

19 April 2016

# ADDITIONAL SOP POTENTIAL AT LAKE IRWIN PROVIDES INTEGRATED PRODUCTION OPPORTUNITY

Salt Lake Potash Limited (**SO4** or **the Company**) is pleased to advise that three exploration license applications covering the Company's Lake Irwin Project have recently been granted. Lake Irwin is located 180km southwest of the Company's Lake Wells project, and approximately 60km from the Goldfields Gas pipeline and 80km from the Leonora-Kalgoorlie rail line.

Preliminary surface sampling and previous exploration indicate excellent potential for a solar evaporation Sulphate of Potash (**SOP**) project based on Lake Irwin's large potassium enriched brine pool with widespread basal sand aquifers.

Lake Irwin's locational advantages potentially make it an ideal complementary production centre in an integrated development model with Lake Wells.

#### **Highlights:**

- The Lake Irwin Project comprises a total of 545km<sup>2</sup> of granted and 747km<sup>2</sup> of pending Exploration Licences, substantially covering the Lake Irwin Playa and the area immediately contiguous to the Lake.
- The Project has a highly strategic location 60km north of the Murrin-Murrin nickel mine. An existing bore field, gas pipeline, power plant, roads and rail loading facilities which service nearby mines are all located within 20-80km of the Lake.
- The Project benefits from a wealth of historical hydrogeological data. Studies by the Water and Rivers Commission interpreted widespread palaeochannel basal sand aquifers exhibiting significant thickness at depth within the Lake Irwin project area.
- Initial shallow pit sampling has indicated near surface water quality comparable to the Lake Wells project, averaging 7.40 kg/m<sup>3</sup> of Sulphate of Potash (SOP).
- The Scoping Study for the Lake Wells' SOP Project will include a scenario analysis of the potential advantages of incorporating Lake Irwin in an integrated production model.

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### Lake Irwin Project

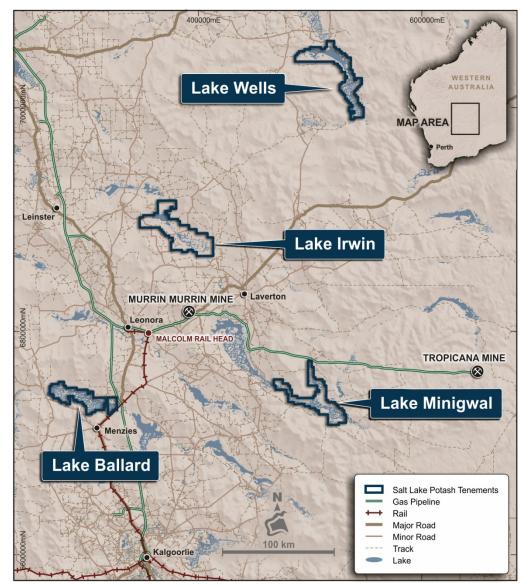


Figure 1: Map of Goldfields project locations

The Lake Irwin Project is located in the Northern Goldfields of Western Australia approximately 80km northeast of Leonora and 180km southwest of the Lake Wells SOP Project. The Project comprises 545km<sup>2</sup> of granted and 747km<sup>2</sup> of pending exploration licences, substantially covering the Lake Irwin Playa and the area immediately contiguous to the Lake. As shown in Figure 2, there is significant existing infrastructure in the area, including:

- a freshwater supply bore field;
- the Murrin Murrin nickel mine power plant;
- the Goldfields gas pipeline;
- haulage roads; and
- rail-loading facilities at Malcolm and Leonora.

The Lake Irwin Project area is not presently covered by native title and does not have any registered Aboriginal heritage sites. The Company will undertake a heritage clearance survey over the area in due course.



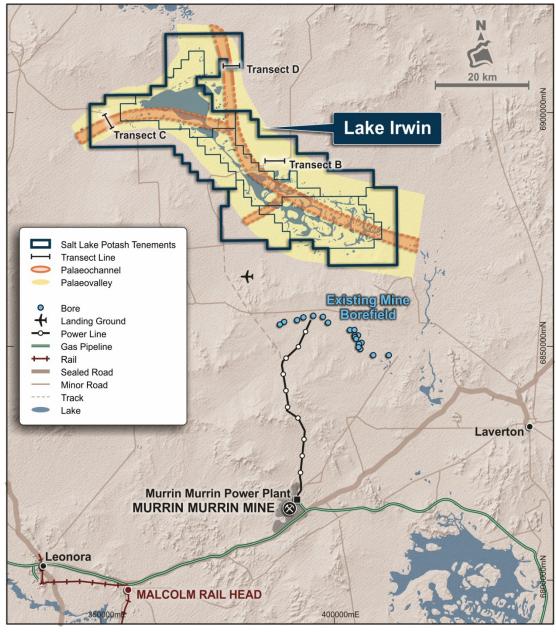


Figure 2: Map of Lake Irwin project location



Figure 3: Large Scale Water Storage Scheme



Figure 4: Local Water Supply Bore



#### **Geological Setting and Exploration History**

Extensive hydrogeological investigations, including geophysical surveys and drilling programs, were previously undertaken by the Water and Rivers Commission (WRC) (now Department of Water) in the Lake Irwin project area, as part of the study on the *Groundwater Resources of the Northern Goldfields*. The investigations revealed an extensive palaeodrainage system that flowed regionally from Lake Way, through the Lake Irwin project area, into Lake Carey and Lake Minigwal and is referred to as the Lake Carey Palaeodrainage system. The investigations are presented in detail in the *Northern Goldfields Groundwater Investigation, Bore Completion Report*.

Three investigative geophysical and aircore drilling transects were completed by the WRC in 1998 within the Lake Irwin project area, which identified a significant palaeochannel trunk and tributary system, as presented in Figure 5. Within the palaeochannels, there are two aquifers separated by plasticine clay that include:

- Shallow Aquifer Cainozoic colluvial sediments and calcrete of up to 30m thick from surface; and
- Deep Aquifer Tertiary palaeochannel sands of between 10 and 25m thick from 80 to 115m below ground level.

Interpretive cross-sections from *Northern Goldfields Groundwater Investigation, Bore Completion Report*, presented on Figure 5, shows the distribution of the palaeochannel aquifers and groundwater drill-holes from the two transects drilled within the margins of the playa lake. The intersection of palaeochannel basal sand units in each of the drilled transects and interpretation of an extensive palaeochannel system within the project area, has important ramifications for the understanding of the geological setting of the Lake Irwin project. This will potentially provide a basis for the fast-tracking of planned resource exploration and evaluation work at Lake Irwin.

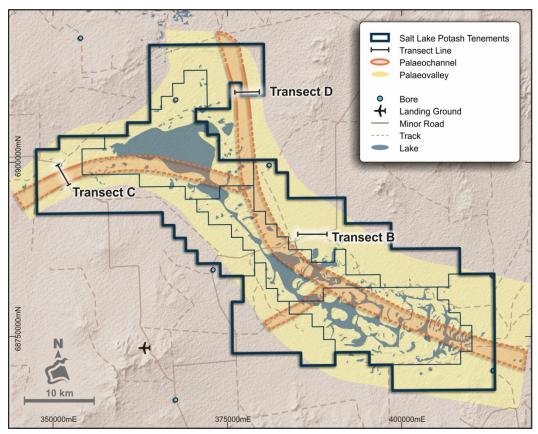


Figure 5: Lake Irwin Interpreted Paleodrainage Transects



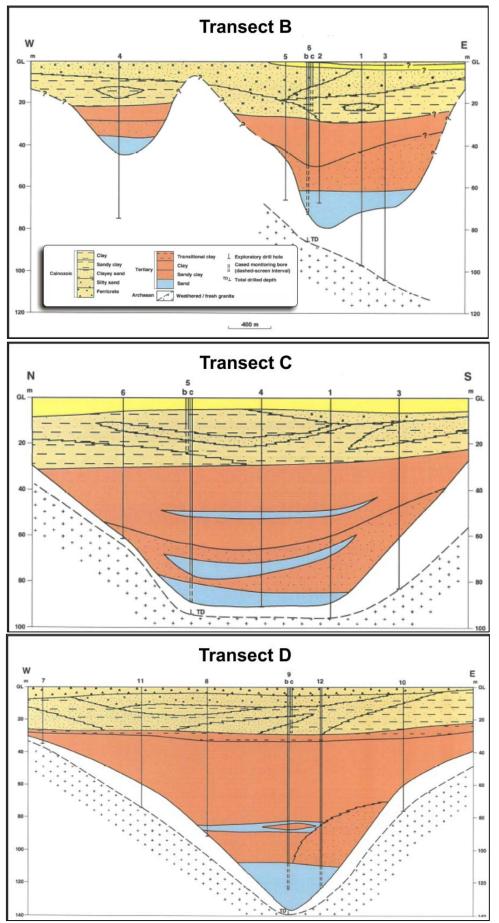


Figure 6: Lake Irwin Interpreted Palaeodrainage Transects



The palaeochannel aquifers have potential to store significant volumes of groundwater in highly permeable unconsolidated sediments. The basal sand aquifers are capable of hosting high-yielding water supplies owing to their high transmissivity, large storage and sustainability through leakage from overlying sediments and surrounding bedrock aquifers. Production bores in the palaeochannel sand are known to produce long-term yields up to 1600 kL/day, the equivalent of a bore running at 18.5L/sec sustainably.

There is approximately 110 km of combined palaeochannel trunk and tributary interpreted within the Lake Irwin project area. The estimated groundwater volume within the regional Carey Palaeochannel system is interpreted to exceed 16,000 GL, of which an estimated 2,700 GL is within the palaeochannel in the vicinity of Lake Irwin. Salt Lake Potash's resource and evaluation programs will target the entire brine pool associated with the project area, of which the interpreted palaeochannel groundwater volume described above would form a component of a greater resource estimate.

#### **Reconnaissance and Pit Sampling Program**

Lake Irwin has been sampled via shallow pits during October 2015 and January 2016. The objective of the pit sampling program is to test the near surface brine chemistry in the shallow aquifer for initial water quality assessment.

Near surface pits were dug at 12 locations across the lake, as presented in Figure 7. A Company hydrogeologist logged the sedimentary profile in the pits and collected brine samples to be sent for laboratory analysis.

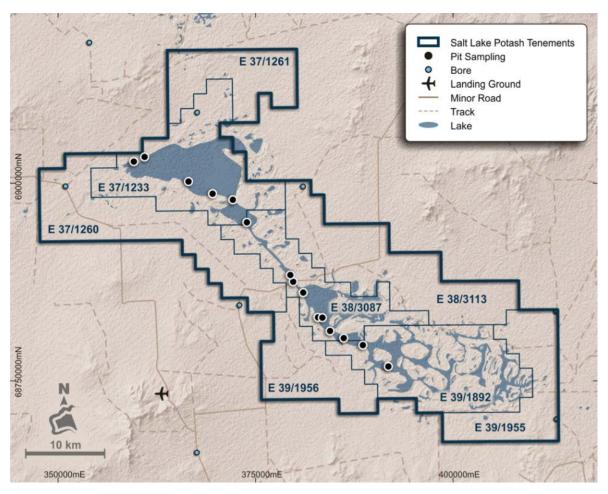


Figure 7: Pit Sampling Locations at Lake Irwin



The near surface profile of Lake Irwin consists of coarse well rounded sands up to 0.1m depth, with gypsiferous clayey sand/sandy clay to 0.5m. Gypsum crystals up to 20cm in diameter were consistent throughout the holes sampled from approximately 0.5m to the bottom of the hole. Flow into the pits was high to moderate in majority of the holes.



Figure 8: Brine Sampling at LIP309P1, Static water level at 0.25m

Brine analysis has been completed on the samples collected to date from the near surface shallow aquifer and is presented in Table 2 below. SOP concentrations range from 6.22 kg/m<sup>3</sup> to 9.41 kg/m<sup>3</sup>, with a mean of 7.40 kg/m<sup>3</sup>. Overall the brine pool at the near surface exhibits a slight declining concentration trend from north to south.

Average Brine Chemistry	Number of Samples	K (mg/L)	Mg (mg/L)	SO₄ (mg/L)	TDS (g/L)	SOP (kg/m <sup>3</sup> )
October 2015 Program	5	3,660	5,792	24,260	287	8.16
January 2016 Program*	12	3,163	5,009	19,927	272	7.05

\*Possibly affected by dilution of recent January rainfall

#### Table 2: Brine Analysis Results

The brine chemistry is relatively consistent from both programs as seen in Table 2. However, substantial surface water present on Lake Irwin during the January pit sampling program and may have caused dilution of the January sampling results by the infiltration of fresher surface water. Additional baseline sampling is required to test this assumption.

#### Planned Work

The Company is planning to undertake a heritage survey over the project area shortly. On completion of heritage clearances for planned exploration activities, preliminary hydrogeological investigations will commence in the current quarter.

The potential for the Lake Irwin Project to be developed in an integrated model with the Lake Wells Project will be considered in an options study that is a component of the Lake Wells Project Scoping Study currently underway.





#### **Competent Persons Statement**

The information in this report that relates to Exploration Results for Lake Irwin is based on information compiled by Mr Adam Lloyd, who is a member of the Australian Institute of Geoscienctists and International Association of Hydrogeology. Mr Lloyd is an employee of Salt Lake Potash Limited. Mr Lloyd has sufficient experience, which is relevant to the style of mineralisation and type of deposit under consideration and to the activity, which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr Lloyd consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.



## **APPENDIX 1 – JORC TABLE ONE**

### Section 1: Sampling Techniques and Data

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.	Brine samples were taken from pits dug into the Playa surface.	
	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.		
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).	Not Applicable	
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.	Not Applicable	
a	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.		
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.	All pit holes were geologically logged by a qualified geologist, noting in particular moisture content of sediments, lithology, colour, induration, grainsize, matrix and structural observations.	
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.		
	The total length and percentage of the relevant intersections logged.		
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.	Pits were dug into the Lake surface and allowed to fill with brine. Sample bottles are rinsed with brine which is discarded prior to sampling.	
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	Geological logs are recorded in the field based on inspection of cuttings. Geological samples are retained for each hole in archive.	
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	All brine samples taken in the field are split into two sub- samples: primary and duplicate.	
	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.		
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	Primary samples were sent to Bureau Veritas Minerals Laboratory, Perth.	
	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	Brine samples were analysed using ICP-AES for K, Na, Mg, Ca, with chloride determined by Mohr titration and alkalinity determined volumetrically. Sulphate was calculated from the ICP-AES sulphur analysis	
	applied and their 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.	Reference standard solutions were sent to Bureau Veritas Minerals Laboratory to check accuracy. Reference standards analysis reported an average error of less than 10%.	



Criteria	JORC Code explanation	Commentary	
Verification of sampling and assaying	The verification of significant intersections by either independent or alternative company personnel.	Data entry is done in the field to minimise transposition errors.	
	The use of twinned holes.	Brine assay results are received from the laboratory in digital format to prevent transposition errors and these data sets are subject to the quality control described above.	
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.		
	Discuss any adjustment to assay data.	lonic balances are completed on laboratory results to check QC.	
		Independent verification of significant intercepts was not considered warranted given the relatively consistent nature of the brine.	
Location of data	Accuracy and quality of surveys used to locate drill holes (collar and	Hole co-ordinates were captured using hand held GPS.	
points	down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.	Coordinates were provided in GDA 94_MGA Zone 51.	
	Specification of the grid system used.	Topographic control is obtained using Geoscience Australia's 3-second digital elevation product.	
	Quality and adequacy of topographic control.	Topographic control is not considered critical as the salt lakes are generally flat lying and the water table is taken to be the top surface of the brine resource.	
Data spacing and	Data spacing for reporting of Exploration Results.	Data points are presented in Figure 7.	
distribution	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.	A total of 12 test pits were dug by hand during at least 1 km apart (depending on access conditions). Of these 17 brine samples were submitted for assay.	
	Whether sample compositing has been applied.		
Orientation of data in relation to geological structure	Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.	All drill holes were vertical as geological structure is flat lying.	
	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.		
Sample security	The measures taken to ensure sample security.	All brine samples were marked and kept onsite before transport to the laboratory.	
		All remaining sample and duplicates are stored in the Perth office in climate-controlled conditions.	
		Chain of Custody system is maintained.	
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	Data review is summarised in Quality of assay data and laboratory tests and Verification of sampling and assaying. No audits were undertaken.	



## Section 2: Reporting of Exploration Results

Therefore name/number, location and ownership including nots or material issues with third parties such as joint partnerships, overriding royalties, native title interests, sites, wilderness or national park and environmental urity of the tenure held at the time of reporting along with wn impediments to obtaining a licence to operate in the edgment and appraisal of exploration by other parties. ype, geological setting and style of mineralisation. any of all information material to the understanding of the on results including a tabulation of the following on for all Material drill holes: easting and northing of the drill hole collar elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar dip and azimuth of the hole down hole length and interception depth hole length. clusion of this information is justified on the basis that the on is not Material and this exclusion does not detract understanding of the report, the Competent Person early explain why this is the case. Ing Exploration Results, weighting averaging techniques, n and/or minimum grade truncations (eg cutting of high and cut-off grades are usually Material and should be usual for even according to how of how grade results, the own of low grade results of high part of the report of how grade results, the own of low grade results, the own of a more sells and longer lengths of low grade results, the	Tenements drilled were granted exploration licences 37/1233, 37/1260, 37/1261, 38/3087, 38/3113, 39/1955 and 39/1892 in Western Australia. Exploration Licenses are held by Piper Preston Pty Ltd (fully owned subsidiary of ASLP). No other known exploration has occurred on the Exploration Licenses. Salt Lake Brine Deposit Pit sampling at 12 locations. Details are presented in the report. Pit sampling at 12 locations. Details are presented in the report. Within the salt lake extent no low grade cut-off or high grade capping has been implemented. Data aggregation for this report comprised averaging of all brine samples per drillhole to present an average concentration per hole.
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s should be included for any significant discovery being These should include, but not be limited to a plan view of	Addressed in the announcement.
le, representative reporting of both low and high grades idths should be practiced to avoid misleading reporting of	All results have been included.
including (but not limited to): geological observations; ical survey results; geochemical survey results; bulk	All material exploration data reported.
	ate maps and sections (with scales) and tabulations of s should be included for any significant discovery being These should include, but not be limited to a plan view of collar locations and appropriate sectional views. omprehensive reporting of all Exploration Results is not ole, representative reporting of both low and high grades idths should be practiced to avoid misleading reporting of ion Results. xploration data, if meaningful and material, should be including (but not limited to): geological observations; ical survey results; geochemical survey results; bulk – size and method of treatment; metallurgical test bulk density, groundwater, geotechnical and rock ristics; potential deleterious or contaminating substances.



Criteria	JORC Code explanation	Commentary
Further work	The nature and scale of planned further work (eg tests for lateral	Drilling to assess the occurrence of brine at depth.
	extensions or depth extensions or large-scale step-out drilling).	Hydraulic testing be undertaken, for instance pumping tests from
Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.		bores and/or trenches to determine, aquifer properties, expected production rates and infrastructure design (trench and bore size and spacing).
		Diamond Core drilling to obtain sample for porosity determination.
		Lake recharge dynamics be studied to determine the lake water balance and subsequent production water balance. For instance simultaneous data recording of rainfall and subsurface brine level fluctuations to understand the relationship between rainfall and lake recharge, and hence the brine recharge dynamics of the Lake.