



14 November 2018

ASX ANNOUNCEMENT

ASX: ASN

## **Anson Achieves High Lithium Recoveries from Cane Creek Brine**

### **Highlights:**

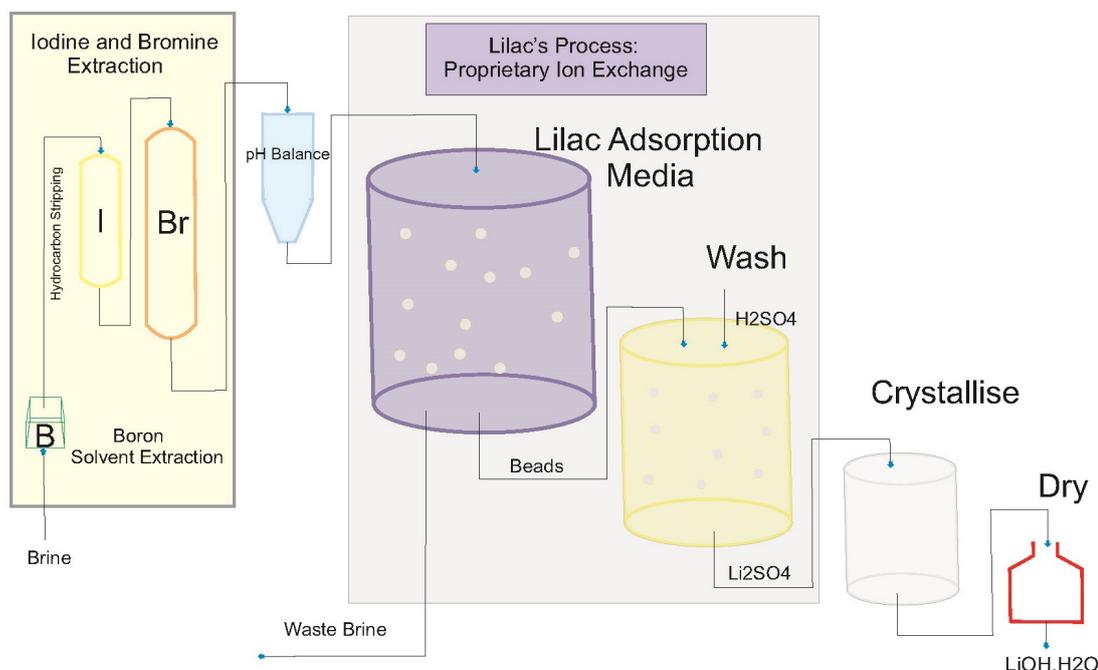
- **Lilac has completed the Phase 1 Engineering Report**
- **Lithium recoveries increased to approximately 80%**
  - **Recovery achieved after one pass through its Ion Exchange (IX) process**
  - **Further work is expected to increase recoveries**
- **The IX process produces a lithium rich eluate of 10,000 – 15,000ppm.**
- **Less than 10% lithium loss expected from further downstream steps**
- **High Purity lithium hydroxide product crystallized**
- **Lilac estimated operating costs to be globally competitive**
- **Engineering design of pilot plant has begun**

Anson Resources Limited (Anson) is pleased to announce that the test work carried out by Lilac Solutions on brine from the Paradox Lithium Project in Utah has continued to successfully produce a lithium hydroxide (LiOH) product, but with much higher recovery rates than previously reported (refer ASX announcement 3 October 2018). The improved lithium recoveries are a further step forward in determining the final extraction process to be implemented to produce either lithium carbonate or lithium hydroxide using the Lilac IX process.

In the latest testing, supersaturated brine was passed through the Lilac IX process to produce a concentrated lithium sulphate solution at 10,000 – 15,000 mg/l Li with a molar purity of 70 - 75% (cation basis). The average recovery of Li from the brine to the eluate was approximately 80%, a significant improvement to that of the original LiOH product.

The lithium eluate can be processed downstream into battery grade lithium carbonate or lithium hydroxide using conventional processes with a recovery of greater than 90%. After the downstream processing, it is estimated that the overall lithium recovery (that is, after the extraction and downstream processing) will be approximately 70%. This compares favourably with lithium recoveries below 50% for conventional operations in the South American Salars with higher grades.

Anson has now completed evaluation of three separate technical processes for the extraction of lithium from brines from the Paradox Lithium Project: (i) traditional solar evaporation; (ii) Outotec’s solvent extraction; and (iii) Lilac’s ion extraction process. Based upon the results, the Company has resolved to move to the next project development stage by commissioning the design and construction of a pilot plant incorporating the production flow chart developed by the Phase 1 Engineering Project conducted by Lilac Solutions, see figure 1.



**Figure 1: Lilac Solutions Phase 1 proposed extraction flow sheet.**

Commenting on the results, David Snyder, Chief Executive Officer of Lilac Solutions said “Lilac is extremely pleased that we have been able to consistently achieve lithium recoveries up to 80% in our lithium extraction unit, and have converted this recovered lithium into high-purity lithium chemicals. Lilac is excited to continue to move forward in its partnership with Anson toward commercial production of lithium as it considers that the project will be globally competitive.”

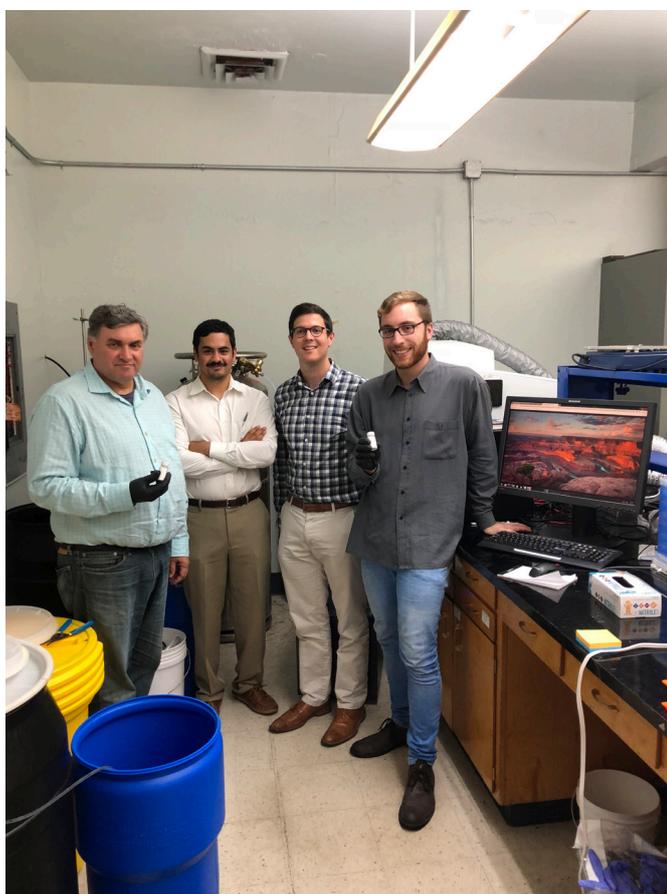
### Lilac Solutions IX Extraction Process

The Lilac Solutions production process uses a newly developed technology that selectively extracts lithium from the brine using an ion exchange methodology, and Lilac has been conducting test work on the Paradox Lithium brine since July 2018. Other minerals including boron, bromide, iodine and magnesium are not recovered using this process. Lilac’s unique ion exchange media and system was used on the Cane Creek brine containing approximately 100 ppm Li, 40,000 ppm Ca, 30,000 ppm Mg, and 10,000 ppm Na.

A two-step purification process was used to remove impurities from the lithium eluate. This removed Ca and Mg with minor amounts of transition metals (Fe, Mn, etc.) and other multivalent ions after which lithium carbonate was precipitated out. These impurities can be removed earlier in the final production design using other processes or during the recovery of the B, Br and I.

Lilac deploys unique ion exchange media and related processes to extract lithium from the brine resource with high recoveries, minimal costs, and rapid processing times. The removal of evaporation ponds is a significant environmental benefit, as the footprint of the operation is significantly reduced, and they are also expensive to build, slow to ramp up, and vulnerable to weather fluctuations.

The cost advantages in using Lilac’s IX extraction process will come from reduced processing time, higher recovery rates and a simplified extraction process, with fewer reagents. The technology is modular to suit various project sizes. It can also be integrated with conventional plant designs for production of battery-grade lithium carbonate and lithium hydroxide.



**Figure 2: Lilac Solutions’ test laboratory being visited by Anson’s CEO with Lilac’s management team.**

Anson’s Executive Chairman, Bruce Richardson, commented, “The results that have been achieved by the Lilac Process have been exceptional. To ensure that the best economic results could be achieved several different extraction methodologies have been tested. As an early adopter of the Lilac process, the Company will gain a significant advantage over traditional brine producers by utilising a new technology that provides an improved recovery rate, a faster production process with less environmental impact and as a result improved economics.”



**ENDS**

**For further information please contact:**

**Bruce Richardson**  
**Executive Chairman and CEO**

**E: [info@ansonresources.com](mailto:info@ansonresources.com)**

**Ph: +61 8 9226 0299**

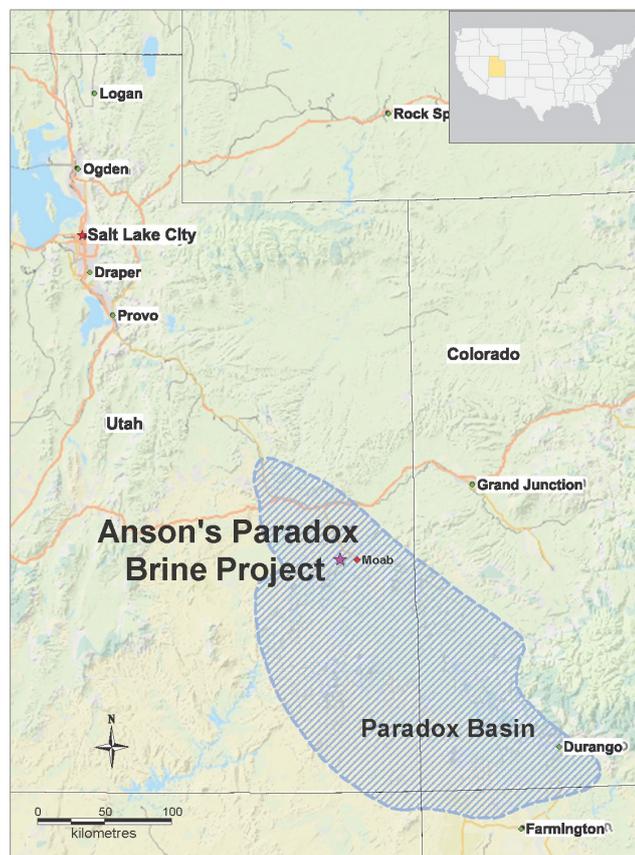
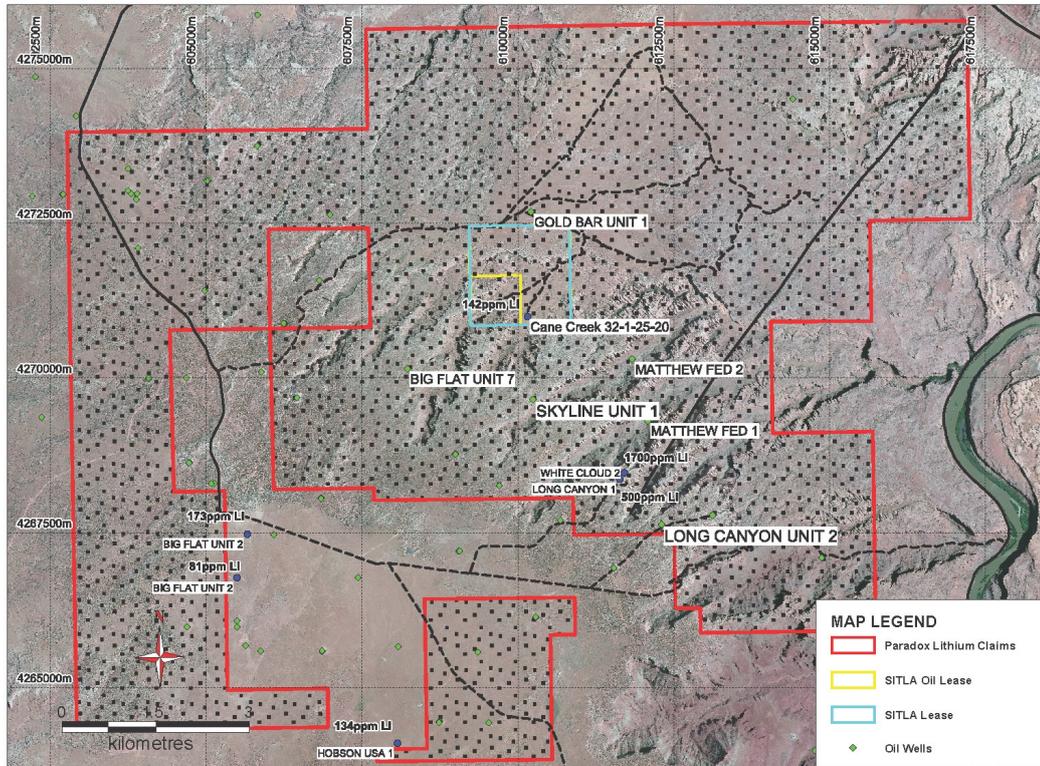
**[www.ansonresources.com](http://www.ansonresources.com)**

**Follow us on Twitter [@anson\\_ir](https://twitter.com/anson_ir)**

**Forward Looking Statements:** Statements regarding plans with respect to Anson's mineral projects are forward looking statements. There can be no assurance that Anson's plans for development of its projects will proceed as expected and there can be no assurance that Anson will be able to confirm the presence of mineral deposits, that mineralisation may prove to be economic or that a project will be developed.

## About the Utah Lithium Project

Anson is targeting lithium rich brines in the deepest part of the Paradox Basin in close proximity to Moab, Utah. Lithium values of up to 1,700ppm have historically been recorded in close proximity to Anson's claim area. The location of Anson's claims within the Paradox Basin is shown below:





**Competent Person's Statement:** The information in this announcement that relates to exploration results, geology and metallurgical data is based on information compiled and/or reviewed by Mr Greg Knox, a member in good standing of the Australasian Institute of Mining and Metallurgy. Mr Knox is a geologist who has sufficient experience which is relevant to the style of mineralisation under consideration and to the activity being undertaken to qualify as a "Competent Person", as defined in the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Mr Knox has reviewed and validated the metallurgical data produced by Lilac Solutions and consents to the inclusion in this announcement of this information in the form and context in which it appears. Mr Knox is a director of Anson and a consultant to Anson.

**Chemical Engineer's Statement:** The information in this announcement that relates to lithium extraction and processing is based on information compiled and/or reviewed by Mr. Alexander Grant. Mr. Grant is a chemical engineer with a MS degree in Chemical Engineering from Northwestern University. Mr. Grant has sufficient experience which is relevant to the lithium extraction and processing undertaken to evaluate the data presented.

## JORC CODE 2012 “TABLE 1” REPORT

### Section 1 Sampling Techniques and Data

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

Criteria	JORC Code explanation	Commentary
<p><i>Sampling techniques</i></p>	<ul style="list-style-type: none"> <li><i>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.</i></li> <li><i>Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.</i></li> <li><i>Aspects of the determination of mineralisation that are Material to the Public Report.</i></li> <li><i>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.</i></li> </ul>	<p><b>Cane Creek 32-1-25-20 well</b></p> <ul style="list-style-type: none"> <li>Mud Rotary (historic oil well).</li> <li>On re-entry, sampling of the supersaturated brines was carried out</li> <li>Samples were collected in a professional manner</li> <li>Samples were collected in IBC containers from which samples for assay were collected</li> <li>Initial samples were sent to multiple certified laboratories in the USA</li> <li>Bulk sample sent to Lilac Solutions in Oakland, California</li> </ul>
<p><i>Drilling techniques</i></p>	<ul style="list-style-type: none"> <li><i>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).</i></li> </ul>	<ul style="list-style-type: none"> <li>Mud Rotary Drilling (18 ½” roller bit).</li> </ul>
<p><i>Drill sample recovery</i></p>	<ul style="list-style-type: none"> <li><i>Method of recording and assessing core and chip sample recoveries and results assessed.</i></li> <li><i>Measures taken to maximise sample recovery and ensure representative nature of the samples.</i></li> <li><i>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.</i></li> </ul>	<p><b>Cane Creek 32-1-25-20</b></p> <ul style="list-style-type: none"> <li>Sampling of the targeted horizons was carried out at the depths interpreted from the newly completed geophysical logs. Clastic Zones 17, 19, 29, 31 and 33 to be sampled</li> </ul>

## JORC CODE 2012 “TABLE 1” REPORT

Criteria	JORC Code Explanation	Commentary
<i>Logging</i>	<ul style="list-style-type: none"> <li>• <i>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.</i></li> </ul>	<p><b>Cane Creek 32-1-25-20</b></p> <ul style="list-style-type: none"> <li>• All cuttings from the historic oil wells were geologically logged in the field by a qualified geologist</li> </ul>
	<ul style="list-style-type: none"> <li>• <i>Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.</i></li> <li>• <i>The total length and percentage of the relevant intersections logged.</i></li> </ul>	<ul style="list-style-type: none"> <li>• Geological logging is qualitative in nature.</li> <li>• All the drillhole were logged.</li> </ul>
<i>Sub-sampling techniques and sample preparation</i>	<ul style="list-style-type: none"> <li>• <i>If core, whether cut or sawn and whether quarter, half or all core taken.</i></li> <li>• <i>If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.</i></li> <li>• <i>For all sample types, the nature, quality and appropriateness of the sample preparation technique.</i></li> <li>• <i>Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.</i></li> <li>• <i>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.</i></li> <li>• <i>Whether sample sizes are appropriate to the grain size of the material being sampled,</i></li> </ul>	<p><b>Cane Creek 32-1-25-20</b></p> <ul style="list-style-type: none"> <li>• Sampling followed the protocols produced by SRK for lithium brine sampling</li> <li>• Samples were collected in IBC containers and samples taken from them.</li> <li>• Duplicate samples kept Storage samples were also collected and securely stored</li> <li>• Bulk samples were also collected for future use.</li> <li>• Sample sizes were appropriate for the program being completed.</li> </ul>
<i>Quality of assay data and laboratory tests</i>	<ul style="list-style-type: none"> <li>• <i>The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.</i></li> <li>• <i>For geophysical tools, spectrometers, handheld XRF instruments, etc., the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.</i></li> <li>• <i>Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.</i></li> </ul>	<p><b>Cane Creek 32-1</b></p> <ul style="list-style-type: none"> <li>• The metallurgical assays were carried out at ALS, a certified laboratory in California</li> <li>• Assays were carried out using an ICP-OES instrument</li> <li>• ICP was used for cation and metal analysis</li> <li>• IP was used for anion analysis</li> <li>• Quality and assay procedures are considered appropriate</li> <li>• Duplicate samples kept (can be sent to an external lab)</li> <li>• Bulk sample (1000l) will be sent off for bench top test work</li> </ul>

## JORC CODE 2012 “TABLE 1” REPORT

Criteria	JORC Code explanation	Commentary
Verification of sampling and assaying	<ul style="list-style-type: none"> <li>• The verification of significant intersections by either independent or alternative company personnel.</li> <li>• The use of twinned holes.</li> <li>• Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols. <i>Discuss any adjustment to assay data.</i></li> </ul>	<p><b>Cane Creek 32-1-25-20</b></p> <p>Documentation has been recorded and sampling protocols followed.</p>
Location of data points	<ul style="list-style-type: none"> <li>• Data spacing for reporting of Exploration Results.</li> <li>• 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. <i>Whether sample compositing has been applied.</i></li> </ul>	<p><b>Cane Creek 32-1-25-20</b></p> <ul style="list-style-type: none"> <li>• The project is at an early stage and information is insufficient at this stage in regards to sample spacing and distribution. No sample compositing has occurred.</li> </ul>
Data spacing and distribution	<ul style="list-style-type: none"> <li>• Data spacing for reporting of Exploration Results.</li> <li>• 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.</li> <li>• Whether sample compositing has been applied.</li> </ul>	<ul style="list-style-type: none"> <li>• Data spacing is considered acceptable for a brine sample but has not been used in any Resource calculations</li> <li>• No sample compositing has occurred.</li> </ul>
Orientation of data in relation to geological structure	<ul style="list-style-type: none"> <li>• Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.</li> <li>• 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.</li> </ul>	<ul style="list-style-type: none"> <li>• All drill holes were drilled vertically (dip -90).</li> <li>• Orientation has not biased the sampling</li> </ul>

## JORC CODE 2012 “TABLE 1” REPORT

Criteria	JORC Code explanation	Commentary
<i>Sample security</i>	The measures taken to ensure sample security.	<b>Cane Creek 32-1-25-20</b> <ul style="list-style-type: none"> <li>• Sampling protocols were followed and chain of custody recorded.</li> <li>• Samples were delivered directly to the lab</li> </ul>
<i>Audits or reviews</i>	<i>The results of any audits or reviews of sampling techniques and data.</i>	<b>Long Canyon Wells and Cane Creek 32-1-25-20</b> <ul style="list-style-type: none"> <li>• No audits or reviews of the data have been conducted at this stage.</li> </ul>

### Section 2 Reporting of Exploration Results

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

Criteria	JORC Code explanation	Commentary
<i>Mineral tenement and land tenure status</i>	<ul style="list-style-type: none"> <li>• <i>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.</i></li> <li>• <i>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.</i></li> </ul>	<b>Cane Creek 32-1-25-20</b> <ul style="list-style-type: none"> <li>• The project consists of 1317 claims.</li> </ul>
<i>Exploration done by other parties</i>	<ul style="list-style-type: none"> <li>• <i>Acknowledgment and appraisal of exploration by other parties.</i></li> </ul>	<b>Long Canyon Wells and Cane Creek 32-1-25-20</b> <ul style="list-style-type: none"> <li>• Past exploration in the region was for oil exploration.</li> <li>• Brine analysis only carried out where flowed to surface during oil drilling.</li> </ul>
<i>Geology</i>	<ul style="list-style-type: none"> <li>• <i>Deposit type, geological setting and style of mineralisation.</i></li> </ul>	<ul style="list-style-type: none"> <li>• Oil was targeted within clastic layers (mainly Clastic Zone 43)</li> </ul> <b>Cane Creek 32-1-25-20</b> <ul style="list-style-type: none"> <li>• Lithium is being targeted within the clastic layers in the Paradox Formation.</li> </ul>

## JORC CODE 2012 “TABLE 1” REPORT

Criteria	JORC Code explanation	Commentary
<p><i>Drill hole Information</i></p>	<ul style="list-style-type: none"> <li>• <i>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:</i> <ul style="list-style-type: none"> <li>○ <i>easting and northing of the drill hole collar</i></li> <li>○ <i>elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar</i></li> <li>○ <i>dip and azimuth of the hole</i></li> <li>○ <i>down hole length and interception depth</i></li> <li>○ <i>hole length.</i></li> </ul> </li> </ul>	<p><b>Drillhole Summary:</b> <b>Cane Creek 32-1-25-20</b></p> <ul style="list-style-type: none"> <li>• 610,154E, 4,270,986N</li> <li>• 5662 RL</li> <li>• 11,405 TD</li> </ul>
	<ul style="list-style-type: none"> <li>• <i>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.</i></li> </ul>	
<p><i>Data aggregation methods</i></p>	<ul style="list-style-type: none"> <li>• <i>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.</i></li> <li>• <i>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.</i></li> <li>• <i>The assumptions used for any reporting of metal equivalent values should be clearly stated.</i></li> </ul>	<p><b>Long Canyon Wells</b></p> <ul style="list-style-type: none"> <li>• No weighting or cut-off grades have been applied.</li> </ul> <p><b>Cane Creek 32-1-25-20</b></p> <ul style="list-style-type: none"> <li>• No averaging or cut-off grades have been applied.</li> </ul>
<p><i>Relationship between mineralisation widths and intercept lengths</i></p>	<ul style="list-style-type: none"> <li>• <i>These relationships are particularly important in the reporting of Exploration Results.</i></li> <li>• <i>If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.</i></li> <li>• <i>If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g. ‘down hole length, true width not known’).</i></li> </ul>	<p><b>Long Canyon Wells and Cane Creek 32-1-25-20</b></p> <ul style="list-style-type: none"> <li>• Exploration is at an early stage and information is insufficient at this stage.</li> <li>• Drill hole angle (-90) does not affect the true width of the brine</li> </ul>

## JORC CODE 2012 “TABLE 1” REPORT

Criteria	JORC Code explanation	Commentary
<i>Diagrams</i>	<ul style="list-style-type: none"> <li>• <i>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.</i></li> </ul>	<p><b>Long Canyon Historic Wells</b></p> <ul style="list-style-type: none"> <li>• No new discoveries have occurred;</li> <li>• Most are historic results from the 1960’s, though some oil wells drilled recently.</li> </ul>
<i>Balanced reporting</i>	<ul style="list-style-type: none"> <li>• <i>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.</i></li> </ul>	<p><b>Long Canyon Wells</b></p> <ul style="list-style-type: none"> <li>• Reporting of additional results, which are all historic, in the area is not practical as the claims are owned by numerous companies.</li> </ul> <p><b>Cane Creek 32-1-25-20</b></p> <ul style="list-style-type: none"> <li>• Exploration is at an early stage</li> </ul>
<i>Other substantive exploration data</i>	<ul style="list-style-type: none"> <li>• <i>Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.</i></li> </ul>	<p><b>Long Canyon Wells</b></p> <ul style="list-style-type: none"> <li>• No additional exploration data is meaningful in relation to brines.</li> </ul> <p><b>Cane Creek 32-1-25-20</b></p> <ul style="list-style-type: none"> <li>• The exploration reported herein is still at an early stage.</li> </ul>
<i>Further work</i>	<ul style="list-style-type: none"> <li>• <i>The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).</i></li> <li>• <i>Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.</i></li> </ul>	<p><b>Long Canyon Wells</b></p> <ul style="list-style-type: none"> <li>• Historic oil wells and no future work is to be carried out as claim owned by multiple oil companies</li> </ul> <p><b>Cane Creek 32-1-25-20</b></p> <ul style="list-style-type: none"> <li>• Further work is required which includes mapping and other exploration programs such as further core drilling.</li> </ul>