



## Quarterly Activities Report

### Quarter Ending 31 March 2019

Helios Energy Ltd (ASX Codes: HE8, HE8OA) (**Helios** or **Company**) is pleased to report its activities for the quarter ended 31 March 2019.

## Oil Discovery in the Ojinaga Shale Formation

### New Oil Discovery

Helios has successfully completed a one stage frack in the vertical Quinn Creek 141 well to test oil shows and log indications between 4,744 and 4,880 feet in the lower Ojinaga Formation.

The Company has previously reported to ASX that the Quinn Creek 141 well flowed 260 barrels of oil and 1,345 barrels of completion fluid in 168 hours (7 days). The oil produced is good quality, mature, 39 degrees API gravity light oil similar in composition to Eagle Ford oils. Gas was also produced at 456 mcf per day on a 34/64ths of one-inch choke. As the well cleaned up and the percentage of completion fluid recovery rose, a steadily increasing oil cut was observed. Total load recovery (until the lower interval was shut in) was approximately 35% (3,509 barrels of completion fluid out of 10,187 barrels of completion fluid injected).

The observations to date evidence a new oil discovery. The results from this one stage frack of the Ojinaga Formation between 4,744 and 4,880 feet are very encouraging.

The following observations of the Ojinaga Formation in the Quinn Creek 141 have now been made by Helios:

- **Very Encouraging Oil and Gas Production from a Single Stage Frack**

The Quinn Creek 141 well flowed 260 barrels of oil and 1,345 barrels of fluid during the first 168 hours (7 days) of oil production. The Quinn Creek 141 well also produced gas at the rate of 456 mcf per day on a 34/64ths of one-inch choke from a single stage frack. As the well cleaned up and the percentage of completion fluid recovery rose, a steadily increasing oil cut was observed. Typical fracked horizontal wells in west Texas have lateral lengths of between 5,000 feet (25 fracked stages) and 10,000 feet (50 fracked stages) and with each stage having a typical horizontal length of 200 feet. The rate of oil and gas production from this single stage frack is very encouraging.

ASX Code: HE8

### Directors

Hui Ye  
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- **High Quality Oil**

The oil produced is good quality, mature, Eagle Ford type, 39 degrees API gravity light oil.

- **Highly Naturally Fractured Lower Interval of the Ojinaga Formation**

Formation micro-imaging (**FMI**) logs indicate that the lower interval of the Ojinaga Formation in the Quinn Creek 141 well is highly naturally fractured. Generally, high levels of natural fracturing are a positive for 30 day initial oil production (**30 Day IP**) and estimated ultimate recovery (**EUR**) and enable easier frack execution.

- **Thick Lower Bench of the Ojinaga Formation**

The lower bench of the Ojinaga Formation is approximately 330 feet thick with uniform rock characteristics. It is predominantly black shale with micro laminations of siltstone and fine carbonates.

- **Easily Fracked Lower Bench of the Ojinaga Formation**

This frack of the lower bench of the Ojinaga Formation in the Quinn Creek 141 well resulted in the successful injection of approximately 200,000 pounds of proppant (approximately 1,500 pounds of proppant per foot) and approximately 10,000 barrels of completion fluid (approximately 75 barrels of completion fluid per foot) and was deployed easily and without complications. At 1,500 pounds of proppant per foot this frack can be considered a "light frack". Leading oil players in the Permian Basin in west Texas are commonly injecting 3,000 pounds of proppant per foot. Generally speaking, the greater the amount of proppant injected per foot (all other factors remaining equal) the higher the levels of 30 day initial oil production (**30 Day IP**) and estimated ultimate recovery (**EUR**) of oil.

- **Lower Bench of the Ojinaga Formation is Easily Mapped with 2D & 3D Seismic**

The lower bench of the Ojinaga Formation shows well on both 2D & 3D seismic and is easily mapped.

- **Porosity and Permeability in Lower Bench of the Ojinaga Shale Formation**

The lower bench of the Ojinaga Shale Formation has porosity predominately ranging between 4% to 12.5% and permeability up to 0.75  $\mu$ d (micro darcys). Analysis of the Quinn Creek 141 well and surrounding historical wells clearly shows that these porosity and permeability characteristics in Presidio County in the Ojinaga Shale Formation exceed the characteristics present in the Eagle Ford Shale in the Karnes Trough which is the premier sweet spot of the Eagle Ford Shale play.



Underneath is a photo of the frack team and its equipment prior to the commencement of the frack in the Quinn Creek 141 well. The Quinn Mesa 113 well can be seen in the background.



*Photo: Quinn Creek 141 Well Location in Presidio County, Texas, USA (Looking due east).*

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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

88 Mile 2D Seismic Programme

During the quarter, Helios completed the acquisition, processing and interpretation of a further 14 miles of new 2D seismic and the re-processing and interpretation of 74 miles of existing 2D seismic (previously acquired by another oil company in the 1980s) and this 88 mile 2D seismic programme has established a thick presence of Austin Chalk age equivalent Ojinaga Formation across Helios' entire acreage position of 68,985 gross acres. The thickness of the Ojinaga Formation ranges from 1,000 feet in the eastern section of Helios' acreage to 2,000 feet in the western section.

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## **New Seismic Programme – 88 miles of 2D Seismic**

Prior to December 2018, Helios had shot, processed and interpreted a total of 17 miles of 2D seismic and 2 square miles of 3D seismic across the Presidio Oil Project. The Company's 3D seismic programme was acquired over 2 square miles covering the Quinn Creek 141 well and the Quinn Mesa 113 well and the area in between the 2 wells.

The 17 miles of new 2D seismic was acquired over the northern section of the Presidio Oil Project in very close proximity to the Quinn Creek 141 and Quinn Mesa 113 wells.

The decision by Helios to focus its resources on its new oil discovery in the lower interval of the Ojinaga Formation resulted in the decision to acquire additional 2D seismic.

Commencing in December 2018, a further 14 miles of new 2D seismic was acquired in locations to the south of the Quinn Creek 141 and Quinn Mesa 113 wells.

In addition, in late 2018, Helios licensed 74 miles of 2D seismic acquired by a major oil company in the 1980s which covers acreage within the Ojinaga Shale Formation play area (an area of approximately 200,000 acres) but which is currently unleased by Helios. Initial interpretation arising from the re-processing of these 74 miles of licensed 2D seismic was completed during the quarter.

In summary, this 88 mile 2D seismic programme has established a thick presence of Ojinaga Formation across Helios' entire acreage position of 68,985 gross acres.

In addition, this 88 mile 2D seismic programme has established a thick presence of Ojinaga Formation across the entire Ojinaga Shale Formation play area (which is approximately 200,000 acres in size).

### **Geological Surface Fieldwork**

Geological surface fieldwork supports the current seismic interpretation and corroborates that a thick presence of Ojinaga Formation exists across Helios' entire acreage position of 68,985 gross acres.

### **Gravity and Magnetic Data**

During December 2018 and January 2019, Helios acquired gravity and magnetic data over the entire Presidio Oil Project. Interpretation of that data was then compared with the entire seismic programme, along with data from the 2 new wells and the existing old well data. The data sets, when compared, evidenced a high degree of 'matching' or 'fit'. The presence therefore of the Ojinaga Formation across the entire Ojinaga Shale Formation play area (which is approximately 200,000 acres in size) can be easily mapped.

### **Well Location Identification**

Helios will continue to integrate the geological and geophysical data with the aim of high grading multiple well locations that target the Ojinaga Formation, the Eagle Ford Formation as well as the older Cretaceous units being the Buda, Georgetown and Edwards limestone formations.

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## **Presidio 141#2 well**

Helios Energy Ltd has recently reported to ASX that the vertical portion of the Presidio 141#2 well has been drilled to a total depth of 5,074 feet ending at the base of the Eagle Ford Shale Formation. The well has been logged and in addition 50 rotary cores have been successfully extracted. The well has been plugged back and the 1,400 feet horizontal portion of the well is now being drilled into the primary target zone within the lower bench of the Ojinaga Formation. Excellent and continuous oil shows along with a high density of natural fractures were observed while drilling throughout the 220 feet thick primary target zone within the lower bench of the Ojinaga Formation.

The Presidio 141#2 well is located 2,300 feet to the east of the existing Quinn Creek 141 discovery well. The total measured depth of the well is anticipated to be 5,850 feet and this includes a 1,400 feet horizontal portion drilled into the primary target zone within the lower bench of the Ojinaga Formation.

The well is located structurally updip of the existing Quinn Creek 141 discovery well and the vertical portion was drilled through the entire San Carlos, Ojinaga and Eagle Ford Shale Formations. The vertical portion of the well ceased at the bottom of the Eagle Ford Shale Formation.

### **San Carlos Formation**

Wireline logs and drilling cuttings indicate that the San Carlos Formation is approximately 671 feet thick. Very good oil and gas shows were observed in an upper sand unit of the San Carlos Formation which contained 55 feet of net sand with 18% to 23% porosity. A lower interval of the San Carlos Formation had 65 feet of net sand with 10% to 15% porosity with fair oil shows.

### **Ojinaga Formation**

Wireline logs and drilling cuttings indicate that the Ojinaga Formation is approximately 1,941 feet thick, with a thickened upper Ojinaga interval of approximately 1,018 feet. The upper Ojinaga Formation contained a sandstone interval of approximately 60 feet with 18% to 20% porosity with fair to moderate oil shows.

The middle bench of the Ojinaga Formation is approximately 564 feet thick. During drilling oil and gas shows increased from fair to moderate to good and then to excellent with accompanying oil fluorescence, oil cut and residual fluorescence. Analysis of wet gas ratios indicate light oil.

Wireline logs and drilling cuttings indicate that the lower bench of the Ojinaga Formation is 359 feet thick and is highly naturally fractured. Good to excellent, continuous oil shows were observed throughout the entire drilling of this 359 feet thick interval.

### **Eagle Ford Shale Formation**

Wireline logs and drilling cuttings indicate that the Eagle Ford Shale Formation is approximately 590 feet thick. Fair to good oil shows were observed whilst drilling through two intervals of 190 feet and 70 feet.



### **220 Feet Thick Primary Target Zone within the Lower Bench of the Ojinaga Formation**

Wireline logs and drilling cuttings indicate that the primary target zone within the lower bench of the Ojinaga Formation is approximately 220 feet thick. Excellent and continuous oil and gas shows were observed throughout the entire drilling of this 220 feet primary target zone.

This primary target zone of 220 feet has uniform rock characteristics. It is predominantly black shale with micro laminations of siltstone and fine carbonates and is highly naturally fractured.

### **Multi-Stage Fracking of the 1,400 Feet Horizontal Portion of the Presidio 141#2 well**

The vertical section of the Presidio 141#2 well has now been plugged back and a 1,400 feet lateral leg is being drilled to the west towards the Quinn Creek 141 discovery well entirely within the 220 feet zone of the best oil shows and highest natural fracturing that occurs within this 359 feet lower bench of the Ojinaga Formation.

The horizontal portion of the well was steered based on 2D and 3D seismic data and the data from the 2 existing wells (Quinn Creek 141 and Quinn Mesa 113) drilled by Helios.

After the Presidio 141#2 well has been cased (including the 1,400 feet lateral portion of the well), the Presidio 141#2 well will await a multi-stage fracking of the 1,400 feet lateral portion of the well. The final design of the multi-stage fracking program will be selected once the logs and rotary cores have been fully analyzed in conjunction with hydraulic fracturing stimulation experts over the next few weeks.

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

Access to the Presidio 141#2 well location 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 Presidio 141#2 well location has 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 Midland, Texas. Oil production in the Permian Basin is approximately 3,800,000 bopd.

### **Presidio Oil Project – 70%WI**

Helios must drill 3 wells to earn a 70% WI in the initial 6,400 acres (4,480 net acres) which comprise the Presidio Oil Project and a 70% WI in each of these 3 wells. Helios to date has drilled 2 of those 3 wells, being the Quinn Creek 141 vertical well and the Quinn Mesa 113 vertical well. Helios has been granted an until 30 June 2019 to drill the third well. Once the Presidio 141#2 well has been completed, Helios will have earned a 70%WI in the 3 wells and the initial 6,400 acres (4,480 net acres) which comprise the Presidio Oil Project.

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### Leasing Programme

The Company has been actively leasing in the Presidio Oil Project area. Excluding the initial 6,400 acres (4,480 net acres) of the Presidio Oil Project in which Helios will earn a 70% WI upon completing the drilling of 3 wells, the Company has been actively leasing additional acres in close proximity to these initial 6,400 acres and now has a 70% WI in a further 35,025 acres. In addition, Helios has a 70% WI in a further 27,560 acres which have been placed under call option to lease. In total therefore, Helios has under contract a 70% WI in a total of 68,985 acres (48,289 net acres).

### Corporate Activity – Completion of \$10,100,000 Capital Raising

During the quarter Helios completed a capital raising of \$10,100,000 by way of the issue of 77,099,237 shares at a price of 13.1 cents per share (**Placement**).

The Placement was made to sophisticated and professional investors under the provisions of section 708 of the Corporations Act 2001 (Cth). The Placement was conducted within the 15% placement capacity available to the Company in accordance with ASX Listing Rule 7.1.

### Use of Placement Proceeds

The funds raised from the Placement are being used to continue the Company's leasing of additional acres of oil and gas mineral rights in Presidio County in close proximity to the Company's Presidio Oil Project; to pay for the costs of drilling and fracking the Presidio 141#2 well and for working capital.

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 Eldar Hasanov. Mr Hasanov is a qualified petroleum geologist with over 21 years of experience in the USA, Russia, Azerbaijan, Kazakhstan, the Middle East, Turkey, Indonesia and other international areas involving technical, operational and executive aspects of petroleum exploration and production, in both onshore and offshore environments. He has extensive experience in petroleum exploration, appraisal and reserve and resource estimation, as well as in identifying and evaluating new oil and gas ventures. Mr Hasanov has a Masters degree in Petroleum Geology. He is a member of the American Association of Petroleum Geologists.*

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