

6 November 2023
ASX Announcement

Ramsay Project Update
Execution of MOU's for Hydrogen Pilot Plant
Collaboration

Highlights:

- **Two non-binding Memorandums of Understanding (MOU) signed with Wasco Energy and H2Site for the parties to collaborate on a proof-of-concept natural hydrogen pilot project on the Yorke Peninsula.**
- **Gold Hydrogen, Wasco Energy and H2Site will work together to develop the design of a natural hydrogen pilot plant to be installed on the Yorke Peninsula, subject to the results of the Company's maiden drilling campaign.**

Further to its previous market releases relating to its flagship Ramsay Natural Hydrogen Project, the Directors of Gold Hydrogen Limited (**Gold Hydrogen, ASX: GHY, the Company**) are pleased to announce that the Company has signed two separate non-binding Memorandums of Understanding (MOU's) to enable the fast-tracking of a proof-of-concept hydrogen pilot plant, subject to the overall results of Gold Hydrogen's maiden drilling campaign, which is currently in progress. The 'concept' simply being that if natural hydrogen can be produced from the subsurface as part of a raw gas stream, then that raw gas can be processed at surface to yield a high purity hydrogen gas which can be used as an energy source.

The MOU's outline how the Company will work with Wasco Energy and H2Site to review the suitability of current hydrogen purification systems to facilitate a saleable hydrogen product to be compressed on site. As a proof-of-concept, the compressed hydrogen could then be sold into the local market or used for power generation (eg. via a hydrogen fuel cell). This would represent an important step in the process of enabling the full potential of the Ramsay area to be evaluated from a commercial perspective, and would also create the first natural hydrogen pilot plant in Australia.

If ultimately pursued and successful, such a proof-of-concept project would represent the achievement of further milestones in the Company's Ramsay Project objectives, as outlined below.

Ramsay Project Objectives

From a technical perspective, the primary objectives of the Ramsay Project are to:

- (i) progress its natural hydrogen Prospective Resources to Contingent Resources and/or Reserves. This will involve the processes of discovery, appraisal and commercialisation; and
- (ii) mature portions of the granted title PEL 687 to Production Licence areas.

Historically, natural hydrogen gas was recovered in three samples taken in Ramsay Oil Bore 1 drilled in 1931. The historical gas samples were taken at depths of 240.8m, 262.1m and 507.8m, all indicated as being within the Cambrian Parara Limestone.

Maiden Drilling Campaign

As published in detail by the Company on 31 October 2023, drilling operations on the first dedicated natural hydrogen exploration well in Australia, Ramsay 1, were completed on 28 October 2023. The well reached a total depth of 1005m measured depth (**MD**). Mud gas samples collected from the levels above the top of a complex limestone fracture zone encountered at 316mMD showed air-corrected hydrogen levels of up to 73.3%, with the highest level measured from a sample collected from 240mMD. This hydrogen level aligns with the measurement taken while drilling the historic Ramsay Oil Bore 1 in 1931, which recorded an air-corrected hydrogen level of 76% at 240.8m. Multiple other samples returned hydrogen contents at elevated levels. This demonstrated that the measurements taken during the drilling of the historic Ramsay Oil Bore 1 were capable of being replicated with modern drilling processes, and confirmed that there is a hydrogen play present at the location of the Ramsay Natural Hydrogen project.

Furthermore, whilst gas sampling with the formation testing tool was compromised due to the heavily fractured nature of the zones selected for testing, a sample recovered from the interval at 892mMD was analysed for formation fluid composition, and the associated gas revealed an air-corrected helium content of up to 3.6%. This suggests that the basement is generating helium in significant amounts, and that the overlying weathered zone may act as a reservoir retaining the helium in commercial concentrations.

On the basis of the results from Ramsay 1, the Company has elected to proceed with the drilling of the Ramsay 2 well, situated approximately 450m to the west of Ramsay 1. The technical objectives of Ramsay 2 will be similar to Ramsay 1 in terms of well depth and target formations, and Ramsay 2 is scheduled to be drilled within the November-December 2023 period.

It is important to note that there remain both geological and potential development risks associated with the Ramsay Project and the Company's commercial and business objectives. These risks relate to the presence, recovery and potential volumes of hydrogen, but also due to the location of the resource within agricultural areas and the proximity to National Parks on both Yorke Peninsula and Kangaroo Island, requiring significant landholder and community engagement. The worldwide, Federal and South Australian Government and industry efforts to secure hydrogen as an alternative energy source provides confidence that any technical and social concerns may be overcome.

About Gold Hydrogen

Gold Hydrogen is focused on the discovery and development of world class natural hydrogen gas in a potentially extensive natural hydrogen province in South Australia. This region has only recently had its natural hydrogen potential identified by the Company. The domestic and global demand for hydrogen, combined with new natural hydrogen exploration techniques and experienced personnel, provides Gold Hydrogen with an extraordinary opportunity to define and ultimately develop a new natural hydrogen gas province.

The combined natural hydrogen permit area of the Gold Hydrogen group is approximately 75,332km². Gold Hydrogen holds one granted petroleum exploration license (the Ramsay Project - PEL 687) and its two 100% owned subsidiary companies (White Hydrogen Australia and Byrock Resources) hold an additional seven (7) applications for natural hydrogen exploration within South Australia.

The Company's Prospective Resource Statement is attached as **Table 1**.

Gold Hydrogen is also the preferred applicant for four (4) gas storage exploration licenses applications (GSELA) covering an area of 8,107km² within the Yorke Peninsula portion of PEL 687 in South Australia. These storage licence applications are in addition to the granted exploration licence and application licences.

The group's permit areas are characterised by low population densities, cooperative stakeholders and aspects of the natural environment suited to the exploration and development of a future natural hydrogen gas province. Gold Hydrogen places considerable importance on close liaison with landholders, traditional owners and all other stakeholders, and this approach has led to the grant of its key tenement PEL 687 in South Australia. The Company intends to continue to invest in these efforts.

About Wasco Energy

Wasco has worked with a number of customers on concept, FEED and delivery for hydrogen production, storage and export facilities. Wasco has worked on projects that range from sub 500kW to 72MW electrolyser hydrogen production facilities with associated power, water, cooling, conditioning, compression, liquification, storage, dispensing and transport in Queensland, New South Wales, South Australia and Western Australia. As an EPC services provider, Wasco works with partner designers, OEM, vendors and local service providers.

About H2Site

H2Site is a Spanish-based company that develops, designs and manufactures integrated membrane reactor units for the separation and purification of hydrogen from a blended gas stream. Their systems are scalable and will allow gas streams from drilled wells to be purified to a 99.99% pure hydrogen stream, suitable for fuel cells, without any moving parts.

Further Information

Further information on the Gold Hydrogen group, its projects, and its Board and Management can be found on the Company's website (www.goldhydrogen.com.au) together with a copy of the Company's Replacement Prospectus of 29 November 2022.

Gold Hydrogen also has accounts on LinkedIn and Twitter ([@GHY ASX](https://twitter.com/GHY_ASX)), and copies of market releases will be emailed to all interested parties who register via info@goldhydrogen.com.au

This announcement has been authorised for release by the Board.

On behalf of the Board
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QPRRE Statement

The Prospective Resource Statement in this announcement is based on, and fairly represents, information and supporting documentation prepared by independent consultants "Teof Rodrigues & Associates" with an effective date of 30 September 2021, and which forms part of the Company's Replacement Prospectus dated 29 November 2022. The Prospective Resource Statement, together with all relevant notes, also appears in the Company's ASX release of 13 January 2023.

The Prospective Resource Statement has been included in this announcement under the approval of Mr Billy Hadi Subrata, Chief Engineer for Gold Hydrogen, who is a Qualified Petroleum Reserves and Resources Evaluator. Mr Hadi Subrata confirms that, as at the date of this announcement, there is no change to information or additional information, since the effective date of 30 September 2021, that would materially change the estimates of prospective resources quoted.

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 Gold Hydrogen Limited.

Table 1 – Prospective Resource Statement for Natural Hydrogen

Gold Hydrogen’s Ramsay Project: Prospective Resources* of Hydrogen in ‘000 Tonnes – 30 Sept 2021										
PEL	Prospects	SPE PRMS Sub-class	1U Low Estimate	2U Best Estimate	Mean	3U High Estimate		Pg	Pd	Pc
PEL 687	All Prospects and Leads		207	1,313	4,187	8,820		22%	48%	10%
Yorke Peninsula										
PEL 687	Ramsay FB	Prospect	124	931	2,712	6,989		22%	50%	11%
PEL 687	Ramsay Lst	Prospect	10	70	191	492		26%	50%	13%
PEL 687	Maitland	Lead	7	26	40	92		17%	35%	6%
Kangaroo Island										
PEL 687	Navigator	Lead	34	152	280	678		19%	40%	8%
PEL 687	Kanmantoo	Prospect	32	134	237	569		25%	40%	10%

***This estimate of Natural Hydrogen Prospective Resources must be read in conjunction with the notes in the Company's ASX release of 13 January 2023.**

It should be noted that the estimated quantities of Natural Hydrogen 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.