

**3 May 2023**

**ASX Announcement**

**Project Ramsay Airborne Geophysical and Soil-Gas Surveys Completed**

**Highlights:**

- The Xcalibur airborne geophysical survey and the Stage 1 soil-gas survey conducted by Commonwealth Scientific and Industrial Research Organisation (CSIRO) on the mainland component of the 100% owned Ramsay Project (PEL 687) have both been completed with no safety or environmental incidents.
- The gravity-magnetic-digital terrain geophysical survey acquired ~10,529-line km of data and will now progress through a series of processing and geological interpretation workflows that are expected to be completed by early July 2023. This survey is a valuable exploration tool designed to assist in identifying, prioritizing, and refining future natural hydrogen targets for Stage One drilling, which is expected to commence in Q3 CY2023.
- Subject to CSIRO finalising the first stage soil-gas results in the next months, this potential two-stage research and development survey is being 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 in PEL 687 from depths >240-meters. The second stage long-term measurement soil-gas survey exploration technique has been tentatively scheduled for late 2023 – early 2024.
- Gold Hydrogen controls a commanding position in South Australia with a combined natural hydrogen permit and application area of approximately 75,332 km<sup>2</sup>. The Company's granted permit PEL 687 has an independently assessed Best Estimate Prospective Resource of 1.3 billion kilograms of natural hydrogen gas (refer Table 1).
- Gold Hydrogen believes significant upside potential exists for deeper hydrogen sources and reservoirs throughout the Ramsay Project at untested depths from approximately 500m to 4,500m. It is Gold Hydrogen's intention to drill at these untested depths in due course and create a pathway to commercial extraction.

The Directors of Gold Hydrogen Limited (Gold Hydrogen, ASX: GHY, the Company) are pleased to confirm that the Company's contractor, Xcalibur Multiphysics has completed the acquisition of the Stage 1 non-invasive 10,529-line km at 500-metre spacing airborne gravity-magnetic-digital terrain survey (**refer Figure 1**) and the Commonwealth Scientific and Industrial Research Organisation (CSIRO) has completed the first of a two stage non-invasive soil-gas reconnaissance survey across the mainland component of Ramsay Project (PEL 687) in South Australia (**refer Figure 2**).

In February 2023 the Company received approval for the acquisition of an airborne gravity-magnetic-digital terrain survey. The acquired data will now be processed and interpreted with an initial product produced by early July 2023. Often after this interpretation is complete, the resulting elevated subsurface definition across the surveyed area can be broken down into geological domains, prioritized by prospectivity, and also act as guide for future activities, which enables operations to be more focused and less impactful to surface owners and the community.

Further, the technical data produced from the airborne survey will be incorporated in both static and dynamic subsurface models and will become a strategic tool for high-grading potential areas for possible seismic acquisition, play, lead, and prospect analysis, new drilling, and associated well testing to support maturing the Company's independently assessed Prospective Resource (**refer Table 1**), advancing the title to a production license, and generating a field development plan. The Company's current key work streams are outlined in **Table 2**.

In early April 2023, the Company received approval for the conduct of the first stage soil-gas reconnaissance survey. This soil-gas exploration technique is being experimentally trialled to test for small quantities (often a few ppm) of hydrogen, using an instantaneous measurement exploration technique on approximately 80 pre-determined survey points that are located in the road reserves of public roads on the Yorke Peninsula.

The first stage soil-gas reconnaissance survey points were located geologically along the recently reprocessed 2D seismic lines, above various potential natural hydrogen source rocks and Cambrian stratigraphy, near existing occurrences of natural hydrogen from historic wellbores, recently mapped static model faults and subsurface structures and possible fairy circles.

It is anticipated, subject to CSIRO finalising the first stage results in the next months, the trialled instantaneous sampling methodology may be inconclusive due to issues including, but not limited to, inconsistent and repeatable hydrogen readings, hard soils and shallow bedrock encountered while hand drilling at the reconnaissance survey points located in the road reserves of public roads.

Based on this first attempt and trial of the methodology, further recommendations could be made to the instantaneous sampling methodology, sample location selection (including private lots) and gas analysis techniques to potentially improve consistent repeatability. The second stage soil-gas survey, tentatively scheduled for late 2023-early 2024, is being trialled to also test for small quantities of hydrogen accept this proposed technique uses a ground-based system designed to sample a given survey point over a period of weeks.

## 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<sup>2</sup>. 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<sup>2</sup> 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.

## 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](http://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](mailto:info@goldhydrogen.com.au)

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The Board looks forward to providing regular updates to the market as preliminary exploration efforts commence 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 Luke Titus, Executive Director of Gold Hydrogen, who is a Qualified Petroleum Reserves and Resources Evaluator. Mr Titus 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**

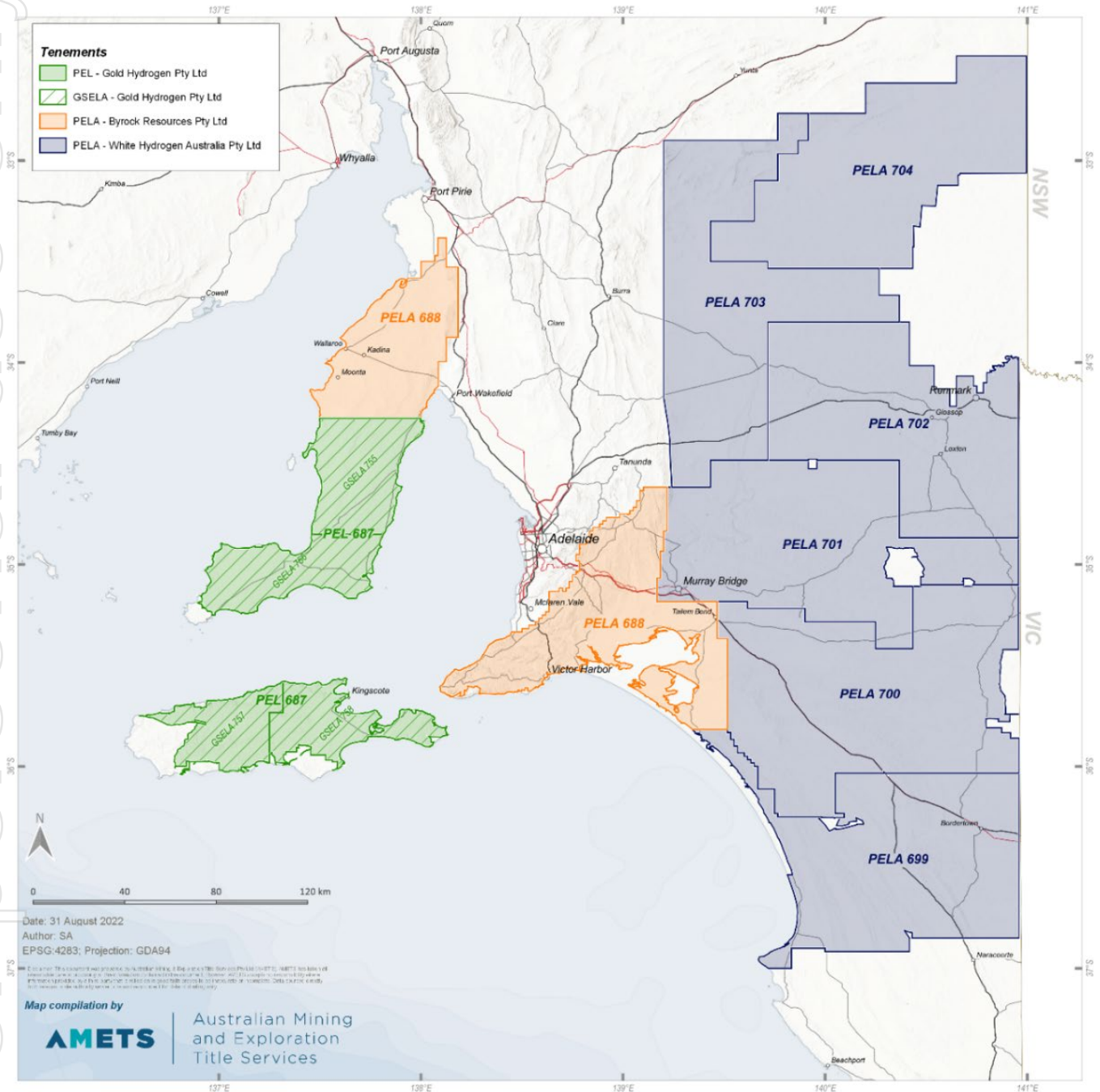
Gold Hydrogen’s Ramsay Project: Prospective Resources* of Hydrogen in ‘000 Tonnes – 30 Sept 2021										
PEL	Prospects	SPE PRMS Sub-class	1U Low Estimate	2U Best Estimate	Mean	3U High Estimate		Pg	Pd	Pc
PEL 687	All Prospects and Leads		207	1,313	4,187	8,820		22%	48%	10%
Yorke Peninsula										
PEL 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.

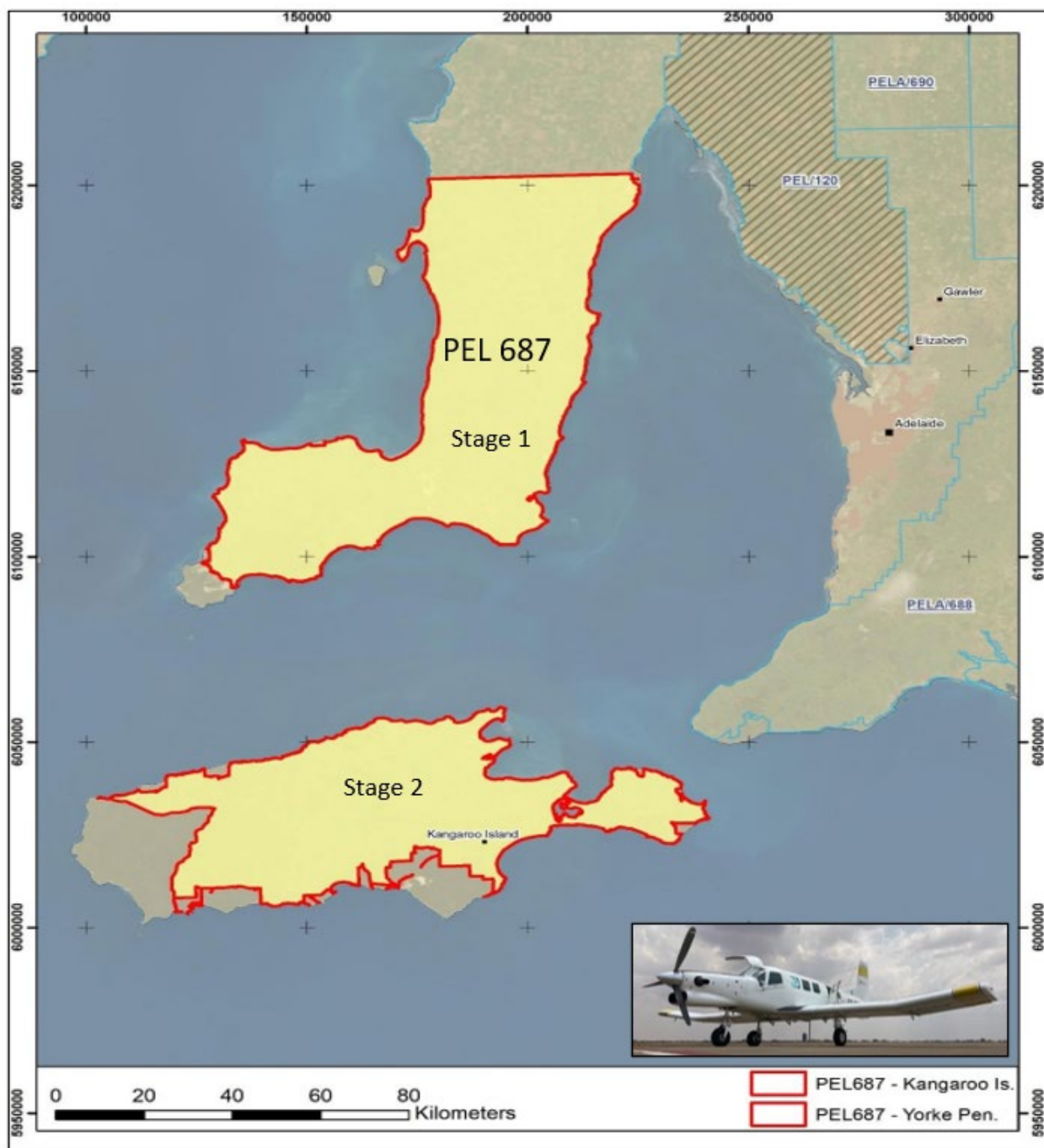
It should be noted that the estimated quantities of Natural Hydrogen that may potentially be recovered by the application of a future development project(s) relate to undiscovered accumulations. These estimates have both an associated risk of discovery and a risk of development. Further exploration, appraisal and evaluation is required to determine the existence of a significant quantity of potentially recoverable Natural Hydrogen.

**Table 2 – Key Activities and Milestones**

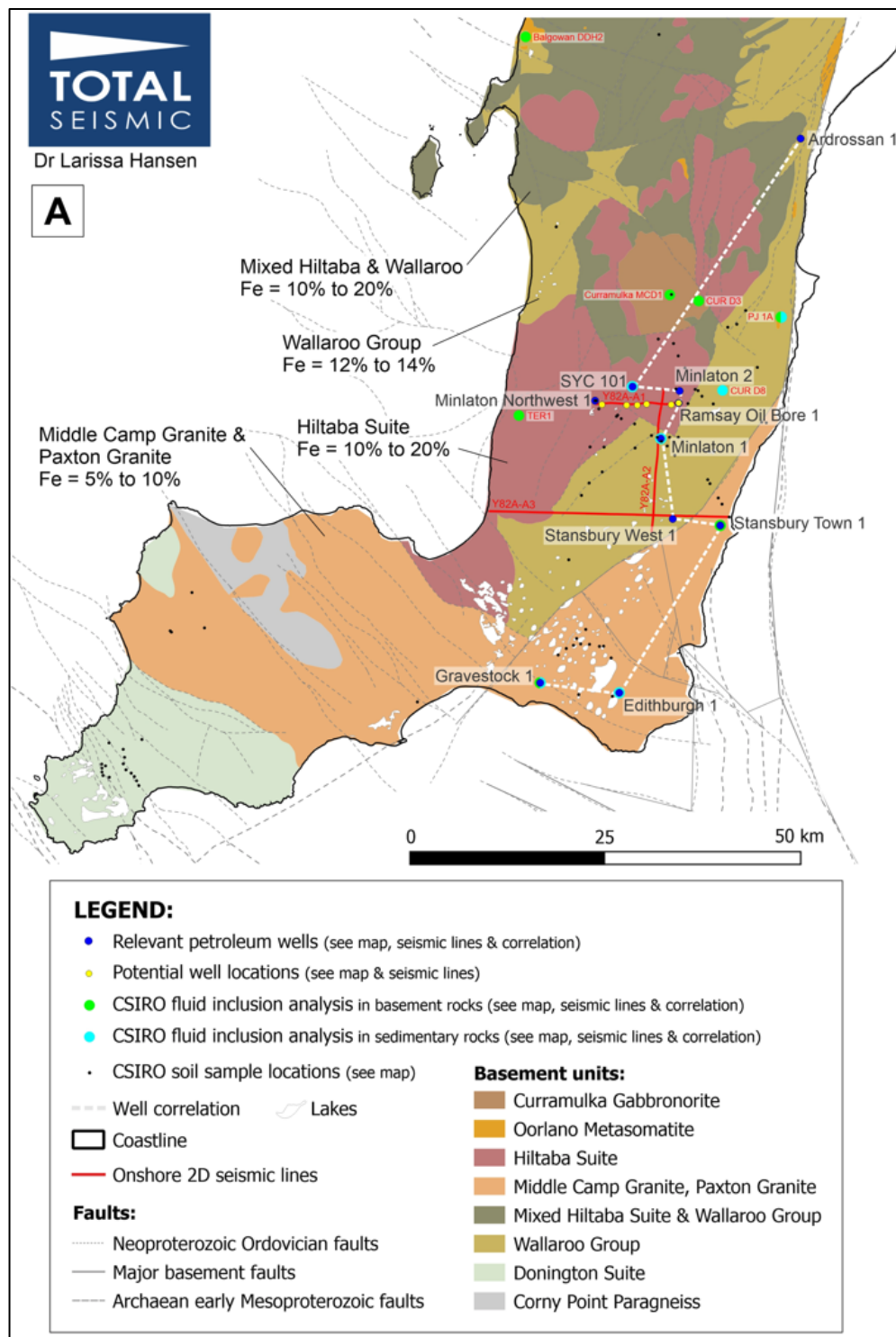
Activity	Timeline	Objectives / Opportunities
<b>Reprocessed seismic data</b>	Completed	<ul style="list-style-type: none"> <li>Results to date confirm: <ul style="list-style-type: none"> <li>the existing Ramsay Project discovery is in a good geological setting, i.e. potentially good reservoir</li> <li>existing iron rich source rocks and identification of further natural hydrogen targets</li> </ul> </li> <li>Now integrating data with static and dynamic models to identify additional prospects</li> </ul>
<b>Airborne Survey &amp; Soil-gas Survey</b>	March-April 2023	<ul style="list-style-type: none"> <li>Assist in identifying, prioritising, and refining natural hydrogen targets by highlighting areas of higher prospectivity.</li> <li>Supports and guides ongoing work program activities.</li> </ul>
<b>Drilling</b>	Scheduled for Sept/Oct 2023	<ul style="list-style-type: none"> <li>‘Twinning’ the historic Ramsay Well to confirm hydrogen is present as identified in 1920’s-30’s</li> <li>Hydrogen is anticipated but we will test for all gases including helium.</li> </ul>
<b>Application tenements, PEL(A) 688 and six other tenements</b>	Progressing to grant over the next 12 months	<ul style="list-style-type: none"> <li>PEL(A) 688 adjoins PEL 687</li> <li>Independent expert assessment indicates possible future prospective resources can be booked once it is granted.</li> </ul>
<b>Storage licences</b>	Applications pending	<ul style="list-style-type: none"> <li>Provides opportunity to store gas (hydrogen or other) in natural underground reservoirs should they be identified.</li> </ul>
<b>Commercial relationships</b>	In discussion	<ul style="list-style-type: none"> <li>Looking to implement MoU’s with: <ul style="list-style-type: none"> <li>Manufacturers (H2 as energy for heating)</li> <li>Electricity producers (H2 fuel cells)</li> <li>Infrastructure companies (pipelines etc)</li> </ul> </li> <li>Interest received from world major oil and gas companies</li> </ul>



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



**Figure 1 - Location Map of Gold Hydrogen Ramsay Project Stage1 airborne geophysical survey March 2023.**



**Figure 2 - Location Map of Gold Hydrogen Ramsay Project Stage1 soil-gas survey April 2023.**