transparent) as well as analytical procedures are in line with international standards and should provide reliable results.

10 Data Verification

10% of all Carnegie brine samples obtained during the auger programme were analysed as duplicates by Bureau Veritas laboratories. No anomalous results occurred from the duplicates.

10% of the lithological samples sent for particle size distribution analysis results were split and sent to a second laboratory for verification testing. The verification testing showed that the secondary laboratory had a greater percent of silt over clay which meant the primary lab samples were the most conservative, so these were used.

11 Metallurgical Testing

To date, two discrete phases of metallurgical test work have been undertaken.

1. During the Concept Study, KLP conducted bench-scale evaporation testing using knowledge gained from prior testwork performed during the metallurgical test work for the Beyondie Sulphate of Potash Project. See Figure 17 and Figure 18 for the test work set-up and results respectively.

2. KLP engaged K-UTEC to carry out calculations and engineering studies to evaluate the evaporation pond and purification process design requirements to produce potential saleable products including SOP. The analytical results of the brine and the evaporation test work were send to K-UTEC as basis for mass balance calculations. Test results essentially confirm K-UTEC's assumptions

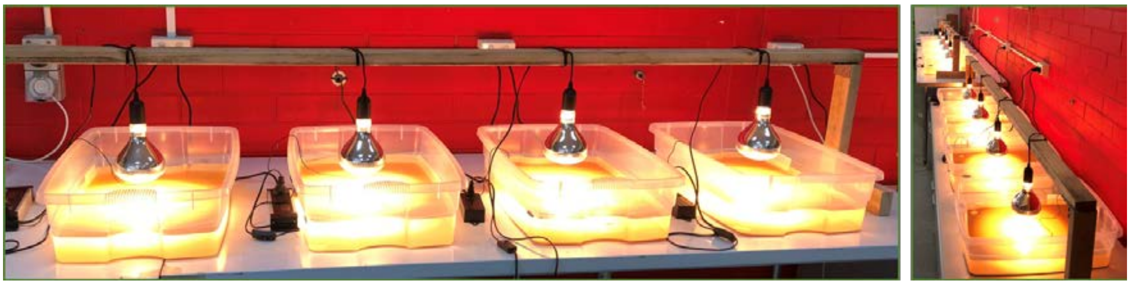

Figure 17: Test evaporation at KLP office

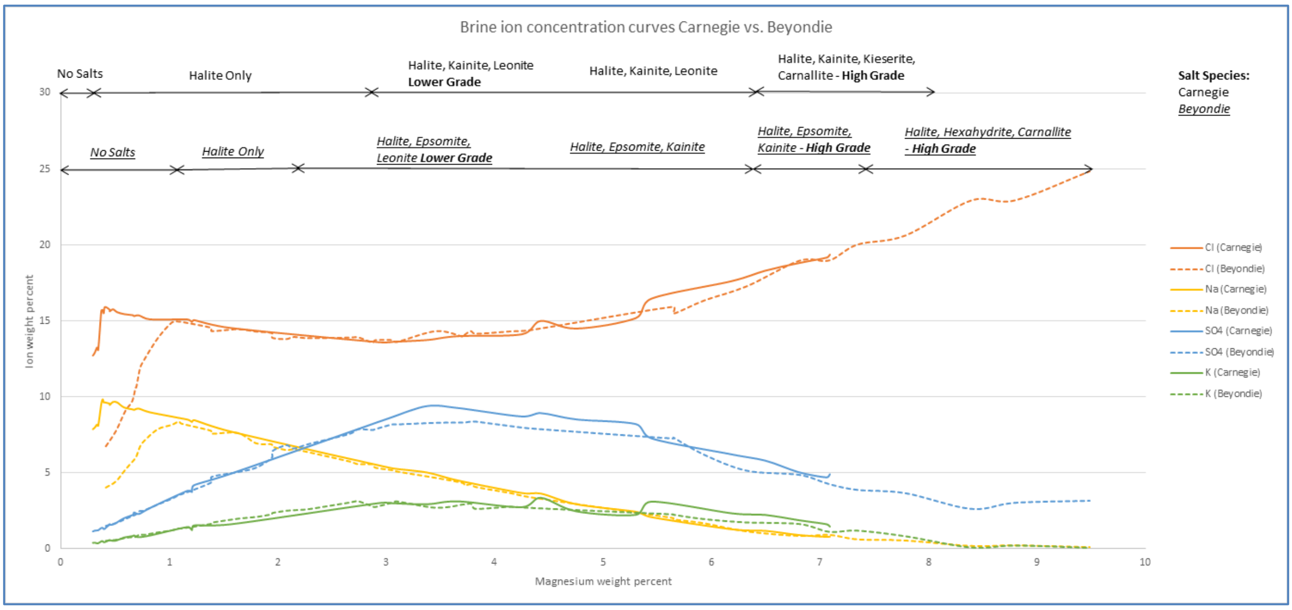

Figure 18: Brine ion concentration curves obtained from the test results

12 Mineral Resource Estimates

For the purposes of the Technical Report, the assessment has been limited to defining an Inferred Mineral Resources and Exploration Target, based on the certainty and spatial density of the data collected during the fieldwork. The levels of assessment, as linked to data certainty and spatial density are listed below, covering those areas that fall within the granted project tenement only (E38/2995).

Inferred Resources have been estimated where:

- Auger drilling took place, and brine assay results obtained but no pumping tests were run;
- Aquifer properties (Specifc yield and permeability) can be determined at a low level of confidence from laboratory tests;
- Augering has identified a shallow, permeable layer of lake bed alluvium/silts/gypsum sands with elevated K concentrations and where trenching could allow abstraction of the brine.

Exploration Targets have been estimated where:

- Limited brine chemistry data exists and some aquifer continuity with known brine resources may be expected on the basis of geophysics;
- Drilling has provided evidence of high K concentrations which may be expected to occur throughout the sequence (on the basis of K-distribution with depth observed elsewhere), but there are no drilling or geophysics data to provide any geological context to the brine occurrence or infer what the sequence at depth may actually be.

The locations of these different areas are shown in Figure 19 and Figure 20 below.

The brine volumes listed below cover each of the individual categories, so the total volume would be the summation of volumes calculated for each level of resource certainty listed below.

12.1 Resource Estimation Methodology

12.1.1 Inferred Resources

- Resource Zones for the Inferred category was based on the lake surface maped in GIS from available aerial photographs, excluding the islands.
- The Auguer hole chemistry data was gridded on a 500 m spacing using ordinary kriging and all of the available data to obtain a spatially average potassium concentration for the lake surface.
- The resource thickness was calculated from the total drilled depths (2 m) minus the avarege water take (0.3 m) to provide a thickness of 1.7 m.
- Total porosity (**P**) and Specific Yield (**Sy**) has been determined from the geometric mean of the particle size distribution **(PSD**) derived porosity estimates from the Saxton-Rawls [27] moisture regression equations (Appendix 3).

- SOP grade from potassium concentrations was calculated using a conversion of 2.23, accounting for the atomic weight of sullphate (sulphur and oxygen) in the K_2SO_4 formula.
- Resource tonnages were calculated by multiplying the volume of the Resource Zone by the Sy, and SOP grade to obtain the drainable SOP volume.

12.1.2 Exploration Target

- Limited brine-chemistry data exists, but some aquifer continuity with known brine resources may be expected on the basis of geophysics (for example along the palaeochannel reaches beneath the lake).
- Thicknesses of geological units can be estimated from drilling and other regional examples and peers.
- The specific yield and porosity has been derived from other regional examples and peers.

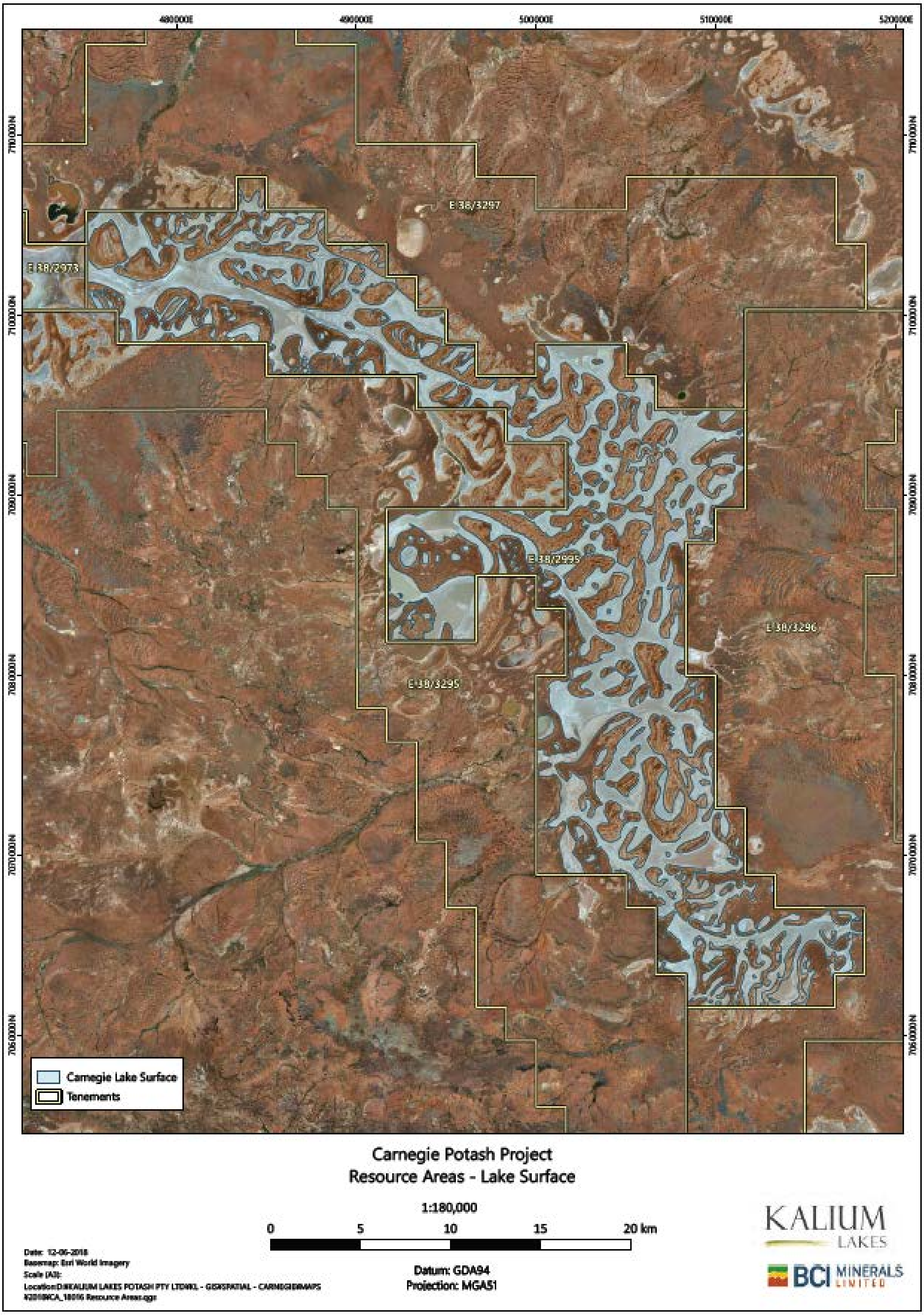

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Figure 19: Lake Surface Inferred Resource Area

Figure 20: Resource Areas defined for the Exploration Target of the palaeovalley

12.2 Measured Resources

Currently no Measured Resources can be estimated.

12.3 Indicated Resource

Currently no Indicated Resources can be estimated.

12.4 Inferred Resource

Based on the criteria listed above, the brine Inferred Resource is provided in Table 5.

Table 5: Inferred Resources

Geological Layer	Maximum Thickness (m)	Coverage (km^2)	Sediment Volume (10^6 m^3)	Porosity (P)	Total Stored Brine (10^6 m^3)	Specific Yield (Sy)	Drainable Brine (10^6 m^3)	K Grade (mg/L)	K Mass (Mt)	SO_4 Grade (mg/L)	SO_4 Mass (Mt)	K_2SO_4 (Mt)
Lake Sediments	1.7	**278.3**	**473.13**	**40%**	**189**	**0.24**	**113.55**	**3,466**	**0.39**	**11,715**	**1.33**	**0.88**

12.5 Exploration Target

Based on the criteria listed above the Exploration Target is provided as a range in Table 6.

Table 6: Exploration Target

Geological Layer	Maximum Thickness (m)	Coverage (km^2)	Sediment Volume (10^6 m^3)	Porosity (P)	Total Stored Brine (10^6 m^3)	Specific Yield (Sy)	Drainable Brine (10^6 m^3)	K Grade (mg/L)	K Mass (Mt)	SO_4 Grade (mg/L)	SO_4 Mass (Mt)	K_2SO_4 (Mt)
Alluvium	7	278	1,948	0.35	682	0.05	88	3,500	0.31	12,963	1.14	0.68
Clays	40	287	11,471	0.4	4,589	0.03	287	3,400	0.98	12,593	3.61	2.17
Basal Sands	7	80	557	0.28	156	0.15	84	3,300	0.28	12,222	1.02	0.61
Total					**5,427**		**459**	**3,410**	**1.57**		**5.77**	**3.46**
Alluvium	12	561	6,727	0.4	2,691	0.14	377	3,500	1.32	12,963	5.00	2.94
Clays	60	287	17,207	0.45	7,743	0.06	465	3,400	1.58	12,593	5.85	3.52
Basal Sands	17	80	1,353	0.35	474	0.25	118	3,300	0.39	12,222	1.45	0.87
Total					**10,908**		**960**	**3,420**	**3.29**		**12.30**	**7.33**

The CJV CPP Exploration Target is based on a number of assumptions and limitations and is conceptual in nature. It is not an indication of a Mineral Resource Estimate in accordance with the JORC Code and it is uncertain if future exploration will result in the determination of a Mineral Resource. The CJV CPP Exploration Target incorporates the granted tenement only. Lake area is varied as the upper limit incorporates the brine below the islands. SO_4 and Mg are calculated based on the geometric mean of the ratio to potassium of all the samples collected to date. The Clay area is calculated from the interpreted palaeovalley derived from the gravity data. The Basal sand area is calculated from the area of the deepest sections of the palaeovalley. Grades are representative of the data obtained during auger sampling and drilling.

12.6 Total Brine Volume

For comparative purposes the following Table 7 has been provided to compare the above Inferred Resources, as well as the Exploration Target which have all been based on Drainable Brine, against other Australian Listed Companies Resources which have been quoting Resources based on Total Brine Volume. As can be seen the Total Brine Volume is significantly higher than reporting against the CIM Guidelines of Drainable Brine. For production the drainable brine component is the most important part because not all of the total brine can be extracted.

Table 7: Resources Summary

Level	Total Brine Volume (10^6 m^3)	K* (10^6 tonne)	SO_4* (10^6 tonne)	SOP* (10^6 tonne)
Total In-Situ volume associated with the Inferred Resource	189	0.66	2.22	1.46

* Tonnage for K, SO_4 and SOP was calculated from the average grades of K, SO_4 and SOP and the Total Brine Volume for each resource.

For Pre-feasibility Study purposes an investigation of the recharge rate of the aquifers should be provided, as the drainable brine volume could be higher and more qualified. It is further recommended that more field trials, mainly drilling work and extended duration test pumping be undertaken to satisfy the requirements of the Modifying Factors and JORC Table 1.

12.7 Resouce Upside Potential

A further 82,000 ha of lake surface is in the pending tenements as showin in Figure 21. These areas are not included in the current Inferred Resource and exploration target.

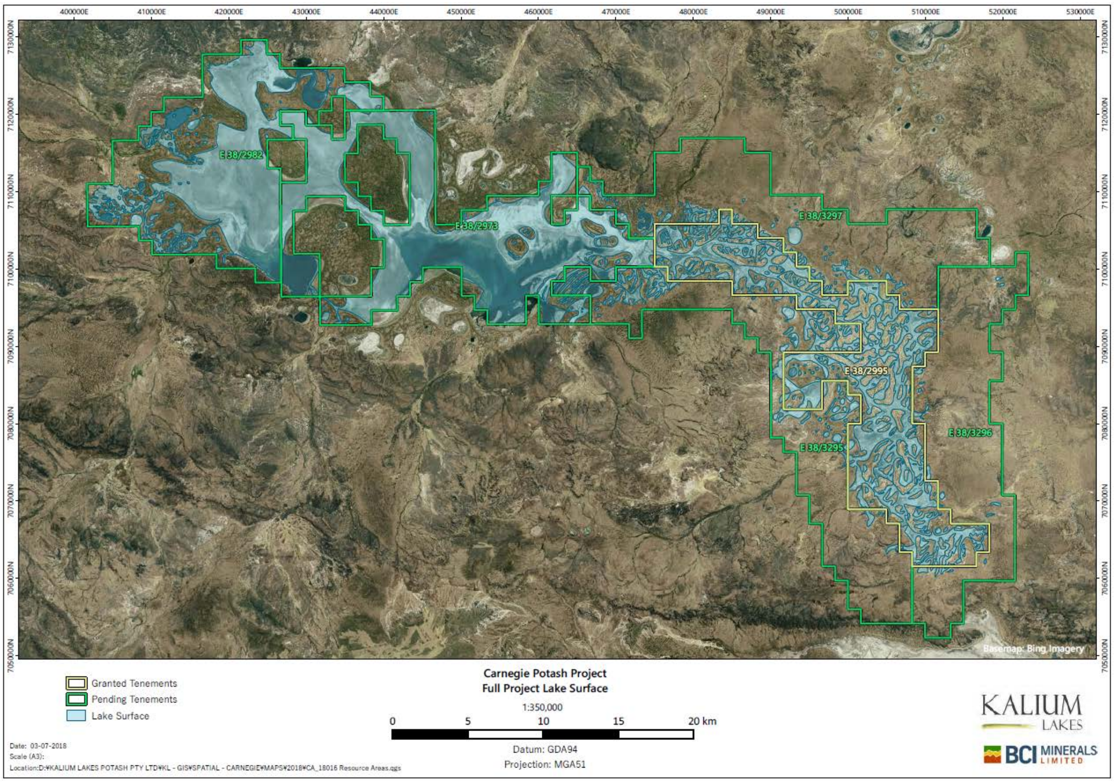

Figure 21: Lake Surface Area in Pending Tenements

Values for additional exploration target potential have been extrapolated from the existing data and knowledge of the lake system with the underlying palaeochannel. As exploration work continues, the database as well as the classification of the resources and size of the resource may be increased.

13 Mining Methods

There are two principal methods applicable to extract the brine from the surrounding sediments:

- **pumping from wells** in the basal sands (lower aquifer) plus leakage from potential brine bearing segments within the clays;
- **pumping from trenches** inside the alluvial sediments (upper aquifer).

It is likely that both methods will be used because of the properties of the different aquifers. The design of the bore field will be based on the brine demand and aquifer conditions.

14 Ore Reserve

Sufficient information has not been obtained to determine an Ore Reserve.

15 Recovery Methods

The general mineral processing concept is comprised of the following areas:

- Brine winning
- Brine concentration and crystallization of solid raw materials for the purification plant
- Purification plant
- Utilities

According to the composition of the deposit brine, the SS process design considers the recovery of SOP as the principle product. Potential by-products might incude Epsomite, Magnesium Hydroxide, Bischofite and Magnesium Oxide.

The process begins with brine entering the evaporation ponds whereby water is removed by solar evaporation. This causes different salts, starting with gypsum and halite, to crystallise subsequently in the first set of ponds. Unless determined economical to process, these salts are left within the ponds, and will be harvested once the salt layer gets to high. The remaining brine crystallises in the next set of ponds producing a Kainite Type Mixed Salt (**KTMS**) consisting of sulphatic and potassium containing salt like leonite, schoenite and carnallite and some amounts of halite. The salts of these ponds are harvested and stored separately prior to mixing, pre-crushing and transferral to the SOP plant. The resultant end bittern from the solar evaporation process may be partially recycled back to the pond system or transferred to subsequent brine treatment plants, where a production of by-products can take place.

The SOP plant converts the mixed salt into schoenite and halite through mixing with water and internal recycling of the brines. The resultant slurry is processed through flotation to reduce the amount of halite.

The resultant schoenite salts are decomposed into SOP. The halite is discarded to tailings unless otherwise economical to process.

The end bittern from the solar evaporation process contain a high magnesium sulphate content, meaning it may be economical to process into epsomite and other potential by-products for sale.

K-UTEC's simplified flowsheets are shown in Figure 16. K-UTEC AG Salt Technologies have also provided a block flow diagram (BFD), main equipment list (see Figure 23 and Figure 24) and an option study for different production capacities of SOP along with the processing report [26].

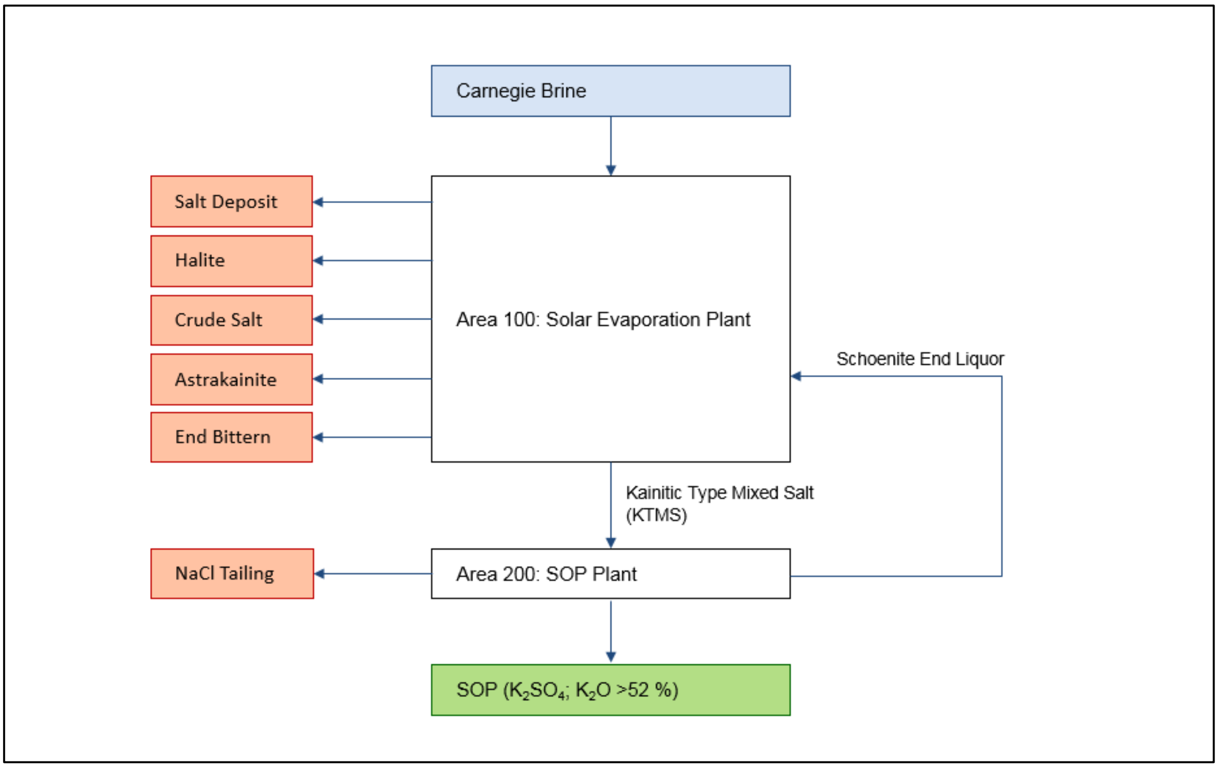

Figure 22: Simplified Process Scheme for Comprehensive Utilisation of Carnegie Brine

Area 100	
Name of Equipment	**Description**
Solar Evaporation	
Pond complex	Total area of ponds
Surface miner	For harvesting
Dumper trucks	For transportation
KTMS storage	For interim storage before SOP production
Electrical pumps	For brine transfer

Figure 23: Preliminary main equipment list Area 100: Pond System

Area 200	
Name of Equipment	**Description**
Crushing	
Feed Hopper	For storage and Pre-crushing
KTMS Mills	For crushing
Conversion of KTMS to Primary Schoenite	
Conversion reactors, agitated	For generation of primary Schoenite
Thickener	For thickening
Flotation of Primary Schoenite	
Conditioning Vessel	For mixing of Schoenite with flotation agent
Centrifuges	For dewatering of primary Schoenite and NaCl
Hydrocyclones (battery)	For thickening
Flotation Cells	For separation of Schoenite and NaCl
Cooling of SOP Mother Liquor and Secondary Schoenite	
Cooling crystalliser	For cooling crystallisation
Hydrocyclones (battery)	For thickening
Centrifuges	For dewatering of secondary Schoenite
Crystallisation of SOP	
SOP reactors, agitated	For decomposition of secondary Schoenite into K_2SO_4 and washing
Hydrocyclone(battery)	For thickening
Centrifuges	For dewatering of raw SOP and washed SOP
Thickener	For thickening
Drying of SOP	
Fluidized bed Dryer	For dewatering of product
Compaction and Packaging	
Compaction Plant	For compacted products
Packaging Unit	For packaging in sealed bags or bulk bags

Figure 24: Preliminary main equipment list Area 200: SOP Plant

16 Project Infrastructure

16.1 Supporting Infrastructure

Supporting infrastructure will typically include offices, ancillary buildings, maintenance facilities, accommodation, diesel fuel, water, power, communications and Information Technology systems. Accommodation facilities will be required. It is the intention of the Company that fuel for power generation will be sourced initially from diesel, LNG or CNG supplied by road train. A gas pipeline at Jundee is located approximately 150 km's from the western edge of Lake Carnegie.

16.2 Site Access and Product Haulage

The Carnegie site is approximately 200 km east-north-east of Wiluna, the road is predominantely gravel with a bitumised section near Wiluna. Road haulage for transporting product from the the Carnegie site to the various distribution centres via the public road network has been selected as the optimum solution for the CPP. This is based on the close proximity to existing public road infrastructure, like the Gunbarrel Highway or Wongawool Road, the relatively low product haulage requirements and diversity of delivery locations. Trucking options for the CPP includes a combination of bulk loaded trailers, bulk loaded containers and break bulk cargo (i.e. bulk bags) loaded on flat top truck trailers and curtain sided taunt liners.

16.3 Port

The CJV has investigated a number of port locations for export of product to the east coast of Australia and into Asian markets. The preferred ports are dependent on the export method. Fremantle Port is the preferred container port, due to its status as a destination on regular shipping routes. Geraldton Port and Esperence Port are the preferred bulk export ports due to the availability of existing port facilities, proximity to agricultural distributions centres (including road transport synergies), wider availability of real estate for product storage and stockpiling and the availability of labour resources that will avoid fly in fly out operations for trucking and port operations. Esperance port has also been investigated due to the access location of a rail link, which is available at Leonora providing a direct rail transport option to Esperance.

17 Market Studies and Contracts

The CJV has conducted a review of the potash market utilising leading industry market research reports (CRU, Green Markets, Integer and Fertecon) and has formed the view that, although the potassium chloride (**KCl** or **MOP**) is well supplied, the premium potassium sulphate (**K_2SO_4** or **SOP**) is undersupplied.

Global SOP demand was estimated at just over 6.1 million tonnes (3.015 Mt K_2O) in 2015/16, which represents a significant rise in demand mainly due to a substantial rise in consumption in China. It is notable that there is also no potash production in Australia, a nation which presently consumes ~230ktpa of MOP and ~70ktpa SOP.

Only nine companies have capacity to produce greater than 300 ktpa of SOP and account for approximately 60% of global supply. China accounts for the largest percentage of supply and has seen a rapid increase in recent years.

The CPP Product will seek to exploit its competitive position within Australia associated with its relatively low production cost and low cost of freight when compared to some overseas suppliers. The principal focus is to supply the Australian market in the first instance whilst looking at opportunities to diversify supply into South East Asia and other international locations.

It is anticipated that KLP will market the CPP Product by leveraging its offtake relationships for the BSOPP product.

18 Environmental Studies, Permitting and Social or Community Impact

18.1 Environmental Studies

Phoenix Environmental Sciences Pty Ltd was commissioned by Kalium Lakes Ltd to undertake and Environmental desktop study to define the potential environmental values present within the CPP area. Phoenix's scope of works for the desktop study included flora and vegetation, landforms, subterranean fauna, terrestrial fauna, hydrological processes and inland water environmental quality.Based on the desktop study, the CJV can prepare a survey program suitable to support anticipated project approvals and provide an indicative costing to execution of the survey program.

18.2 Stakeholders

The CJV consultation strategy identifies key external stakeholders and determines how they will be impacted by the CPP and what influence they may have on the Project. The aim of such extensive consultation is to develop productive relationships that ensure the CPP is underwritten by sustainable agreements and the necessary approvals. The consultation strategy has also been developed to secure the approvals necessary for the construction and operation of the mine, road and port facilities, which will require consultation with the following:

- Local Government
- State Government
- Commonwealth Government
- Mining companies in the Western Pilbara
- Aboriginal groups with a connection to the CPP lands
- Other community stakeholders, e.g. Pastoralists

Commonwealth, State and Local Government authorities have been briefed at a high level on the CPP to ensure any issues, concerns or suggestions are identified and, where appropriate, addressed or responded to by the project team. The consultations have been ongoing since 2015 and, while they have helped inform the CPP, in most cases it resulted in providing the Government authority with additional information and clarity about the project. The following regulatory departments and authorities have been consulted to date about the CPP:

- Department of the Environment and Energy (**DEE**) (Commonwealth)
- Department of State Development (**DSD**) (State)
- Department of Mines, Industry Regulation and Safety (**DMIRS**) (State) formally Department of Mines and Petroleum
- Department of Biodiversity, Conservation and Attractions (**DBCA**) (State) formally Department of Parks and Wildlife

- Department of Water and Environmental Regulation (**DWER**) Perth and Pilbara Regional Office (State) formally Department of Environment Regulation and Department Water
- Department of Planning, Lands and Heritage (**DLPH**) formally Department of Planning, Department of Lands and Department of Aboriginal Affairs (State)
- Department of Transport (**DOT**) (State)
- Environmental Protection Authority (**EPA**) (State)
- Mid-West Port Authority (**MWPA**) (State)
- Minister for Mines (State)
- Minister for Aboriginal Affairs (State)
- National Native Title Tribunal (**NNTT**) (Commonwealth)
- Shire of Wiluna (Local authority)
- Shire of Meekatharra (Local authority)
- Shire of Geraldton (Local authority)

The consultation strategy also recognises that individuals, companies and communities are interested in the impact the CPP may have on them and can influence the approvals, licences and agreements for the project. CPP has contacted or will meet with the following stakeholders to inform them of the CPP and discuss any opportunities or concerns that the stakeholders would like to raise and resolve:

- Wiluna Native Title claim group
- Tarlka Matuwa Piarku Aboriginal Corporation RNTBC (**TMPAC**)
- Manta Rirrtinya Native Title Claim
- Carnegie Pastoral Station
- Nimiga Pastoral Station
- Prenti Downs Pastoral Station
- Windidda Pastoral Stations
- Wongawol Pastoral Station

18.3 Native Title and Heritage

The CPP is located within the Wiluna Peoples (WCD2013/004) Native Title determination area. The total area of 40,664 km² was determined by the Federal Court and took effect on 23 January 2015. The Wiluna determination includes the township of Wiluna, a number of pastoral leases, parts of the Canning Stock route and areas of unallocated Crown land including Lake Carnegie. As required under the Native Title Act, the Tarlka Matuwa Piarku Aboriginal Corporation RNTBC (TMPAC) was established to manage the Wiluna Peoples native title rights and interests.

The CJV continues to negotitate an exploration and prospecting deed of agreement with the Tarlka Matuwa Piarku Aboriginal Corporation (TMPAC) over the tenements in application. The initial CPP tenure (E38/2995) was granted in July 2015 under the expedited procedure provisions of the Native Title Act.

18.4 Permitting and Approvals

The Approvals Strategy is based on a staged approach to allow progressive and timely approvals for each development phase of the CPP. The planned stages to complete the CJV Sulphate of Potash Project are as follows:

- Stage 1 – Scoping Study

- Stage 2 – Prefeasibility Study
- Stage 3 – Feasibility Study
- Stage 4 – Construction and Operations

CJV has reviewed the legislative requirements and has compiled a register of the environmental, heritage and planning approvals and permits necessary to scope, develop, construct and operate the CPP for each stage. Each stage will require; new specific approvals, or will utilise approvals granted in the prior stage, or seek to modify existing approvals.

19 Capital and Operating Costs

19.1 Capital Costs

The capital cost estimate for the Carnegie Potash Project was developed to an AACE Class 5 estimate and compares favourably when benchmarked with costs available for similar projects.

19.2 Operating Costs

The operating cost estimate for the Carnegie Potash Project was developed at a scoping study level of accuracy and compares favourably when benchmarked with costs available for similar projects.

20 Economic Analysis

The Scoping study results are positive for a number of scenarios and the results justify the CJV continuing to commit to the next stage of exploration and development. The key recommendations, among others, are to under take further drilling plus complete pilot scale pump and evaporation testing to enable a Mineral Reserve to be completed, a Production Target nominated and forecast financial information derived.

*The CJV has not currently published a Mineral Reserve, having regard to guidance from the Austalian Securities and Investments Commission (**ASIC**) and KLP and BCI are of the view that there are not reasonable grounds for the CJV to publicly state a production target, forecast financial information or income based valuations although the company might prepare these types of forward looking statements solely for internal management purposes.*

Key sensitivities are likely to include discount rate, financial exchange rate, SOP pricing, OPEX, CAPEX and project delays. It is noted that existing brine hosted SOP producers are comparatively low cost when compared to secondary Mannheim (derived from MOP) SOP producers as detailed in leading industry market research reports. Figure 25 shows a simplified summary of existing SOP producer production costs derived from leading industry market research reports, company reports and other sources for various SOP production methods in US$.

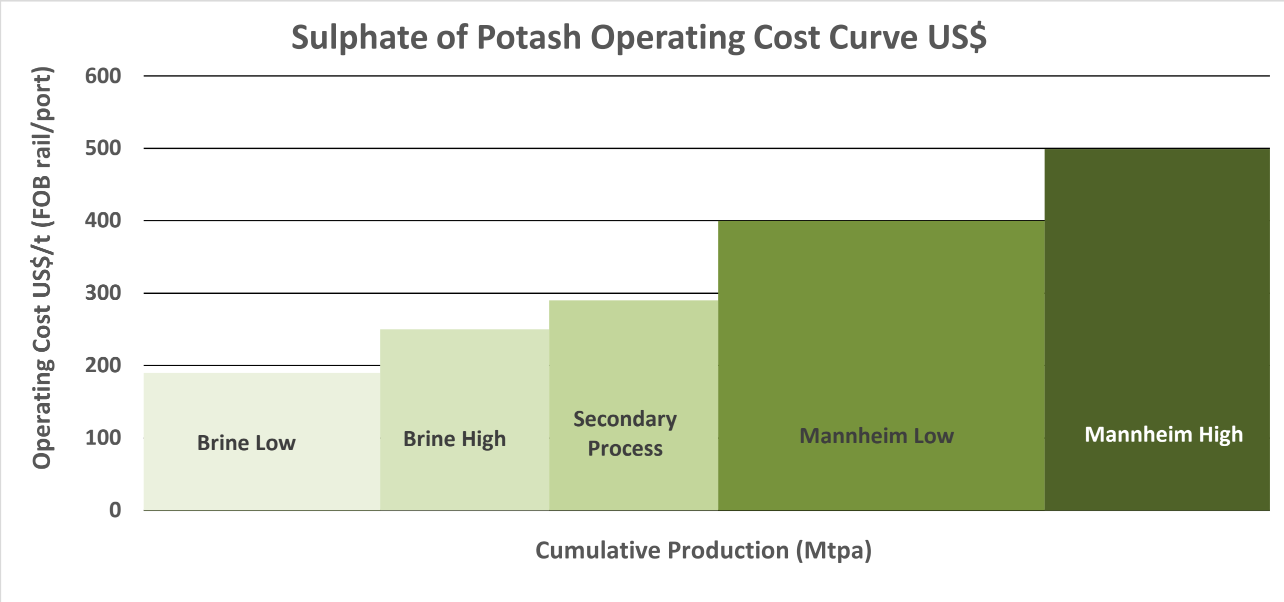

Figure 25: Industry Benchmarking Cost Curve

21 Adjacent Properties

The CPP tenements were chosen because of the outlines of the brine hosting sediments. Only two properties are close to the area of CPP: Australian Potash has tenements in the southwest portion of Lake Wells whereas Salt Lake Potash has tenements in the northern portion of this lake. Lake Wells is located approximately 10 km to the south of the southern extent of Lake Carnegie.There is expected to be limited influence on these adjacent properties by the Carnegie Potash Project because the large distances between Lake Wells and Lake Carnegie (7 km).

A hydraulic flow model is required to estimate the impact of the planned Lake Carnegie production activities on the shallow and the deep aquifer as well as boundary effects and possible influence by the Lake Wells Projects which is located upstreams.

22 Other Relevant Data and Information

No other pertinent data or information is available at the moment.

23 Interpretation and Conclusions

As with all brine deposits, there is a risk that the brine grade is less than expected, highly variable or is unable to be abstracted from subsurface at the required rates. This may be due to any of the following:

- Variability in deposit could influence brine recovery;
- Brine volume and extraction assessment is inaccurate;
- Inability to abstract brine volumes due to low permeability of the aquifer material;
- Weather conditions;
- Aquifer lithology.

At the publication date of this Technical Report, a number of exploration works have been carried out. The results of the deposit exploration show the differences of the chemical composition of the brine from different well depths as well as laterally, e.g. from the auger holes. The results of the chemical analysis of the brine, grain size analysis, and geophysical exploration, have lead to values for an exploration target and inferred resource classification. Furthermore, values for an exploration target could be extrapolated from the existing data and knowledge of the lake system within the underlying palaeochannel. As exploration work continues, the database as well as the classification of the Mineral Resources and size of the Mineral Resource will be increased.

The two possible mining methods were shown which lead into the production facility. The recovery method shows the potential production of SOP. According to the composition of the deposit brine the current process design considers the recovery of SOP as the principle product with the potential for producing magnesium by-products.

24 Recommendations

To increase the knowledge of the complete brine system, further fieldwork (drilling, pumping tests) should be performed. From the field data a geological model as well as a hydrogeological numerical model should be developed. If possible, data for replenishment of the aquifers should be obtained and monitored.

Several conditions can be defined more accurately with ongoing exploration work, such as long-term pumping tests to include monitoring of a wider area or test trenches.

It is recommended that geophysical exploration be combined with borehole exploration including; geophysical borehole logging, insitu tests of permeablilty, porosity and hydrogeological flowrates. Doing so would enable the local knowledge for the tenement area to be improved. A more in-depth exploration programme was noted previously in the site visit report [25].

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26 JORC Code, 2012 Edition – Table 1 report template

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 (eg 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 (eg '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 (eg submarine nodules) may warrant disclosure of detailed information.*	• The sampling program involved the collection of brine samples and lithological samples of the aquifer material from auger drill holes. • Brine was obtained from the water table within an auger drill hole of up to two metres in depth directly after drilling. A sample bottle was submerged below the water table and allowed to fill. • Brine was also obtained from airlift development of 50 mm monitoring bores installed within the aircore drilled hole using an airline. These samples were obtained after approximately 1 hour of airlifting and are considered representative of the slotted zone of the monitoring bore. • Bulk lithological samples of aqufer material were obtained from the auger flights at 1 m intervals and securely bagged for transport. • Chip tray samples were also obtained. • Aircore chip samples were obtained from the cyclone during drilling, and brine samples from airlifting.
Drilling techniques	• *Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg 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).*	• All auger holes were drilled using a motorised auger to penetrate the lake sediments to 2 m depth, the diameter of the auger hole was approximately 20 cm. • Deeper drilling was performed by conventional aircore drilling up to 123 m depth at 142 mm diameter.
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.*	• Lithological samples were collected during drilling, by sampling direct from the auger flights. • Auger hole brine samples are considered representative of the saturated zone of the 2 m auger hole. • Brine samples have been collected during drilling, by sampling direct from the cyclone discharge. • Airlifts were generally of prolonged duration to obtain representative

Criteria	JORC Code explanation	Commentary
		samples, however, water flowing down from the surficial aquifer during deeper airlift yields cannot be ruled out. • Sample grade is marginally biased to the grade of brine associated with coarser material due to permeability effects.
Geologic 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.*	• All geological samples collected during drilling are qualitatively logged at 1 m intervals, to gain an understanding of the variability in aquifer materials hosting the brine. • Geological logging and other hydrogeological parameter data is recorded within a database.
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.*	• All samples collected are kept cool (<20°C), until delivery to the laboratory in Perth. • Brine samples were collected in 500 ml bottles with little to no air. • Field brine duplicates have been taken at approximately 1 in 10 intervals.
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 the derivation, etc.* • *Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.*	• Elemental analysis of brine samples are performed by a reputable Perth laboratory, the Bureau-Veritas (BV) (formerly Amdel/Ultrace) mineral processing laboratories. BV is certified to the Quality Management Systems standard ISO 9001. Additionally they have internal standards and procedures for the regular calibration of equipment and quality control methods. • Laboratory equipment are calibrated with standard solutions • Analysis methods for the brine samples used are inductively coupled plasma optical emission spectrometry (ICP OES), Ion Selective Electrode (ISE), Inductive coupled plasma mass spectroscopy (ICP-MS), volumetrically and colourimetrically. The assay method and results are suitable for the calculation of a resource estimate. • Repeat assays have been undertaken at a 1 in 10 interval and checked

Criteria	JORC Code explanation	Commentary
		against primary analyses for degree of variability. • Field duplicates were submitted and checked against primary analyses for degree of variability. • All field duplicates and laboratory repeats were in acceptable bounds, with the exception of the C28 Duplicate, which returned a 20 % increase in grade. The lower value of the primary analysis has been reported. • Lithological samples from auger drilling have been analysed in the laboratory (Soil Water Group - SWG) to obtain initial hydraulic parameters. • Particle Size Distribution (PSD) analysis was performed to AS 4816.1 (2002) (Pipette method of Sedimentation Analysis). • 10% of the lithological samples were split and were sent to Corelabs for repeat analysis. Corelabs used a laser method of particle size distribution analysis which resulted in greater proportion of the fines content being attributed to silt rather clay. The results from SWG are seen as more conservative and have been used in the Resource assessment.
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.*	• Data concerning sample location was obtained in the field, data entry then performed back in the Perth office to an electronic database and verified by Advisian. • Assay data remains unadjusted. • Filed parameters of NaCl content have been taken.
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.*	• Hole location coordinates were obtained by a hand held GPS. • The grid system used was MGA94, Zone 51. • Aircore drill hole spacing is irregular and has been determined from available access with the rig available to complete the work.
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.*	• Auger samples across the lake surfaces have been obtained on an approximately 3 km grid. Statistically the mean drill hole spacing is 2.7 km.

Criteria	JORC Code explanation	Commentary
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 applicable, considering the deposit type. • All auger drill holes are vertical.
Sample security	• *The measures taken to ensure sample security.*	• Samples are labeled and transported by Kalium Lakes personnel to Perth. They are then hand delivered to BV laboratories by Kalium Lakes personnel.
Audits or reviews	• *The results of any audits or reviews of sampling techniques and data.*	• Advisian has conducted a review of sampling techniques and data performed during the sampling program and found them sufficient for the purposes of estimating an Inferred Mineral Resource.

Section 2 Reporting of Exploration Results

(Criteria listed in the preceding section 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.*	• The Carnegie Potash Project (CPP) is 100% owned by Kalium Lakes and BCI Minerals as participants in the Carnegie Joint Venture (CJV). • Current ownership is 85 % Kalium Lakes and 15 % BCI Minerals, with BCI Minerals having a right to earn up to a 50 % interest. • Kalium Lakes is the manager of the CJV. • CPP tenure comprises granted exploration licence E38/2995 and pending exploration licences E38/2973, E38/2982, E38/3295, E38/3296, E38/3297, E69/3547. • Kalium Lakes has obtained the required section 18 heritage ministerial consent, DMP permits of work and DPAW advice in relation to the exploration program on the granted exploration licence E38/2995. • The CJV continues to negotitate an exploration and prospecting deed of agreement with the Tarlka Matuwa Piarku Aboriginal Corporation (TMPAC) over tenures the pending tenure.
Exploration done by other parties	• *Acknowledgment and appraisal of exploration by other parties.*	• See Section 5 of this Ni 43-101 Technical Report.
Geology	• *Deposit type, geological setting and style of mineralisation.*	• The deposit is a brine containing the target potassium and sulphate ions that could form a potassium sulphate salt. The brine is contained within saturated sediments below the lake surface and in sediments adjacent to the lake.
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:* o *easting and northing of the drill hole collar* o *elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar* o *dip and azimuth of the hole* o *down hole length and interception depth* o *hole length.*	• Information has been included in drill collar tables within this report; see Appendix 2 & 3. • All holes are vertical.

Criteria	JORC Code explanation	Commentary
	• *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 (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 due to exploration results being applicable to a brine and not a solid. • No cut-off grades have been implemented
Relationship between minerali-sation 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 due to exploration results being applicable to a brine and not a solid.
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.*	• Refer to figures/tables in the report.
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.*	• All pertinent results have been reported.
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*	• Approximately 123 line km of gravity geophysical surveys have been completed. The surveys were performed to help define the deepest sections of the palaeovalley, with traverses undertaken across the mapped valley extents. • Gravity data has been quality controlled during the field program with

Criteria	JORC Code explanation	Commentary
	deleterious or contaminating substances.	repeat readings of approximately 3 %. • High accuracy differential GPS has been used to locate the station locations. • Gravity data hase been modelled and residual gravity anomalies calculated to define the relative depth of surficial palaeovalley sediments. • The gravity surveys indicate palaeovalley stratigraphy, but the nature of these sediments needs to be confirmed by future drilling. • Other companies have regionally performed exploration on local tenements for similar brine deposits and successfully mapped palaeochannel aquifers from gravity surveys.
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.*	• Further geophysical survey to refine the palaeochannel geometry; • Exploration drilling to define Mineral Resources below the lake surface; • Trenching of the lake surface; • Test production bore installation in the palaeochannel; and • Test pumping.

Section 3 Estimation and Reporting of Mineral Resources

(Criteria listed in section 1, and where relevant in section 2, also apply to this section.)

Criteria	JORC Code explanation	Commentary
Database integrity	• *Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.* • *Data validation procedures used.*	• Revision documents have been checked with the latest datasets to ensure integrity of current results.
Site visits	• *Comment on any site visits undertaken by the Competent Person and the outcome of those visits.* • *If no site visits have been undertaken indicate why this is the case.*	• Key personnel from Advisian have undertaken site visits over the last 4 months, including a continuous one-week period of drilling supervision. • The visits allowed the hydrogeologist to confirm drilling practices, geologic logging protocols and brine sampling procedures. • K-UTEC Competent Persons made a general overview site visit from 31st of January to 03rd of February 2018.
Geological interpretation	• *Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.* • *Nature of the data used and of any assumptions made.* • *The effect, if any, of alternative interpretations on Mineral Resource estimation.* • *The use of geology in guiding and controlling Mineral Resource estimation.* • *The factors affecting continuity both of grade and geology.*	• The degree of confidence in the geological interpretation of the mineral deposit is at the low end. This is due to the sparse drilling density making the geological and grade distribution preliminary. Western Australian palaeovalley systems have been extensively studied and reported on (see attached reference list). Although there is some heterogeneity in layering, the general depositional environments are well understood. Palaeovalleys are generally known to consist of an upper layer of lake sediments/alluvium, an intermediate zone of thick clays and a basal zone of alternating clays/sands/silts and gravels. • The interpretation of the aquifer dimensions (the brine host) has been based on previous geological mapping of the area, geophysical traversing (gravity) and exploration drilling logs.
Dimensions	• *The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.*	• The length of the mineral resource is defined by the CJV tenement boundaries. The palaeochannel boundaries have been defined by geophysical traversing (gravity). • The thickness of the hosting aquifer holding the brine mineral resources has been based on a groundwater elevation (measured as depth below surface) and a sediment thickness above the impermeable bedrock. • The mineral resource extends laterally outside of CJV tenement boundaries in some cases. • The volume of brine that can be abstracted has been based on

Criteria	JORC Code explanation	Commentary
		laboratory analysis of disturbed samples for lithological classification and a regression equation used to determine the porosity and specific yield. • Information on the specific yield of similar palaeochannel deposits has been obtained from press releases of other potash exploration companies working in the region.
Estimation and modelling techniques	• *The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used.* • *The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.* • *The assumptions made regarding recovery of by-products.* • *Estimation of deleterious elements or other non-grade variables of economic significance (eg sulphur for acid mine drainage characterisation).* • *In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.* • *Any assumptions behind modelling of selective mining units.* • *Any assumptions about correlation between variables.* • *Description of how the geological interpretation was used to control the resource estimates.* • *Discussion of basis for using or not using grade cutting or capping.* • *The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.*	• Potassium tonnage has been estimated by multiplying the spatially averaged K concentration derived from ordinary kriging in Golden Software's Surfer on a 500m grid using all data, by the volume of recoverable brine (utilizing the relevant specific yield for that aquifer horizon). • Mine production records for this resource do not exist. • Selective mining units have not been considered. • There are no assumptions about correlation between variables. • The lake surface mapped from aerial images was used to define the limt of the inferred resources.
Moisture	• *Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.*	• Tonnages of potassium have been estimated on a dry, weight volume basis (%w/v). For example 10 kg potassium per cubic metre of brine.
Cut-off parameters	• *The basis of the adopted cut-off grade(s) or quality parameters applied.*	• The homogeneity of data prevented the use of capping or grade cut-offs.
Mining factors or assumptions	• *Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining*	• Mining factors have not been applied. • The mining method is likely to be recovery of brine by submersible bore

Criteria	JORC Code explanation	Commentary
	dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.	pumps targeting the lower aquifer and shallow trenches targeting the upper aquifer. • It is not possible to extract all of the contained brine with these methods, due to the natural porosity, permeability and recharge dynamics of the aquifer.
Metallurgical factors or assumptions	• *The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.*	• Metallurgical test work has not been completed at Scoping Study level • Based on brine chemistry and evaporation / crystallisation results, it is anticipated that metallurgical characteristics will be similar to what was determined for the Beyondie Sulphate of Potash Project by K-UTEC. This must be confirm in subsequent studies.
Environmental factors or assumptions	• *Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.*	• The project is expected to have a limited, localized environmental impact, with minor impacts on surface disturbance associated with excavation, adjacent "fresher" aquifer systems, stock piling of salt by-products, stygofauna and GDEs. • The project is located in a very remote area and does not expect to contain significant quantities of waste tailings. • Acid mine drainage is not expected to be an issue.
Bulk density	• *Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.* • *The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit.* • *Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.*	• Tonnages of potassium have been estimated on a dry, weight volume basis (%w/v). For example 10 kg potassium per cubic metre of brine. • As the resource is a brine, bulk density is not applicable.
Classification	• *The basis for the classification of the Mineral Resources into varying*	• This mineral resource estimate has been classified as an inferred

Criteria	JORC Code explanation	Commentary
	confidence categories. • *Whether appropriate account has been taken of all relevant factors (ie relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).* • *Whether the result appropriately reflects the Competent Person's view of the deposit.*	resource by the competent person, taking into account the total amount of data currently available. • The CIM Best Practice Guidelines for Resource and Reserve Estimation for Lithium Brines were used to determine this confidence categories.
Audits or reviews	• *The results of any audits or reviews of Mineral Resource estimates.*	• Audits are yet to be undertaken.
Discussion of relative accuracy/ confidence	• *Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.* • *The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.* • *These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.*	• The mineral resource contains aqueous potassium, sulfate and other ions, existing as a brine in a sub-surface salt lake. The current JORC code deals predominantly with solid minerals, and does not deal with liquid solutions as a resource. The relative accuracy of the stated resource considers the geological uncertainties of dealing with a brine lake. See also: CIM Best Practice Guidelines for Resource and Reserve Estimation for Lithium Brines, Prepared by the Sub-Commitee on Best Practice Guidelines for Resource and Reserve Estimation for Lithium Brines. • Recovery has not been applied to the resource, it is considered not possible to extract all of the contained brine with the proposed methods, due to the natural porosity, permeability and recharge dynamics of the aquifer. • Production data is unavailable for this mineral resource.

Appendix 1: Fresh Water

Site Ref	DEFAULT_SITE_NAME	ZONE	EASTING	NORTHING	SPHEROID	Collected Date Time	Static water level | m	Borehole water supply | m3/day	TDSolids (in situ) | mg/L	Al (sol) | mg/L	Alkalinity (tot) (CaCO3) | mg/L	C (sol org) (DOC, DOC as NPOC) | mg/L	Ca (sol) | mg/L	Cl (sol) | mg/L	Colour (true) | Hu	Cond uncomp (lab) | uS/cm	Cu (sol) | mg/L	F (sol) | mg/L	Fe (sol) | mg/L	Hardness (tot) (CaCO3) (Ca+Mg) | mg/L	K (tot) | mg/L	Lab analysis number | no units	Mg (sol) | mg/L	Mn (sol) | mg/L	N (sum sol ox) (NOx-N, TON) | mg/L	Na (sol) | mg/L	Pb (sol) | mg/L	pH | no units	S(2-) (sol) | mg/L	SiO2 (sol react) | mg/L	TDSolids (in situ) | mg/L
							Reading Value																								
120413158	Murphy Well	51	390828	7113886	GDA94	1/01/1900 00:00:00		4.546																							
120413159	German Well	51	385535	7116698	GDA94	1/01/1900 00:00:00	6.1	2.273																							
120413160	No3 Well	51	382532	7118017	GDA94	1/01/1900 00:00:00	9.14	22.73																							
120413161	Cole Well	51	391014	7089793	GDA94	1/01/1900 00:00:00	12.5	11.365																							
120413720	Top 14 Mile Well	51	445878	7086982	GDA94	1/01/1900 00:00:00	9.75	18.184																							
120413722	Cork Tree Well	51	436560	7081366	GDA94	1/01/1900 00:00:00	6.71	18.184																							
120413724	Jackie Well	51	420737	7085027	GDA94	1/01/1900 00:00:00	3.66	11.365																							
120413725	Milga Milga Well	51	406676	7094023	GDA94	1/01/1900 00:00:00	3.35	27.276																							
120413726	No10 Well	51	405531	7084944	GDA94	1/01/1900 00:00:00	3.35	31.822																							
120413727	Quartz Well	51	410442	7084195	GDA94	1/01/1900 00:00:00	1.83	36.368																							
120413729	Tamhree Well	51	407323	7114763	GDA94	1/01/1900 00:00:00	12.19	18.184																							
120413737	Cooba Cooba	51	447544	7129890	GDA94	30/06/1956 00:00:00	9.14	109.106	714																						
120413738	Thuragubby	51	402483	7131819	GDA94	30/06/1964 00:00:00	9.75	34.9133	887																						
120413880	Kalyaltcha Well	51	466870	7087478	GDA94	1/01/1900 00:00:00		4.546																							
120413895	Hoskins	51	453582	7127424	GDA94	30/06/1940 00:00:00	9.37	54.553	961																						
120413896	Hoskin Yard Well	51	459135	7125091	GDA94	30/06/1940 00:00:00	8.53	54.553	1442																						
120413953	Well Springs Pool	51	502021	7068215	GDA94	1/01/1900 00:00:00		52.3709	4700																						
120413954	Packhouse	51	516943	7086836	GDA94	1/01/1900 00:00:00	21.34	98.1954	890																						
120413955	Red Hill	51	517998	7076290	GDA94	1/01/1900 00:00:00	10.21	(none)	1300																						
120413956	Wharton	51	516661	7070058	GDA94	30/06/1957 00:00:00	18.29	54.552	3950																						
120413958	Bullock	51	507488	7101834	GDA94	30/06/1958 00:00:00	3.05	109.106	1300																						
120415755	House	51	394674	7111144	GDA94	1/01/1900 00:00:00	10.67	22.73																							
120416047	Xmas	51	427961	7081787	GDA94	1/01/1900 00:00:00	4.57	9.092																							
120416048	Homestead	51	421869	7081283	GDA94	1/01/1900 00:00:00		22.73	2731																						
120416049	Homestead	51	421869	7081283	GDA94	1/01/1900 00:00:00		18.184																							
120416050	Homestead	51	421869	7081283	GDA94	1/01/1900 00:00:00		18.184																							
120416051	Bengah	51	403880	7111363	GDA94	1/01/1900 00:00:00	7.62	22.73																							
120416112	Kundabiddy	51	476676	7081051	GDA94	1/01/1900 00:00:00	7.01				90.92																				
120416113	Charlie	51	469659	7086244	GDA94	1/01/1900 00:00:00	7.92				90.92																				
120416114	Lynne	51	455344	7084187	GDA94	1/01/1900 00:00:00	4.27				100.012																				
120416116	Gap	51	458640	7130094	GDA94	30/06/1969 00:00:00	12.7																								1415
120419241	34366	51	422988	7082353	GDA94	21/09/1994 15:15:00				216.523		0.97	63.8	127.23	<1	950	<0.02	0.98	<0.05	284.924	3.5	409187	30.5	0.36	38.56	182	<0.1	7.9	30.6	19.6	
120419243	34425	51	422988	7082353	GDA94	22/09/1994 10:00:00				160.278		1.15	63.2	127.727	1	900	<0.02	1.02	<0.05	257.482	3.24	409188	24.2	0.29	39.32	171	<0.1	7.8	32.8	19	
120470110	Company	51	518452	7052870	GDA94	17/05/2016 00:00:00	0.5																				6.96				

Appendix 2: Auger Program Assay Brine Results

Auger sample	Easting (E)	Northing (N)	Ca	K	Mg	Na	SO_4#	Cl	SOP*
			mg/L						
C01	475050	7104050	1,260	**2,720**	2,520	64,000	9,780	100,000	**6,061**
C02	478000	7104000	1,260	**3,240**	2,280	65,000	9,360	106,000	**7,220**
C03	482259	7103236	1,220	**2,580**	2,760	56,600	10,350	90,600	**5,749**
C04	484000	7104000	1,170	**2,890**	2,870	59,200	10,380	94,300	**6,440**
C05	486514	7104023	1,030	**3,280**	3,210	73,700	11,100	89,600	**7,309**
C06	490304	7103493	837	**3,290**	3,740	92,000	11,760	86,350	**7,332**
C07	493498	7096028	1,060	**3,300**	2,900	74,600	10,710	119,000	**7,354**
C08	475712	7100348	853	**3,740**	3,710	85,200	12,690	137,000	**8,334**
C09	478000	7101000	1,170	**2,760**	2,610	63,700	10,320	99,400	**6,151**
C10	481000	7101000	886	**3,170**	3,450	80,000	12,600	126,000	**7,064**
C11	484000	7101000	1,260	**2,880**	2,200	60,300	9,600	98,500	**6,418**
C12	486893	7101497	774	**4,500**	3,460	96,200	12,450	154,000	**10,028**
C13	489686	7100896	1,220	**2,150**	2,230	57,000	10,020	90,200	**4,791**
C14	493000	7101000	893	**3,830**	3,460	85,700	11,430	138,000	**8,535**
C15	487000	7098000	827	**4,210**	3,400	91,000	12,150	147,000	**9,382**
C16	490000	7098000	1,030	**3,270**	2,740	73,900	11,280	118,000	**7,287**
C17	493541	7097845	713	**3,520**	3,740	96,100	13,710	154,000	**7,844**
C18	496666	7098164	848	**4,340**	3,100	90,200	11,700	149,000	**9,672**
C19	502000	7098000	738	**3,410**	3,480	92,400	12,690	153,000	**7,599**
C20	496196	7096126	625	**4,790**	3,890	105,000	13,230	168,000	**10,674**
C21	499609	7095523	661	**4,020**	3,940	97,300	13,770	156,000	**8,958**
C22	502784	7094663	1,050	**3,290**	2,590	75,900	10,440	120,000	**7,332**
C23	505673	7094317	705	**3,980**	3,880	97,000	13,290	154,000	**8,869**
C24	502000	7092000	676	**4,510**	3,630	104,000	13,170	163,000	**10,050**
C25	505343	7091530	894	**4,060**	3,050	86,900	11,460	138,000	**9,048**
C26	508000	7092000	1,400	**2,780**	3,550	68,100	8,010	110,000	**6,195**
C27	510390	7091822	1,050	**3,370**	2,760	75,900	11,040	120,000	**7,510**
C28	493000	7089000	1,220	**3,160**	2,520	70,900	10,350	107,000	**7,042**
C29	496000	7089000	706	**4,590**	3,530	102,000	12,240	162,000	**10,229**
C30	499000	7089000	942	**4,130**	3,020	87,1000	10,830	143,000	**9,204**
C31	502000	7089000	969	**3,420**	2,920	80,900	11,370	128,000	**7,621**
C32	505000	7089000	836	**3,010**	2,720	83,000	13,230	131,000	**6,708**
C34	493000	7086000	596	**3,080**	5,290	98,000	16,500	157,000	**6,864**
C35	496048	7086160	820	**3,380**	3,530	89,100	12,480	141,000	**7,532**
C36	498446	7086015	915	**3,320**	3,200	78,200	11,310	126,000	**7,399**

Auger sample	Easting (E)	Northing (N)	Ca	K	Mg	Na	SO_4[#]	Cl	SOP*
			mg/L						
C37	502000	7086000	1,100	**2,420**	2,480	62,900	10,770	98,900	**5,393**
C38	505000	7086000	826	**3,210**	3,570	84,100	12,870	135,000	**7,153**
C39	507475	7086439	897	**3,140**	3,310	71,200	14,010	113,000	**6,997**
C40	492277	7081944	960	**3,030**	2,970	74,700	11,430	121,000	**6,752**
C41	496000	7083000	585	**4,130**	4,640	97,100	16,590	158,000	**9,204**
C42	502000	7083000	805	**3,690**	3,760	89,200	13,800	140,000	**8,223**
C43	504227	7083390	796	**3,790**	3,990	93,800	14,040	148,000	**8,446**
C44	507545	7082543	772	**4,240**	3,520	90,900	12,990	149,000	**9,449**
C45	502000	7080000	999	**2,630**	3,180	70,400	11,760	113,000	**5,861**
C46	505000	7080000	929	**3,660**	3,440	85,800	11,490	136,000	**8,156**
C47	508000	7080000	789	**3,700**	3,730	84,200	14,580	134,000	**8,245**
C48	502000	7077000	1,010	**3,480**	3,070	79,500	11,820	126,000	**7,755**
C49	505000	7077000	1,300	**2,680**	2,470	63,300	9,600	97,100	**5,972**
C50	508000	7077000	915	**4,560**	4,040	87,800	11,610	141,000	**10,162**
C51	502000	7074000	823	**4,060**	3,520	87,200	12,690	140,000	**9,048**
C52	505387	7073440	719	**4,020**	3,790	94,500	14,040	150,000	**8,958**
C53	508706	7073663	1,060	**3,680**	3,620	80,400	10,530	131,000	**8,201**
C54	502000	7071000	814	**4,420**	3,680	95,400	11,880	153,000	**9,850**
C55	505552	7071044	904	**3,050**	3,580	79,700	12,840	127,000	**6,797**
C56	508000	7071000	1,400	**1,720**	2,480	47,000	9,270	73,800	**3,833**
C57	510465	7070763	906	**3,140**	4,080	84,400	12,480	130,000	**6,997**
C58	505427	7068765	778	**3,020**	4,990	87,500	14,10	141,000	**6,730**
C59	507368	7068308	1,010	**2,720**	3,170	67,300	12,750	107,000	**6,061**
C60	511000	7068000	840	**3,260**	4,150	82,000	13,170	134,000	**7,265**
C61	507956	7065614	989	**4,130**	3,730	80,500	11,490	132,000	**9,204**
C62	511000	7065000	1,100	**3,640**	3,330	73,900	10,830	118,000	**8,112**
C63	514000	7065000	1,120	**3,560**	4,290	70,800	10,380	118,000	**7,933**
C64	517110	7065903	938	**3,440**	3,920	75,800	11,670	124,000	**7,666**
C65	511410	7062059	1,070	**2,980**	3,510	71,600	11,580	115,000	**6,641**

*Note: *SOP grade calculated by multiplying Potassium (K) by a conversion factor of 2.228475.*
[#]SO_4 grade calculated by multiplying Sulphur (S) by a conversion factor of 3.00.
Auger samples are two (2) metres in depth at -90 Dip and 0 Azimuth.
No Uranium (U) recorded in brine samples.

Appendix 3: Auger Sampling Particle Size Distribution Results

Laboratory	Auger sample	Top / Bottom	Easting (E)	Northing (N)	Particle Size Distribution %			Texture	Sy	Porosity	K (m/d)
					Sand	Silt	Clay				
SWG	**C02**	**Bottom**	478,000	7,104,000	75.2	11.2	13.6	Sandy Loam	0.25	0.41	0.9
SWG	**C03**	**Top**	482,259	7,103,236	72.7	12.5	14.7	Loam	0.24	0.41	0.8
SWG	**C06**	**Bottom**	490,304	7,103,493	70	14.2	15.8	Loam	0.23	0.40	0.7
SWG	**C10**	**Top**	481,000	7,101,000	78	9.9	12.1	Sandy Loam	0.27	0.41	1.1
SWG	**C12**	**Bottom**	486,893	7,101,497	57.2	25.9	16.9	Silty Loam	0.20	0.41	0.5
SWG	**C16**	**Top**	490,000	7,098,000	62.2	18.9	18.9	Loam	0.19	0.41	0.4
SWG	**C17**	**Bottom**	493,541	7,097,845	71.4	13	15.6	Loam	0.23	0.40	0.7
SWG	**C19**	**Top**	502,000	7,098,000	79	8.1	12.9	Sandy Loam	0.26	0.41	1.0
SWG	**C20**	**Top**	496,196	7,095,919	69	19.8	11.1	Loamy Sand	0.25	0.41	1.0
SWG	**C23**	**Bottom**	505,673	7,094,317	60.5	22.6	17	Loam	0.20	0.41	0.5
SWG	**C25**	**Bottom**	505,343	7,091,530	74.7	12.8	12.6	Loam	0.26	0.41	1.0
SWG	**C26**	**Top**	508,000	7,092,000	83.8	5.4	10.8	Sandy Loam	0.29	0.41	1.3
SWG	**C26**	**Bottom**	508,000	7,092,000	67.4	17.8	14.8	Loam	0.23	0.41	0.7
SWG	**C28**	**Bottom**	493,000	7,089,000	70.9	18.7	10.4	Loamy Sand	0.26	0.41	1.1
SWG	**C30**	**Top**	499,000	7,089,000	78.2	8.7	13.1	Sandy Loam	0.26	0.41	1.0
SWG	**C32**	**Bottom**	505,000	7,089,000	74.2	11.1	14.7	Sandy Loam	0.24	0.40	0.8
SWG	**C36**	**Top**	498,446	7,086,015	60	30.1	10	Silty Loam	0.24	0.41	0.9
SWG	**C39**	**Top**	508,749	7,086,439	81.6	6.8	11.6	Sandy Loam	0.28	0.41	1.2
SWG	**C41**	**Bottom**	496,000	7,083,000	60	30.6	9.4	Silty Loam	0.24	0.41	1.0
SWG	**C42**	**Bottom**	502,000	7,083,000	78	4.4	17.6	Sandy Loam	0.23	0.40	0.6
SWG	**C43**	**Bottom**	504,227	7,083,390	74.8	10.2	15	Sandy Loam	0.24	0.40	0.8
SWG	**C44**	**Bottom**	507,545	7,082,543	73.4	13.3	13.3	Loam	0.25	0.41	0.9
SWG	**C45**	**Top**	502,000	7,080,000	73.3	9.6	17.1	Sandy Loam	0.22	0.40	0.6
SWG	**C47**	**Bottom**	508,000	7,080,000	74.4	16.3	9.3	Loamy Sand	0.28	0.41	1.3
SWG	**C49**	**Bottom**	505,000	7,077,000	79	12.4	8.6	Loamy Sand	0.30	0.41	1.5
SWG	**C52**	**Top**	505,387	7,073,440	75.9	6.8	17.3	Sandy Loam	0.23	0.40	0.6
SWG	**C52**	**Bottom**	505,387	7,073,440	76	9.2	14.8	Sandy Loam	0.24	0.40	0.8
SWG	**C53**	**Top**	508,706	7,073,663	78.4	5.6	16	Sandy Loam	0.24	0.40	0.8
SWG	**C54**	**Top**	502,000	7,071,000	75.1	8.7	16.1	Sandy Loam	0.23	0.40	0.7
SWG	**C56**	**Top**	508,000	7,071,000	82.9	8	9.1	Loamy Sand	0.30	0.41	1.5
SWG	**C59**	**Bottom**	507,368	7,068,308	68.2	16.2	15.6	Loam	0.22	0.41	0.7
SWG	**C62**	**Bottom**	511,000	7,065,000	55.2	29.3	15.5	Silty Loam	0.20	0.41	0.5
SWG	**C64**	**Top**	517,110	7,065,903	76.3	9.2	14.5	Sandy Loam	0.25	0.40	0.8
SWG	**C65**	**Top**	511,410	7,062,059	59.2	22.9	17.9	Loam	0.19	0.41	0.4
SWG	**C66**	**Top**	511,445	7,064,459	72.2	11.1	16.7	Loam	0.22	0.40	0.6
Corelab	**C26**	**Bottom**	508,000	7,092,000	59.9	31.4	8.7		0.25	0.41	1.0
Corelab	**C62**	**Bottom**	511,445	7,064,459	53.9	38.9	7.2		0.24	0.41	1.0
Corelab	**C65**	**Top**	511,410	7,062,059	30.5	55.0	14.51		0.19	0.42	0.3

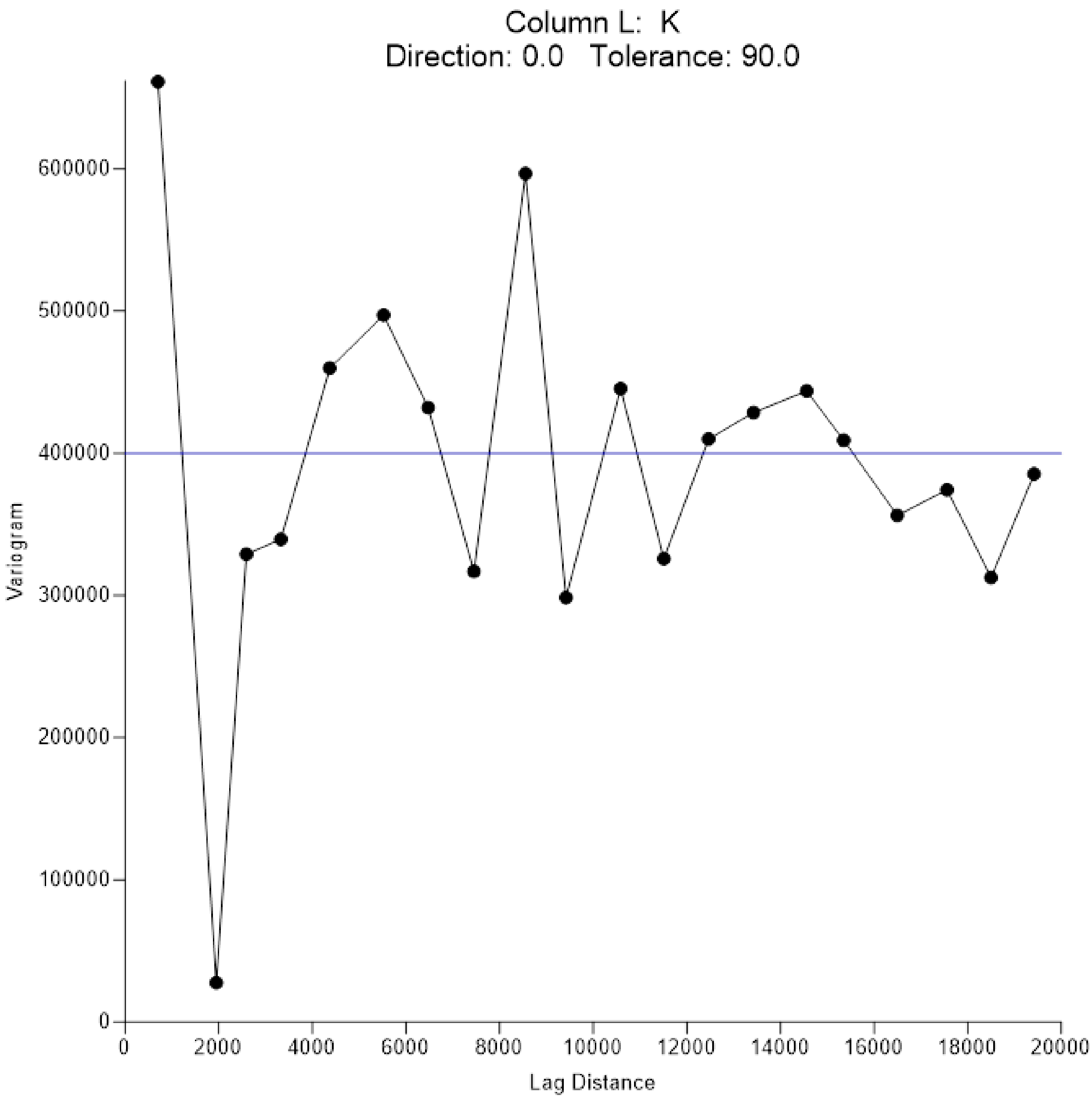
Appendix 4: Drilling Program Assay Brine Results

Sample ID	Easting (E)	Northing (N)	Depth	Ca	K	Na	Mg	SO_4#	Cl	SOP*
			mg/L							
CAC001	514639	7061885	11	1330	1790	37900	2420	8970	61950	**3991.7**
			95	1300	1790	37700	2380	9000	61950	**3991.7**
			121	805	3320	69000	4440	15800	112550	**7403.6**
			Airlift	653	3820	79200	5050	17800	128950	**8518.6**
CAC002	515819	7062553	11	1100	1300	26900	1850	6930	44850	**2899**
			101	730	3570	74700	4680	16100	123900	**7961.1**
			Airlift	713	3690	78200	4790	17300	125450	**8228.7**
CAC003	510430	7069111	17	1140	1820	46500	2450	11400	74700	**4058.6**
			59	858	2610	69300	3740	13400	111500	**5820.3**
CAC004	510171	7094253	17	1180	2340	67300	3030	8940	108200	**5218.2**
			23	1070	2350	67900	3060	8520	110800	**5240.5**
			83	868	2840	79200	4170	13300	129300	**6333.2**
			87	728	2980	82700	4560	14800	135900	**6645.4**
			Airlift	716	3090	84800	4800	15400	137300	**6890.7**

Appendix 5: Drilling Program Lithological Data

Sample ID	Hole Depth	From	To	Dip	Azimuth	Lithology	Stratigraphy
CAC001	123	0	5	-90	0	Silty Sand, Silty Clay	Alluvium
		5	25			Calcrete and Clay	
		25	84			Clay	Lacustrine clay
		84	91			Silcrete and Clay	
		91	111			Clay	
		111	123			Sandy Gravel	Palaeochannel sand and gravel
CAC002	117	0	5	-90	0	Silt, Calcrete and Sand	Alluvium
		5	20			Sandy Clay and Calcrete	
		20	71			Clay with minor sandy intervals	Lacustrine clay
		71	82			Clay and Silcrete	
		82	100			Clay	
		100	117			Sandy Gravel	Palaeochannel sand and gravel
CAC003	63	0	2	-90	0	Sand	Alluvium
		2	14			Clay, Silt and Calcrete	
		14	45			Clay	Lacustrine clay
		45	49			Silt	Weathered bedrock
		49	59			Weathered Siltstone	
		59	63			Siltstone	Bedrock
CAC004	87	0	8	-90	0	Sandy Clay and Calcrete	Alluvium
		8	12			Silt and Calcrete	
		12	32			Clay	Lacustrine clay
		32	50			Silty Clay	
		50	52			Gravelly Clay	
		52	73			Clay and Silty Clay	
		73	83			Sand and Gravel	Palaeochannel sand and gravel
		83	87			Siltstone	Bedrock

Appendix 6: Variogram and Statistics for Auger Hole Chemistry



Variogram Grid Report

Fri Jun 22 14:59:33 2018

Data Source

Source Data File Name:	Auger sampling\Auger hole chemistry for model.csv
X Column:	B
Y Column:	C
Z Column:	L
Detrending:	None

Variogram Grid

Maximum Lag Distance:	20000
Angular Divisions:	180
Radial Divisions:	100

Data Counts

Active Data:	65
Original Data:	65
Excluded Data:	0
Deleted Duplicates:	0
Retained Duplicates:	0
Artificial Data:	0

Univariate Statistics

	X	Y	Z
Minimum:	474460	7062059	1720
25%-tile:	493000	7077000	3050
Median:	502000	7086821	3380
75%-tile:	507134	7098000	3980
Maximum:	517110	7105813	4790
Midrange:	495785	7083936	3255
Range:	42650	43754	3070
Interquartile Range:	14134	21000	930
Median Abs. Deviation:	6000	11179	400
Mean:	498997.53846154	7086428.7692308	3462
Trim Mean (10%):	499403.81355932	7086652.8135593	3471.186440678
Standard Deviation:	10227.10739927	12724.456855592	625.73575155111
Variance:	104593725.75621	161911802.26982	391545.23076923

Coef. of Variation:	0.18074400680275
Coef. of Skewness:	-0.070319030840114

Inter-Variable Correlation

	X	Y	Z
X:	1.000	-0.801	0.124
Y:		1.000	-0.009
Z:			1.000

Inter-Variable Covariance

	X	Y	Z
X:	104593725.75621	-104302013.0142	794343.07692308
Y:		161911802.26982	-74274.923076923
Z:			391545.23076923

Planar Regression: Z = AX+BY+C

Fitted Parameters

	A	B	C
Parameter Value:	0.019957976659087	0.012397996222371	-94354.498336803
Standard Deviation:	0.012743716344555	0.010242586948818	77773.196707999

Inter-Parameter Correlations

	A	B	C
A:	1.000	-0.801	-0.830
B:		1.000	0.999
C:			1.000

ANOVA Table

Source	df	Sum of Squares	Mean Square	F
Regression:	2	970620.27383804	485310.13691902	1.2291
Residual:	62	24479819.726162	394835.80203487	
Total:	64	25450440		

Coefficient of Multiple Determination (R^2): 0.038137661817951

Nearest Neighbor Statistics

	Separation	|Delta Z|
Minimum:	700.50410419925	40
25%-tile:	2293.6706389541	240
Median:	2754.9963702335	460
75%-tile:	3000	970
Maximum:	3869.8662767594	1330
Midrange:	2285.1851904793	685
Range:	3169.3621725602	1290
Interquartile Range:	706.32936104592	730
Median Abs. Deviation:	245.00362976646	330
Mean:	2638.2520624433	581.07692307692
Trim Mean (10%):	2665.8788232408	571.18644067797
Standard Deviation:	539.72271478973	409.26246262467
Variance:	291300.60886	167495.76331361
Coef. of Variation:	0.20457587145403	0.70431718481873
Coef. of Skewness:	-1.1669418772289	0.41282075785629
Root Mean Square:	2692.8933424564	710.73634622563
Mean Square:	7251674.5538462	505146.15384615

Complete Spatial Randomness

Lambda:	3.4831851380957E-008
Clark and Evans:	0.98476943658431
Skellam:	103.15922931462

Exclusion Filtering

Exclusion Filter String: Not In Use

Duplicate Filtering

Duplicate Points to Keep:	All
Duplicate filtering:	Not In Use