Date: 7 February 2024

ASX Code: MAN

Capital Structure
Ordinary Shares: 615,759,920
Current Share Price: 3.9c
Market Cap: $24.0M
Cash: $15.3M (Dec. 2023)
EV: $8.7M
Debt: Nil

Directors

Lloyd Flint
Non-Executive Chairman
Company Secretary

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First-pass Uranium exploration completed in highly prospective Lisbon Valley, Utah

Highlights

- **Mandrake's 93,755-acre (~379km²) Utah Lithium Project occupies a significant proportion of the Lisbon Valley, the most significant uranium mining district in Utah[1]**
- **Lisbon Valley accounts for nearly 78 million pounds of historic U_3O_8 production, representing 64% of all uranium ever mined in Utah[1] - the third largest uranium mining state in the U.S.**
- **100km south of the project is the only operating conventional uranium mill in the U.S., the 8Mlb per annum White Mesa Mill owned by Energy Fuels Inc. (NYSE:UUUU; MC: ~US$1.2B)**
- **In December 2023 Energy Fuels announced the re-opening of the La Sal uranium mine, located <5km from MAN tenure**
- **Preliminary uranium field work identified multiple outcropping uranium mineralisation occurrences**
- **Sample results due before the end of February 2024**

Figure 1: Uranium mineralisation (yellow uranium-bearing mineral carnotite) identified in outcrop

[1] Mills, S.E. and Jordan, B., 2021, Uranium and vanadium resources of Utah—an update in the era of critical minerals and carbon neutrality: Utah Geological Survey Open-File Report 735

Mandrake Resources Limited (ASX: MAN) (Mandrake or the Company) is pleased to advise that preliminary field work designed to assess the uranium potential of its 93,755-acre Utah Lithium Project located in the Lisbon Valley mining district has been completed by a locally based geological consulting group with direct uranium experience in Mandrake's project area.

Consultant geologists targeted areas of relatively high radioactivity in the Salt Wash Member of the Morrison Formation, the Chinle Formation and the Cutler Formation and collected samples accordingly. The consultant geologists were equipped with two scintillometers, one RS-125 spectral scintillometer by Radiation Solutions Inc, and an SC-132 from Mount Sopris Co.

Several anomalously radioactive outcrops were located and sampled for laboratory testing, including outcropping areas where uranium mineralisation was preliminarily identified as carnotite (Figure 1), uraninite and potentially covellite.

A total of six samples were collected and submitted for laboratory analysis. Results are expected before the end of February 2024.

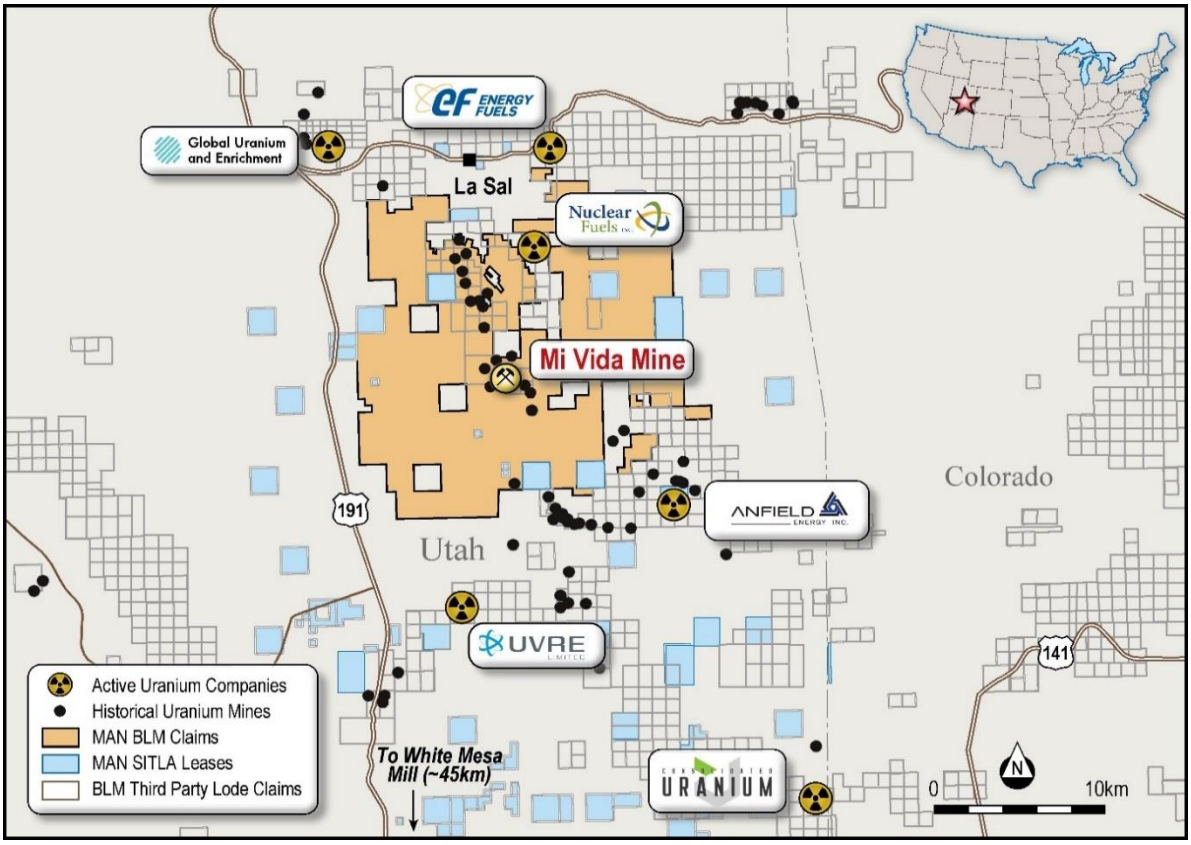

Figure 2: Utah Project – Location of Uranium mines and explorers

Uranium – Potential Scale

As part of Mandrake's lithium exploration, a Well Access Agreement was executed with Paradox in May 2023[2] allowing Mandrake to sample Paradox-owned oil and gas wells. Paradox operates over 150 wells on approximately 98,000 net acres in the Paradox Basin.

[2] See ASX Announcement 22 May 2023

The petrophysical logs of these oil and gas wells compiled by Mandrake include intersections of known uranium host rocks with, in most instances, gamma logs that potentially indicate the presence of uranium mineralisation. This dataset is crucial in that it will likely be able to determine the distribution and volume of uranium-bearing units across the project area.

Similarly, Mandrake is well positioned with the 3D seismic dataset in its possession to determine the thickness and lateral continuity of potential uranium-bearing sediments whilst also potentially assisting with uranium targeting and mapping.

The compilation of gamma logs and associated information is in progress and, if it is able to be calibrated with existing drill cuttings/core, will potentially allow for the estimation of a JORC-compliant Exploration Target and Resources.

Uranium in the Lisbon Valley and Environs

Utah is the third largest uranium producing state in the US with the Lisbon Valley district by far the most important, accounting for nearly 78 million pounds of U_3O_8 production, or 64% of the Utah's total production[1] and approximately 8% of total United States U_3O_8 production between 1949 and 2019.[3]

Uranium and vanadium in the Lisbon Valley mining district were discovered in 1913 as outcrops of basal sandstone at the southeast end of the Lisbon Valley anticline, the dominant geologic feature in the region. Mineralisation was then identified to the north west tracing an arcuate belt 16 miles long by one mile with over 40 historical uranium mines/occurrences, of which 20 are located within Mandrake's Utah Project tenure (Figure 2).

The most significant uranium mine in the district is the Mi Vida mine which returned average ore grades of 3,700 ppm U_3O_8 and 1.4% V_2O_5 and was the catalyst for the 1953 to 1961 uranium boom in the region.[4]

Declining uranium prices in the early 1980s forced many of the mines to close, however exploration activity has since ramped up in the region, attracting a host of uranium juniors (see Figure 2) as well as larger players such as Energy Fuels Inc. (NYSE:UUUU ~ US$1.2B market cap) and Consolidated Uranium Inc. (TSX-V:CUR ~CAD$200M market cap).

Energy Fuels operates the White Mesa Mill which is the only fully licensed and operational conventional uranium-vanadium mill in the US with a licensed capacity of over 8 million pounds of U_3O_8 per year.

In December 2023, Energy Fuels announced the restart of their La Sal uranium mine, located less than 5km to the north of the Utah Project (Figure 2). Resources at La Sal are quoted at 4.3Mlb of U_3O_8 and 17.8Mlb of V_2O_5 from 0.8Mt of material with grades of 0.26% U_3O_8 and 1.08 V_2O_5[5].

In their 21 December 2023 news release, Energy Fuels state:

'The Company's decision to ramp-up uranium production at this time was driven by several favorable market and policy factors, including strengthening spot and long-term uranium prices, increased buying interest from U.S. nuclear utilities, U.S. and global government policies supporting nuclear energy to address global climate change, and the need to reduce U.S. reliance on Russian and

[3] Table 8.2 - Uranium Overview. Washington, DC: U.S. Energy Information Administration. April 2020.
[4] Chenoweth (1990) Lisbon Valley, Utah's Premier Uranium Area, A Summary of Exploration and Ore Production, Utah Geological and Mineral Survey, Open-file report 188
[5] https://www.energyfuels.com/la-sal-complex

*Russian-controlled uranium and nuclear fuel. Underscoring these positive trends, attendees at the recently concluded World Climate Action Summit of the 28th Conference of the Parties of the U.N. Framework Convention on Climate Change Summit ("**COP28**") hosted in Dubai, UAE from November 30, 2023 to December 12, 2023, emphasized the need for more nuclear energy, fueled by uranium, to lower global carbon emissions and help address climate change. According to a December 1, 2023 U.S. Department of Energy ("**DOE**") news release, more than 20 countries on four continents, including the U.S., pledged to triple nuclear energy by 2050, recognizing "the key role of nuclear energy in achieving global net-zero greenhouse gas emissions by 2050 and keeping the 1.5-degree goal within reach."*

*Nuclear enjoys strong bipartisan support across the U.S. government. The current fleet of U.S. nuclear plants provides about 20% of all electricity in the U.S. – and about 50% of all carbon-free electricity in the U.S. The U.S. government has acted aggressively to support the existing fleet of reactors, advance future nuclear technologies, and restore domestic nuclear fuel capabilities through the Infrastructure Investment and Jobs Act of 2021 and the Inflation Reduction Act of 2022. The U.S. Congress recently included the Nuclear Fuel Security Act ("**NFSA**") in the National Defense Authorization Act ("**NDAA**"), which is a critical step in restoring U.S. uranium and nuclear fuel capabilities and leadership. On December 11, 2023, the U.S. House of Representatives overwhelmingly passed a ban on the import of Russian uranium and nuclear fuel into the U.S. in response to Russia's unprovoked invasion of Ukraine and ongoing atrocities. The Russian uranium ban appears to enjoy overwhelming support in the U.S. Senate.'*

Competent Persons Statement

The information related in this announcement has been compiled and assessed under the supervision of Mr James Allchurch, Managing Director of Mandrake Resources. Mr Allchurch is a Member of the Australian Institute of Geoscientists. He has sufficient experience that is relevant to the information under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the JORC Code. Mr Allchurch consents to the inclusion in this announcement of the matters based on his information in the form and context in which it appears.

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

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.	• Mandrake geological consultants collected rock chip samples from areas of anomalous radioactivity as determined by in-field scintillometer readings. • Geological consultants were equipped with two recently calibrated scintillometers, one RS-125 spectral scintillometer by Radiation Solutions Inc, and an SC-132 from Mount Sopris Co. • Five samples were collected from outcropping rocks and one sample was collected from a waste stockpile. • Historical grades quoted are based on public literature, with the most relevant information sourced from files of the U.S. Atomic Energy Commission (AEC) and more specifically from the AEC annual production records for the years 1948 to 1970. • Precise details of historic sampling techniques were not provided.
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 is yet to conduct uranium exploration drilling.
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.	• Mandrake is yet to conduct uranium exploration drilling.

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.	
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.	• Surface rock sample lithology, minerals, textures, structural orientations and uranium mineralogy were logged together with scintillometer readings for U, K and Th.
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.	• Rock chip samples were collected from areas of anomalous radioactivity as determined by in-field scintillometer readings.
Quality of assay data and laboratory tests	• The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total. • For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc. • Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether	• Laboratory assay results are pending.

Criteria	JORC Code explanation	Commentary
	acceptable levels of accuracy (ie lack of bias) and precision have been established.	
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.	• Rock chip sample GPS location points were recorded in the field during field mapping. Photos of each rock sample were taken at the location of the sample with samples collected in a 5" x 8" calico bag filled about two-thirds and double-knotted.
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.	• The rock chip sample points were recorded on a hand held GPS. Results were then reported. • The longitude and latitude of the historical mines are recorded in government databases. • Locations of historical mines are also easily identifiable in the field. Mandrake has verified the location of the most significant mines (Mi Vida and Little Beaver) on the ground.
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.	• Data spacing and distribution is likely insufficient to establish the degree of geological and grade continuity appropriate for a potential future Mineral Resource or Ore Reserve. • It is not known if compositing was applied to the historical reported 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. • If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have	• Further work is required by Mandrake to evaluate details of the Project's geology.

Criteria	JORC Code explanation	Commentary
	introduced a sampling bias, this should be assessed and reported if material.	
Sample security	• The measures taken to ensure sample security.	• Samples were collated in the field and were then sent by courier to ALS in Reno, Nevada, USA for analysis. No sample tampering was reported.
Audits or reviews	• The results of any audits or reviews of sampling techniques and data.	• No audits/reviews have been undertaken on current or historical results.

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 Project is located approx. 60km SSE of Moab, Utah United States. • Mandrake has staked over 2,950 placer claims with the U.S. Bureau of Land Management (BLM) over the area of the Project. The claims cover a total area of 59,085 acres. Mandrake is also currently locating lode claims overlapping existing Mandrake placer claims. • Mandrake holds an Other Business Agreement (OBA) with the Utah State Government's School and Institutional Trust Lands Administration (SITLA) over 34,670 acres. The OBA does not currently include uranium or vanadium. • All the land tenure / staked BLM claims are 100% owned by Mandrake's US subsidiary (Mandrake Lithium USA Inc.).
Exploration done by other parties	• *Acknowledgment and appraisal of exploration by other parties.*	• Historical exploration work reported in this announcement has been performed by other companies who have completed exploration and production activities that date back to the early 1900's.
Geology	• *Deposit type, geological setting and style of mineralisation.*	• The Project is in the north-central portion of the Paradox Basin. • Uranium and vanadium deposits are known to occur in the Chinle, Morrison and Cutler formations in the flanks of the Lisbon Valley anticline.

Criteria	JORC Code explanation	Commentary
		• All deposits are irregular, amoeba-shaped masses that are concordant with the bedding of the host rocks.

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:*
	  ○ *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.*
	• *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.*
		• Mandrake is yet to conduct uranium exploration drilling.
		• No drill hole information is reported.

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.*	• No length weighting or cut-off grades have been applied. • 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.* • *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').*	• Mandrake is yet to conduct uranium exploration drilling. • No drilling results are being reported.

Criteria	JORC Code explanation	Commentary
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.*	• Location of historical mines are presented within the figures and text contents of this announcement. • No discoveries are reported.
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.*	• No current exploration results are reported. Assays pending.
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 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).* • *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.*	• Mandrake is in the process of compiling the existing 3D seismic dataset and geophysical logs from historical oil and gas wells in the region to select specific areas of interest which will be assessed in the field.