24 April 2023

Jesse-2 Confirms Helium Discovery, Flows Helium Gas to Surface

- Jesse-2 successfully reaches total depth in target Leadville Formation confirming Jesse discovery with 192 foot gross gas column
- Underbalanced drilling operations successfully met all technical delivery requirements and allowed for the testing while drilling of geologic gas flow to surface with no observed water production
- Monitoring of geologic gas flow whilst drilling returned helium concentrations of up to 0.9% helium
- Jesse-2 encountered lower secondary porosity than that observed in Jesse-1A and the Doe Canyon field
- Jesse-2 has been suspended for potential future well remediation/stimulation to be undertaken post drilling of Jesse-3
- Working interest in Red Helium project increased from 70% to 77.5% after meeting earn-in requirements for second well
- The Company has commenced planning for the permitted Jesse-3 well which will target the reservoir play fairway in the Jesse Helium Field
- As well as drilling Jesse-3, a stimulation/workover programme(s) at Jesse-1A and/or Jesse-2 will be undertaken followed by preparations to tie-in to commence production.

Grand Gulf Energy Ltd (**ASX:GGE**) (**"Grand Gulf" or the "Company"**) is pleased to advise that current drilling operations at the Jesse-2 well in SE Utah have successfully concluded.

Managing Director Dane Lance Commented:

"We're pleased to announce the Jesse-2 well results confirm the Jesse discovery, returning helium to surface during the testing and drilling phase. The Company is particularly encouraged by the extension of the proven helium play fairway that has demonstrated a consistent gas column at Jesse-2 which is a significant 1.5 mile step-out from the maiden Jesse-1A exploration well.

With the Jesse-1A well the Company demonstrated a large gross gas column, commercial helium grade above pre-drill expectation, and potentially commercial reservoir within the gas column. With Jesse-2 the Company confirmed the extension of the Jesse discovery and its ability to methodically execute a successful drilling program. The underbalanced drilling program gave crucial gas inflow information while drilling, at a modest expense of only 2% of the well cost, and will be instrumental in future Red Helium project drilling operations.

Given the sheer size and scale of the Red Helium project, both spatially and in terms of helium resource, Jesse-1A and Jesse-2 both provide crucial delineation information on structure and reservoir development to optimise future well locations. As with most carbonate reservoirs our understanding of the heterogeneity of the reservoir increases dramatically with data and we have improved our interpretation and high graded a third location.

The Company also has a range of future inexpensive opportunities across the Red Helium project, independent of the Jesse-2 well results, with demonstrated well engineering and the drilling team to successfully deliver.

We look forward to the next phase of our program to deliver Jesse-3 and commence preparations to tie in the wells as future producers."

Jesse-2 Confirms Helium Discovery

The Jesse-2 well has successfully flowed helium gas to surface and confirmed a helium discovery in the Jesse Field and extended the proven helium play fairway following a significant 1.5 mile step -out from the Jesse-1A well.

Jesse-2 Results

The top of the target Leadville Formation at Jesse-2 was intersected at 8,082 feet measured depth in line with geologic prognosis. As per the drilling plan, Jesse-2 was drilled underbalanced to approximately 50 feet above the Jesse-1A observed gas water contact at 8,215 feet measured depth whilst simultaneously monitoring geologic gas inflow. Maximum gas flow rates were

observed were approximately 30,000 cubic feet of dry gas per day, with average observed helium concentrations of 0.7%, and up to 0.9%[1], with no water production observed.

The well was successfully deepened and wireline logs were acquired over the entire 192 foot gas column (23 foot net pay based on conventional porosity/saturation cut-offs over the logged zone) with the exception of a 44 foot section at the base of the gas column with gas shows due to tool clearance. Wireline porosities were indicative of primary matrix dolomite porosity, but with limited evidence of vugular secondary porosity, potentially leading to limited reservoir deliverability at this location pre-stimulation.

The well has been suspended and the rig demobilised whilst the Company:

1. Commences preparations for the new already-permitted Jesse-3 well
2. Evaluation of stimulation/remediation and full flow testing options for Jesse-2
3. Assessment and planning for a workover of the Jesse-1A well to enable future production tie-in.

Jesse-2 Underbalanced Drilling Programme

The drilling of the Jesse-2 well was successfully executed with a technique specifically designed for expected subsurface conditions in the Mississippian Leadville carbonate reservoir target. Jesse-2 employed underbalanced drilling using an air/foam/mist system providing a bottomhole pressure of approximately 550 pounds per square inch (psi). This bottomhole pressure provides an approximate 2,000 psi sand-face drawdown allowing for real time flow testing of the reservoir whilst drilling.

Gas inflow rates were monitored by measuring differential gas flow rates (gas in versus gas out), with compositional analysis assessed using real time mass spectrometry with an onsite calibrated mass spectrometer.

Red Helium Project Reservoir Development

In comparison to the 23 feet net pay (influenced by the porosity cut-off) and lower porosities observed in Jesse-2, Jesse-1A had 101 feet of net pay[2] and included multiple zones of high porosity

[1] Air corrected helium concentration, average observed value of 0.7 ± 0.2% with up to 0.9% observed. Due to observed flow rates the air correction calculation introduces uncertainty in compositions and in Jesse-1A representative downhole samples aligned with higher observed drilling return gas values. Other major components CO_2 73%, N_2 21%, CH_4 5%.

[2] ASX Announcement 19 October 2022 – Jesse-1A Downhole Sample Increase Helium Grade

and evidence of open vugular secondary porosity in the wireline image log. Similarly, historic wells drilled in the western section of the Red Helium project all have evidence of high levels of secondary porosity. The Jesse-2 result is consistent with the nearby analogue Doe Canyon Helium Field where a limited number of wells (3 out of more than 20 over the life of the field) encounter limited secondary porosity development due to carbonate diagenetic heterogeneity.

The observed reservoir development at the Redd-1 and Jesse-1A wells, and the southern upthrown fault block hosting the Earp prospect which has the historic Texas-Coal-1 and Gulf-2 wells, define a potential reservoir play fairway for the western extent of the Red Helium project independent of the Jesse-2 results.

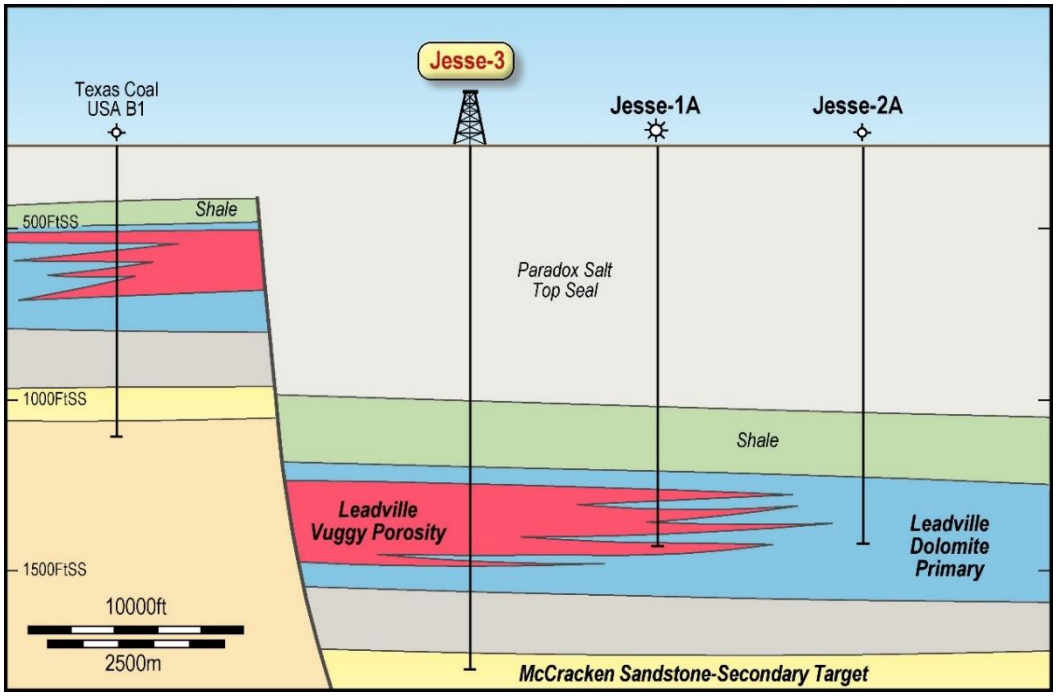

Figure 1: Stylised interpreted cross section showing observed secondary porosity development in Jesse-1A and Gulf-2 (Earp Prospect) wells. These wells along with the historic Texas Coal-1 and Redd-1 wells define a potential reservoir play fairway of observed secondary porosity development independent of the Jesse-2 results.

Proximity to southern faulting also has the potential for improved reservoir quality through secondary geothermal vugular porosity development. The permitted Jesse-3 location is located optimally within the secondary porosity play fairway as defined by these wells, along with 3 other mature locations proximal to the pipeline that could be quickly matured to drill ready status.

Following discussions with independent resource evaluator Sproule, the results and the learnings of the drilling of the Jesse-1A and Jesse-2 wells have shown a) the petrophysical parameters are

within the original range considered for the resource estimate and b) the Prospective Resource volumes are still considered representative of a success case for the Red Helium Project. As with most carbonate reservoirs, understanding of the heterogeneity of the reservoir increases dramatically with data and the Company has consequently improved and high-graded a location for the Jesse-3 well.

Red Helium Project Workplan

The Company is currently reviewing and recalibrating seismic based on the Jesse-2 results, and evaluating future opportunities on the Red Helium project including:

- ***Jesse-3 Well:*** The recently permitted Jesse-3 location is optimally located within the potential reservoir play fairway, independent of the Jesse-2 results. A further three mature locations proximal to the pipeline exist that could be quickly moved to drill ready status.
- ***Jesse-1A/2 Workover:*** Following completion of Jesse-3 a stimulation/workover programme(s) at Jesse-1A and/or Jesse-2 will be undertaken followed by preparations to tie-in to commence production. An extensive technical review by recently appointed GGE drilling superintendent Todd Gentles and his drilling team has identified the potential for a cost-effective remediation of the Jesse-1A wellbore for less than US$1M. The Company is also currently evaluating potential remediation/stimulation options for the Jesse-2 well.
- ***Earp Prospect:*** The Company has a permit to drill the upthrown Earp prospect which is independent to the Jesse discovery. Earp is structurally 500 feet high to Jesse and has a spatial footprint similar in size to Doe Canyon with proven helium from two historic wells in the range of 0.4 – 1.1% helium, with evidence of secondary porosity development. Earp is considered an undrilled prospective resource due to the vintage and quality/uncertainty of log and sample data.
- ***Deeper Potential:*** The Devonian McCracken sandstone is a proven producing helium formation regionally, and the Company is evaluating the potential for deepening both Jesse-2 and Jesse-1A to test the McCracken Sandstone for a modest cost, and as a secondary target for future Red Helium project wells. Proximity to the pre-Cambrian granite helium source provides helium concentration upside.

Red Helium Project Working Interest Increased

Under the terms of the operating agreement the Company has satisfied the earn-in requirements for the second well thereby increased its working interest from 70% to 77.5% in its majority-owned incorporated JV company Valence Resources LLC ("Valence") which operates the Red Helium project.

This ASX announcement has been authorised for release by the Board of Grand Gulf Energy Ltd.

For more information about Grand Gulf Energy and its projects, contact:
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About Grand Gulf Energy:
Grand Gulf Energy Ltd (ASX:GGE) is an independent exploration and production company, headquartered in Australia, with operations and exploration in North America. The Red Helium project is a pure-play helium exploration project, located in the Paradox Basin, Utah, in the prolific Four Corners region. For further information please visit the Company's website at www.grandgulfenergy.com

Competent Person's Statement:
The information in this report is based on information compiled or reviewed by Mr Keith Martens, Technical Director of Grand Gulf. Mr Martens is a qualified oil and gas geologist/geophysicist with over 45 years of Australian, North American, and other international executive oil and gas experience in both onshore and offshore environments. He has extensive experience of oil and gas exploration, appraisal, strategy development and reserve/resource estimation. Mr Martens has a BSc. (Dual Major) in geology and geophysics from The University of British Columbia, Vancouver, Canada.

Forward Looking Statements:
This release may contain forward-looking statements. These statements relate to the Company's expectations, beliefs, intentions or strategies regarding the future. These statements can be identified by the use of words like "anticipate", "believe", "intend", "estimate", "expect", "may", "plan", "project", "will", "should", "seek" and similar words or expressions containing same. These forward-looking statements reflect the Company's views and assumptions with respect to future events as of the date of this release and are subject to a variety of unpredictable risks, uncertainties, and other unknowns. Actual and future results and trends could differ materially from those set forth in such statements due to various factors, many of which are beyond our ability to control or predict. These include, but are not limited to, risks or uncertainties associated with the discovery and development of oil, natural gas and helium reserves, cash flows and liquidity, business and financial strategy, budget, projections and operating results, oil and natural gas prices, amount, nature and timing of capital expenditures, including future development costs, availability and terms of capital and general economic and business conditions. Given these uncertainties, no one should place undue reliance on any forward-looking statements attributable to GGE, or any of its affiliates or persons acting on its behalf. Although every effort has been made to ensure this release sets forth a fair and accurate view, we do not undertake any obligation to update or revise any forward-looking statements, whether as a result of new information, future events or otherwise.

About the Red Helium Project:

The Red Helium Project provides exposure to the burgeoning helium industry in a prolific proven helium-producing region, the Four Corners Area, that comprises:

- 250,713 acre area of mutual interest (AMI) with over 29,000 acres (private leases/Utah state leases) leased in drill-friendly Utah in the heart of the most prolific helium-producing region in the world;
- Geologically analogous to Doe Canyon Field. Doe Canyon is situated 15 miles due east of the Red Helium project, and is currently producing approximately 10,700,000 cubic feet of helium per month, the bulk of which comes from only 7 wells. Air Products (market cap US$68b) is processing the helium, and it is anticipated that Doe Canyon will ultimately produce 3-5 billion cubic feet of helium. With additional drilling, this resource figure could increase;
- 315 kms of well-placed 2D seismic has been acquired and reprocessed identifying multiple drill targets – and confirming a structural trap 4-5 times larger than the Doe Canyon Field;
- Six historic wells exclusively targeting hydrocarbons were drilled within the project AMI, proving trap, seal, reservoir presence and gas charge and a working helium system, to differing degrees within each prospect. Several wells tested non-flammable gas, the only two analysed for helium confirmed helium presence; and
- 20 miles south of and connected by pipeline to the operational Lisbon Helium Plant (99.9995% purity).

Key milestones in the Red Helium Project:

- Maiden prospective gross project unrisked P50 helium resource of 10.9 billion cubic feet of helium;
- Jesse discovery (Jesse-1A), generally exceeding pre-drill expectation and highlights including:
    - over 200 feet of gross gas column, and 101 feet of net pay (Independently Audited);
    - Helium grade of up to 1%. An analogous Doe Canyon well at 1% helium and a raw gas rate of 20 million cubic feet per day would produce 200 thousand cubic feet of helium per day; and
    - Productive, well pressured reservoir at 2465 psi on trend with neighbouring Doe Canyon virgin pressure.
- Helium Offtake Agreement with Paradox Resources LLC, a helium refiner and seller owner with extensive helium market experience and connections, and operator of the advanced Lisbon Valley helium plant;
- Strategic Alliance to expand on the Offtake terms and exploit the corporate synergies with Paradox;
- Increased Working Interest in the Red Helium Project to 77.5% with a right to earn 85%.

Helium Offtake Agreement ("Offtake"):

Offtake executed with helium refiner and seller Paradox Resources LLC (**"Paradox"**) with industry standard 80/20 revenue sharing / allowing near immediate monetisation of a success case well to monetized with minimal time and Capex[3]. The Red Helium project is 20 miles south of and connected by pipeline to the operational Lisbon Helium Plant.

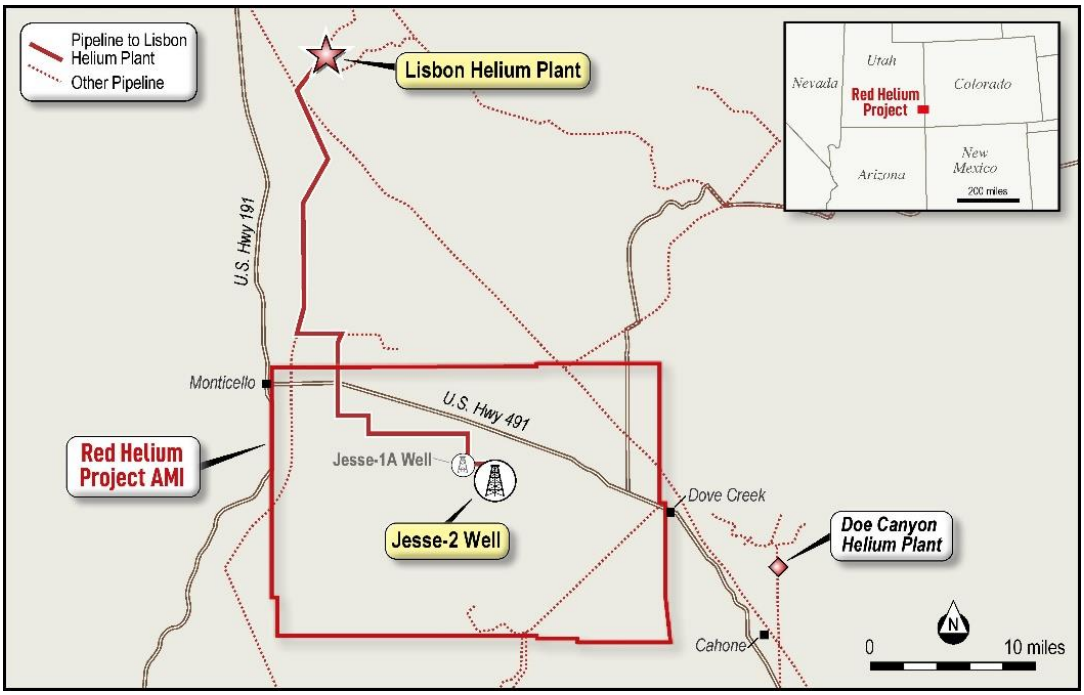

Figure 2: Jesse-2 location in the Red Helium project AMI with local pipelines / gas transport route to the Lisbon Helium Plant.

Strategic Alliance

Grand Gulf entered into a Strategic Alliance (**"Alliance"**) with helium refiner and seller Paradox designed to fast-track and optimise the significant commercial opportunities that exist in the current buoyant helium market[4]. The Alliance is structured to explore mutually commercially advantageous revenue sharing arrangement on such key items as:

- Optimize and prioritize near-term exposure to the burgeoning helium market
- Red Helium Project to be a potential priority supplier to re-start the Paradox liquefier capable of producing high purity 99.9995% helium ("5 ½ Nines") - which attracts premium pricing, currently over US$2,000/mcf
- Collaborative downstream marketing targeting end users of high-purity helium such as semi-conductor manufacturers and the space industry
- Expansion of the terms of the recently executed Offtake agreement to include future wells
- Progress identified CO_2 disposal options with revenue generating potential:
    - Expansion of existing carbon sequestration activities at Paradox's Lisbon Plant to include CO_2 from the Red Helium Project - potentially revenue-generating under Section 45Q of the US Tax Code; and
    - Joint investigation into utilization of Red Helium Project CO_2 for enhanced oil recovery (flooding) from Paradox's Lisbon Oil Field
- Potential synergistic commercial benefits in assessing corporate opportunities that involve both Paradox assets and the Red Helium Project

[3] ASX Announcement 9 January 2023 – Helium Offtake Agreement Secured for Jesse-2

[4] ASX Announcement 11 April 2022 – Strategic Alliance with Helium Offtake Partner

Figure 3: Paradox "5.5 Nines" Resources Lisbon Valley Gas Processing Plant.

Maiden Prospective Helium Resource

On 8 December 2021 the Company announced that Sproule had completed the maiden Prospective Resource Report for the Red Helium Project located in the Paradox Basin, Utah USA.

Sproule has confirmed a P50 10.9 billion cubic feet (BCF) Prospective Resource over gross leased acreage and P50 of 7.4 BCF on a net acre basis to Valence. The Sproule Prospective Resource calculation is based on the current acres held by incorporated joint venture company at 8 December 2021.

The Company plans a resource update based on the data gained from Jesse-1A and future wells.

Valence Prospective Resources[5]

Recoverable Helium	1U (P90) (BCF)	2U (P50) (BCF)	3U (P10) (BCF)
Gross to Valence - (28,046 gross acres)	7.6	**10.9**	12.9
Net to Valence - (18,959 net acres)	5.2	**7.4**	8.5
Net to GGE - (earning 85% of net Valence)	4.4	**6.3**	7.2
Red Project Total	7.9	**20.8**	57.6

The estimated quantities of helium that may potentially be recovered by the application of a future development project relate to undiscovered accumulations. These estimates have both an associated risk of discovery and a risk of development. Further exploration appraisal is required to determine the existence of a significant quantity of potentially moveable helium.

GGE now has a 77.5% interest in Valence with a right to secure a further 7.5% interest (total of 85%) on the following terms:

Earning 85% of Valence Resources	Max Commitment Spend	Cumulative Interest
Current Working Interest		77.5%
Drilling third well	US$1.5M	85%

[5] *Sproule as announced on ASX on 8 December 2021.* The Company is not aware of any new information or data that materially affects the information included in the referenced ASX announcement and confirms that all material assumptions and technical parameters underpinning the estimates in the relevant market announcement continue to apply and have not materially changed.