25 July 2023

ASX Announcement

Ramsay Project Update

Results of CSIRO Experimental Soil-Gas Survey

Highlights:

- **CSIRO has undertaken an experimental Stage 1 soil gas testing survey on Yorke Peninsula with the aim of determining whether hydrogen gas is detectable in soils at surface.**
- **The test work results reported to Gold Hydrogen indicate that CSIRO detected Hydrogen (H2) in soils in multiple locations.**
- **Analysis of the locations suggest H2 seepage near geological faults implies that H2 has been generated in the subsurface, migrated upwards, and may have filled a suitable subsurface reservoir covered by a baffle or a seal preventing escape from the accumulation, which is consistent with the thesis of naturally occurring H2 accumulation in the project area.**
- **The results have positive implications and support the strategy for the site selection of the Ramsay H1 well location. This well is on track to be spudded in October 2023.**
- **A positive surprise in the testing was the presence of Helium (He) in multiple locations on PEL 687, and further studies will be undertaken in due course to further understand the implications of this result.**
- **Further CSIRO research and development is continuing, and this data will be used to help identify further leads and prospects for the Ramsay Project.**
- **Planning is in place to accelerate a second well at the Company's option.**

The Directors of Gold Hydrogen Limited (Gold Hydrogen, ASX: GHY) are pleased to report on the results from the Company's experimental Stage 1 soil gas survey undertaken by the Commonwealth Scientific and Industrial Research Organisation (CSIRO) across the mainland component of Ramsay Project (PEL 687) in South Australia **(refer Location Map).**

As part of Gold Hydrogen's experimental research and development activities being carried by CSIRO, the first stage of the soil-gas survey has been completed and findings reported. This first stage, of the two-stage research and development soil-gas survey, was trialled to determine whether hydrogen gas can be detected in soils at surface above potentially prospective natural hydrogen locations, noting that historical drilling activities recorded occurrences of up to 90% hydrogen (air corrected) in PEL 687 from depths >240-meters.

Gold Hydrogen can report that CSIRO has detected hydrogen in the soil-gas survey on the project area with measured levels of hydrogen described as potentially indicating natural hydrogen seeps, with measured values noted as moderate at a few locations.

Gold Hydrogen's independent technical experts noted that the results at strategic locations are particularly encouraging since they are near geological faults that extend down into the basement rocks expected to be the source of the hydrogen, and these specific faults delineate the area used to determine the P90 Prospective Resource for the Ramsay Project.

The independent technical experts having reviewed the report have a view that the seepage along these faults could imply that hydrogen has been generated in the subsurface, migrated upwards, and may have filled a suitable subsurface reservoir covered by a seal preventing escape of the accumulation. This supports the Company's belief that there is a naturally occurring hydrogen accumulation in its Ramsay Project area.

Gold Hydrogen regards the Stage 1 soil-gas survey results as encouraging but notes that the only sure way to determine if there is a hydrogen accumulation in the area is to drill one or more wells, the first of which it plans to drill in October 2023. The results of the well(s) will be integrated with the interpretations of the reprocessed seismic, airborne magnetic surveys and the soil test results to assist with further exploration planning.

As part of this Stage 1 soil-gas testing program, the presence of Helium (He) was encountered in multiple locations over the project area. The natural decay of geological elements in the crust is possible for the generation of helium. Further studies are required to understand the helium values generated, their source, and whether it is in a preserved system. When the Company drills in October, its gas analysing system will check for helium as well as hydrogen.

The second stage soil-gas survey exploration technique would involve long-term measurement, and this has been tentatively scheduled for late 2023 – early 2024.

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 samples were taken at depths of 240.8m, 262.1m and 507.8m, all indicated as being within the Cambrian Parara Limestone. The Company's Prospective Resource Statement is attached as Table 1.

The first exploration well to be drilled by Gold Hydrogen (Ramsay H1) is being designed and located to verify the findings of the historic Ramsay Oil Bore 1 in order to mature the historical occurrences of natural hydrogen to a 'discovery' for resource evaluation and reporting purposes. Exploration wells need to be drilled, evaluated and tested to determine the presence, producibility, extent and thus 'discovery' of hydrogen from the geological reservoirs.

It is important to note that there are both geological and potential development risks associated with the Ramsay Project and the Company's objectives as outlined above. These risks relate to the presence, producibility 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, National 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 75,332km^2. 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.

Gold Hydrogen is also the preferred applicant for four (4) gas storage exploration licenses applications (GSELA) covering an area of 8,107km^2 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.

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), and copies of market releases will be emailed to all interested parties who register via info@goldhydrogen.com.au

The Board looks forward to providing regular updates to the market as preliminary exploration efforts continue on the Company's flagship Ramsay Project.

This announcement has been authorised for release by the Board.
On behalf of the Board
Karl Schlobohm
Company Secretary

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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.

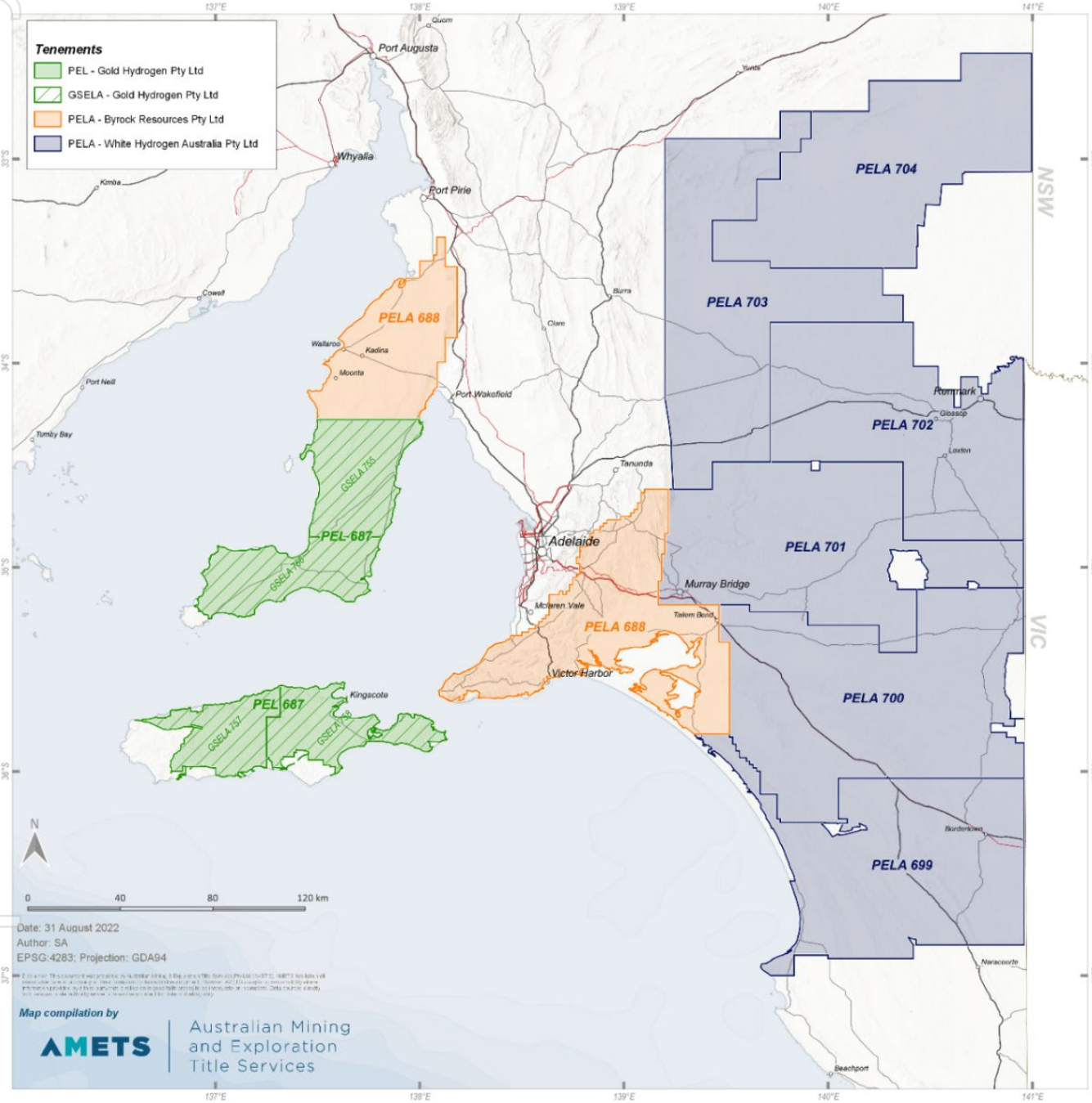
Table 1 – Prospective Resource Statement for Natural Hydrogen

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.

The Company confirms that it is not aware of any further new information or data that materially affects the estimates of Natural Hydrogen Prospective Resources (as originally estimated on 30 September 2021), and that all material assumptions and technical parameters underpinning the estimates continue to apply and have not materially changed.



Location Map – Gold Hydrogen Group tenement and areas under application located in South Australia.