Date: 13 March 2024

ASX Code: MAN

Capital Structure
Ordinary Shares: 615,759,920
Current Share Price: 3.8c
Market Capitalisation: $23.4M
Cash: $15.3M (Dec. 2023)
EV: $8.1M

Directors

Lloyd Flint
Non-Executive Chairman
Company Secretary

James Allchurch
Managing Director

Roger Fitzhardinge
Non-Executive Director

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# Substantial Lithium Exploration Target defined at Utah Project

## Highlights

- **Significant Exploration Target for Lithium mineralisation at the Utah Project, reported in accordance with JORC Code (2012) guidelines**
- **Exploration Target confirms the project as a significant large-scale US Lithium brine project**
- **Work has commenced for potential conversion of the Exploration Target to a Mineral Resource Estimate**
- **Results from DLE testing of lithium-rich brines due shortly**
- **Uranium exploration advancing with additional rock chip results imminent**
- **Mandrake fully funded - $15.3M**

Mandrake Resources Limited (ASX: MAN) (Mandrake or the Company) is pleased to provide a maiden lithium Exploration Target at its 93,755-acre (~379km$^2$) Utah Lithium Project.

The Exploration Target[1] (JORC 2012) ranges from 1.7 to 5.6 million tonnes (Mt) of contained LCE (Lithium Carbonate Equivalent).

[1]Cautionary Statement: The Exploration Target has been prepared and reported in accordance with the 2012 edition of the JORC Code. The potential quantity and grade of the Exploration Target is conceptual in nature. There has been insufficient exploration to estimate a Mineral Resource. It is uncertain if further exploration will result in the estimation of a Mineral Resource.

Managing Director James Allchurch commented:

*"An Exploration Target of between 1.7 and 5.6MT of LCE, located in the US, demonstrates the potential world-class scale and quality of the Utah Lithium Project.*

*Mandrake's extensive, modern 3D seismic dataset covers the project area and, together with the recently completed lithium brine sampling activities, is paving the way for the potential determination of JORC (2012) Mineral Resource estimates.*

*Additionally, bulk brine samples were recently sent to two DLE providers, the results of which are expected shortly.*

*This is a great result for the Company and we intend to advance towards maiden JORC 2012 Resource estimates in the coming months."*

## Lithium Brine Exploration Target - Methodology

Exploration Target estimates were made separately for nine individual geologic target units (the units). The units include: the McCracken Formation, Leadville Formation, and Paradox clastic zones 21 (Cane Creek Shale), 15, 12, 10, 9, 8 and 5 (see Figure 1). It is possible that other Paradox clastic zones may be prospective and tested in the future.

The Exploration Target Estimate was calculated using the following criteria:

Lithium Exploration Target = bulk rock volume x effective porosity x concentration of lithium in the brine for each range of porosity and lithium values, for each geologic unit.

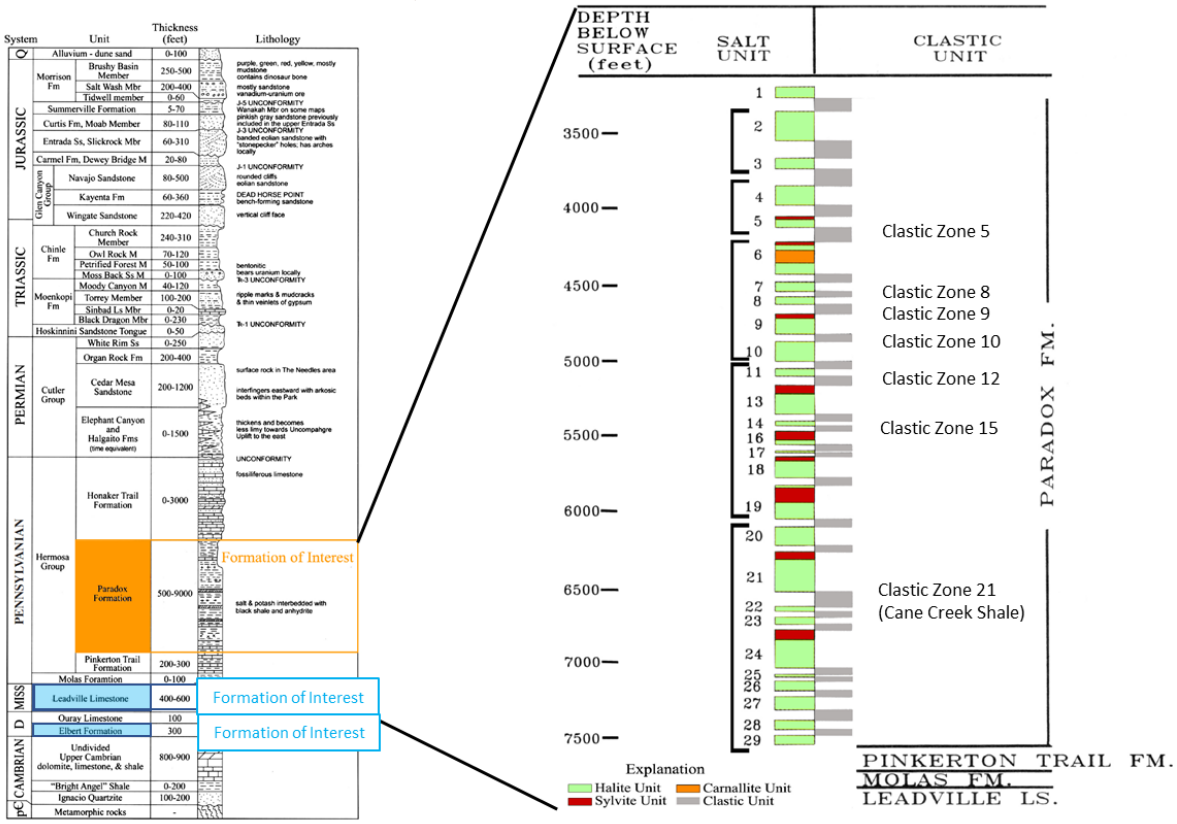


**Figure 1. Stratigraphic section showing geologic target intervals within the Mandrake Utah Project. The three main targets for lithium brine are the Pennsylvanian clastic zones within the Paradox Member, the Devonian McCracken Formation and the Mississippian Leadville Formation (Massoth, T. (2012), Well Database and Maps of Salt Cycles and Potash Zones of the Paradox Basin, Utah, Utah Geological Survey, Open File Report 600).**

Bulk Rock Volume

The volume of the individual units were modelled using the following methodology:

- Historical oil and gas well logs within and surrounding Mandrake's Utah Project were compiled in Petra software.
- Geologic unit tops were picked utilising regional cross sections. Published geologic tops from Massoth, 2012[1] were used as a reference for tops within the clastics, then tops were correlated to wells within Mandrake's Utah Project.
- Isopach thickness grids were created in Petra software for each geologic interval.
- The total rock volume was calculated in Petra software, by applying the outline of Mandrake acreage blocks over the isopach grids.

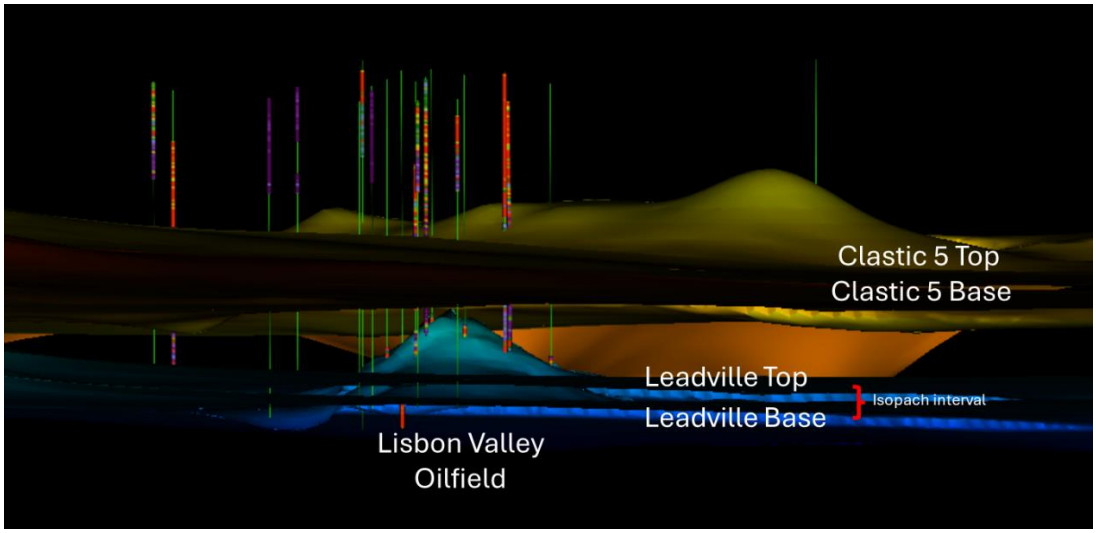


**Figure 2. 3D model of stratigraphic intervals at the Mandrake Utah Project. 3D seismic data was integrated to determine the location and orientation of faulting, and to demonstrate the continuity of geologic units**

The Mandrake Utah Project is defined as acreage for which Mandrake owns the lithium mineral rights and includes both BLM placer claims and SITLA OBA acreage (Figure 3). Mandrake acreage comprises 93,755 acres (~379km$^2$). The individual volume was calculated using only Mandrake acreage that is within the mapped isopach grid.

3D seismic data was integrated into the geologic model to define the structural geology, and location/orientation of faulting.

[1] Massoth, T. (2012), Well Database and Maps of Salt Cycles and Potash Zones of the Paradox Basin, Utah, Utah Geological Survey, Open File Report 600.

Brine Volume (Effective Porosity)

The volume of brine water in the rock was calculated by applying a maximum and minimum average porosity value to each geologic unit volume. This calculation assumes that 100% of the available pore space in the rock will be occupied by brine water. The effective porosity datasets available vary for each geologic unit and are summarised below.

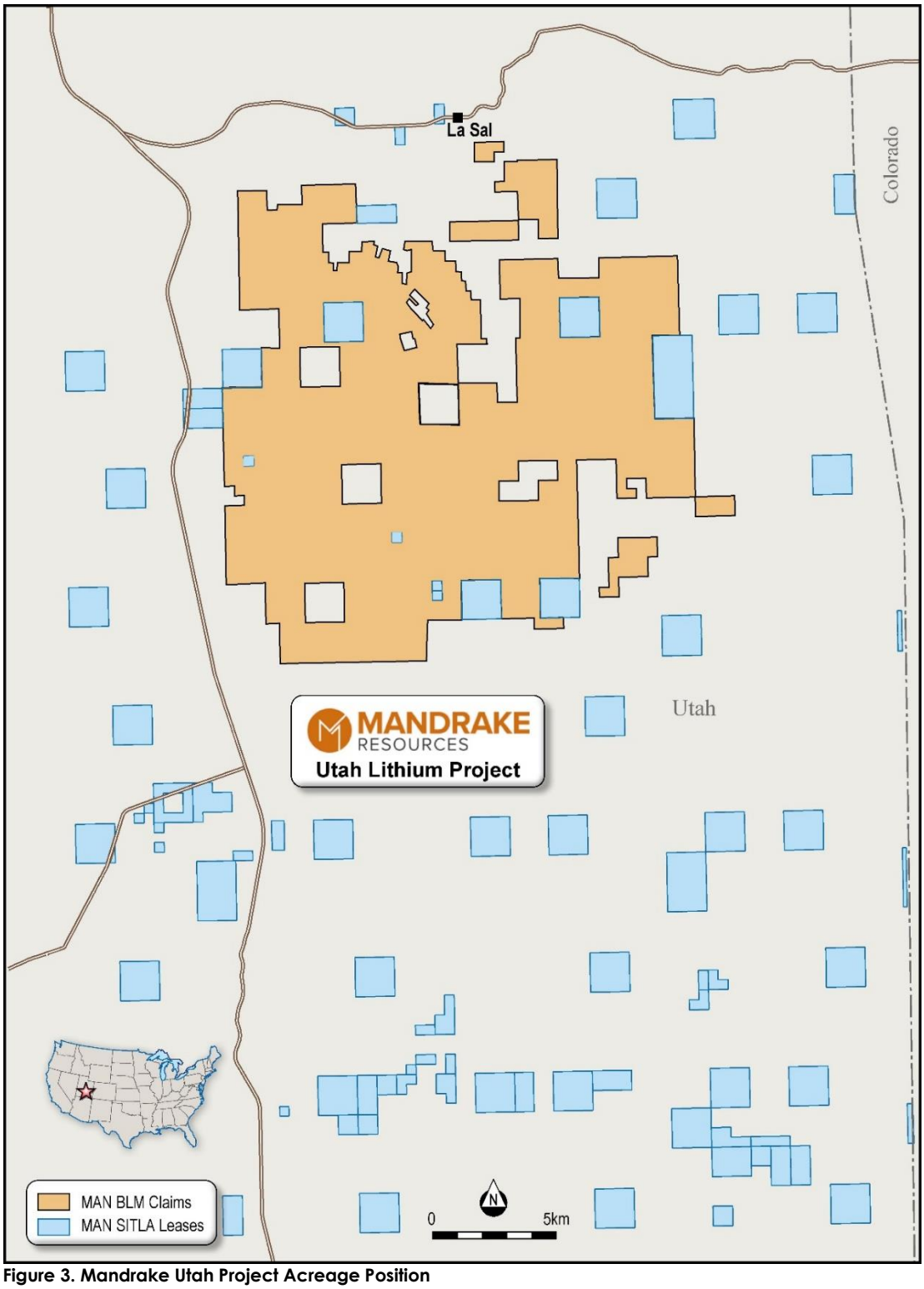


**Figure 3. Mandrake Utah Project Acreage Position**

*Leadville Formation*

The Mississippian Leadville Formation is a marine carbonate sequence that is typically composed of limestone and dolomite. Because the Leadville currently and historically has been a target for hydrocarbons, $CO_2$ and helium, there is abundant well data available. At Lisbon Valley, the Leadville has been shown to have excellent vuggy porosity and good reservoir deliverability. Wireline log data and core data from historical oil and gas wells were used to calculate porosity values (See Figure 4).

A range of 5% - 9% average effective porosity was used for the Leadville Formation.

*McCracken Formation*

The Devonian McCracken sandstone is a marine siliciclastic unit that can have excellent reservoir deliverability. Porosity estimates from core data from six wells covering the McCracken unit was achieved. Four of the six wells also had digital sonic wireline curves, and two wells had pulsed neutron logs. Because of the lack of quality photoelectric (PE) and bulk density (RHOB) wireline log data, the wireline was not utilized in the final porosity estimates. However, the available sonic porosity logs were bulk shifted to match the core datasets and generally show good agreement in the McCracken unit.

A range of 4.5% - 7.5% average effective porosity was used for the McCracken Formation.

*Paradox Clastic Zones*

The Pennsylvanian Paradox Formation consists of massive salts interbedded with anhydrite, potash, sandstone, shale, limestone and dolomite.

Petrophysics was utilized to interpret the effective porosities within the clastic zones using GS petrophysical software to model the porosities.

There is published core data located 23 miles to the north west of the project area (see 16 October 2023 Anson ASX release). The core data correlates with high confidence to Mandrake's clastic zone 15, with the effective porosity ranging from 4.1% - 21.3%.

A range of 4% - 7% average effective porosity was applied to all clastic zones apart from clastic zone 15 which has an effective porosity range of 4% - 14%.

<u>Lithium Concentrations</u>

*Paradox Clastic Zones*

Mandrake recently conducted its own brine sampling programme from within the Paradox clastic zones (see 22 January 2024 ASX release). This dataset was used to define averaged lithium values within the clastic zone intervals, which ranged from

83 – 147 mg/L. There are no other known Paradox clastics brine samples available within the Utah Project area.

One additional Paradox Clastic sample should be noted, however. The historical Peterson 88-21 well lies less than 1 mile outside of Mandrake acreage. It was drilled in 1959 and showed high lithium concentrations (340 mg/L) and artesian flow in the upper Paradox clastic zones. The datapoint suggests that upper clastic zones could be highly prospective. As a conservative approach, this datapoint was not incorporated into the Exploration Target, however with further validation, this high concentration lithium component provides significant potential upside to any future Mineral Resource.

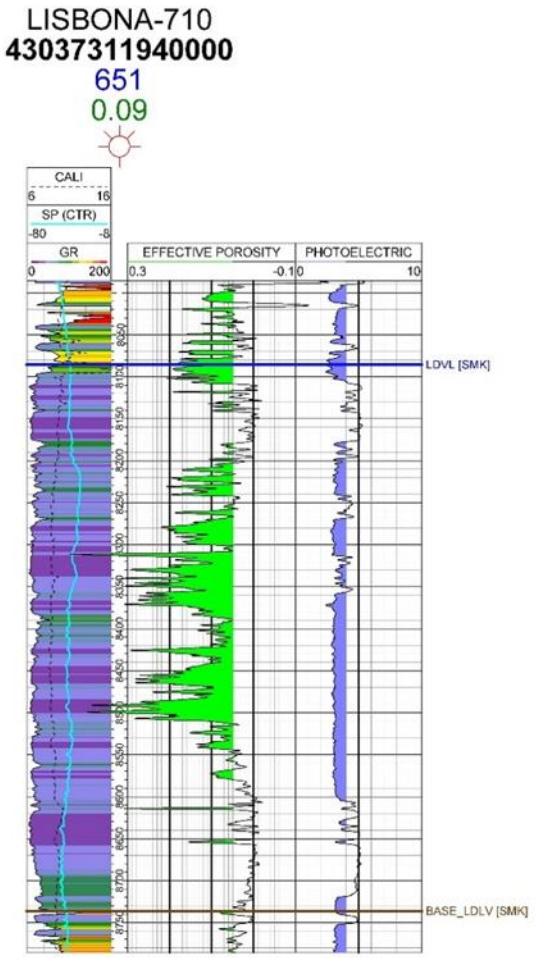


**Figure 4. Leadville porosity type log at Lisbon Valley. The top of Leadville is LDVL(SMK) and the base is labelled BASE_LDVL(SMK). The Leadville thickness in this well is 651'. At the Lisbon A-710, the average effective porosity over the entire Leadville section is 9%, while the maximum porosity is over 30%. The green shading highlights porosity greater than 5%. The dolomite lithologies are highlighted in purple on the Photoelectric curve. The vuggy dolomitic facies in the Leadville are known to have excellent reservoir producibility regionally.**

*Leadville and McCracken Formations*

Lithium brine analytical data for the Leadville and McCracken formations was derived from Kim et al, 2022[2] and Mandrake's brine sampling programme (see 22 January 2024 ASX release). Due to the limited number of McCracken brine analyses (one datapoint at 63 mg/L lithium), the McCracken and Leadville lithium

[2] Kim, Ji-Hyun, Lydia Bailey, Chandler Noyes, Rebecca L Tyne, Chris J Ballentine, Lin Ma, Mark Barton, et al, 2022, "Hydrogeochemical Evolution of Formation Waters Responsible for Sandstone Bleaching and Ore Mineralization in The Paradox Basin, Colorado Plateau, USA, Bulletin of the Geological Society of America 134 (9-10), 2589-2610".

concentrations are combined in this report. Both units are below the salt seal of the Paradox Formation and are not separated by a major seal.

Lithium brine data in the Leadville/McCracken ranges from 55 – 75 mg/L within Mandrake's Utah Project area. However, Anson Resources reported Leadville lithium concentrations of up to 101 mg/L lithium (see 10 October 2022 Anson ASX release). Anson's acreage is 23 miles to the north west of Mandrake's Utah Project. Due to the complex nature of the faulting at Lisbon Valley, it is reasonable to assume that a higher Leadville/McCracken lithium concentration is likely to be found, especially in untested fault blocks. For the Exploration Target, a minimum value of 55 mg/L lithium and maximum value of 101 mg/L lithium was used.

Exploration Target Summary and Forward Workplan

**Table 1: Exploration Target Low Case Parameters - Utah Project**

| Formation | Rock Volume (cubic metres) | Brine Volume (million cubic metres) | Average Thickness (metres) | Effective Porosity Low | Lithium Low mg/L | Total Tonnes Lithium Low | Total Tonnes LCE Low |
|---|---|---|---|---|---|---|---|
| Leadville Formation | 59,493,970,113 | 2,975 | 158 | 5.0% | 55 | 163,608 | 870,888 |
| McCracken Sandstone | 9,443,794,684 | 425 | 24 | 4.5% | 55 | 23,373 | 124,417 |
| Paradox Clastic Zone 5 | 11,795,202,947 | 472 | 34 | 4.0% | 83 | 39,160 | 208,449 |
| Paradox Clastic Zone 8 | 6,049,597,247 | 242 | 18 | 4.0% | 83 | 20,085 | 106,911 |
| Paradox Clastic Zone 9 | 2,929,288,183 | 117 | 9 | 4.0% | 83 | 9,725 | 51,767 |
| Paradox Clastic Zone 10 | 4,241,545,085 | 170 | 10 | 4.0% | 83 | 14,082 | 74,958 |
| Paradox Clastic Zone 12 | 1,790,498,399 | 72 | 5 | 4.0% | 83 | 5,944 | 31,642 |
| Paradox Clastic Zone 15 | 4,616,946,571 | 185 | 11 | 4.0% | 83 | 15,328 | 81,592 |
| Paradox Clastic 21 (Cane Creek Shale) | 6,583,948,149 | 263 | 18 | 4.0% | 83 | 21,859 | 116,354 |

**Total Minimum Case Volume of Brine Water: 4.92 billion cubic metres**
**Total Minimum Case Tonnes LCE = 1,666,978 tonnes**

**Table 2: Exploration Target High Case Parameters - Utah Project**

| Formation | Rock Volume (cubic metres) | Brine Volume (million cubic metres) | Average Thickness (metres) | Effective Porosity High | Lithium High mg/L | Total Tonnes Lithium High | Total Tonnes LCE High |
|---|---|---|---|---|---|---|---|
| Leadville Formation | 59,493,970,113 | 5,354 | 158 | 9.0% | 101 | 540,800 | 2,878,679 |
| McCracken Sandstone | 9,443,794,684 | 708 | 24 | 7.5% | 101 | 71,537 | 380,790 |
| Paradox Clastic Zone 5 | 11,795,202,947 | 826 | 34 | 7.0% | 147 | 121,373 | 646,067 |
| Paradox Clastic Zone 8 | 6,049,597,247 | 423 | 18 | 7.0% | 147 | 62,250 | 331,359 |
| Paradox Clastic Zone 9 | 2,929,288,183 | 205 | 9 | 7.0% | 147 | 30,142 | 160,448 |
| Paradox Clastic Zone 10 | 4,241,545,085 | 297 | 10 | 7.0% | 147 | 43,645 | 232,325 |
| Paradox Clastic Zone 12 | 1,790,498,399 | 125 | 5 | 7.0% | 147 | 18,424 | 98,072 |
| Paradox Clastic Zone 15 | 4,616,946,571 | 646 | 11 | 14.0% | 147 | 95,017 | 505,774 |
| Paradox Clastic 21 (Cane Creek Shale) | 6,583,948,149 | 461 | 18 | 7.0% | 147 | 67,749 | 360,627 |

**Total Maximum Case Volume of Brine Water: 9.046 billion cubic metres**
**Total Maximum Case Tonnes LCE = 5,594,141 tonnes**

Note: A conversion factor of 5.323 is used to convert elemental Li to $Li_2CO_3$, or Lithium Carbonate Equivalent (LCE).

Cautionary Statement: The Exploration Target has been prepared and reported in accordance with the 2012 edition of the JORC Code. The potential quantity and grade of the Exploration Target is conceptual in nature. There has been insufficient exploration to estimate a Mineral Resource. It is uncertain if further exploration will result in the estimation of a Mineral Resource.

Mandrake has commenced the compilation and assessment of data required for the estimation of a Mineral Resource. Forthcoming work will likely include a comprehensive review of existing core data and possibly additional core plug analysis to determine suitability for the generation of effective porosity as well as potential additional lithium brine sampling.



**This announcement has been authorised for release by the Board of Mandrake Resources.**

**Competent Persons Statement**

The information in this announcement that relates to geology, exploration results and Exploration Target was compiled by Ms. Sabina Kraushaar, a Competent Person whom holds an M.Sc in Geology specialising in Structural Geology and is a Member of the Australian Institute of Geoscientists (Member #8940) and a consultant to Mandrake Resources. Ms. Kraushaar has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the "Australian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves". Ms. Kraushaar consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

All parties have consented to the inclusion of their work for the purposes of this announcement. The interpretations and conclusions reached in this announcement are based on current geological theory and the best evidence available to the author at the time of writing. It is the nature of all scientific conclusions that they are founded on an assessment of probabilities and, however might be, they make no claim for absolute certainty. Any economic decisions which might be taken on the basis of interpretations or conclusions contained in this presentation will therefore carry an element of risk.

- # 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.<br>• Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.<br>• Aspects of the determination of mineralisation that are Material to the Public Report.<br>• 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. | • In January 2024 Mandrake collected brine samples from existing perforations in five historical shut-in oil and gas wells located in the Lisbon Valley (Utah). A ball-valve bailer, capable of storing up to 3.4 L of liquid, attached to a wireline truck was used to retrieve samples from the formations of interest.<br>• A mixture of brine and minor volumes of hydrocarbon liquids retrieved from the bailer were poured into a clean bucket and then into a 2,000 mL separator funnel to separate hydrocarbons from water. After 5-10 minutes of allowing for hydrocarbon/brine separation, a 200-300 mL aliquot of the brine was captured from the separation funnels to be analysed with an AquaTroll 500 water multimeter. The Aqua Troll was factory calibrated upon shipment and re-calibrated upon arrival for high conductivity brines (~100,000 µs/cm). After 30-40 minutes of allowing for hydrocarbon/brine separation, the brine separated was collected in a HDPE sampling bottle with minimal headspace and transported in a cooler on ice.<br>• Sampling equipment (e.g. bucket, beakers, separation funnels, etc.) was thoroughly cleaned with soap and water and rinsed 3x - 4x with distilled water between sample points.<br>• The sample retrieval method used only samples accumulated fluids in the immediate wellbore and is not always an accurate representation of the native brines in the adjacent targeted geological formations. Further, |

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| | | historical wells may not be optimally perforated to target fluids associated with the highest lithium-brine units.<br>• Historical brine sampling has also been conducted on oil and gas wells at the Utah Lithium Project by oil and gas companies including Paradox Resources which reports the historical sampling techniques as follows:<br>o A mixture of oil and produced water was collected directly from the well head (where possible) or from the oil-brine separator tank (when oil to water cuts were high) into a 19 L Nalgene carboy filled to the top and capped. After the formation water had settled to the bottom of the carboys, the formation water was removed through a spigot at the bottom of the carboy and filtered through a 1.6 µm glass fiber filter to remove any residual oil. All water samples were filtered through 0.45 µm nylon membrane filters into HDPE bottles. Sample were acidified by adding two drops of concentrated Optima-grade nitric acid into 30 mL pre-acid-washed HDPE sample bottles. All samples were kept on ice in the field and at ~4 °C in the refrigerator in the laboratory prior to analysis. |
| **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). | • Mandrake has yet to conduct any drilling at the Utah Lithium Project.<br>• The historical oil and gas company owned wells were drilled using conventional oil and gas drill rigs that drill vertical well bores. |
| **Drill sample recovery** | • Method of recording and assessing core and chip sample recoveries and results assessed.<br>• Measures taken to maximise sample recovery and ensure representative nature of the samples. | • Sample size of the samples collected by Mandrake is constrained by the capacity of the bailer. |

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| | • 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. | • Measurements of the original liquids recovered by Mandrake from the bailer, oil saturation and final sample collected were recorded.<br>• Mandrake took actions to extract brine from each sample and separate-out any minor liquid hydrocarbons that were retrieved from the original mixed-liquids in the bailer.<br>• The historical collection of brines from the oil and gas wells is poorly documented. |
| **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.<br>• Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.<br>• The total length and percentage of the relevant intersections logged. | • Electric Conductivity, Temperature and pH of the brine samples collected by Mandrake were recorded in the field using an AquaTroll 500 instrument.<br>• Petrophysical well logs associated with the historical wells were compiled in Petra software and include gamma-ray, neutron, bulk density, resistivity, sonic, photoelectric, and mud logs.<br>• The petrophysical logs provide information that was used to make stratigraphic formation picks to define the down-well lithology of each well. These interpreted lithological logs were used to prepare cross-sections to map the reservoir and to estimate the thickness of the formations of interest.<br>• Published geologic tops from Massoth, 2012 were used as a reference for tops within the clastic units, then tops were correlated to wells within the Utah Lithium Project.<br>• Core data was utilized, along with bulk density, sonic and photoelectric logs, to make effective porosity estimates. |
| **Sub-sampling techniques and sample preparation** | • If core, whether cut or sawn and whether quarter, half or all core taken.<br>• If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry. | • No sub-sampling techniques were applied to the brine samples collected by Mandrake.<br>• The specific sampling techniques, sample preparation of brine and Quality Control-Quality Assurance procedures related to historical wells are unknown. |

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| | • For all sample types, the nature, quality and appropriateness of the sample preparation technique.<br>• Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.<br>• 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.<br>• 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 partial or total.<br>• 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.<br>• 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. | **Samples collected by Mandrake**<br>• Sample collection and preparation followed the protocols of the NELAC accredited laboratories used.<br>• A blind synthetic standard was provided every 20-30 samples or at the beginning and end of a set of samples. Blind blanks (distilled water) are provided every 50-60 samples or at the beginning of each set of samples and a check lab was used for every second sample.<br>• The contracted labs reported the following methodologies for sample analysis:<br>o Sample Digestion: EPA 200.2<br>o Anions: EPA M300.0, EPA 300.0, SM2320B, SM4500S2-D, SM2310BSM, SM D516<br>o Cations: EPA M200.7 & EPA 200.7<br>o Volatile Organic Compounds (Hydrocarbons): EPA M8015D, EPA M8260C/D, and EPA M3520C<br>• Assay procedures are considered appropriate.<br>• Quality control procedures included the use of external laboratory checks.<br><br>**Historical brine sampling by oil and gas operators**<br>• The specific sampling techniques, sample preparation of brine and Quality Control-Quality Assurance procedures related to historical wells are unknown. |

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| | | • Often the laboratory names are not reported, and hence there is no way to evaluate laboratory certificates or make statements on the independence and accreditation of the individual laboratories used in the historical brine analytical work. |
| **Verification of sampling and assaying** | • The verification of significant intersections by either independent or alternative company personnel.<br>• The use of twinned holes.<br>• Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.<br>• Discuss any adjustment to assay data. | • Documentation of primary field data collected by Mandrake was conducted under standard operating procedures.<br>• Lithological intersections were not assessed as bailed sampling was performed on formation brines. |
| **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.<br>• Specification of the grid system used.<br>• Quality and adequacy of topographic control. | • Well locations are identifiable in the field and, in the case of brine sampling, were verified using hand held GPS.<br>• The longitude and latitude locations of the oil and gas wells provided by the oil and gas companies are recorded in government databases. |
| **Data spacing and distribution** | • Data spacing for reporting of Exploration Results.<br>• 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.<br>• Whether sample compositing has been applied. | • Data spacing is suitable to establish an early stage Exploration Target.<br>• No compositing was applied to the brine data. |
| **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.<br>• If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material. | • The effect of structures in the concentration of different elements in the brines is not fully understood.<br>• Seismic interpretation has been undertaken by Mandrake to evaluate geological structures but further work is still required. |
| **Sample security** | • The measures taken to ensure sample security. | • Samples collected by Mandrake were kept and safely stored by Mandrake's personnel while at the field and |

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| | | shipped by registered courier to the laboratories and DLE providers.<br>• Sample security procedures (if any) as conducted by the historical oil and gas companies are unknown. |
| **Audits or reviews** | • The results of any audits or reviews of sampling techniques and data. | • No audits/reviews of the data have been undertaken at this stage. |

## 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.*<br>• *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 Utah Lithium Project is located approx. 60km SSE of the City of Moab, in the State of Utah in the United States.<br>• The total land position is 93,755 acres and includes:<br>  o 34,670 acres within an Other Business Agreement (OBA) with the Utah State Government's School and Institutional Trust Lands Administration (SITLA).<br>  o The remaining land position of approximately 59,085 acres is comprised of over 2,950 staked Bureau of Land Management (BLM) placer claims.<br>• All the land tenure / staked BLM claims are 100% owned by Mandrake's US subsidiary (Mandrake Lithium USA Inc.) or held in trust by Mandrake's commissioned landman, in which the deeds are awaiting transfer to Mandrake Lithium USA Inc. |
| ***Exploration done by other parties*** | • *Acknowledgment and appraisal of exploration by other parties.* | • Historical exploration work has been performed by oil and gas companies who have completed hydrocarbon-specific exploration and production activities over the last 80 years across the lease and claim areas.<br>• Individual wells within oilfields continue to produce in the Paradox Basin and within the boundaries of the Utah Lithium Project. |

<table>
<tr><th>Criteria</th><th>JORC Code explanation</th><th>Commentary</th></tr>
<tr><td>Geology</td><td>• Deposit type, geological setting and style of mineralisation.</td><td>• The Project is in the north-central portion of the Paradox Basin.<br>• Structurally, Mandrake's Project occurs on the southern margin of the "Paradox fold and fault belt", which consists of a series of roughly parallel, northwest-trending faults, northwest striking diapiric salt-cored anticlines and synclines in the northern Paradox Basin.<br>• Currently, Mandrake's lithium-brine geological target units are defined by the Devonian McCracken sandstone, the Mississippian Leadville-Ouray Limestone Formation (Leadville Limestone) and the Pennsylvanian Paradox Member of the Hermosa Formation.<br>• The Leadville Limestone comprises massive to thinly laminated, gray, buff, and yellow limestone that were deposited in intertidal to subtidal environments.<br>• The Paradox Basin can be defined by the maximum extent of halite and potash salts in the Middle Pennsylvanian Paradox Formation and is composed of halite interbedded with gypsum, shale, sandstone, and dolomite deposited intermittently in a closed marine depositional environment.</td></tr>
<tr><td>Drill hole Information</td><td>• 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:<br>o easting and northing of the drill hole collar<br>o elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar<br>o dip and azimuth of the hole<br>o down hole length and interception depth<br>o hole length.<br>• 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</td><td>• Mandrake has yet to conduct drilling at the Utah Lithium Project.<br>• The historical oil and gas wells were drilled vertically.<br>• Historic wells utilised in the geologic modelling include:<br><table><tr><th>Well Label</th><th>Surface Latitude</th><th>Surface Longitude</th><th>Kelly Bushing</th><th>Total Depth</th></tr><tr><td>FEDERAL1</td><td>38.176568</td><td>-109.340956</td><td>5928.00</td><td>9325.00</td></tr><tr><td>STATE1</td><td>38.227048</td><td>-109.304253</td><td>6319.00</td><td>10636.00</td></tr><tr><td>HATCH WASH UNIT1</td><td>38.147026</td><td>-109.327292</td><td>5813.00</td><td>8957.00</td></tr><tr><td>FEDERAL-UTAH-A1</td><td>38.096073</td><td>-109.105896</td><td>6692.00</td><td>10327.00</td></tr><tr><td>LITTLE VALLEY1</td><td>38.152458</td><td>-109.188235</td><td>6532.00</td><td>9712.00</td></tr><tr><td>BIG INDIAN UNIT6</td><td>38.168835</td><td>-109.129689</td><td>6525.00</td><td>10244.00</td></tr></table></td></tr>
</table>

| Criteria | JORC Code explanation | Commentary | | | | |
|---|---|---|---|---|---|---|
| | *Competent Person should clearly explain why this is the case.* | CHURCH ROCK UNIT1 | 38.063365 | -109.367431 | 6156.00 | 8441.00 |
| | | HORSETHIEF CAN UNIT1 | 38.306264 | -109.073659 | 7323.00 | 11999.00 |
| | | NW LISBON-C2 | 38.21229 | -109.276867 | 6805.00 | 10706.00 |
| | | NW LISBON-G1 | 38.215597 | -109.276655 | 6788.00 | 6320.00 |
| | | LISBON UNITC-74 | 38.208583 | -109.290599 | 6446.00 | 9015.00 |
| | | NW LISBON-STATE A1 | 38.20229 | -109.253007 | 6581.00 | 10419.00 |
| | | BIG INDIAN-B1 | 38.253771 | -109.278853 | 6753.00 | 10070.00 |
| | | BIG INDIAN UNIT5 | 38.246402 | -109.293015 | 6797.00 | 9994.00 |
| | | LA SAL-USA1 | 38.272001 | -109.316194 | 6511.00 | 9807.00 |
| | | SPILLER CANYON ST1 | 38.171972 | -109.190365 | 6861.00 | 9661.00 |
| | | BELCO-STATE2 | 38.18326 | -109.286069 | 6229.00 | 9120.00 |
| | | B-615 | 38.182968 | -109.277371 | 6307.00 | 9051.00 |
| | | FEDERAL1-31 | 38.13299 | -109.334923 | 5820.00 | 8822.00 |
| | | CHEVRON-FEDERAL1 | 38.266433 | -109.332408 | 6522.00 | 9955.00 |
| | | HORN-FEDERAL1 | 38.28639 | -109.071791 | 7314.00 | 11565.00 |
| | | LITTLE VALLEY-FED1 | 38.172933 | -109.217073 | 6339.00 | 9100.00 |
| | | GULF-STATE1 | 38.218678 | -109.341888 | 5948.00 | 9540.00 |
| | | LISBON UNITB-84 | 38.204088 | -109.293389 | 6296.00 | 8766.00 |
| | | LISBON UNITB-814 | 38.177718 | -109.260294 | 6482.00 | 8965.00 |
| | | HOOK AND LADDER 15-2 | 38.245936 | -109.336416 | 6248.00 | 9579.00 |
| | | FEDERAL13-30 | 38.247917 | -109.326983 | 6402.00 | 9534.00 |
| | | LISBON FEDERAL3-21 | 38.167594 | -109.178577 | 6726.00 | 9953.00 |
| | | FEDERAL1-20 | 38.16773 | -109.195414 | 6767.00 | 9555.00 |
| | | GOVT EVELYN CHAMBERS | 38.12552 | -109.320071 | 5820.00 | 8826.00 |
| | | WHITE ROCK UNIT 12 | 38.117649 | -109.311515 | 5841.00 | 8854.00 |
| | | LISBON UNITD-610 | 38.197951 | -109.268563 | 6842.00 | 8510.00 |

| Criteria | JORC Code explanation | Commentary | | | | |
|---|---|---|---|---|---|---|
| | | LISBON UNITB-94 | 38.200233 | -109.294033 | 6392.00 | 9150.00 |
| | | REDD11-1 | 37.928641 | -109.357447 | 7050.00 | 6280.00 |
| | | FEDERAL21-4 | 38.167738 | -109.299641 | 5943.00 | 8817.00 |
| | | TXP-IRON SPRINGS1-3 | 37.931717 | -109.159933 | 6782.00 | 6340.00 |
| | | LISBONA-710 | 38.194741 | -109.282048 | 6445.00 | 9140.00 |
| | | LISBONB-614A | 38.184211 | -109.256703 | 6849.00 | 9097.00 |
| | | SUGAR LOAF4-1 | 38.118421 | -109.398829 | 6278.00 | 5730.00 |
| | | REMINGTON21-1H | 38.071738 | -109.396102 | 6404.00 | 9615.00 |
| | | WINCHESTER21-1H | 38.082061 | -109.298001 | 5995.00 | 10025.00 |
| | | JEFFERSON4-1 | 37.940395 | -109.29711 | 6892.00 | 6263.00 |
| | | CISCO STATE36-13 | 38.051147 | -109.232022 | 6013.00 | 7948.00 |
| | | USA-BIG INDIAN1 | 38.239428 | -109.275236 | 7126.00 | 11143.00 |
| | | LISBON FED2-21F | 38.164728 | -109.185766 | 6864.00 | 9560.00 |
| | | LISBONB-912 | 38.186416 | -109.240868 | 6372.00 | 9170.00 |
| | | LISBON UNITA-814 | 38.175994 | -109.263026 | 6425.00 | 9020.00 |
| | | LISBON UNITB-99 | 38.186878 | -109.294088 | 6170.00 | 8697.00 |
| | | LISBON USA-D NW2 | 38.182113 | -109.240735 | 6385.00 | 9058.00 |
| | | LISBON VALLEY-C1 | 38.196841 | -109.295572 | 6307.00 | 9553.00 |
| | | LISBON UNITB-616 | 38.181469 | -109.293018 | 6175.00 | 8689.00 |
| | | LISBON UNITB-815 | 38.176129 | -109.276863 | 6102.00 | 8561.00 |
| | | LISBON UNITC-69 | 38.19601 | -109.290516 | 6263.00 | 8849.00 |
| | | LISBON UNITC-84 | 38.206642 | -109.289051 | 6452.00 | 8963.00 |
| | | LISBON UNITC-94 | 38.200449 | -109.289343 | 6351.00 | 8864.00 |
| | | NW LISBON-B2 | 38.174249 | -109.251658 | 6658.00 | 9305.00 |
| | | D-84 | 38.204969 | -109.286034 | 6535.00 | 9133.00 |
| | | D-89 | 38.189514 | -109.288069 | 6264.00 | 8853.00 |
| | | SOUTHEAST LISBON1-9 | 38.110647 | -109.065116 | 6218.00 | 9740.00 |
| | | LA SAL-FEDERAL1 | 38.240471 | -109.247619 | 7041.00 | 10406.00 |

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| | | NW LISBON-USA-B1 38.18321 -109.258345 6733.00 9022.00<br>NORTHWEST LISBON USA 38.198009 -109.276629 6589.00 8440.00<br>NORTHWEST LISBON-C3 38.201609 -109.272683 6813.00 8426.00<br>NW LISBON-USA-A2 38.190178 -109.268019 6641.50 9312.00<br>ISLAND MESA1 38.161558 -109.061458 6462.00 11421.00 |
| ***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.*<br>• *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.*<br>• *The assumptions used for any reporting of metal equivalent values should be clearly stated.* | • No weighting or cut-off grades have been applied.<br>• No metal equivalent values have been reported. |
| ***Relationship between mineralisation widths and intercept lengths*** | • *These relationships are particularly important in the reporting of Exploration Results.*<br>• *If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.*<br>• *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').* | • Mandrake has yet to conduct drilling at the Utah Lithium Project.<br>• Brines are produced from large, confined aquifer/reservoir deposits as fluid media - representing samples from a larger pool of fluids. Accordingly, it is accurate to state that brine data do not have common solid mineral deposit sample intervals or intercepts. Hence downhole lengths and true widths are not applicable to this type of deposit. |
| ***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.* | • Historical well collar locations and appropriate lithium-brine information are presented within the figures, tables, and text contents of this announcement. |
| ***Balanced reporting*** | • *Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and* | • All data provided and available to the CP for this work is summarised in the report. |

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| | *high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.* | |
| ***Other substantive exploration data*** | • *Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.* | • Based on the Mandrake's current knowledge of the project, all meaningful information has been provided. |
| ***Further work*** | • *The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).*<br>• *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.* | • Direct Lithium Extraction (DLE) test work, to verify that lithium can be extracted from deep-seated brine underlying the Utah Lithium Project, is currently being undertaken by two independent DLE providers.<br>• Mandrake has commenced the compilation and assessment of data required for the estimation of a Mineral Resource. Forthcoming work will likely include a comprehensive review of existing core data and possibly additional core plug analysis to determine suitability for the generation of effective porosity as well as potential additional lithium brine sampling. |