

# Red Helium Project Acquisition

September 2021



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## Competent Person’s Statement

The information in this report is based on information compiled or reviewed by Mr Keith Martens, consulting geologist/geophysicist to Kessel Resources. 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.



# Transaction Highlights

## Grand Gulf (“GGE”) to acquire Kessel Resources Pty Ltd (“Kessel”), a US helium explorer

 <b>Strategy</b>	<ul style="list-style-type: none"><li>• Exposure to the burgeoning helium industry in the helium-prolific Four Corners area in the US – Drill ready and proximal to dedicated infrastructure</li></ul>
 <b>Transaction</b>	<ul style="list-style-type: none"><li>• Acquisition of 100% of Kessel<sup>1</sup> for 450 million shares and 100 million performance shares</li><li>• Subject to a \$3.3m raise (firm commitments in place) at 1 cent each and 60m options exercisable at 2.5 cents each</li><li>• Partnering with Four Corners Helium as operators – over 400 years of experience</li></ul>
 <b>Acreage</b>	<ul style="list-style-type: none"><li>• 250,713 acre AMI with over 23,600 acres (private leases/Utah state leases) leased in drill-friendly Utah – leasing ongoing with objective of 35,000 acres</li><li>• Structurally high to and 8 miles west of Doe Canyon Helium Field and Plant (Air Products Inc – market cap: US\$60B<sup>2</sup>)</li></ul>
 <b>Prospectivity</b>	<ul style="list-style-type: none"><li>• 190 km’s of 2D seismic across the AMI has been acquired and processed – drill targets established – trap larger than the Doe Canyon Field</li><li>• Currently assessing Prospective Resources for helium</li><li>• Historic wells with helium concentrations within and proximal to the AMI</li></ul>
 <b>Infrastructure</b>	<ul style="list-style-type: none"><li>• Pipeline options that connect to Lisbon Helium Plant</li></ul>
 <b>Risk Managed</b>	<ul style="list-style-type: none"><li>• Potential for significant 45Q Tax Credit revenue through sequestering of produced CO<sub>2</sub></li><li>• Drill ready</li><li>• Current helium pricing is approximately \$280/mcf<sup>3</sup></li></ul>

<sup>1</sup> Kessel is currently earning a 25% interest in Valence by funding a total of US\$1.3 million. To date, Kessel has paid US\$650,000 of the US\$1.3 million. Kessel has rights under the Operating Agreement to acquire up to a further 50% interest in Valence (bringing Kessel's total interest in Valence 75%) subject to paying 100% of 3 wells (costing US\$1.5m each).

<sup>2</sup> <https://www.bloomberg.com/quote/APD:US>

<sup>3</sup> Edison Research Global Helium Market Update, May 2021

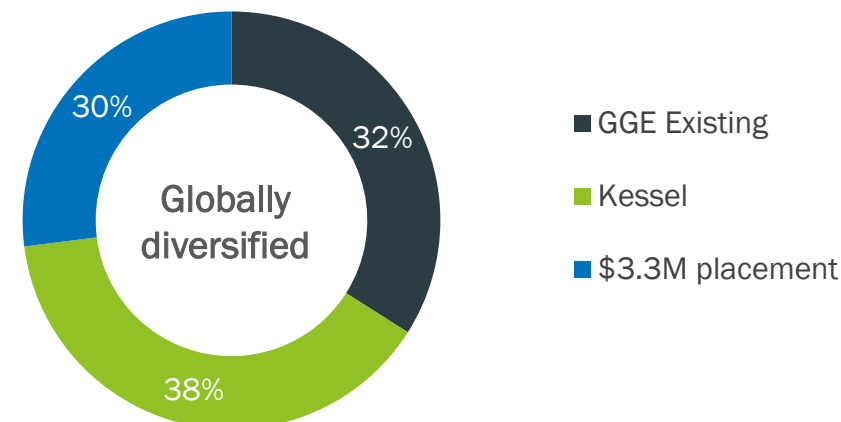
# Corporate Snapshot

Grand Gulf will be a US-Focused Helium Explorer with positive Oil and Gas cashflow

## Financial Information

ASX Trading Symbol	GGE
Shares Outstanding	383 million
Capital Raising	350 million
Consideration Shares	450 million
Total Shares post acquisition	1,183 million
Market Cap @ 1c	A\$11.8 million
Net Cash post Acquisition	A\$4 million
Performance Shares	155 million
Options (3 years at 2.5 cents each)	60 million

## Shareholder Group



### De-risked asset base

Assets have existing wells with Helium present and extensive 2D seismic



### Low-Cost Exploration

Wells drilled and completed for approximately US\$1.5m each



### Carbon market exposure

45Q Tax Credit upside through CO<sub>2</sub> sequestration potential



### Robust netbacks

Low breakeven and low production costs with high torque to commodity prices



### Skilled executive team

Management brings track record of North American asset development



### Access to capital

ASX listing expands investor base and provides exposure to international capital

# Strong Management & Board

## Leadership



### Keith Martens

Chief Executive Officer - Director

- >40 years' experience as an oil finder
- North America – Hudson Bay O&G, Home Oil, Marathon, and Sacgasco
- Australia – SANTOS, Tap Oil, Bow Energy, Victoria Petroleum/Senex
- International – Jupiter (Kazakhstan)



### Craig Burton

Chairman

- Experienced active investor in emerging oil and gas companies
- Provides financial backing and legal advice



### Mark Freeman

Executive Director - Australia

- >25 years oil and gas development and corporate finance expertise
- Calima Energy, Golden Gate Petroleum and Quest Petroleum

## Four Corners Helium Team - [www.fourcornersheliumllc.com](http://www.fourcornersheliumllc.com)

Four Corners Helium is a powerhouse of professionals with over 400 years of combined experience and expertise that are committed to finding and producing helium reservoirs.

### Tim Rynott

CEO, Exploration Geologist

- 40 years of oil and gas experience
- Has generated or endorsed discoveries with a gross net worth of almost US\$1Bn
- Has held key leadership positions on numerous national and regional Boards, including AAPG, GCAGS, and LOGA.

### David McCarver

COO, Contracts/Land

- >46 years experience in oil and gas
- Ex State and Federal basins in Texas and Louisiana Gulf Coast, Ark-La-Tex, Mid-Continent, Permian, Rockies and the Gulf of Mexico
- Leased and directed the leasing of >200 drilling prospects, managed E&P programs, created joint ventures, raised capital from direct investors and promoted industry partners.

### Eric Cummins

Vice President, Exploration and Production

- 30yrs experience in exploration and as production geologist
- Ex Geological Manager for Apache – instrumental in reaching goal of 150,000 BOPD in the Permian.

### Sabina Kraushaar

Partner, Petrophysicist, Structural Geologist

- Geoscientist with expertise mapping subsurface geology utilizing Petra software.
- Manages a database with >100,000 wells, 17,000 geologic tops and >10,000 digital logs.

### Scott Reed

Reservoir Engineer

- >17 years experience in oil and gas industry.
- Ex W.D. Von Gonten & Co., Apache
- Responsible for leading multi-disciplinary teams as they developed unconventional assets in the Southern Midland Basin.

### Jake Cammack

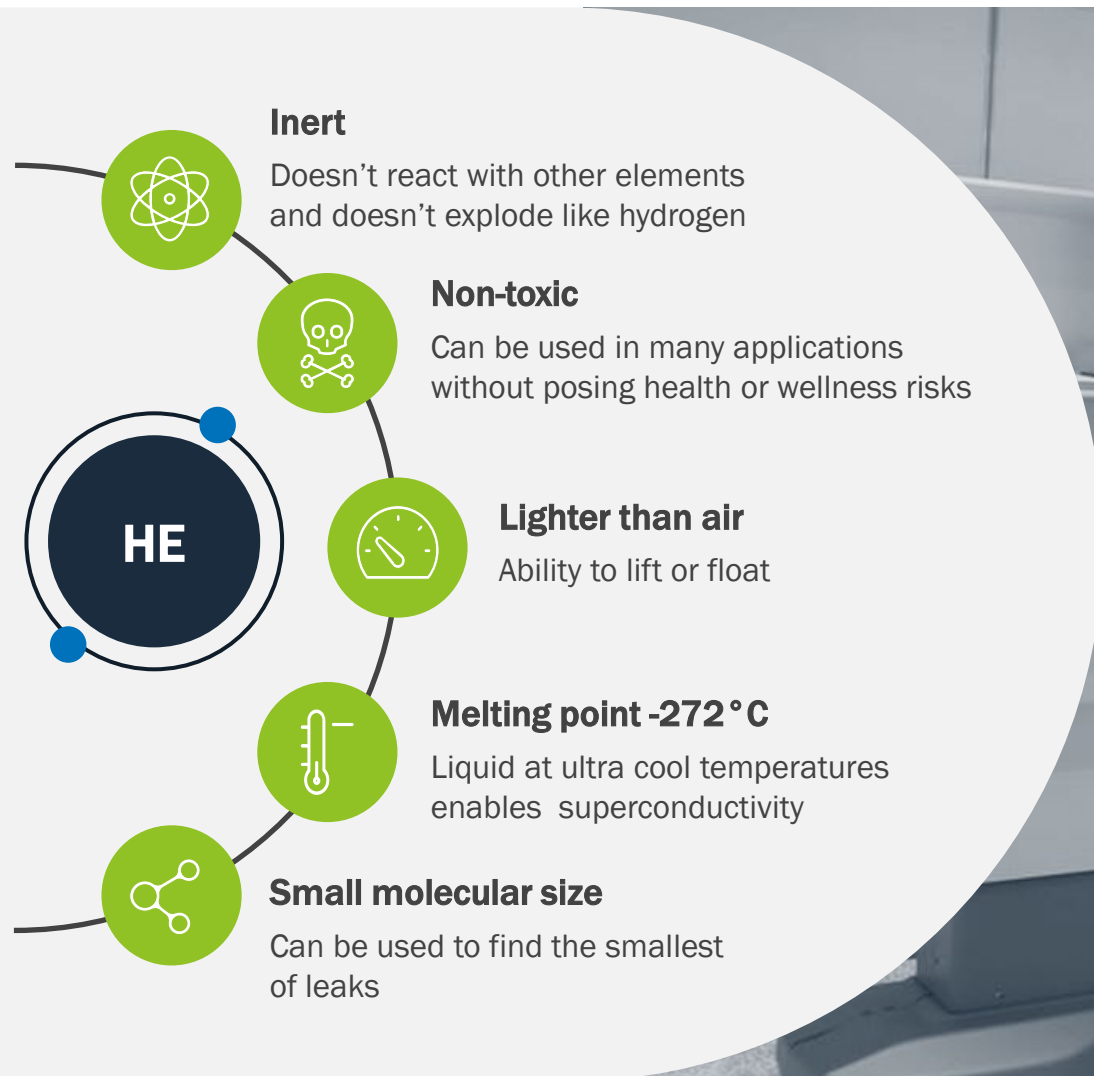
Partner, Geochemist, Specialist in Geographic Information Systems (GIS)

- Created a database with >17,000 gas-composition and helium analyses - comprises the most complete gas geochemistry dataset ever assembled for Utah, Colorado, New Mexico and Arizona.

# Listed Helium Companies

Company	Market	Project Location	Market Cap (USD)	Comments
Desert Mountain Energy (DME)	TSX-V	<ul style="list-style-type: none"> <li>Holbrook Basin, Az (Four Corners area)</li> </ul>	\$254M	<ul style="list-style-type: none"> <li>Proximal to Paradox Basin (Red Project)</li> <li>85,000ac, 2 discovery wells</li> <li>24mmcfcpd @ 7% He and 1.25mmcfcpd @ 3.5% He</li> </ul>
PetroSun (PSUD)	OTC	<ul style="list-style-type: none"> <li>Holbrook Basin, Az</li> <li>Paradox Basin, UT</li> </ul>	\$158M	<ul style="list-style-type: none"> <li>228,784ac in Holbrook Basin</li> <li>26,800ac state and federal leases in the Paradox Basin</li> </ul>
Helium One (HE1)	AIM	<ul style="list-style-type: none"> <li>Tanzania</li> </ul>	\$77M	<ul style="list-style-type: none"> <li>Listed December 2020 at \$20M market cap</li> <li>No helium processing facilities or pipelines</li> <li>Large portion of project area under a deep lake</li> <li>138BCF helium, 4,512km<sup>2</sup></li> </ul>
Avanti Energy (AVN)	TSX-V	<ul style="list-style-type: none"> <li>Alberta, Canada</li> <li>Montana USA</li> </ul>	\$62M	<ul style="list-style-type: none"> <li>9,500ac in Alberta</li> <li>2,749ac in Montana</li> <li>Just acquired a further 50,000ac in Montana</li> </ul>
Royal Helium (RHC)	TSX-V	<ul style="list-style-type: none"> <li>Saskatchewan, Canada</li> </ul>	\$55M	<ul style="list-style-type: none"> <li>6BCF He (high case)</li> <li>0.3 - 0.6% He</li> </ul>
Blue Star Helium (BNL)	ASX	<ul style="list-style-type: none"> <li>Colorado, USA</li> </ul>	\$41M	<ul style="list-style-type: none"> <li>173,000ac - all State and Federal leases</li> <li>13.4BCF He (mid case) prospective resources. 7 - 9% He</li> <li>BNL still trying to permit a well</li> </ul>
Global Helium (HECO)	CSE	<ul style="list-style-type: none"> <li>Saskatchewan, Canada</li> </ul>	\$26M	<ul style="list-style-type: none"> <li>405,000ac</li> </ul>
Imperial Helium (IHC)	TSX-V	<ul style="list-style-type: none"> <li>Alberta, Canada</li> </ul>	\$24M	<ul style="list-style-type: none"> <li>~50,000ac</li> </ul>

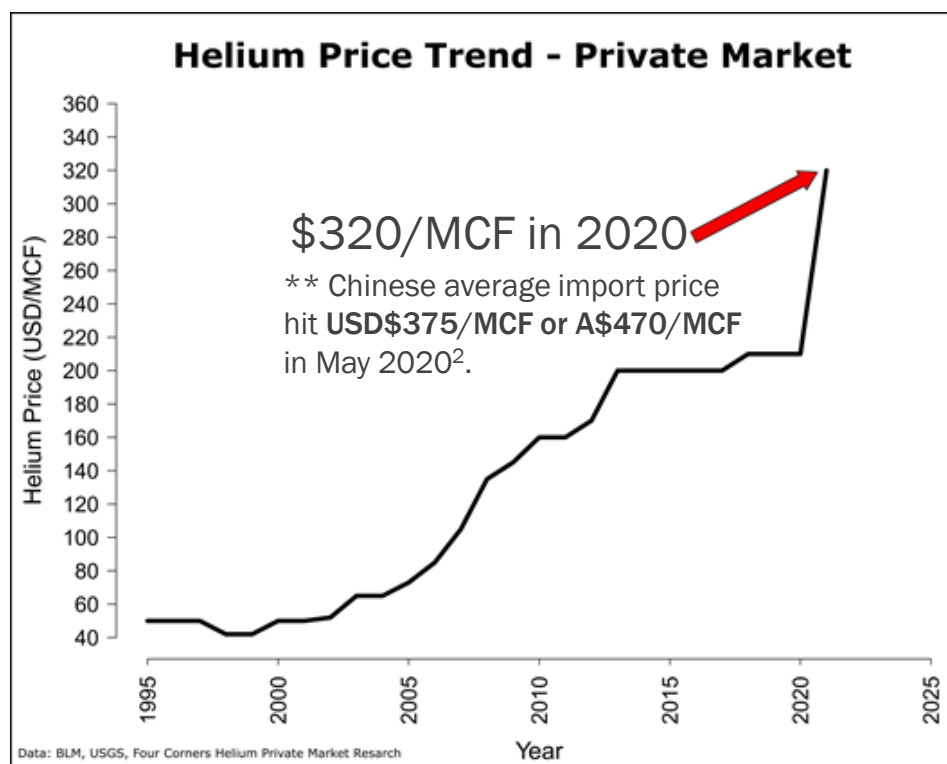
# Helium Properties



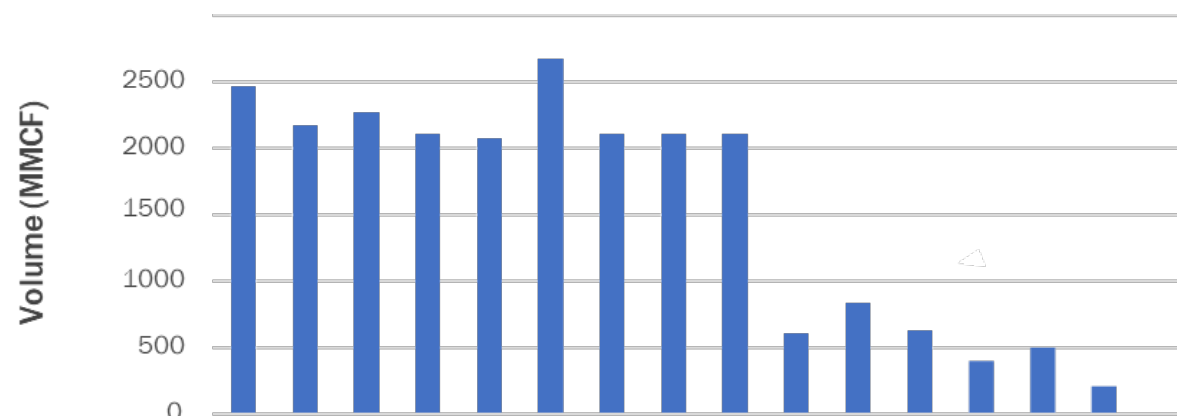
# Transaction Rationale

## US\$ Helium Pricing

The price of helium has seen a rapid expansion in both spot public auctions and longer term negotiated private contracts. During the last period of oversupply (2013–16), which peaked in 2013–14, BLM conservation (private sector) prices were \$80–90/mcf for crude helium, 30% below the FY18 auction price (\$119/mcf) and 70% below the final BLM auction price in FY19 (\$280/mcf)<sup>1</sup>.



The market saw a sustainable price rise as a result of BLM mandated sales of 2,100 MMCF per annum ceasing after the enactment of the 2013 Helium Stewardship Act, brought in to help mitigate a helium shortage.



BLM Helium Sales: 2005 – 2020 (BLM, USGS)

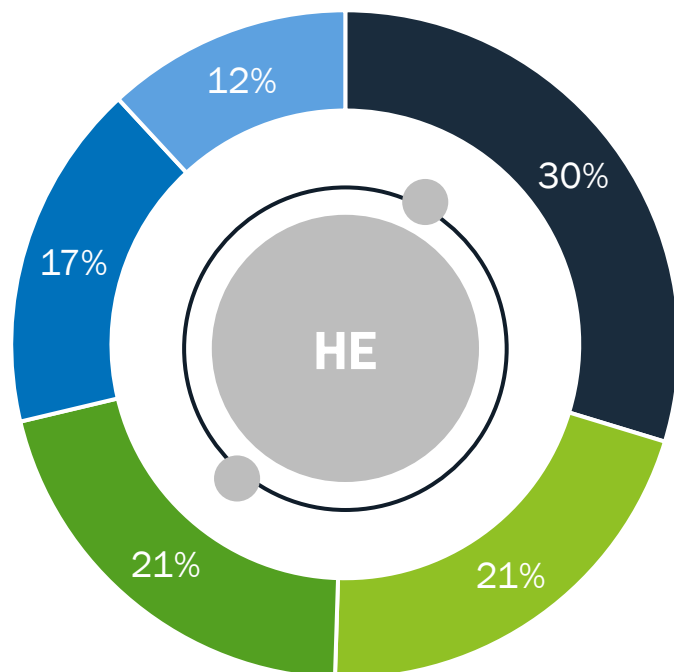
<sup>1</sup> Edison Research Global Helium Market Update, May 2021

<sup>2</sup> Hannam and Partners Research Report – ‘Helium’ 14 December 2020



# Helium Market Size

Global demand for helium reached **6.2billion cubic feet (Bcf)** <sup>1</sup>/ year in 2019. Given the 2018 cessation on U.S. Bureau of Land Management (BLM) helium sales, the global helium market is expected to experience a prolonged deficit.



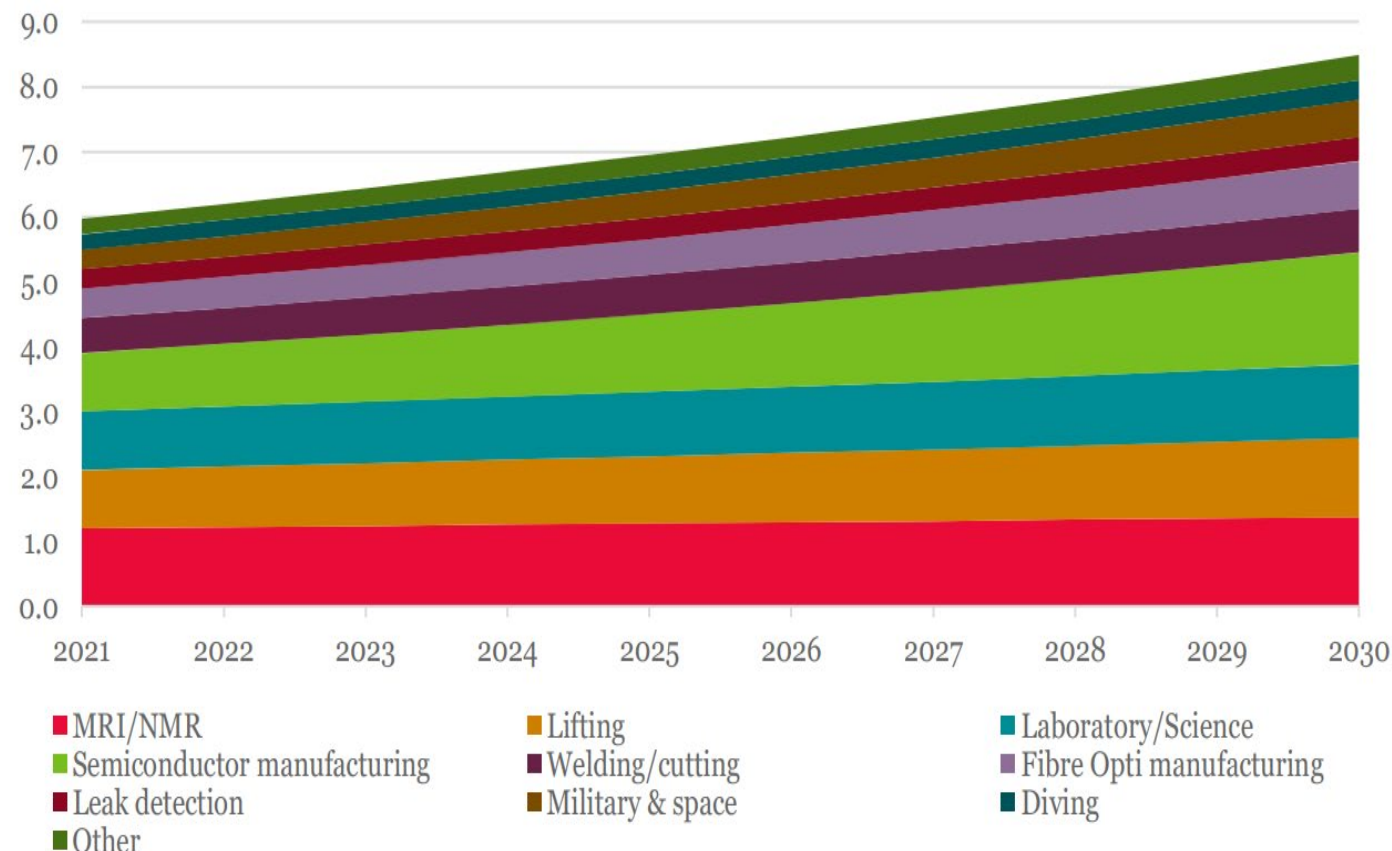
- Manufacturing**  
 Helium's inert nature makes it essential for creating controlled environments in semiconductors, fiber optics, aerospace applications, and more
- Other**  
 Research and medical applications, diving, etc.
- Super-cooling and cryogenics**  
 Irreplaceable for advanced technological devices (i.e. MRI scanners)
- Blimps (dirigibles) and balloons**
- Leak detection**  
 Pipeline leak detection, pressure vessel testing and purging

<sup>1</sup> Edison Research Global Helium Market Update, May 2021

# Helium Future Demand

Forecast helium consumption by industry 2021-2030, BCF/Y

- Major growth potential for helium in space travel, near-space travel in balloons, semiconductors and other electronics applications. The future growth of helium is expected to be driven by demand from electronics manufacturers in Asia.
- China has doubled its estimated helium consumption over the last ten years and is expected to maintain robust growth rates despite a lack of domestic supply.
- Nasco, one of the biggest helium producers in the US, said in October 2020 that it saw demand for helium being robust through COVID-19 and sales prices in the US continuing to increase.



Source: H&P estimates

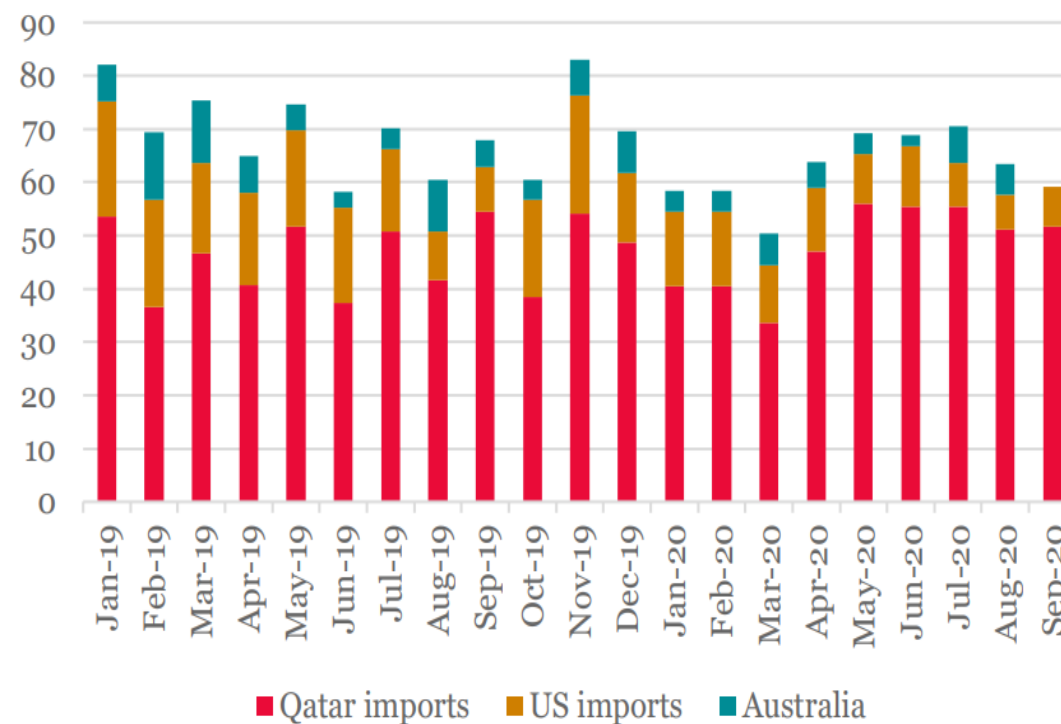
# Helium Shortage

## Supply Shortage – Rising Prices

- There is virtually no domestic helium production in China but demand for helium is estimated at ~1bcf/y and is growing sharply. China is the most important growth market for helium.
- As with other commodities, China will likely look to stockpile helium (build storage like the BLM) and also look to acquire helium resources globally.
- Chinese state-owned companies potentially looking at buying into helium projects globally.

Source: Hannam & Partners Research

Chinese monthly imports by exporter, 2019-2020, mmcf

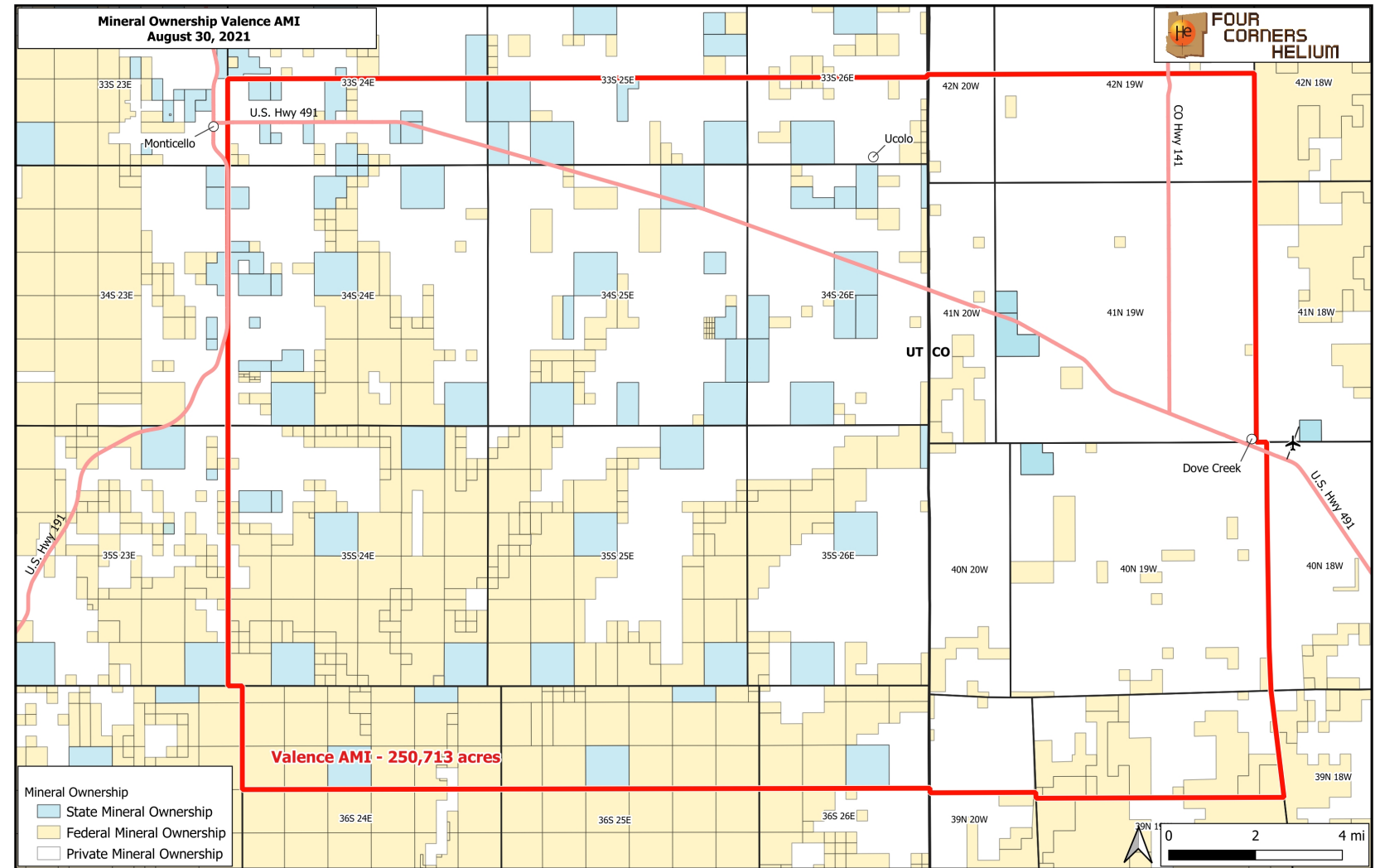


Source: Chinese customs data, H&P estimates

# Dominant Lease Position in the Four Corners Area

## 'The Saudi Arabia of Helium'

- Successfully leased over 23,600 ac to date in one of the world's best addresses for helium
- Ongoing leasing, targeting 35,000 ac
- Permitting-friendly Utah currently with no federal govt (BLM) leases
- Royalty of 20%
- 2yr leases with option to extend for an additional 3yrs





# Four Corners Area Helium Activity



## Red Helium Project

- ~24K acres leased. Greater than one hundred 2D seismic anomalies.



## Kinder Morgan Doe Canyon

- ~ 1 TCF EUR CO<sub>2</sub> field from Leadville Formation.
- In 2016 Air Products contractually began stripping and selling He.
- Current Prod: ~81 MMCFD @~ 0.5% helium. Primarily from 7 wells.
- Helium **Estimated** Ultimate Recovery (EUR): 3-5 BCF



## Desert Mountain Energy (TSX: DMEHF)

- 85,000 acres leased; 4 wells drilled, no information.
- Market Cap: US\$248M.



## PetroSun/Arizona Energy Partners

- ~230,000 acres leased; multiple shallow wells drilled, minimal information.
- Market Cap: US\$142M.



## Ranger Development

- Estimated 40,000 leased acres.
- 9 low volume wells producing from Coconino/Shinarump.



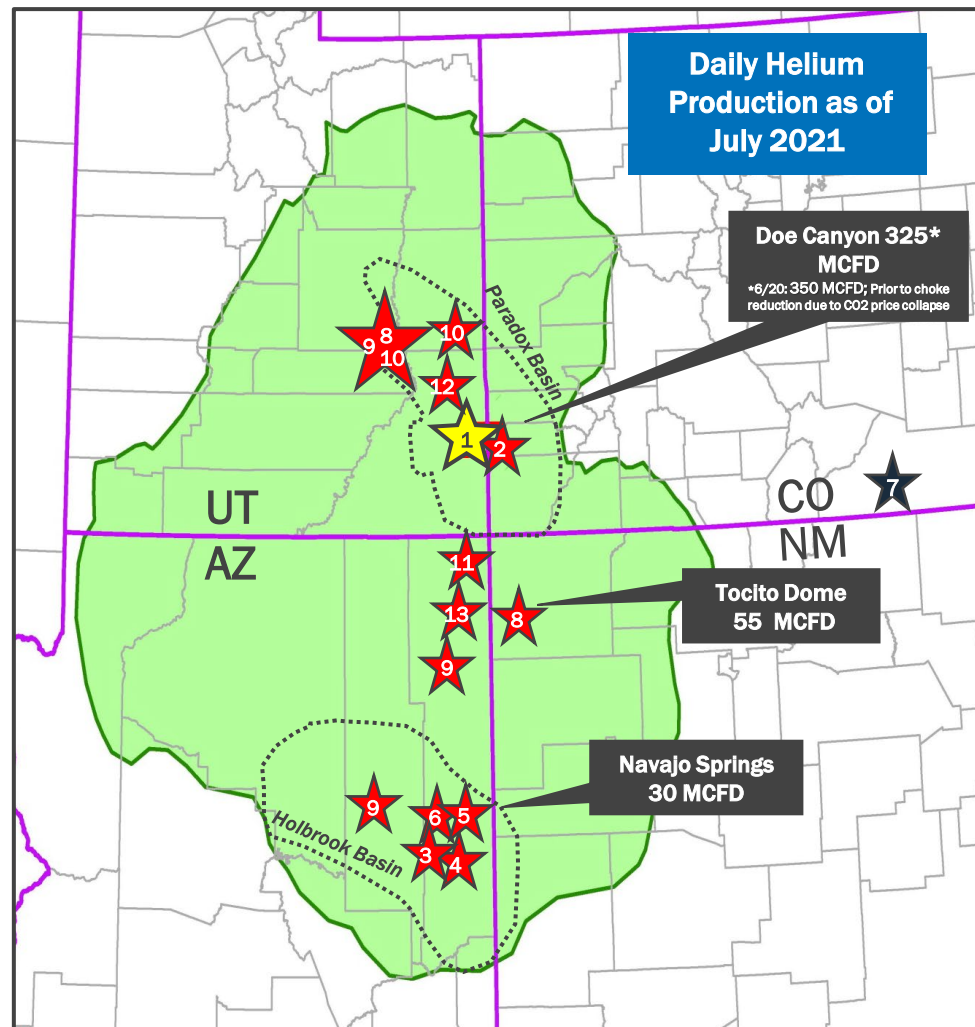
## Pinta South Operating

- ~27,000 acres leased.
- Very poor results in Coconino/Shinarump.



## Blue Star Helium (ASX:BNL)

- 173,000 acres leased, no wells drilled.
- Market Cap: AUD\$43 million



## Tacitus, LLC

- ~100,000 acres leased in Central Ut (Temple Springs), no wells
- Economic Horizontal McCracken completion at Tocito Dome.



## IACX

- Midstream company with gas processing facilities.



## North American Helium

- Large acreage position at Temple Springs area.
- 4 Permits to date.



## Navajo Petroleum

- Produced ~23 MCF of helium in the mid-60's from Leadville.
- Recent re-entry: 60 MCFD of helium; trucking to Lisbon plant.



## Texaco

- 1.5% helium; recent re-entry, results TBD.

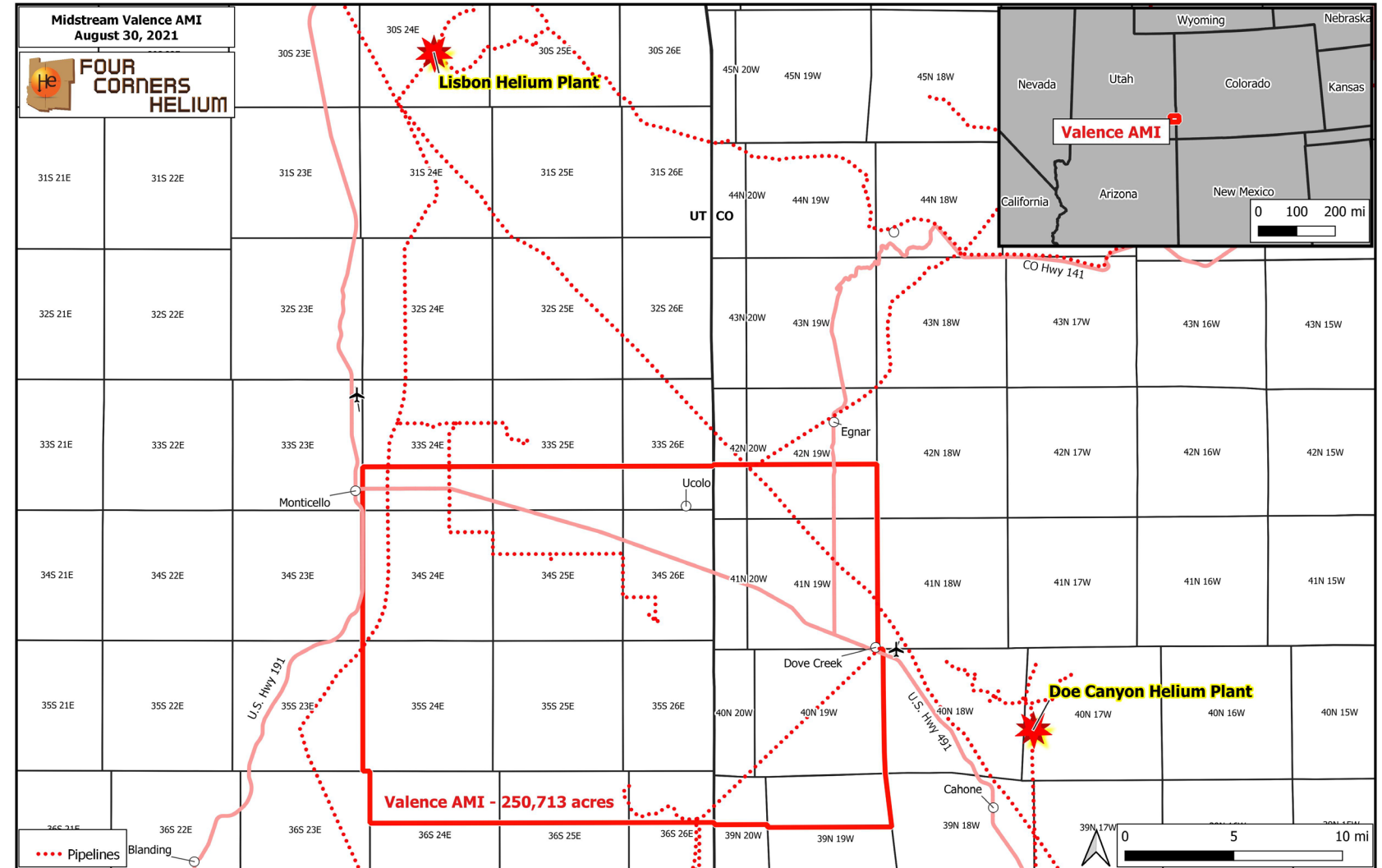


## Capital Operating group

- Helium prod established in a 1960's large oil field.

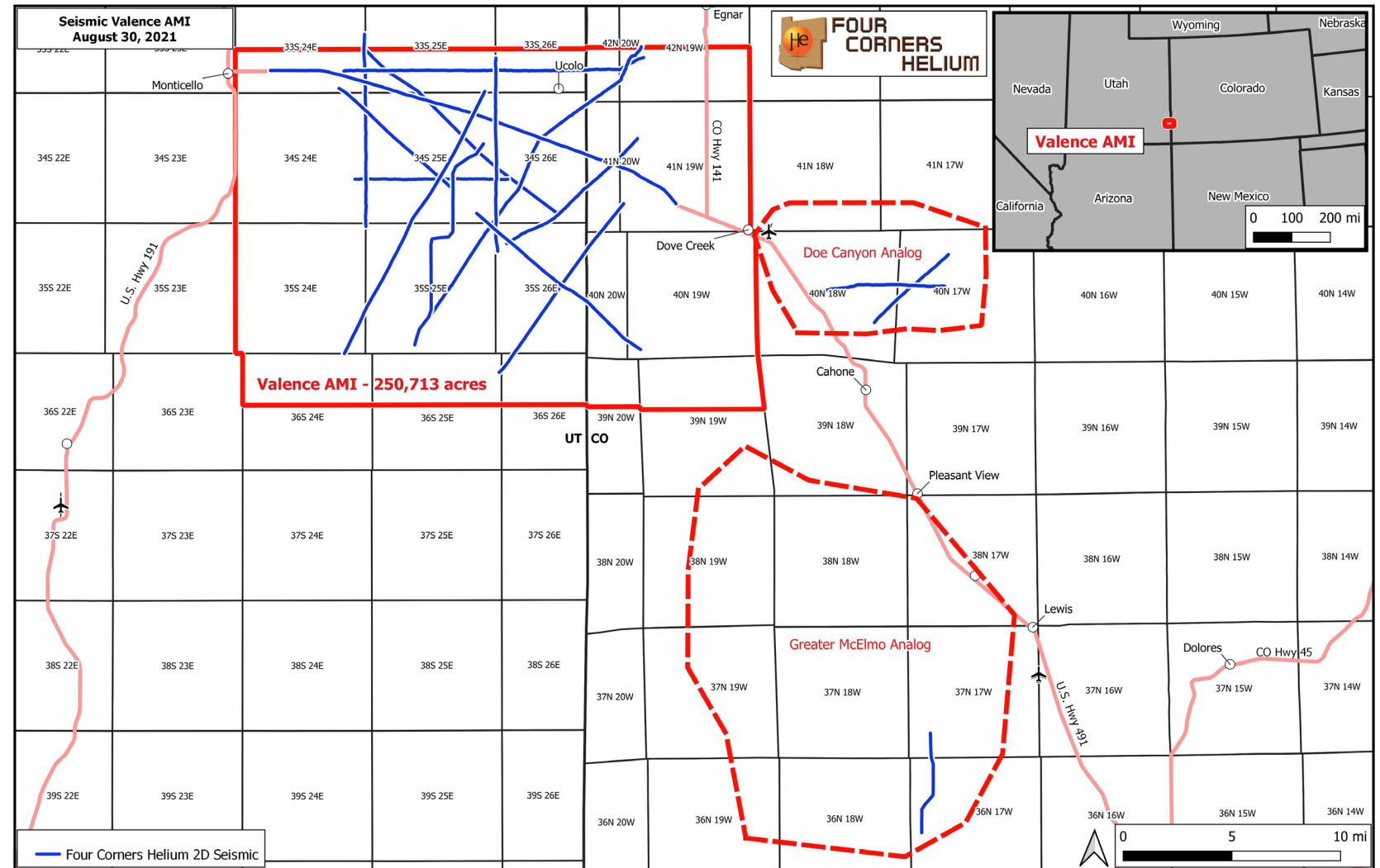
# Outstanding Infrastructure Position

- 2 of the 7 helium purification plants in the U.S. are within 20 miles
- Lisbon Plant purifies to 99.999% He, “five nines”
- Helium offtake opportunities in the immediate area – discussions underway
- On-site gas stream separation and trucking also an option
- Several pipelines in the area suitable for helium transport being considered.



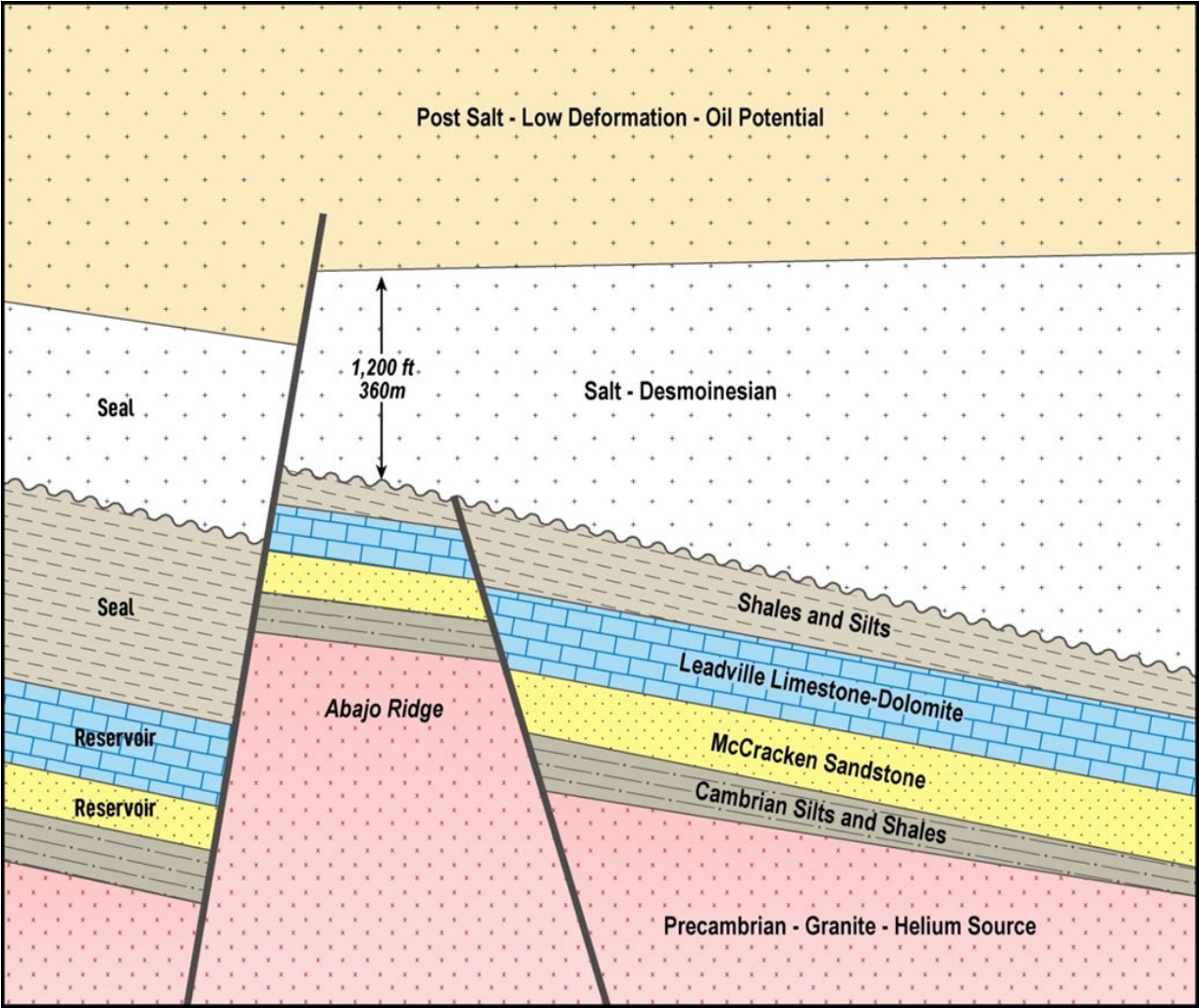
# Red Project – Seismic Lines

- 190 km's of 2D Seismic coverage providing excellent data, particularly below the salt seal
- Geologic analogs with historic He concentrations
- Drill locations identified
- Analog Doe Canyon and McElmo Fields – same reservoir/same trap/same source rock





# Proven Trap and Seal

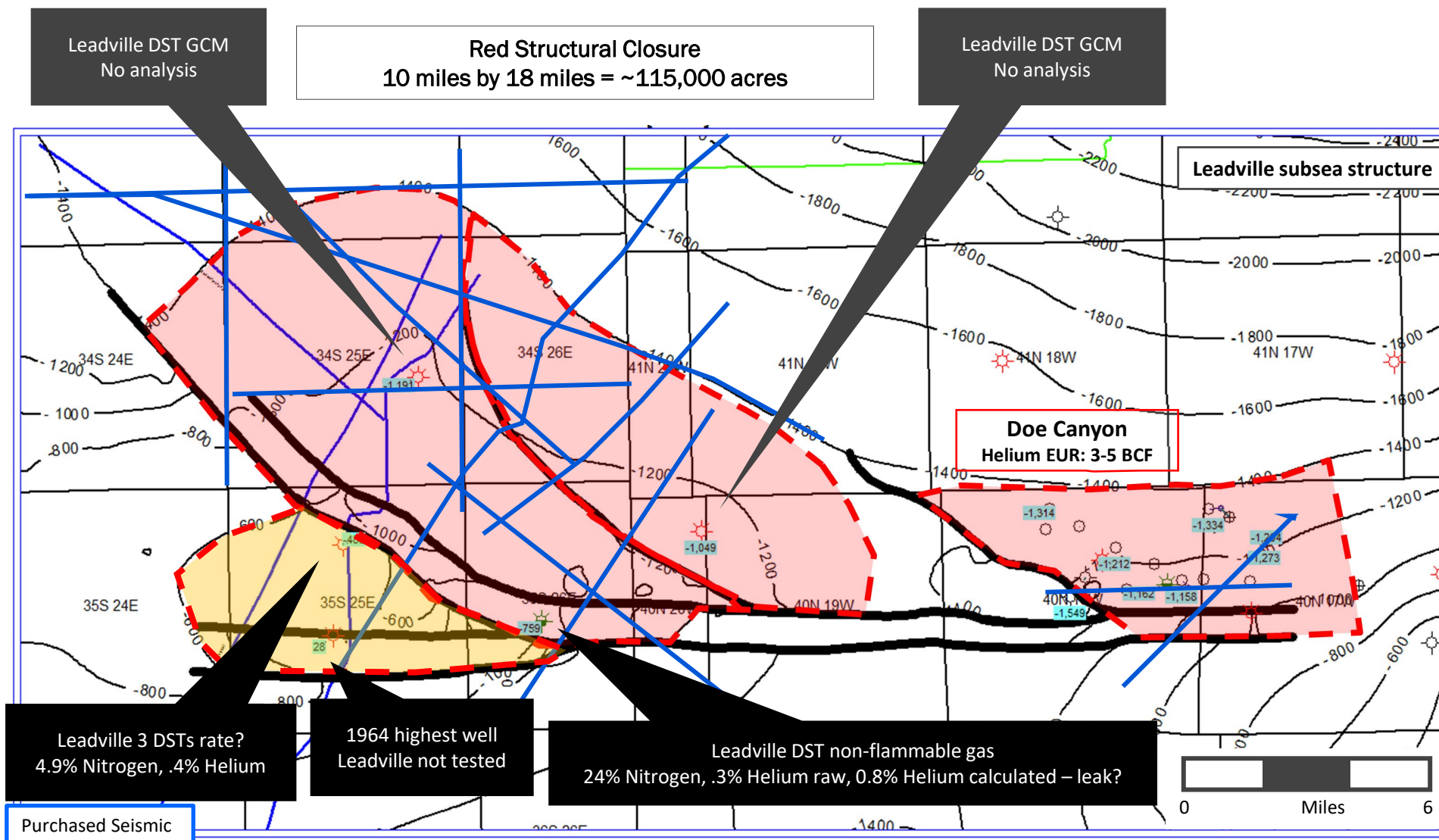


QUATERNARY		Sands, silts and gravel
TERTIARY		Wasatch Fm.
CRETACEOUS	UPPER	Mancos Shale
	LOWER	Dakota Ss. Burro Canyon Fm.
JURASSIC	UPPER	Westwater Cyn. and Brushy Basin Mbrs. Recapture and Salt Wash Mbrs. Bluff Ss. Tidwell Mbr. J5 Curtis Fm./ Moab Tng of Entrada/ Wanakah Fm. J3
		Entrada Ss.
		Carmel Fm.
	MIDDLE	Page Ss. J2
	LOWER	Navajo Ss.
		Kayenta Fm.
TRIASSIC	UPPER	Wingate Ss.
	MIDDLE	Chinle Fm. Tr3
	LOWER	Moenkopi Fm.
PENNSYLVANIAN/PERMIAN	OCHOA - GUAD.	Hoskinnini Mbr. Tr1
	LEONARD	White Rim Ss.
	WOLFCAMP	Organ Rock Fm.
	VIRGIL	Cedar Mesa Ss.
	MISSOURI	lower Cutler beds
	DESMOINES	Cutler Group
MISS.	ATOKA	Honaker Trail Fm.
	MORROW	Ismay Mbr.
	CHESTER	Desert Creek Mbr.
	MERAMEC	Akah Mbr.
	OSAGE	Barker Creek Mbr.
	KINDERHOOK	Cane Creek Sh.
DEVONIAN	UPPER	Pinkerton Trail Fm.
	MIDDLE	Molas Fm.
	LOWER	Leadville Ls.
SILURIAN		Ouray Ls.
		Elbert Fm.
ORDOVICIAN		McCracken Ss Mbr.
		Aneth Fm.
CAMBRIAN	MIDDLE	Lynch Dolomite
		Muav Ls.
	LOWER	Bright Angel Sh.
PRECAMBRIAN		Tapeats Ss.
		Grand Canyon Supergroup
		Chuar Group
		Unkar Group
		Igneous and metamorphic rocks

Stratigraphic column from Whidden et al. (2013)



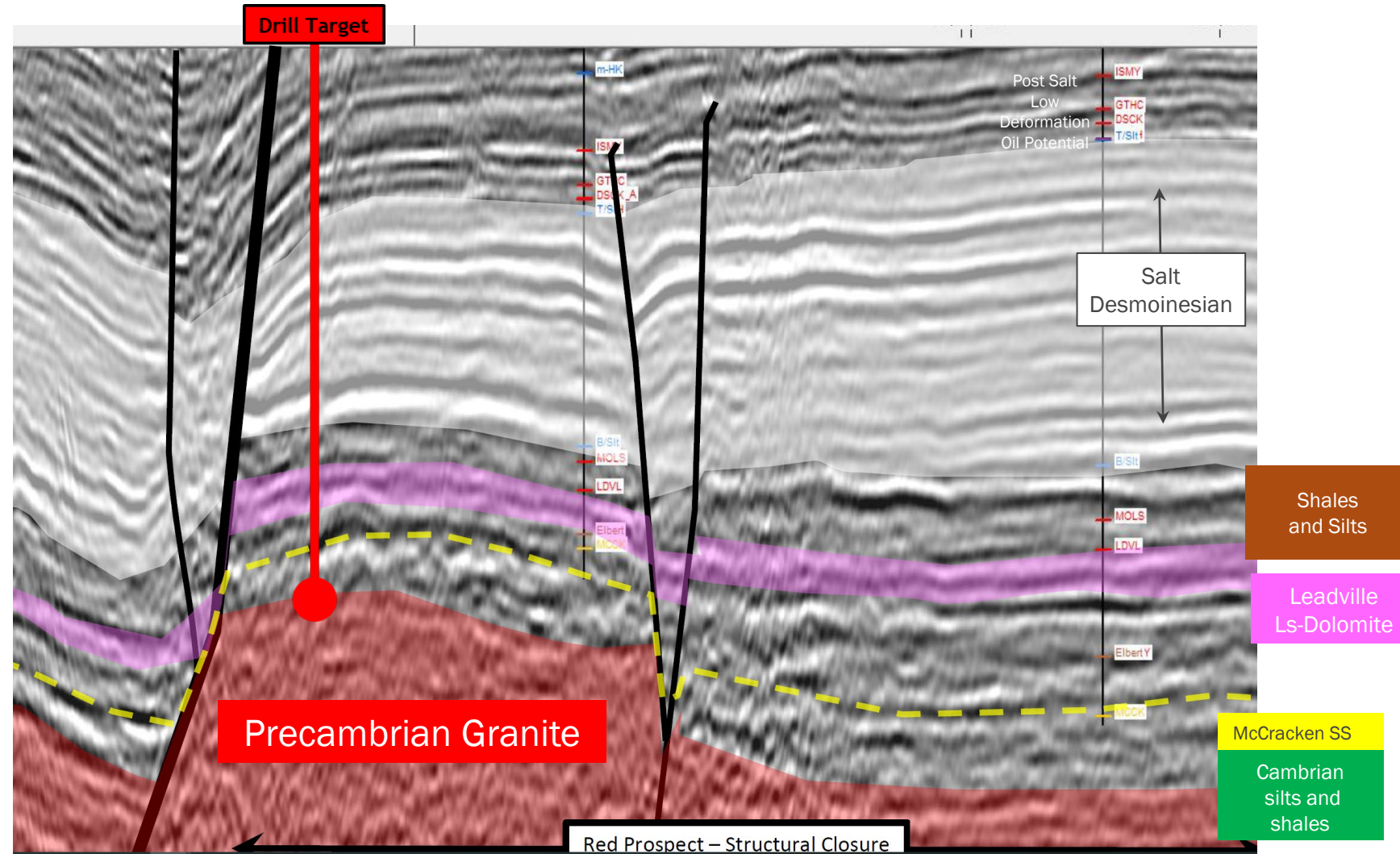
# Doe Canyon Analogue Field and Well Control



# Red Helium Project – Trap

## Key Dip 2D Seismic Line

- Good quality seismic even below the salt – overall trap is clearly defined



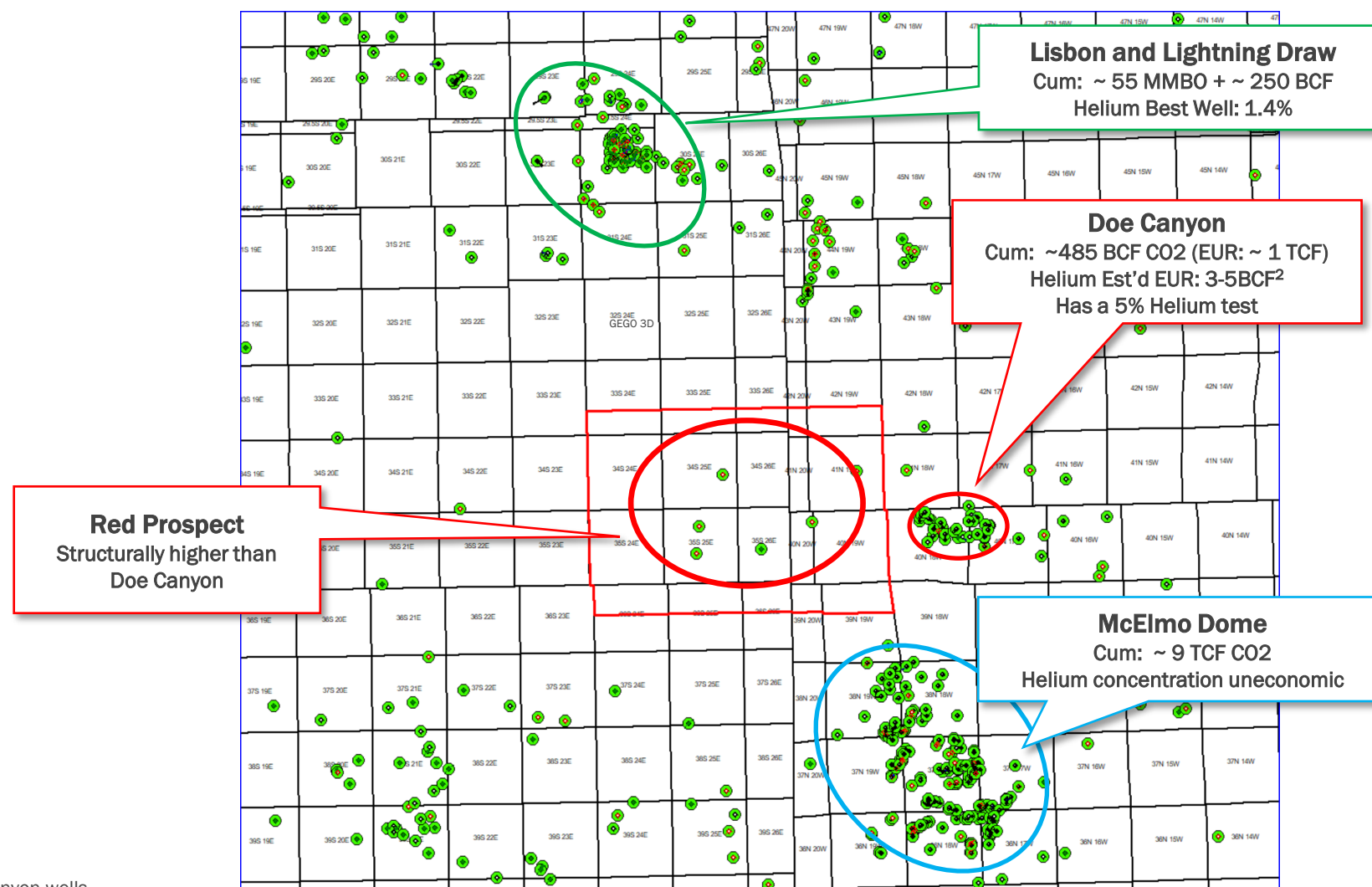
# Red Helium Prospect – 4 Corners

## Sub-Salt Well Control and Fields

- Doe Canyon is regarded as an analogue field – currently produces an average well flow rate of roughly 18mmcfpd of raw gas at an average grade of ~ 0.5% helium<sup>1</sup>
- Best single well flow rate at Doe Canyon was 60mmcfpd and one of the wells tested 5% helium
- Historic wells and DSTs within and proximal to the AMI indicate appreciable helium concentrations and good flow rates
- Strong bail out zone in the lightly explored McCracken Sandstone

<sup>1</sup> Derived from historical Doe Canyon well production data

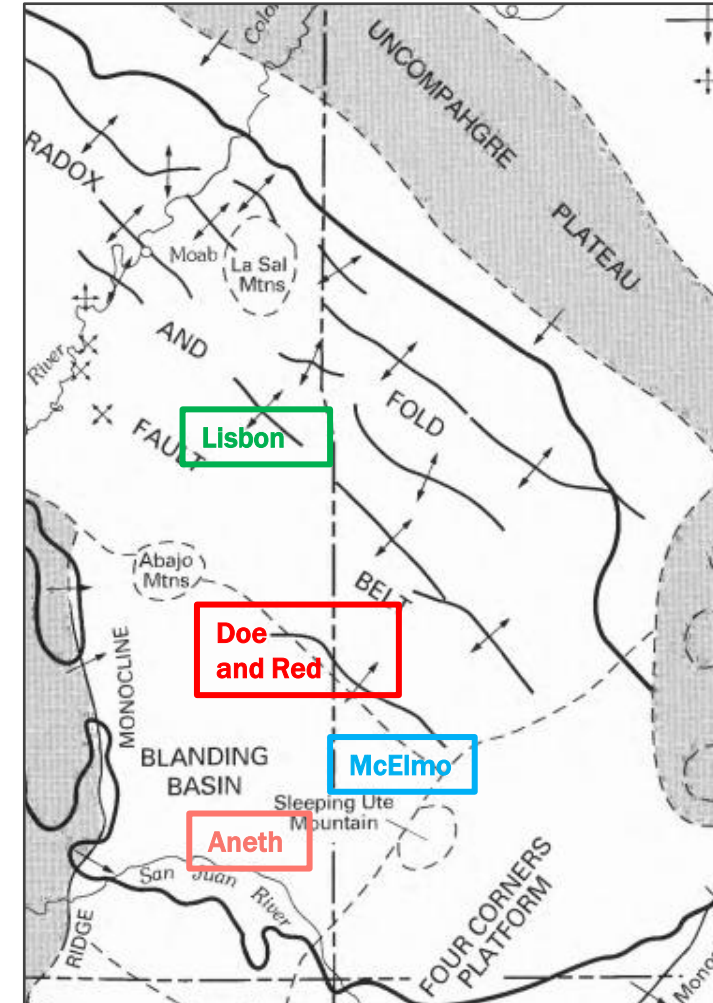
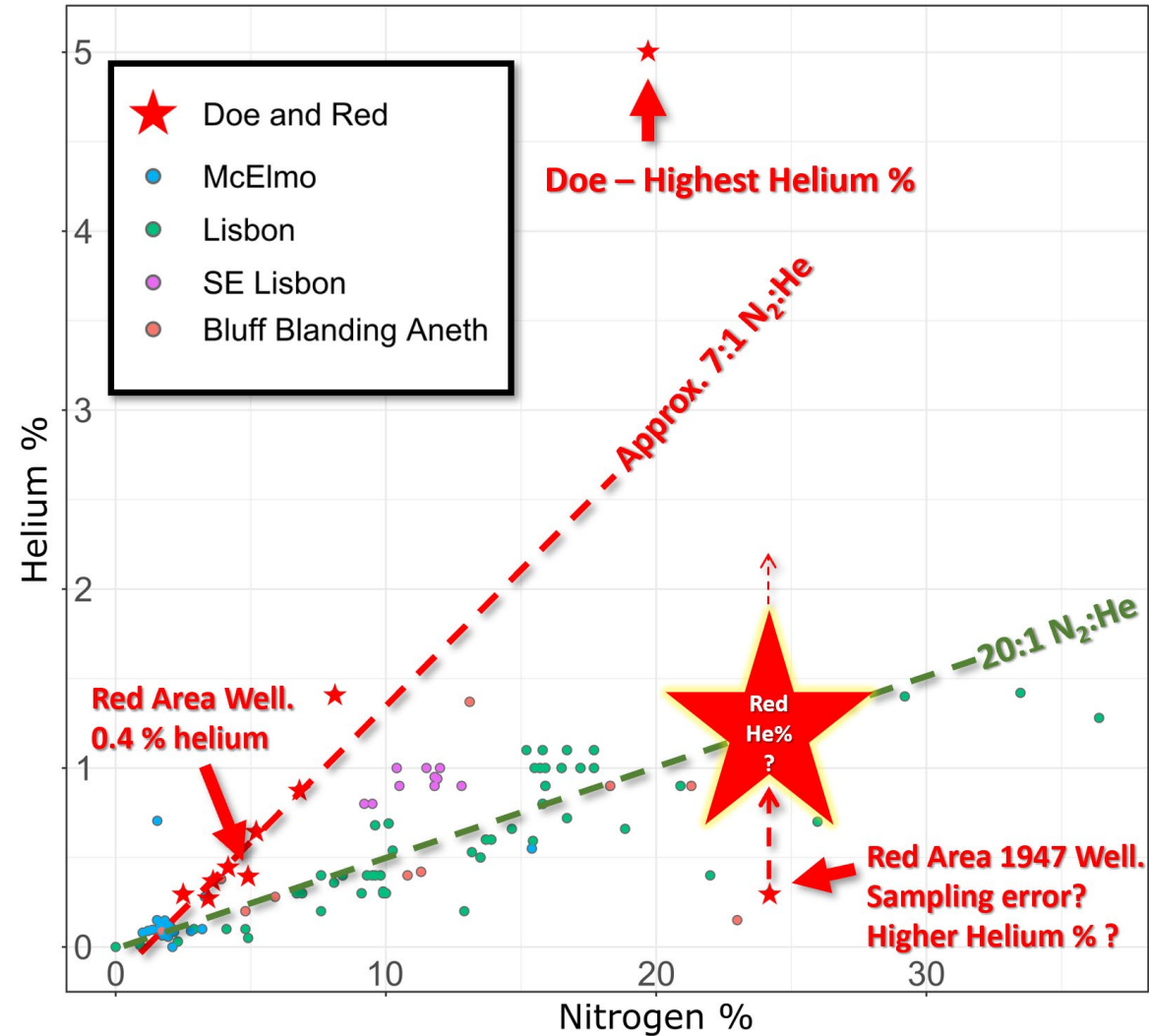
<sup>2</sup> EUR is estimated from the decline curves of the drilled Doe Canyon wells





# Red Helium Prospect

Red Area well had high nitrogen suggesting the helium concentration is understated





# ESG – Carbon Sequestration Potential

GGE is in the process of reviewing the potential of the Red Helium Project qualifying under Section 45Q of the US tax code for carbon sequestration (re-injection) of the associated anticipated CO<sub>2</sub> component of the raw gas stream. Key aspects of Section 45Q of the US tax code include:

- Section 45Q stipulates tax credits for carbon sequestration.
- *The emissions must be from a factory, refinery, power plant or other fuel combustion source, fuel cell, pipeline or manufacturing process. If the carbon dioxide is underground, drawing it out counts as long as the commercial goal is to recover some other gas mixed with it.*<sup>1</sup>
- *Tax credits belong to the entity who owns the carbon capture equipment, which is defined as the equipment used to separate or capture, treat, process, dry, liquefy, pump or compress the CO<sub>2</sub> up to the point where it is transported for disposal.*<sup>1</sup>

GGE is assessing whether CO<sub>2</sub> produced as a by-product from the Red Helium Project is suitable for carbon sequestration and whether it qualifies, under Section 45Q of the US Tax Code and the various US Environmental Protection Agency stipulations, for tax credits. GGE understands there are specific CO<sub>2</sub> concentration thresholds and other technical requirements that need to be satisfied prior to qualification and that these details will only be known once a well has been drilled at the Red Helium Project and the resultant flow rates and gas concentrations are known. Accordingly, there is no guarantee that any tax credits will be available to the Company but the possibility of the same provides an additional potential upside to the economics of the Red Helium Project should they be available in the event of successful development of the project.

<sup>1</sup> Norton Rose Fullbright - <https://www.projectfinance.law/publications/2021/february/tax-credits-for-carbon-capture/>

# Kessel Resources Earn In

Earning 75% of Valence Resources	Earning	Max Cost US\$
Completion of Leasing Payments	25%	\$1.3M (US\$650k remaining)
Drilling first well within 12 months of conclusion of leasing	25%	\$1.5M
Drilling second well within 24 months of conclusion of leasing	12.5%	\$1.5M
Drilling third well within 24 months of conclusion of leasing	12.5%	\$1.5M
<b>Total Payments</b>	<b>75%</b>	<b>\$5.8M</b>

Remaining Payments to Earn 25% of Valence Resources	US\$
180 Days After Closing Date	\$250,000
Reimbursement of vendor project development costs	\$400,000
<b>Total Payments</b>	<b>\$650,000</b>



## Contact Us

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# Glossary

Abbreviation	Description
WI	Working Interest
C	Contingent Resources – 1C/2C/3C – low/most likely/high
NRI	Net Revenue Interest (after royalty)
Net	Working Interest after Deduction of Royalty Interests
NPV (10)	Net Present Value (discount rate), before income tax
EUR	Estimated Ultimate Recovery per well
WTI	West Texas Intermediate Oil Benchmark Price
WCS	Western Canadian Select Oil Benchmark Price
PDP	Proved Developed Producing
PUD	Proved Undeveloped
1P or TP	Total Proved
2P or TPP	Total Proved plus Probable Reserves
3P	Total Proved plus Probable plus Possible Reserves
EBITDA	Earnings before interest, tax, depreciation, depletion and amortization
Net Acres	Working Interest
IP24	The peak oil production rate over 24 hours of production
IP30	The average oil production rate over the first 30 days of production

Abbreviation	Description
B	Prefix – Billions
MM	Prefix - Millions
M	Prefix - Thousands
/d	Suffix – per day
bbl	Barrel of Oil
boe	Barrel of Oil Equivalent (1bbl = 6 mscf)
scf	Standard Cubic Foot of Gas
Bcf	Billion Standard Cubic Foot of Gas
tCO <sub>2</sub>	Tonnes of Carbon Dioxide
OCF	Operating Cash Flow, ex Capex
E	Estimate
YE	Year End 31 December
CY	Calendar Year
LMR	Liability Management Ratio