ASX Release

19 November 2025 ASX: VUL | FSE: VUL

VULCAN ENERGY

Positive start to Phase One Lionheart Project field development

Strong drilling performance matched with positive and expected subsurface results, lithium grades confirmed, and learnings from LSC-1 and LSC-1a

Vulcan Energy (Vulcan, ASX: VUL, FSE: VUL, the Company) is pleased to report strong drilling performance and positive subsurface results from the LSC-1 vertical well and LSC-1a sidetrack in the Phase One Lionheart Project Field Development Plan, within the Upper Rhine Valley Brine Field (URVBF), Germany.

The Phase One Lionheart Project will have the capacity to produce 24,000 tonnes of LHM, enough for ca. 500,000 battery electric vehicles per annum, in addition to 275 GWh of power and 560 GWh of heat[1].

Key highlights

- Excellent drilling performance by Vercana, the Company's 100% owned drilling company, to test known reservoir and potential reservoir units through the LSC-1 vertical well and LSC-1a sidetrack, which had an open hole completion
- Lithium grade, heat, reservoir quality and matrix permeability confirmed as consistent with Field Development Plan, and consistent with Vulcan's existing operational wells in the Phase One area
- Enhanced subsurface confidence with reduced uncertainty
- Next steps will involve drilling of an additional LSC-1 sidetrack, with cased completion, and a production test.

Excellent drilling performance of LSC-1 vertical well and LSC-1a sidetrack

- Vercana has delivered safe, efficient, and on-schedule drilling performance, which provides a strong signal of confidence and de-risking for the broader Field Development Plan for Phase One
- The LSC-1 vertical well, which represents the fifth well in the Field Development Plan in addition to the existing four operating wells nearby, was drilled ahead of schedule
- A data acquisition campaign was completed as part of the LSC-1 vertical well, which helped to optimise the drilling of the LSC-1a sidetrack
- The LSC-1a sidetrack, drilled to intersect the main reservoir interval in Vulcan's Phase One Upper Rhine Valley Brine Field (URVBF) Resources and Reserves known as the Buntsandstein, as well as other potential additional reservoir intervals in the Muschelkalk and Keuper units which could contribute to productivity or injection capacity, was drilled safely and on time.

[1] Please refer to the risk factors contained in the 18 December 2024 (Prospectus) and Appendix 4 of the Equity Raise Presentation dated 11 December 2024 regarding the risks associated with resource exploration and development projects. Based on the Phase One production target capacity of 24ktpa from the Bridging Engineering Study (BES) Announcement 16 November 2023 and Vulcan internal estimated average EV battery size and chemistry in Europe. Please also refer to the Competent Person Statement.

Confirmation of reservoir quality and matrix permeability

- The LSC-1 vertical well successfully acquired new geological and petrophysical data in the Lionheart area
- LSC-1 vertical well logging confirmed the main (Buntsandstein) reservoir to be approximately 440m thick, compared to ~380m pre-drilling expectations, increasing the vertical extent of productive interval available for development
- Additionally, detailed wireline logging and Modular Formation Dynamics Tester (MDT) data from LSC-1 interval well indicate overall higher matrix permeability across the Buntsandstein reservoir than previously assumed in Vulcan's current reservoir models. Additionally, data confirms the presence of two 40–70m intervals with particularly elevated permeability (>100 millidarcy, or mD), which were not included in earlier modelling but are consistent with observations from analogue wells in the Insheim area. These results strengthen confidence in both production and injection performance, and support Vulcan's development design in which matrix permeability and matrix injection are expected to contribute materially to sustained reservoir management
- The data from the LSC-1 vertical well was subsequently used to calibrate an upgraded 3D seismic reprocessing completed in August 2025. This reprocessed dataset significantly enhanced fault imaging, amplitude balance, and structural clarity, enabling Vulcan to accurately predict structural targets—validated by the LSC-1a intersection of the Insheim Fault as predicted, which was intersected at 3,709m depth with an accuracy of just +/-3m
- These results support the effectiveness of Vulcan's data-driven, iterative workflow of reprocessing, calibrating, predicting, verifying and updating, in order to deliver repeatable predictive accuracy and reduce geological uncertainty across the project area.

Lithium-in-Brine results consistent with resource grade estimation. Enhanced subsurface confidence with reduced uncertainty

- Upon reaching the target depth and fault zone, the LSC-1a sidetrack experienced expected complete fluid losses, an excellent outcome, clearly indicating strong formation permeability and connectivity
- A representative brine sample was taken, confirming positive Lithium-in-Brine results. The sample returned a measured 176 mg/L lithium concentration, which—after correction for a small amount of drilling-fluid dilution—equates to ~183 mg/L lithium concentration, consistent with Vulcan's resource grade estimation. The correction was calculated by comparing the chemistry of the drilling fluid and the recovered brine to determine the dilution proportion, which is standard industry practice when sampling during drilling
- Temperature measurements under static conditions in LSC-1 and LSC-1a with formation sampler equipment and wireline bottom hole gauges. These measurements were consistent with expectations, aligning with the regional thermal gradient of ~3.1 °C/100m below the Keuper caprock — for example, ~160 °C were measured at ~3,000m TVD

- These results are consistent with the lithium grades and temperatures measured from Vulcan's existing Landau and Insheim production areas within Phase One, reinforcing confidence in the continuity and quality of the Buntsandstein brine system in the URVBF
- The LSC-1a sidetrack was kept open hole (largely not cased) in order to also test the reservoir behaviour and performance of the overlying Muschelkalk and Keuper formations, which proved unstable and caused localised wellbore cavings and blockages during clean-up, therefore a planned production test from the LSC-1a sidetrack could not be properly completed. A cased LSC-1 sidetrack will be drilled to correct for this situation and allow a test of the known productive Buntsandstein interval with optimised casing and completion design to allow for the overlying formation conditions, with the Muschelkalk and Keuper still expected to contribute to productivity
- The large and predicted losses observed upon entering the reservoir provide a positive indication of the expected permeability and connectivity, in line with Vulcan's four operating production and re-injection wells within the Lionheart Phase One area.

Vulcan Energy Managing Director and CEO, Cris Moreno, commented: *"Together, the LSC-1 vertical well and LSC-1a sidetrack have delivered safe, efficient, and on-schedule drilling performance, which is a strong signal and de-risking for delivery of the broader Phase One Project.*

"It's pleasing to have our LSC1 well further confirm reservoir quality in terms of permeability, lithium grade, temperature, and pressure response, all of which is consistent with the Lionheart Field Development Plan. The outcomes further de-risk the Project, reinforcing Vulcan's leadership in the sustainable development of lithium and renewable heat resources in Europe.

"I extend my congratulations to the Vulcan project management and the Vercana management, drilling and well engineering, rig crews and supervisors, as well as our subsurface team, for their expertise and professionalism in undertaking the drilling of this site to date."

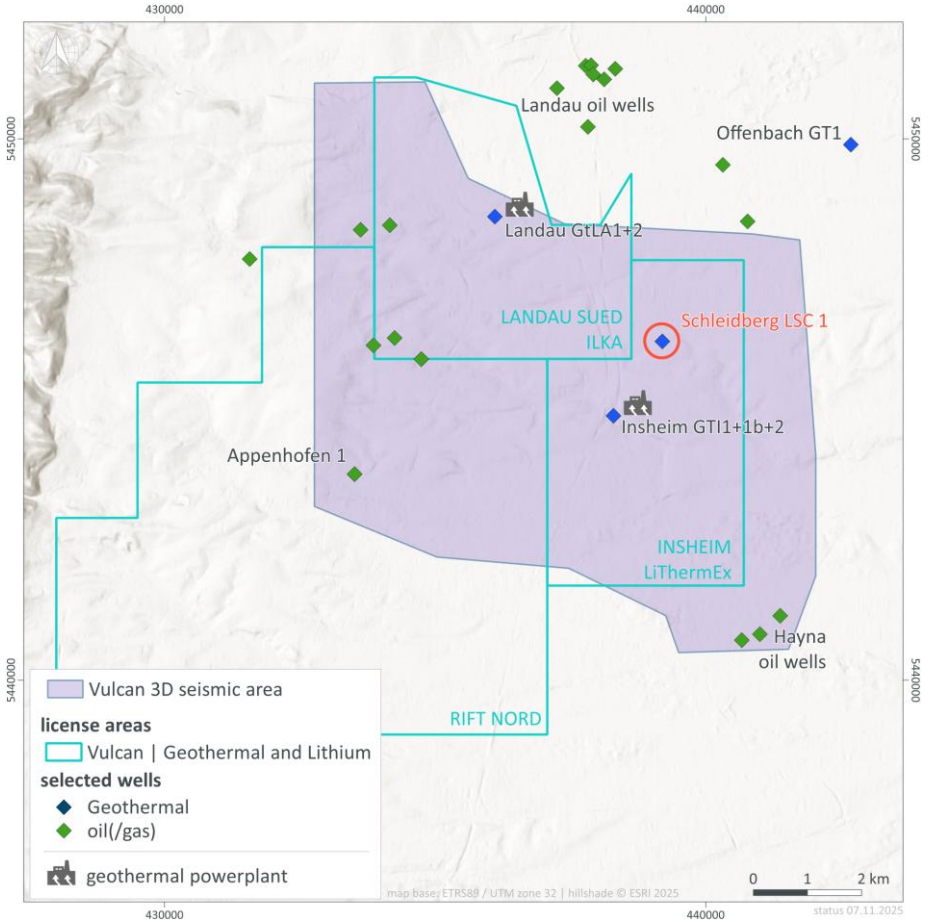

Figure 1: Location map for the Schleidberg LCS-1 sidetrack, showing existing operating wells at Insheim and Landau.

<ENDS>

For and on behalf of the Board

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Please contact Vulcan's Legal Counsel Germany, Dr Meinhard Grodde, for matters relating to the Frankfurt Stock Exchange listing on mgrodde@v-er.eu.

About Vulcan Energy

Vulcan Energy (ASX: VUL, FSE: VUL) is building the world's first carbon neutral, integrated lithium and renewable energy business to decarbonise battery production. Vulcan's Lionheart Project, located in the Upper Rhine Valley Brine Field bordering Germany and France, is the largest lithium resource in Europe[2] and a tier-one lithium project globally. Harnessing natural heat to produce lithium from sub-surface brines and to power conversion to battery grade material and using its in-house industry-leading technology VULSORB®, Vulcan is building a local, low-cost source of sustainable lithium for European electric vehicle batteries. For more information, please go to https://v-er.eu/

[2] On a lithium carbonate equivalent (LCE) basis, according to public information, as estimated and reported in accordance with the JORC Code 2012. See Appendix 4 of Vulcan's Equity Raise Presentation dated 11 December 2024 for comparison information.

Disclaimer

Some of the statements appearing in this announcement may be in the nature of forward-looking statements. You should be aware that such statements are only predictions and are subject to inherent risks and uncertainties. Those risks and uncertainties include factors and risks specific to the industries in which Vulcan operates and proposes to operate as well as general economic conditions, prevailing exchange rates and interest rates and conditions in the financial markets, among other things. Actual events or results may differ materially from the events or results expressed or implied in any forward-looking statement. No forward-looking statement is a guarantee or representation as to future performance or any other future matters, which will be influenced by a number of factors and subject to various uncertainties and contingencies, many of which will be outside Vulcan's control.

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Competent Person Statement

The information in this announcement that relates to exploration results is based on, and fairly represents, information and supporting documentation prepared by Mike Livingstone, P.Geo., who is a full-time employee of GLJ Ltd. and deemed to be a 'Competent Person'. Mr Livingstone is a member as a Professional Geoscientist of the Association of Professional Engineers and Geoscientists of Alberta (APEGA), a 'Recognised Professional Organisation' included in a list that is posted on the ASX from time to time. Mr Livingstone 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 Australian Code for the Reporting of Exploration Results, Mineral Resources, and Ore Reserves (JORC Code). Mr Livingstone consents to the disclosure of the technical information as it relates to the exploration results in this announcement in the form and context in which it appears.

JORC TABLES

SAMPLING TECHNIQUES AND DATA

Table 1.1: JORC Table: Sampling Techniques and Data

Criteria	JORC Code Explanation	Commentary
Sampling techniques	• Nature and quality of sampling (e.g. 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.	• Brine samples were collected from the Schleidberg LSC-1a sidetrack well, which deviates from the mainbore LSC-1 well drilled as part of Vulcan Energy's Phase 1 Lionheart Project. LSC-1 is the fifth well in Vulcan's Phase 1 field development area, with four wells already in operation. • Sampling was performed over the deviated openhole interval between 2267 m MD (2250 m TVD) and 3680 m MD (2902 m TVD) during a nitrogen-assisted flow test on 24 October 2025. • Sampling was completed using Vulcan's MARS system (Mobile Advanced theRmal water measurement System), incorporating in-line cooling, field parameter monitoring, and controlled collection procedures as per Vulcan's Hydrochemical Sampling SOP ("Process for Hydrochemical Sampling of Geothermal Fluid"). • Vulcan confirms that sample collection, stabilization checks (pH and chloride), filtration, preservation, labelling, and documentation were performed in accordance with this SOP, which is aligned with accepted industry best practice for geothermal brine sampling. • Sample handling and transport to analytical laboratories were completed under Vulcan's established procedures, ensuring chain-of-custody integrity and preservation of sample quality. • Three (3) samples were collected near the end of the well test once stable flow conditions were achieved. • Prior to the production test, a clean-out operation was conducted to remove accumulated particulate material from the wellbore and near-wellbore region.

Criteria	JORC Code Explanation	Commentary
	submarine nodules) may warrant disclosure of detailed information.	• The Competent Person did not witness the sampling; the assessment is based on review of Vulcan's SOP, field logs, and discussions with Vulcan's sampling team. • Complementary geological, petrophysical, and temperature collected in the LSC-1 well have been integrated to support the interpretation of the LSC-1a sampling interval and to characterise reservoir properties of the Buntsandstein formation at the well location.
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.).	• The LSC-1 mainbore was rotary drilled using a PDC bit (polycrystalline diamond compact). The near vertical well was drilled through the full stratigraphic sequence of Keuper, Muschelkalk, Buntsandstein, and Rotliegend formations, and terminates in the basement. No significant drilling events or complications were reported that would affect geological or petrophysical data quality. • Conventional 4" diameter core drilling was used in a selected interval of the LSC-1 mainbore within the Buntsandstein reservoir. Core analysis results were not available at the time of reporting. • The sidetrack well LSC-1a is a deviated well that initiates an 8½" open-hole section, intersects a full stratigraphic sequence of Keuper, Muschelkalk, Buntsandstein, and Rotliegend formations, and terminates in the target fault zone. • Casing and cementing programs were applied above the open hole interval to isolate shallower formations and provide a stable foundation for sampling and testing activities. • The LSC-1a sidetrack was directionally drilled using a PDC bit and mud motor. Core samples were not collected in the LSC-1a sidetrack. • Both wells were drilled using standard geothermal drilling practices designed to maintain borehole stability and minimize formation damage. • Drilling fluid losses were experienced in the fault damage zone intersected by LSC-01a, but no Lost circulation material (LCM) was used. • The geothermal well designs and drilling measurement techniques generally utilized in the URVBF are described in the previous report Prospectus CPR 12-2024.

Criteria	JORC Code Explanation	Commentary
Drill sample recovery	• Method of recording and assessing core and chip sample recoveries and results assessed. • Measures taken to maximise sample recovery and ensure representative nature of the samples. • Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	• No core samples were collected in the LSC-1a deviated sidetrack well. • Core samples were collected in the vertical main bore LSC-1 well, however, analytical results from this core are still being processed and are not yet available. • Existing drilling data, geological interpretations, petrophysical logs, and lithium brine sampling results have been used to support geological and reservoir evaluation for the Phase 1 Lionheart Project. These datasets are summarized in the Prospectus CPR (December 2024) and provide context for interpreting the open hole interval sampled in LSC-1a. • As LSC-1a is sampled via brine production, traditional core “recovery” is not applicable. Brine representativity is addressed through sampling procedures, stabilization checks, and QA/QC protocols.
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.	• Measurement-While-Drilling (MWD) tools provided directional survey data and Gamma Ray logs during drilling of LSC-1a. The MWD system failed near the end of the well; however, the downhole recorded data indicate that inclination and azimuth were maintained as planned to total depth. • No wireline or additional LWD logs were acquired in LSC-1a. Stratigraphic and structural control for the sidetrack well are supported by the full wireline suite obtained in the vertical main bore LSC-1, which intersects the same sequence of Keuper, Muschelkalk, Buntsandstein, and Rotliegend formations. • The geological interpretation for LSC-1a, including the location of the Buntsandstein reservoir and target fault zone, is further supported by Vulcan’s 3D seismic dataset and regional stratigraphic information from offset wells in the Upper Rhine Valley Brine Field.

Criteria	JORC Code Explanation	Commentary
		• The combination of available MWD data, LSC-1 wireline logs, and seismic interpretation provides sufficient geological and structural context for confirming the position of the sampling interval within the intended reservoir zone. • In addition to directional and gamma data, the LSC-1 vertical well provides a complete wireline suite (including resistivity, density, neutron-porosity, sonic and FMI) that has been used to define the Buntsandstein reservoir characteristics and structural framework. Logging interpretation confirmed the Buntsandstein gross thickness at approximately 440 m, 60 m thicker than pre-drill estimates, and supports refined structural mapping and reservoir modelling. • These datasets form part of the material reviewed and validated by the Competent Person for consistency and representativeness.
Sub-sampling techniques and sample preparation	• If core, whether cut or sawn and whether quarter, half or all cores 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.	• Three brine samples were collected from the LSC-1a well on 24 October 2025 after stabilization of field parameters (pH and chloride). • Sub-sampling followed Vulcan Energy's Hydrochemical Sampling SOP, which outlines field filtration, preservation, and handling practices consistent with industry standards. • Samples were collected using the MARS system in polypropylene sample bottles with screw cap and additional parafilm, filtered to 0.45 µm where required, and preserved with HNO_3 for cation analysis. • Additional unacidified aliquots were retained for anion analysis, consistent with Vulcan's SOP. • Sub-samples were labelled according to Vulcan's standardized naming convention and recorded in field logs.

Criteria	JORC Code Explanation	Commentary
	• Whether sample sizes are appropriate to the grain size of the material being sampled.	• The Competent Person did not witness sample collection but has reviewed Vulcan's SOP and field documentation and is satisfied that the procedures are appropriate for producing representative brine samples.
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 (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.	• Brine geochemical results reported in this announcement are from Vulcan's internal Durlach Laboratory and external and independent Karlsruhe Institute of Technology (KIT) Laboratory for Environmental and Raw Materials Analysis (LERA). Both labs used Inductively Coupled Plasma – Optical Emission Spectroscopy (ICP-OES), which provides lithium and major/trace ion analysis. QA/QC included analysis of the Canadian Brine Standard, distilled-water blanks, and verification of dilution corrections. • Prior to sampling, the well was purged extensively. Brine samples were collected after 18.3×, 19.7×, and 21.7× the borehole volume had been produced. The purge volumes used in LSC-1a are consistent with best practice. • Ion charge balance values for both laboratories fall within, or close to, the ±10% range generally considered acceptable for high-salinity brines. • Geothermometric temperature estimates from SiO_2 (T1) and Mg–Li are consistent with expected Buntsandstein reservoir temperatures, confirming the sampled fluid originated from depth and was not affected by significant near-surface cooling or chemical alteration. • Inter-laboratory comparison of measured lithium concentration values between Vulcan Durlach and KIT shows agreement within expected analytical variance for high-salinity brines for lithium and major-ion concentrations. The diluted lithium concentration measured from Vulcan's Durlach Laboratory was 170 mg/L and KIT was 176 mg/L. • Boron-to-chloride ratios from LSC-1a brine samples were compared with those from nearby geothermal wells at Insheim and Landau, indicating a consistent

Criteria	JORC Code Explanation	Commentary
		relationship and supporting that the sampled fluid represents the same regional source brine system within the Upper Rhine Valley Brine Field. • Boron concentrations relative to the nearby wells were also used to estimate the degree of dilution in the LSC-1a samples, resulting in an estimated 3.5 % dilution and a corresponding non-diluted lithium concentration of approximately 183 mg/L.
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.	• The Competent Person did not directly witness sampling but has reviewed Vulcan's Hydrochemical Sampling SOP, field verification assessments, stabilization records, and operational reports and considers the sampling procedures appropriate for obtaining representative formation brine. • Chain-of-custody was maintained by Vulcan staff throughout sample collection, labelling, and transfer to laboratories. • Laboratory verification at KIT LERA included analysis of Certified Reference Materials (Canadian Brine Standard) and distilled-water blanks. Laboratory verification at Vulcan's Durlach Lab included analysis of Certified Reference Materials (Canadian Brine Standard), distilled-water blanks, and dilution-correction checks. These indicate internally consistent results. • External verification from KIT confirms consistent lithium concentrations and major-ion ratios as per the Durlach lab results. • Geochemical consistency checks indicate the samples originate from a common formation-brine source and support the reliability of the results. • Cross-checks of ionic charge balance (IB) between laboratories confirm internally consistent major-ion chemistry. Both Durlach and KIT IB values are within or near the ±10% envelope expected for high-TDS geothermal brines, indicating that the samples represent true formation fluid and are not significantly affected by dilution or contamination, apart from the slight correction as described above.

Criteria	JORC Code Explanation	Commentary
		• No data adjustments or compositing have been applied. Reported values reflect raw laboratory results, apart from the dilution adjustment described above. The estimated undiluted lithium concentration is interpreted from the measured data.
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 LSC-1 mainbore and LSC-1a sidetrack wells are located within Vulcan Energy's Phase 1 Lionheart Project area in the Upper Rhine Valley Brine Field (URVBF), Germany. The position of the well relative to the Phase 1 development footprint is shown on the map figure included in the announcement. • The grid system used for Vulcan's geological modelling and well positioning is UTM WGS84 Zone 32N. • Surface elevation data supporting the three-dimensional geological model are derived from the Shuttle Radar Topography Mission (SRTM) 1 arc-second (≈30 m) Digital Elevation Model provided by NASA/JPL. • The map supplied illustrates the spatial relationship between the LSC-1 surface location, the offset wells, 3D seismic data coverage, existing Phase 1 infrastructure including existing operating wells, and licence boundaries. • All sampling reported herein was undertaken on a newly drilled well within Vulcan's established project area, proximal to the existing operating wells. No sampling outside existing licences or tenements is being reported
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.	• The geochemical sampling reported herein relates to three brine samples collected from the LSC-1a sidetrack well during a single production test. As such, spatial data spacing is not applicable, and no grid-based sampling pattern is required or implied. • The LSC-1a well lies within Vulcan's established Phase 1 Lionheart Project area, which has been extensively sampled and characterised between 2019 and 2025 through regional and local well sampling from Vulcan's operating wells, appraisal drilling, and Vulcan's detailed geochemical programs.

Criteria	JORC Code Explanation	Commentary
	• Whether sample compositing has been applied.	• The lithium concentrations reported from LSC-1a are consistent with Vulcan's existing operating wells in the Phase One area, and with the broader dataset from the Upper Rhine Valley Brine Field (URVBF). Across local, regional and Vulcan-acquired sampling, the combined average lithium concentration is approximately 181 mg/L, which forms the basis of the Phase 1 resource and development planning. • The sampling does not introduce any bias with respect to spacing, clustering, or directional anisotropy, as it represents a single well within a well-defined, homogeneous hydrogeological system.
Orientation of data in relation to geological structure	• Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type. • If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.	• The LSC-1a deviated sidetrack well was drilled to intersect the Buntsandstein reservoir and associated fault zone, consistent with Vulcan's established structural and stratigraphic interpretation for the Phase 1 Lionheart Project area. The Permo–Triassic strata in this region are generally sub-horizontal to gently dipping, with local offsets associated with high-angle rift-related faulting. • Although MWD capability was lost near the end of the well, downloaded directional data from the drilling assembly indicate that the trajectory remained on the planned inclination and azimuth to total depth. This, together with formation tops and logs from the vertical LSC-1 main bore and seismic interpretation, supports that LSC-1a intersected the intended reservoir and the targeted fault zone. • The sampling interval is therefore appropriately located within the known structural and hydrogeological framework of the project, and the orientation of the well relative to geological structures does not introduce sampling bias.
Sample security	• The measures taken to ensure sample security.	• Brine samples were collected by Vulcan Energy's Geochemical Subject Matter Expert (SME) following Vulcan's Hydrochemical Sampling SOP, which includes documented procedures for sample labelling, handling, preservation, and field data recording.

Criteria	JORC Code Explanation	Commentary
		• Samples were immediately labelled using Vulcan's standard sample identification system and recorded in field logs. • Following collection, samples were stored in secure conditions and remained under the custody of Vulcan's SME until delivery to KIT LERA and to Vulcan's own laboratory. • Chain-of-custody documentation (field logs, sample sheets, and laboratory receipt confirmations) was maintained throughout the process. • No breaches of sample security, loss of samples, or discrepancies in sample identification were reported.
Audits or reviews	• The results of any audits or reviews of sampling techniques and data.	• An independent external review of the LSC-1a sampling procedures, field documentation, and analytical data has been undertaken by GLJ Ltd, acting as an independent consultant to Vulcan Energy. This review covered the available sampling records, laboratory QA/QC outputs, and geochemical consistency checks. • The Competent Person has reviewed all available geochemical and sampling data, including field logs, laboratory certificates, QA/QC information, purge volumes, and geochemical validations, and considers the verification processes appropriate for public disclosure of Exploration Results. • No material issues relating to sampling integrity, chain-of-custody, or assay quality have been identified. • The Competent Person has also reviewed the petrophysical and thermal datasets from LSC-1 for internal consistency and correlation with the established geologic understanding and analogue fields (Landau and Insheim). The stated interpretations from these data sets are considered appropriate for public disclosure of Exploration Results.

REPORTING OF EXPLORATION RESULTS

Table 1.2: JORC Table: Reporting of Exploration Results

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 Vulcan Project area within the Upper Rhine Valley Brine Field (URVBF) is comprised of 17 licenses held under the German Federal Mining Act (Bundesberggesetz, BergG). The Insheim, Landau and Rift licences are referred to as Vulcan's Phase 1 Lionheart Project area. • The Phase 1 Lionheart Project area is an existing, fully permitted development area covered by Vulcan's valid licences, and containing existing wells operated by Vulcan at Insheim and Landau. At the date of this announcement, all relevant Exploration and Operating Licences associated with the Lionheart Project are understood to be in good standing. • The LSC-1 mainbore and LSC-1a sidetrack wells lie within Vulcan Energy's Lionheart Project area on the Insheim licence. • The Insheim production Licence and Insheim Geothermal Power Plant were acquired by Vulcan through the 100% acquisition of Pfalzwerke geofuture GmbH effective on 1. of January 2022. • The Insheim licence in the southern area of the licence group is 1,900 hectares and is centred at UTM 439040 m Easting, 5444442 m Northing, in the WGS84 UTM Zone 32N projection. • The LSC-1 and LSC-1a wells are therefore located entirely within Vulcan's approved project area, and the sampling described in this announcement complies with the applicable German regulatory framework.
Exploration done by other parties	• Acknowledgment and appraisal of exploration by other parties.	• The current Exploration Results relate solely to Vulcan's LSC-1 and LSC-1a wells within the Phase 1 Lionheart project area. No third-party exploration results are incorporated into the analytical results disclosed in this announcement, however, historical exploration data is also used by Vulcan in its wider interpretation of the

Criteria	JORC Code Explanation	Commentary
		field, including a reprocessed 3D seismic survey of all the Lionheart Project area, core, logging, production and geochemical data of analogue wells like Appenhofen, Insheim, Landau, Brühl.
Geology	• Deposit type, geological setting and style of mineralisation.	• Lithium-bearing geothermal brines in the Upper Rhine Valley Brine Field (URVBF) occur within confined, subsurface aquifers of the Permo-Triassic sequence, principally the Lower Triassic Buntsandstein Group, Middle Triassic Muschelkalk Group, and locally the Permocarboniferous Rotliegend Group, at depths of approximately 2,000–4,000 m below surface. • The Permo-Triassic strata comprise terrigenous sandstones with interbedded shales, carbonates, and anhydrites, deposited under arid to semi-arid fluvial, sand-flat, lacustrine, and aeolian environments. These facies exert primary control on porosity (typically 1–27 %) and permeability (<1 to >100 mD). • Within the URVBF, fault and fracture zones provide enhanced secondary permeability and serve as the main conduits for geothermal fluid circulation. Vulcan's development wells target these fault zones to access the lithium-bearing brines. • Lithium mineralisation occurs as dissolved lithium within NaCl-dominated brines occupying the aquifer pore space. Brine composition is interpreted to reflect fluid–rock interaction at elevated temperatures, where lithium enrichment results from leaching of silicate and micaceous minerals in contact with geothermal fluids derived partly from deeper crystalline basement. • The LSC-1a well intersects the Buntsandstein reservoir and associated fault zone, the principal target for Vulcan's Phase 1 Lionheart development area. The structural and stratigraphic configuration of this interval has been defined using the LSC-1 well results, Vulcan's seismic interpretation, offset wells, and regional geological data.

Criteria	JORC Code Explanation	Commentary

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.
		• Drilling operations for the LSC-1 vertical well demonstrated strong performance against planned metrics with operations completed ahead of schedule and costs under budget.
		• Well location is shown on the project location map (Figure 1). The well lies entirely within Vulcan's permitted development area.
		• The LSC-1 hole sections comprise:
		  ○ 30" conductor set to 147 m TVD;
		  ○ 20" surface casing to 1001 m TVD;
		  ○ 13 5/8" production liner to 1566 m TVD;
		  ○ 9 5/8" production liner to 2309 m TVD (2311m MD);
		  ○ 8 ½" open hole from ~2309 m TVD to 3512 m TVD (3530 m MD).
		• Wireling logging was completed over the openhole section of the LSC-1 well.
		• The LSC-1a deviated sidetrack well was drilled as a sidetrack from the LSC-1 vertical main bore.
		• Drilling LSC-1a commenced from a 9 5/8" casing window at approximately 2267 m MD / 2265 m TVD, building to a final inclination of about 81° and total depth of 3680 m MD / 2902 m TVD, intersecting the Buntsandstein reservoir and terminating in the target fault zone.
		• The LSC-1a hole sections comprise:
		  ○ 30" conductor set to 147 m TVD;
		  ○ 20" surface casing to 1001 m TVD;
		  ○ 13 5/8" production liner to 1566 m TVD;
		  ○ 9 5/8" production liner to 2309 m TVD (2311m MD);
		  ○ Deviated 8 ½" open hole from ~2267 m MD to 3680 m MD (2902 m TVD).
		• The sampling interval corresponds to the open-hole section (2267 – 3680 m MD) within the Keuper, Muschelkalk, Buntsandstein formations and the fault.

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		• Directional data were collected using MWD, with survey data to 3486 m MD. The downhole recorded data confirmed final inclination and azimuth were maintained to total depth.
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 data aggregation, compositing, or weighting has been applied. The lithium concentrations reported for LSC-1a represent individual laboratory results from discrete brine samples collected during the production test. • Each sample result is reported as a single measured concentration from KIT LERA and Vulcan's internal laboratory. Estimates of undiluted concentrations are based on dilution-trend interpretation. • No top-cutting, averaging, or statistical smoothing has been used. • As the mineralisation is hosted in formation brine and not in rock intervals of variable thickness, no mineralised interval lengths, weighted averages, or grade × thickness calculations are applicable.
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	• Not applicable. Lithium occurs in solution within formation brines rather than as discrete mineralised rock intervals. • The reported results represent brine chemistry from the open-hole interval of the LSC-1a development well and are not related to any measurable mineralised width. • The sampling interval corresponds to a hydraulically connected brine reservoir and the concentrations reported are representative of the produced formation fluid, not of an interval thickness or grade times width product.

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	statement to this effect (eg 'down hole length, true width not known').	
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.	• A location map in the body of the announcement shows the well's position relative to license boundaries, nearby wells, and surface infrastructure.
Balanced reporting	• Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.	• All material information relating to the LSC-1a brine sampling program has been disclosed, including sampling methods, the depth interval tested, available analytical results, QA/QC procedures, and verification steps. • Analytical results from two laboratories (Vulcan's Durlach Laboratory and KIT) have been included in this report. Three additional laboratories (University of Heidelberg, VKTA Dresden-Rossendorf, and Core Laboratories) have results outstanding. No external laboratory data have been excluded. • The announcement discloses the diluted, measured lithium concentration and includes discussion of dilution interpretation where appropriate. Lithium concentrations measured to date range from 170 to 176 mg/L across two laboratories. No data have been withheld. • Any limitations associated with sampling or logging (e.g., lack of wireline logs in the sidetrack, late-stage MWD failure) have been transparently described and do not materially affect the representativeness of the brine samples. • No selective reporting or compositing has been applied. All available sample results relevant to the program have been included.
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,	• The LSC-1a sampling program forms part of Vulcan Energy's ongoing subsurface development activities within the Phase 1 Lionheart Project. Relevant geological, hydrological, and reservoir information from the vertical LSC-1 main bore, including wireline logs, drilling data, and formation tops, has been used to confirm the stratigraphic position and reservoir context of the sidetrack well.

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	geotechnical and rock characteristics; potential deleterious or contaminating substances.	• Major ion concentrations and ratios from the samples are representative of historical and recent samples from wells at Soultz, Insheim, Landau, Rittershoffen, Cronenbourg, and Bruchsal. • Regional geological and geothermal data from the Upper Rhine Valley Brine Field (URVBF), including publicly available datasets (e.g., GeotIS, GeORG) and offset geothermal wells, provide broader context for the structural and hydrogeologicalsetting but do not materially influence the analytical results reported for LSC-1a. • Petrophysical evaluation of LSC-1 wireline logs, supported by MDT pressure and mobility measurements, indicates overall higher matrix permeability across the Buntsandstein than previously assumed in the geological model. • In addition to the interpreted increased permeability, log-derived porosity and MDT data confirm the presence of two discrete high-permeability intervals, each approximately 40–70 m thick, with interpreted permeabilities exceeding 100 mD, consistent with regional analogue data from Insheim. • Temperature measurements obtained under static well conditions in LSC-1 and LSC-1a using formation tester tools and bottom-hole gauges indicate values consistent with the regional thermal gradient of ~3.1 °C/100 m below the Keuper caprock. Recorded temperatures include ~160 °C at ~3,000 m TVD, aligned with available temperature data from the nearby operating wells at Landau and Insheim, which are also part of the Phase 1 development. • No additional substantive exploration information, such as new seismic interpretation, hydraulic stimulation, or long-duration production testing, is relevant to or required for understanding the brine chemistry results presented in this announcement.
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	• Vulcan will continue to evaluate additional geochemical results as they are received from additional wells in the Phase 1 field development plan and integrate them with ongoing geological, petrophysical, and reservoir studies for the Phase 1 Lionheart Project. • The company is progressing with additional drilling in the LSC-1 area to complete a cased side-track to allow for production of brine.

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	areas, provided this information is not commercially sensitive.	• These new geological, petrophysical, and thermal datasets form the basis for reservoir quality interpretations for LSC-1 and will be incorporated into the structural model and dynamic modelling for the Lionheart Project.