

ASX / MEDIA RELEASE: 13 DECEMBER 2023

## PROJECT NEMAHA – MAIDEN PROSPECTIVE HYDROGEN + HELIUM RESOURCE ASSESSMENT

HyTerra Ltd (ASX: HYT) (**HyTerra** or the **Company**) is pleased to advise that Sproule Incorporated (“Sproule”) has completed an independent prospective resource assessment of the Company’s 100% owned and operated Nemaha Ridge leases in Kansas. Sproule’s Independent Resource Report was completed after its extensive review of geophysical, geological and wells data in the area.

***Benjamin Mee, HyTerra’s Executive Director,** commented: “This independent assessment of both prospective hydrogen and helium resources strengthens our confidence in our portfolio as a platform to potentially support the decarbonising of several mature industrial sectors and transport in the mid-West USA, and elsewhere. We will use this resource assessment to rank our drilling targets.”*

### HIGHLIGHTS

- Hyterra delivers maiden independent Prospective Resource estimate of **hydrogen and helium** within 100% held Project Nemaha leases in Kansas, USA
- P50 Net **Hydrogen** Prospective Resource is **100.2 BCF** (237,543 tonnes) with a minimum (P90) of 47.1 BCF (111,738 tonnes) and a maximum (P10) of **238.4 BCF** (565,390 tonnes)\*
- P50 volume of **Helium** Prospective Resources is **0.47 BCF** with a P90 volume of 0.04 BCF and a P10 volume of **1.63 BCF**\*
- Prospective Resources anticipated to increase as leasing of acreage in the play continues
- Assessment carried out by respected global energy consulting firm, Sproule, and will assist in ranking existing drilling prospects
- Prospective Resources areas are surrounded by mature industrial production facilities and interconnected railroads and highways

**\*Cautionary Statement:** The estimated quantities of natural hydrogen and helium that may potentially be recovered by the application of a future development project(s) relate to undiscovered accumulations. These estimates have both an associated risk of discovery and a risk of development. Further exploration, appraisal, and evaluation is required to determine the existence of a significant quantity of potentially recoverable natural hydrogen and helium.

## PORTFOLIO

HyTerra is focussed on the early discovery and development of natural hydrogen and has established a major presence in potentially one of the world's most prolific natural hydrogen provinces in the Mid-West of the USA.

HyTerra's Project Geneva (Nebraska) and Project Nemaha (Kansas) are situated respectively on the western and eastern margins of the Mid-Continent Rift System, an iron-rich band of rocks underlying the Salina Basin widely considered to be the source of multiple historic hydrogen occurrences. In addition to a 16% working interest in the Joint Development Agreement with Natural Hydrogen Energy LLC (the Operator) for Nebraska, the Company has 100% owned and operated lease holdings at Nemaha Ridge, which now spans 9,607 net acres across Riley, Geary and Morris Counties in Kansas calibrated by a geological model and historical wells with occurrences of natural hydrogen and helium. The Company has identified multiple targets covering a diverse range of geological plays for natural hydrogen and helium exploration.

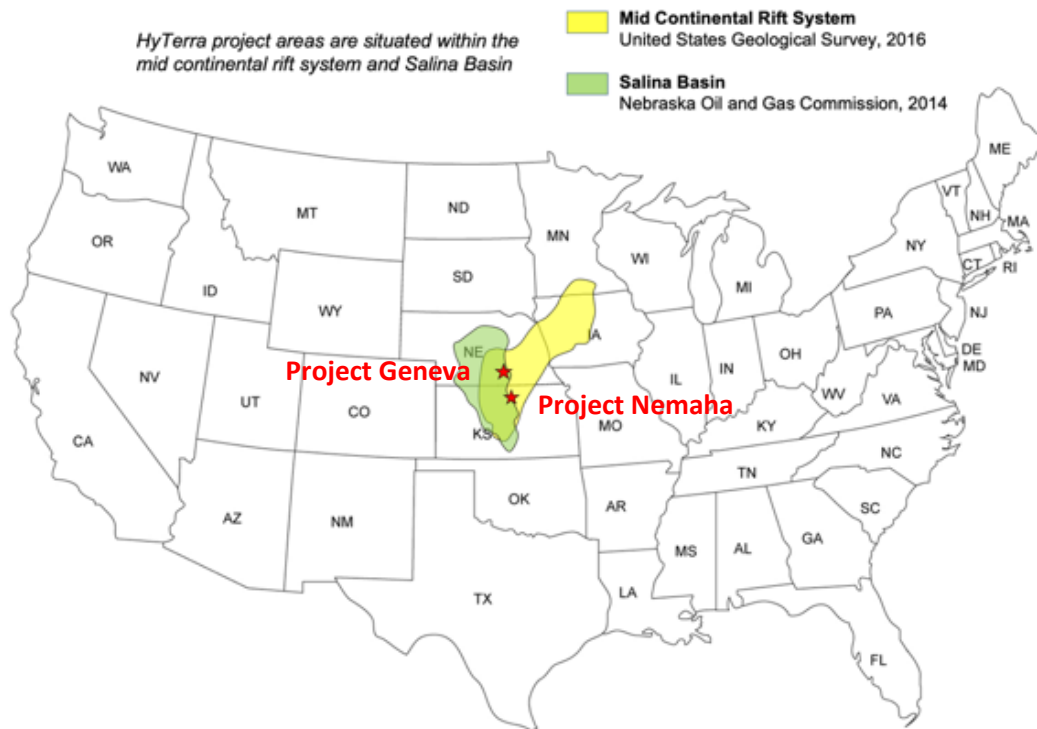


Figure 1: Location of HyTerra's current project areas in the Midwest USA, both situated where the Iron-rich rocks of the Proterozoic Mid Continent Rift System are overlain by the Paleozoic sediments of the Salina Basin. In Kansas, the easternmost extent of the Salina Basin is defined by the Nemaha Ridge, a prominent basement high where multiple hydrogen occurrences have been observed.

In addition to being prospective for hydrogen, the Nemaha Ridge is cored by Precambrian granites which are capable of generating helium and the elements required for a helium system are present. There are documented occurrences of helium within the play area and further along the Nemaha Ridge. These published occurrences are in the Precambrian formations penetrated in the Sue Duroche #2 well with a helium percentage of approximately 3%, and helium of approximately 0.9% reported in various tests from the Heins #1 well in Geary County<sup>1</sup>.

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HyTerra's Nemaha Ridge leases comprise four prospects which have been defined by structural mapping and are fault bounded closures on the western side of the Nemaha Ridge in Eastern Kansas. The play is set up by the Scott #1 well which tested between 42.6% and 56% hydrogen in high quality laboratory tests<sup>1</sup>. The Heins #1, and Sue Duroche #2 wells also had significant hydrogen gas percentages in laboratory analysis<sup>1</sup>. In addition, there are 11 wells with sufficient well log data in which to petrophysically analyse the reservoirs. The prospects, from Northeast to Southwest are Zeandale, Eastern Geary, Central Geary, and Morris North. The Company intends to utilise the Sproule report to underpin a drilling program at Project Nemaha.

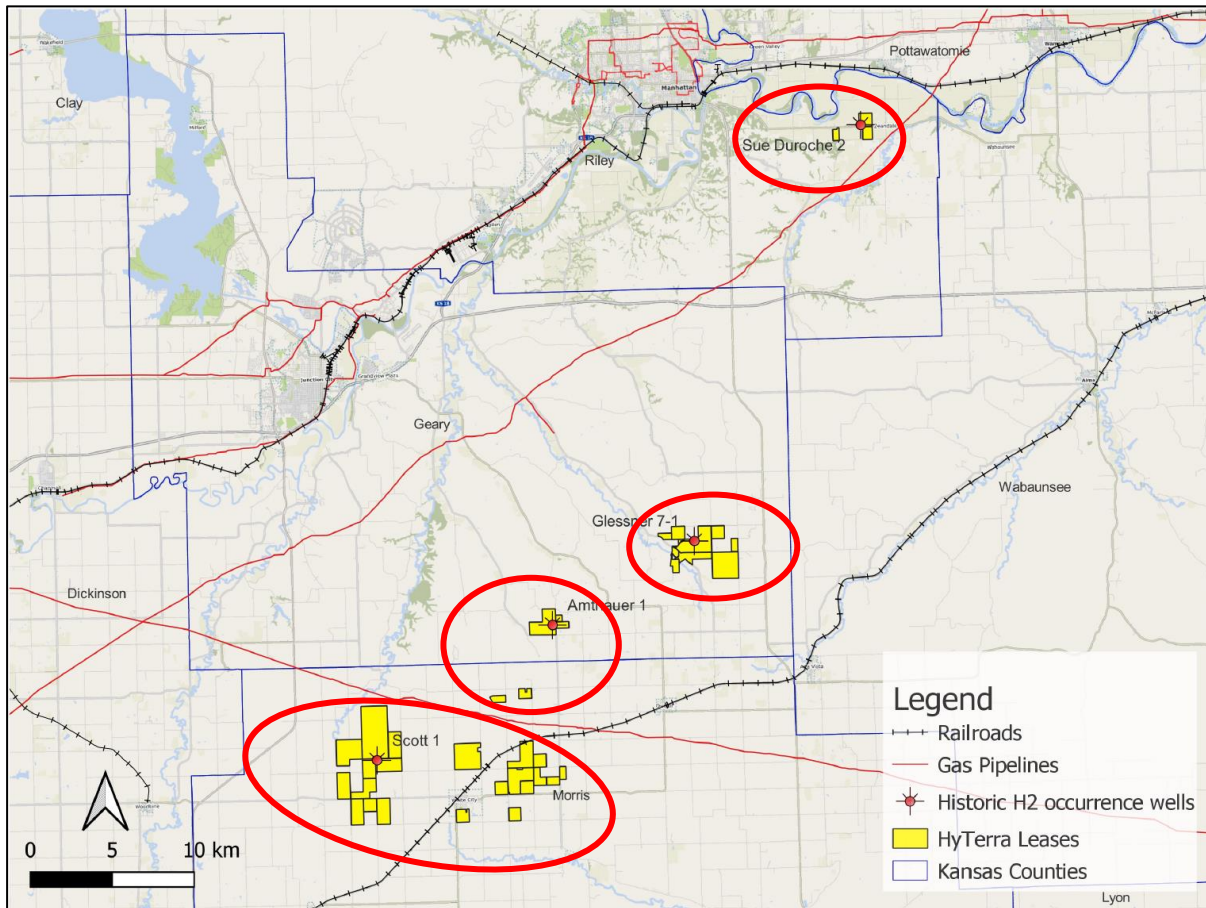


Figure 2: Location map of HyTerra's current Project Nemaha exploration leases in Eastern Kansas; overlain by roads, railroads, gas pipelines and location of historic hydrogen occurrence wells. The four main prospect areas are (from north to south): Zeandale, Eastern Geary, Central Geary and Morris North.

1. Guelard, J., Beaumont, V., Rouchon, V., Guyot, F., Pillot, D., Jezequel, D., et al., 2017. Natural H<sub>2</sub> in Kansas: deep or shallow origin? *Geochem. Geophys. Geosyst.* 18, 1841-1865.

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## PROJECT NEMAHA – PROSPECTIVE HYDROGEN + HELIUM RESOURCES\*

Table 1: Aggregated Net Recoverable Prospective Hydrogen Volumes

Prospect	Reservoir	<u>MMscf</u> P90	<u>MMscf</u> P50	<u>MMscf</u> P10
Central Geary	All	3,747	8,246	19,962
Eastern Geary	All	10,634	22,981	56,904
Morris North	All	32,514	68,333	160,019
Zeandale	Lansing	215	591	1,490
<b>Total</b>	<b>All</b>	<b>47,110</b>	<b>100,151</b>	<b>238,375</b>

Table 2: Aggregated Net Recoverable Prospective Hydrogen weight equivalent (Kg)

Prospect	Reservoir	<u>Kg</u> P90	<u>Kg</u> P50	<u>Kg</u> P10
Central Geary	All	8,887,319	19,558,270	47,346,856
Eastern Geary	All	25,222,246	54,507,470	134,967,715
Morris North	All	77,118,309	162,075,581	379,540,959
Zeandale	Lansing	509,948	1,401,763	3,534,056
<b>TOTAL</b>	<b>All</b>	<b>111,737,822</b>	<b>237,543,083</b>	<b>565,389,585</b>

Table 3: Net Recoverable Prospective Helium Volumes

Prospect	Reservoir	<u>MMscf</u> P90	<u>MMscf</u> P50	<u>MMscf</u> P10
Central Geary	Basement	3	37	134
Eastern Geary	Basement	8	93	312
Morris North	Basement	25	328	1,138
Zeandale	Basement	1	13	45
<b>Total</b>	<b>Basement</b>	<b>37</b>	<b>471</b>	<b>1,629</b>

**\* This estimate of Prospective Resources must be read in conjunction with the notes below. Refer to the Cautionary Statement on Page 1 of this announcement.**

Notes:

1. This resource statement presents HyTerra's Prospective Resources. HyTerra currently has no Reserves and no Contingent Resources.
2. Estimates are assessed to comply with the ASX Listing Rules for Prospective Resources and SPE-PRMS 2018. In August of 2022 the Society of Petroleum Engineers (SPE) published a statement on its website extending the PRMS principles to non-hydrocarbons such as hydrogen and helium and this evaluation follows that guidance.
3. Probabilistic methods are used to prepare the estimates. The distribution of the estimates is the "full distribution" and has not been truncated by application of the MEPS (minimum economic pool size concept).
4. This resource statement: is based on, and fairly represents, information and supporting documentation prepared by the qualified petroleum reserves and resources evaluators listed in Appendix 1
5. Hyterra engaged independent experts Sproule to evaluate reserves and resources.

**This ASX announcement has been authorised for release by the Board of Directors**

For further information please visit the Company's website at [www.hyterra.com](http://www.hyterra.com) or contact:

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**Forward Looking Statement / Future Performance**

This announcement may contain certain forward-looking statements and opinion Forward-looking statements, including projections, forecasts and estimates, are provided as a general guide only and should not be relied on as an indication or guarantee of future performance and involve known and unknown risks, uncertainties, assumptions, contingencies and other important factors, many of which are outside the control of the Company and which are subject to change without notice and could cause the actual results, performance or achievements of the Company to be materially different from the future results, performance or achievements expressed or implied by such statements. Past performance is not necessarily a guide to future performance and no representation or warranty is made as to the likelihood of achievement or reasonableness of any forward-looking statements or other forecast. Nothing contained in this announcement, nor any information made available to you is, or and shall be relied upon as, a promise, representation, warranty or guarantee as to the past, present or the future performance of HyTerra Limited.

**About Sproule *Sproule***

Sproule is a leading independent petroleum engineering and certification firm based in Calgary, Canada with offices in Denver, Colorado which has experience working in most of the significant petroleum provinces throughout the world. Sproule has completed Reserve and Resource assessments for a number of clients in Australia and internationally including Adelaide Energy, Arrow Energy, Bow Energy, ConocoPhillips, CS Energy, Eastern Star Gas, Metgasco Ltd, Molopo Energy Australia, Pure Energy, Santos Ltd, Senex, Sunbird Energy and Sunshine Gas.

## APPENDIX I – Listing Rule 5 Disclosures

### Disclaimers:

**Competent Person Statement Information** – The resources estimate information and supporting documentation referred to in this announcement was reviewed by HyTerra’s Chief Technical Officer and Executive Director, Mr Avon McIntyre, who is a full-time employee of the Company. Mr McIntyre is a qualified oil and gas geologist with over 20 years of international experience. He has extensive experience of oil and gas exploration, appraisal, strategy development and reserve/resource estimation. Mr McIntyre has a BSc, MSc and PhD in geology from The University of Waikato, New Zealand and is a member of The Society of Petroleum Engineers (SPE). Mr McIntyre is qualified in accordance with the ASX Listing Rules and has consented to the form and context in which this statement appears.

### Qualified Petroleum Reserves and Resource Evaluators – Details

At the request of HyTerra Ltd, Sproule Incorporated (“Sproule”) an independent sub-surface consultancy based in Calgary, Canada, has conducted an independent Evaluation of the hydrogen and helium prospectivity in the Kansas counties of Riley, Geary and Morris. This evaluation is a geologic and engineering evaluation using technical and economic data supplied by the Company, and has been assessed as at 1 November 2023 by Jeffrey B. Aldrich and Mark Stouffer. The evaluation contained in this report is prepared in accordance with the Society of Petroleum Engineers (SPE) Petroleum Resources Management (PRMS) guidance and provides a review under a set of assumptions deemed most appropriate by a practitioner. These estimates are also in accordance with both the Australian Securities Exchange (ASX) rules (specifically Listing Rule 5 for Oil and Gas Companies). In August of 2022 the SPE published a statement on its website extending the PRMS principles to non-hydrocarbons such as hydrogen and helium and this evaluation follows that guidance.

Jeffrey B. Aldrich is a Senior Geoscientist in Sproule and is a Certified Petroleum Geologist, #6254, by the American Association of Petroleum Geologists (AAPG) and a Licensed Professional Geoscientist, #394; He is an active member of the AAPG and the Society of Petroleum Engineers (SPE). He has over thirty years as a practicing petroleum geologist/geophysicist and over twenty years of experience in oil and gas reserve evaluations. He is qualified in accordance with ASX listing rule 5.41.

Mark Stouffer is a registered Senior Petroleum Engineer with over 30 years of experience in reservoir and evaluation engineering in the US and internationally. He is a qualified reserves evaluator, as defined in SEC and SPE-PRMS. Mark has managed and participated in several complex reservoir projects in the U.S. Gulf of Mexico, Permian Basin, Green River Basin, DJ Basin, and internationally in Thailand and Hungary.



## APPENDIX 2 - Additional information required under Chapter 5 of the ASX Listing Rules (LR)

### LR 5.25.1

The prospective resources are reported as at 1 November 2023.

### LR 5.25.3, LR 5.25.4

This announcement does not contain disclosure of total petroleum initially-in-place, discovered petroleum-initially-in place, total resource base, estimated ultimate recovery, remaining recoverable resources or hydrocarbon endowment.

### LR 5.25.5

The resources information in this document is reported according to the Company's economic interest in each of the resources of royalties, being 87.5%.

### LR 5.25.6

Sproule has utilized a probabilistic model (Monte Carlo Simulation) to calculate prospective Hydrogen resource volumes for each prospective reservoir in each of the HyTerra Ltd prospect areas.

### LR 5.25.7

Hydrogen is converted to weight equivalent volumes via a constant ratio of 423 cf = 1kg of H<sub>2</sub>

### LR 5.28.4

Totals for Hydrogen where reported in either MMSCF, BCF or tonnes are statistically aggregated.

### LR 5.28.5

No Prospective Resource outside of the property, field or project level has been reported.

LR 5.28.6 The Prospective Resource report does not include financial information.

### LR 5.35.1

The prospective resources are reported for the Project Nemaha leases (refer to Figure 2 for specific leases and lease area). The Project Nemaha leases ("Leases") are all located on private land and mineral exploration rights have been negotiated with each respective mineral rights owner and have various primary terms with each respective mineral rights holder as described in the lease table. In all leases the royalty to the mineral rights owner is 1/8th (12.5%). The net economic interest to HyTerra is therefore calculated as 87.5% and the Net Entitlement Prospective Resources have been calculated on this basis. The leases do not include any minimum work commitments.

### LR 5.35.2

Gravity and magnetic data and maps that HyTerra have used have defined prospect areas currently exceed their leased position on each prospect. Thus Sproule has used the lease acreage position for the area of each prospect as a given value without any variation. Sproule reviewed and accepted the petrophysical analysis on 11 wells provided by HyTerra for reservoir properties, and various publications describing the hydrogen and helium concentrations observed in historic wells provided information for gas composition. The prospective resources estimates have been supplied by Sproule and prepared in accordance with the Society of Petroleum Engineers (SPE) 2018 Petroleum

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Resource Management System (PRMS). Work is ongoing in these leases, including interpretation of recently acquired legacy 2D seismic surveys and updating of prospective resource parameters from ongoing well data analysis.

#### LR 5.35.3

The Prospective Resource estimates are quoted on an unrisks basis. The unrisks mean total presented in the table is not representative of the expected total from the four prospects and assumes a success case in all four prospects. Risk analysis in prospective helium systems requires an evaluation of the source, the migration path and timing, the reservoir, and the seals. If there is a commercial helium field within the play area, the Play Risk is zero or conversely the Play Chance of Success (CoS) is equal to 1.0. If there are no commercial helium field within the play area, both the Play CoS and the individual prospect CoS must be evaluated separately. In HyTerra's Eastern Kansas Prospect Area there are no current commercial helium fields. Therefore, the helium play CoS must be evaluated. Overall, the source potential has been shown to be adequate as there are measured helium samples taken from wells within the play area that are of commercial grade. These samples demonstrate that on a PLAY level there is a helium source, migration system, reservoir, and seal that exists. On individual prospect levels, three of the four prospects identified by HyTerra are properly categorized as LEAD within the PRMS. There is yet to be identified, or possibly quantified, all of the data sufficient in order to make a commitment to drill an exploration well. The Zeandale prospect is identified as a Prospect as it will be an offset to an existing helium discovery well, the Sue Duroche #2. Sue Duroche #2 well encountered 3% helium within Precambrian basement rocks, and it has existing laboratory gas analysis to confirm the helium concentration. Thus, the source, migration, and seal risk have been eliminated. What has not been resolved is the uncertainty around both the net thickness, and the area of the trap in order to calculate an accurate volume of recoverable helium. Additionally, the pressure and reservoir performance are unknown, therefore, the unlimited recovery has uncertainty. The other three leads have some amount of risk associated with having adequate source, migration, and trap, in addition to the same reservoir uncertainties as the Zeandale Prospect.

Risk analysis in prospective hydrogen systems requires an evaluation of the source, the migration path and timing, the reservoir, and the seals. If there is a commercial hydrogen field within the play area the Play Risk is zero, or conversely the Play Chance of Success (CoS) is equal to 1.0. If there are no commercial hydrogen fields within the pay area, both the Play CoS and the individuals prospect CoS must be Evaluated separately. On HyTerra's Eastern Kansas Prospect Area there are no current commercial hydrogen fields; in fact, gold or native hydrogen fields, are not currently commercial anywhere in North America although exploration for them has just begun and the potential for these type of fields is very large. Therefore, the hydrogen play CoS must be evaluated. Overall, the source potential has been shown to be adequate as there are measured hydrogen samples taken from wells within the play area are of commercial grade; namely the Scott #1 and the Heins #1. These samples demonstrate that on a PLAY level there is a hydrogen source, migration systems reservoir, and the seal that exists. On individual prospect levels the four prospects identified by HyTerra are properly categorized as LEADS within the PRM. There is yet to be identified, or possibly quantified, all of the data sufficient in order to make a commitment to drill an exploration well. The largest risk for each of these leads appears to be the Reservoir; the areal extent (closure), the net pay (thickness), reservoir continuity, pressure, and reservoir performance. The second risk and largest uncertainty is the hydrogen percentage within the trapped gas. As these uncertainties are reduced the projects will be matured from Leads to Prospects and as they are drilled into Contingent Resources and once shown to be commercial then into Reserves.





LR 5.35.4

Risked estimates were not reported.

LR 5.41

The prospective resources estimates have been supplied by Sproule and prepared in accordance with the Society of Petroleum Engineers (SPE) 2018 Petroleum Resource Management System (PRMS).

LR 5.42 (a)

The Sproule Report is based on, and fairly represents, information and supporting documentation prepared by qualified petroleum reserves and resources evaluator or evaluators

LR 5.42 (b)

None of the staff involved in the production of the Reserves and Resources Report have any affiliation with the Company or its affiliates.

LR 5.42 (c)

Professional associations of the lead certifiers are described in Appendix 1.

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**SPE definition: Prospective Resources**

Prospective Resources are estimated volumes associated with undiscovered accumulations. These represent quantities of petroleum which are estimated, as of a given date, to be potentially recoverable from oil and gas deposits identified on the basis of indirect evidence but which have not yet been drilled. This class represents a higher risk than contingent resources since the risk of discovery is also added. For prospective resources to become classified as contingent resources, hydrocarbons must be discovered, the accumulations must be further evaluated and an estimate of quantities that would be recoverable under appropriate development project(s) prepared.

**Glossary of Key Terms**

<i>P90 (1U)</i>	Denotes the unrisks low estimate qualifying as Prospective Resources.
<i>P50 (2U)</i>	Denotes the unrisks best estimate qualifying as Prospective Resources
<i>P10 (3U)</i>	Denotes the unrisks high estimate qualifying as Prospective Resources
<i>BOE</i>	Barrels of oil equivalent
<i>Bnbbbl</i>	Billion barrels of oil
<i>Chance</i>	Chance equals 1-risk. Generally synonymous with likelihood.
<i>Chance of Development</i>	The estimated probability that a known accumulation, once discovered, will be commercially developed.
<i>Entitlement</i>	That portion of future production (and thus resources) legally accruing to an entity under the terms of the development and production contract or license.
<i>Bcf</i>	Billion cubic feet of gas
<i>MMscf</i>	Million cubic feet of gas
<i>Prospect</i>	A project associated with a potential accumulation that is sufficiently well defined to represent a viable drilling target.
<i>Prospective Resources</i>	Those quantities of petroleum that are estimated, as of a given date, to be potentially recoverable from undiscovered accumulations.
<i>Reservoir</i>	A subsurface rock formation that contains an individual and separate natural accumulation of petroleum that is confined by impermeable barriers, pressure systems, or fluid regimes (conventional reservoirs), or is confined by hydraulic fracture barriers or fluid regimes (unconventional reservoirs).
<i>Royalty</i>	A type of entitlement interest in a resource that is free and clear of the costs and expenses of development and production to the royalty interest owner. A royalty is commonly retained by a resources owner (lessor/host) when granting rights to a producer (lessee/contractor) to develop and produce that resource. Depending on the specific terms defining the royalty, the payment obligation may be expressed in monetary terms as a portion of the proceeds of production or as a right to take a portion of production in-kind. The royalty terms may also provide the option to switch between forms of payment at discretion of the royalty owner.