



## Quarterly Activities Report

### Quarter Ending 30 June 2022

Helios Energy Ltd (ASX Code: HE8) (**Helios** or **Company**) is pleased to report its activities for the quarter ended 30 June 2022.

### Successful Drilling of Presidio 52#1 Well

During the quarter the Presidio 52#1 well was successfully drilled to a total depth (**TD**) of 8,806 feet. During drilling to 8,806 feet, the Presidio 52#1 well encountered the lower bench of the Ojinaga Formation (primary target) but also the Eagle Ford Shale Formation (secondary target) as well as two older (deeper) Cretaceous units being the Buda and Georgetown Formations (both secondary targets).

### Lower Bench of the Ojinaga Formation

The lower bench of the Ojinaga Formation was encountered during drilling at the depth of 6,632 feet and the lower bench of the Ojinaga Formation is 793 feet thick. Helios has successfully tested and produced oil from all the three wells it has drilled which have penetrated the Ojinaga Formation. The oil analysis shows that the oil in the Ojinaga Formation is sourced from the Eagle Ford Shale Formation.

### Eagle Ford Shale

The Eagle Ford Shale was encountered during drilling at a depth of 7,425 feet and is 836 feet thick (with the deepest 235 feet also referred to as the Boquillas Formation).

### Very good to excellent oil and gas shows

Very good to excellent oil and gas shows were observed throughout the drilling of the entire lower bench of the Ojinaga Formation and throughout the drilling of the entire Eagle Ford Formation (which includes the 235 feet of the Boquillas Formation which ends at the casing point in the Presidio 52#1 well of 8,255 feet).

Gas was consistently high throughout the drilling through the entire lower bench of the Ojinaga Formation and throughout the drilling of the entire Eagle Ford Formation and reached over 8,000 units. From the gas isotope analysis, it shows the wetness ratios are between 24-30% which corresponds to oil associated gas in the genetic gas classification.

ASX Code: HE8

### Directors

Hui Ye  
Non-Executive Chairman  
Richard He  
Managing Director  
Robert Bearden  
Non-Executive Director  
Nicholas Ong  
Non-Executive Director  
John Palermo  
Company Secretary

### Contact Details

#### Australian Office

Level 3, 18 Richardson Street  
West Perth WA 6005 Australia  
PO Box 1485 West Perth  
WA Australia 6872  
Tel +61 1300 291 195  
Fax +61 8 6298 6191

#### USA Office

3 Riverway, 17<sup>th</sup> Floor  
Suite 1750, Houston  
Texas USA 77056  
Tel +1 713 333 3613  
Fax +1 713 583 0965

[www.heliosenergyLtd.com](http://www.heliosenergyLtd.com)



At a depth of 8,255 feet (in the Boquillas Formation), it was necessary to increase the mud weight to 11.5 pounds per gallon (**ppg**) to manage the gas levels in the well.

Helios has extracted 30 rotary sidewall cores from the lower bench of the Ojinaga Formation and the Eagle Ford Formation (which includes the 235 feet of the Boquillas Formation) all of which had live black oil on the outside of the cores and core staining. Cuttings retrieved from the core tool were also covered with oil.

The strong observed oil and gas shows, analysis of the log data, analysis of the formation micro imaging (**FMI**) and the Ultra Sonic Scanner data, and the separation on the resistivity log, suggests there are several highly naturally fractured intervals (with micro fracture halos) in both the lower bench of the Ojinaga Formation and the Eagle Ford Shale Formation (including in the Boquillas Formation).

### **Boquillas Formation**

The 235 feet interval between 8,030 feet and the casing point of 8,255 feet can also be referred to as the Boquillas Formation. The Boquillas Formation is a unit composed of organic rich shale, siltstone and limestone. The Boquillas interval is time equivalent to the lower Woodbine organic shales found in Madison and Brazos Counties, Texas, USA. Strong oil and gas shows were observed over the 235 feet of the Boquillas Formation. Analysis of the sonic scanner data shows that this 235 feet interval of Boquillas Formation is highly fractured with open fractures. Side wall cores taken from the Boquillas Formation are currently being analyzed, with preliminary observations verifying oil and gas shows.

### **Buda and Georgetown Formations**

Commencing from the casing point located at 8,255 feet, a 4<sup>1/2</sup> inch slim hole was drilled through the Buda and Georgetown Formations. The Buda Limestone was encountered at 8,261 feet and the Georgetown Limestone was encountered at a drilling depth of 8,403 feet and the well penetrated 403 feet into the Georgetown Limestone before the Presidio 52#1 well reached TD.

Several small intervals in the Georgetown Limestone (occurring between 8,412 feet and 8,618 feet) had drill breaks and good oil shows and associated fluorescence, with oil also being observed in the drilling mud. However, the analysis of the logs indicates very low porosity in the Buda Limestone (less than 3%) and in most of the Georgetown Limestone (less than 6%).

The evidence of oil and gas in thin, porous and possibly dolomitic zones (where porosity is greater than 5% to 6%) in the Georgetown Limestone is of considerable interest to Helios however it is of less significance than our primary interest being the 1,623 feet across the lower bench of the Ojinaga Formation and the Eagle Ford Shale Formation (including the Boquillas Formation) where strong oil and gas shows have been observed coincident with highly naturally fractured rock intervals.

### **Forward Planning**

The Presidio 52#1 well has reached TD and is cased down to 8,255 feet. Helios is currently designing a completion program for the both the lower bench of the Ojinaga Formation and the Eagle Ford Shale Formation (including the Boquillas Formation) of the Presidio 52#1 well. The strong observed oil and gas shows, analysis of the log data, analysis of FMI and sonic scanner data, and the separation on the

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resistivity, suggests there are several highly naturally fractured intervals (with micro fracture halos) in both the lower bench of the Ojinaga Formation and the Eagle Ford Shale Formation (including in the Boquillas Formation). These may all be interpreted as intervals meriting future fracked horizontal or lateral bore holes. Equally, due to their large number, they may be interpreted as intervals for co-mingling after being fracked in a vertical completion. Helios is currently working on the location preparation, filling the frack water reservoir, and completing all other necessary preparations required for the frack which is planned to commence in the last week of August 2022.

**Stratigraphy of the Presidio Oil Project located in Presidio County, Texas, USA**

Gulf Coast		Presidio Oil Project Subsurface
Series	Division or Group	
Gulf Cretaceous	Austin	San Carlos (Olmos)
		Austin Chalk age equivalent formation (called the Ojinaga)
	Eagle Ford	Upper Eagle Ford Shale
		Boquillas
Comanche Cretaceous	Washita	Buda
		Eagle Mt SS
		George Town
	Fredericksburg	Kiamichi
		Edwards
	Trinity	Glen Rose
	Hosston/Travis Peak	

**Presidio 141#2 Well**

The Presidio 141#2 well is a shallow well with a total measured depth of 5,846 feet including the fracked 1,400 feet horizontal portion which was drilled into the primary target zone within the lower bench of the

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Ojinaga Formation. The serial pressure build up testing of the Presidio 141#2 well has recently been completed and the artificial lift installation is currently underway.

### **Presidio Oil Project – Infrastructure**

Access to the 4 wells that constitute the Presidio Oil Project (Presidio 52#1, Presidio 141#2, Quinn Creek 141#1 and Quinn Mesa 113) is provided by a 25 mile unsealed, formed road constructed by Helios that branches off the sealed US-90 highway which carries heavy truck and passenger vehicle traffic. The 4 oil wells have access to ample supplies of fresh water provided by local water wells drilled into shallow water aquifers. The El Paso Oil Refinery located in El Paso, Texas has a processing capacity of 135,000 barrels of oil per day and is located 170 miles from the Presidio Oil Project. Crude oil is sold there by truck delivery.

The Presidio Oil Project is located 250 miles (or 5 hours by truck) from Midland, Texas which is the epicenter of the Permian Basin oil industry. All rigs, supplies and services required for the Presidio Oil Project are sourced from Permian Region. Oil production in the Permian Region has rebounded strongly in the past 12 months and is now projected to be the highest on record in August 2022 at approximately 5,400,000 bopd.

### **Leases Acquired or Disposed of During the Quarter**

During the quarter, Helios choose to let expire 26,572 non-core acres the subject of its Presidio Oil Project. 7,208 acres within the core area of the Presidio Oil Project were re-leased and a further 871 acres of oil and gas mineral rights, all located in the core area of the Presidio Oil Project, were the subject of new fresh leases. Helios now has a 70%WI in a total of 59,984 gross acres (41,988 net acres). All 59,984 gross acres the subject of the Presidio Oil Project are located in the south-west portion of Presidio County, Texas and are the subject of oil and gas lease agreements entered into with private oil and gas mineral rights owners.

### **Helium Business – China – Second Extraction Plant**

In April 2022 Helios entered into and commenced a second helium extraction joint venture in China. Through its wholly owned subsidiary, Helios Energy China Ltd, Helios entered into a boil-off gas (**BOG**) helium extraction joint venture with Chinese domestic liquefied natural gas (**LNG**) company, Shanxi Wanshengyuan Natural Gas Co. Ltd (**Wanshengyuan**), located in Shanxi, China.

Under the helium extraction joint venture agreement, Wanshengyuan will provide all land, all BOG feed gas and all associated utilities for the helium extraction joint venture. Helios will construct at a cost of approximately US\$9.5m (CNY60 million), new, leading edge helium gas extraction modules immediately adjacent to Wanshengyuan's LNG plants located in Shanxi province in China. Wanshengyuan will contribute the BOG feed gas at no cash cost and in exchange for its contributions to the joint venture will receive 50% of the profits of the joint venture. Helios is responsible for the upfront capital investment of US\$9.5m (CNY60 million), all technology and equipment deployment and all the sales of the liquid helium. Helios is entitled to 50% of the profits of the joint venture.

Wanshengyuan, founded in July 2010, owns LNG plants, gas stations, city gas gate stations and LNG supply pipe networks throughout both Shanxi and Shaanxi provinces in China.

As the operator of the helium gas extraction plants, Helios will produce high purity industrial grade liquid

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helium and earn 50% of the profits derived from the liquid helium produced and sold. Helios expects the annual helium gas output from this second extraction joint venture to be approximately 500,000 Nm<sup>3</sup> per year, which is 5 times the expected liquid helium production from the first helium extraction joint venture with Ordos Xingxing.

Helios is one of the first companies to commercially extract material quantities of BOG helium in China, liquefy it and then sell it to domestic Chinese customers.

Based on the current helium market price in China, Helios expects liquid helium sales arising from this second joint venture to be approximately US\$39m (CNY250m) per annum.

Helios' use of unique and leading-edge helium extraction and liquefaction technology provides a cost effective and reliable way to produce liquid helium. The joint venture with Wanshengyuan aims to cheaply extract, liquify and profitably sell high quality helium to domestic Chinese customers.

#### **Helium Business – China – First Extraction Plant**

Through its wholly owned subsidiary, Helios Energy China Ltd, Helios has entered into a boil-off gas (**BOG**) helium extraction joint venture with Chinese domestic liquefied natural gas (**LNG**) company, Ordos Xingxing Energy Limited Company (**Ordos Xingxing**), located in Ordos City, Inner Mongolia, China.

Under the helium extraction joint venture agreement, Ordos Xingxing will provide all land, all BOG feed gas and all associated utilities for the helium extraction joint venture. Helios will construct at a cost of approximately US\$3.0m, a new, leading edge helium gas extraction module immediately adjacent to one of Ordos Xingxing's LNG plants located in Inner Mongolia, China.

As the operator and owner of the helium gas extraction plant, Helios will produce industrial grade liquid helium and own 100% of the liquid helium produced and sold. Helios expects the annual helium gas output from this dedicated module to be approximately 100,000 Nm<sup>3</sup> per year once the helium extraction module is running at full capacity. Helios will be one of the first companies to commercially extract material quantities of BOG helium in China, liquefy it and then sell it to domestic Chinese customers. At full capacity from this dedicated module, Helios expects liquid helium sales to be approximately US\$3.1m per annum.

#### **Corporate**

Helios has no debt and cash at bank at the end of the quarter was \$21,708,000.

#### **Related Party Payments – Item 6 of Appendix 5B**

Payments to related parties listed in Item 6 of the Appendix 5B are to Executive and Non-Executive Directors for personal exertion salary and directors fees.

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Helios Energy Ltd  
29 July 2022



For further information, please contact:

**Richard He**  
**Managing Director**

***Competent Person's Statement***

*The information in this ASX announcement is based on information compiled or reviewed by Mr Neville Henry. Mr Henry is a qualified petroleum geologist with over 47 years of Australian, USA and other international technical, operational and executive petroleum experience in both onshore and offshore environments. He has extensive experience of petroleum exploration, appraisal, strategy development and reserve/resource estimation, as well as new oil and gas ventures identification and evaluation. Mr Henry has a BA (Honours) in geology from Macquarie University.*

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