

21 October 2022

## September 2022 Quarterly Activities Report

### Summary

- Trial awarded in Canada with large producer and subsequently expanded
- Order received from oil producer in India
- Trial awarded for mid-sized producer in the Gulf of Mexico
- Tank cleaning order for the UAE received (post quarter end)
- Downhole trial in Texas on single well commenced
- Santos application continues
- Discussions with new distributors and agents continue
- Sales and marketing progress
- Continued assessment of new energy and energy technology projects

### New HCD Multi-Flow Trial in Canada

On 12<sup>th</sup> September 2022 Hydrocarbon Dynamics Limited (“HCD”) announced that one of its Canadian Distributors has been awarded a trial in the Cardium formation in Alberta with a large independent Canadian oil and gas producer. The purpose of the trial is to test HCD technology’s ability to remediate and inhibit paraffin deposition afflicting their Cardium formation wells and flowlines. Paraffin deposition in the Cardium formation has historically proven to be troublesome from a treatment perspective for numerous producers. The field is currently subjected to different chemical control measures to alleviate these issues, including mechanical removal such as scraping, hot oiling, and hot water washes.

The initial trial was on a single well with the distributor’s in-house product formulation, which performed no better than the incumbent supplier’s chemistry and left behind a hard wax in the production system. The distributor then added HCD Multi-Flow to their formulation at 20% of the final blend and started injecting this new product in mid-October. After two weeks, the amount of wax in the system diminished and the remaining wax was very soft and moveable. The positive results led to expansion of the trial to 9 wells and our distributor placed another order for HCD Multi-Flow.

Our distributor plans to utilise HCD Multi-Flow as a standalone inhibitor following the trial as a blend component to ‘supercharge’ their in-house wax inhibitor product.

Positive results are expected to result in continuous ongoing treatment business as well as expansion into additional wells and field and unlock prospects with other producers encountering similar challenges in the region.

## **New HCD Tank Cleaning Order for the UAE**

HCD announced on 5<sup>th</sup> October that its Dubai based distributor has been awarded a tank cleaning pilot test with a large national oil company operating in the United Arab Emirates. The pilot will employ HCD's Kleen-Flow technology and some of its related protocols to achieve the following benefits:

- Reduce tank outage, cleaning and shut-in time
- Increase incremental oil recovery
- Reduce waste disposal requirements
- Minimise the impact on the wastewater treatment facility
- Greatly increase personnel safety as site personnel are not required to enter the tank to perform cleaning

The paid trial will employ approximately A\$135,000 of Kleen-flow chemistry. A successful outcome may lead to an expansion of the pilot to an additional 5 tanks. If all the tank cleanings are deemed successful, the distributor believes HCD technology may become the preferred method for cleaning tanks for this client which would represent a significant opportunity.

## **Purchase Order for Producer in India**

On 8<sup>th</sup> August HCD announced that it had secured a purchase order from an independent producer in India for a pilot field trial in Gujarat, India utilising HCD's Tri Phase Squeeze technology to restore production and enhance oil recovery on a declining well.

HCD is working through its Agent to potentially expand the production enhancement trial to several wells and to include a trial to reduce crude oil Pour Point on another well.

## **Gulf of Mexico Trial update**

HCD previously reported that a trial was started with mid-cap producer in the Gulf of Mexico on their MP-138 Subsea Pipeline started on 2<sup>nd</sup> July. This is an intermittent feed where the producer pumps 150 bbls of oil for one hour per day and are shut in for 23 hours. Although not an ideal candidate for HCD technology due to its intermittent nature, the producer is desperate to find a solution for this asset.

HCD Multi-Flow has allowed them to maintain the key flowrate of at least 2.0 BOPM during the one hour pump down period throughout the trial. (Note: flow rate was 1.6 BOPM prior to Toluene 4 days soak to clean up system). The well is currently shut in for a 19 day period for planned maintenance on the adjoining larger pipeline.

The producer is exploring additional opportunities to trial HCD MF on one of their offshore continuously flowing pipelines.

## **Update on Small Treatment on Texas Well**

HCD performed a Tri-Phase Squeeze on a stripper well on 21<sup>st</sup> July for an operator in the Permian basin. The production enhancement squeeze was performed to enhance oil and gas production, operational efficiency, and field economics. The well was chosen in part because of the ability to measure its production rate.

Unfortunately, prior to the Tri-Phase Squeeze, the test separator used to measure the production on this well failed and has yet to be repaired. Although initial signs looked promising, it is impossible to assess the actual production rate of the individual well we treated. The treated well is part of an eight well pad commingling into a single production tank. To complicate matters, several of the non-treated wells have tripped off and online for days since the squeeze.

## **Cooper Basin 30 Well Treatment Continues**

Well paraffin control treatment for Santos during the cooler months continues. The treatment is occurring on a waxy field in the Cooper Basin where it is being used to mitigate down time and production loss issues stemming from paraffin build-up. Treatment on the new wells commenced in mid-June and reports from the field continue to be positive. The wells treated with HCD Multi-Flow have seen a significant improvement as expected.

## **Sales & Marketing Progress**

- As reported earlier, HCD is working with a US supermajor oil and gas company to evaluate our technology. Focus is on testing HCD Multi-Flow on waxy crude oil in this global producer's in-house wax flow loop. Testing of HCD Multi-Flow was delayed due to the technician's illness and technical issues with the wax flow loop equipment. They anticipate testing will resume in late October. Positive test results are expected to lead to trial opportunities in the Permian Basin.

Opportunities with this global, supermajor oil and gas company include paraffin control, heavy oil viscosity reduction, asphaltene inhibition in a gas lift field, and pipeline pig catcher cleaning.

- As an update on a previously reported HCD Multi-Flow trial commitment from a national oil company operating in the North Sea, we received very positive test results necessary for Cefas registration. The data will be included in an updated submission to Cefas with the belief that no additional testing will be required for product registration.

- As an update to a previous report, wax flow loop testing was performed on a waxy Eagle Ford Shale crude for a midsized Texas based distributor to demonstrate HCD Multi-Flow's ability to control paraffin. Positive test results are required before the field's producer will consider trialing any new chemistry. Test results performed by an independent laboratory showed that HCD Multi-Flow is very effective at liquefying existing deposits as well as inhibiting the formation of new ones. Our distributor was impressed with results and will begin the internal processes required to market the product to their Eagle Ford shale customer. This successful outcome is expected to lead to securing a trial.

The distributor also provided the independent laboratory with very waxy crude oil from a West Texas formation for wax flow loop testing. HCD Multi-Flow performed equally well on this crude for dissolving and inhibiting paraffin wax deposits. We will work with the distributor to gain a trial opportunity in this Jo Mill field.

- HCD is progressing with a potential new distributor in North Dakota, USA towards a trial of our HCD Multi-Flow technology. They have agreed to find an appropriate field to trial HCD chemistry.

## Testing Update

Laboratory testing, as always, remains an essential part of HCD's product development and marketing with the current focus being Cefas certification of HCD Multi-Flow for a North Sea application. Cefas registration is required for HCD to progress the North Sea opportunity. HCD product recently passed all phases of the partitioning testing and are awaiting the final certification of the partitioning test results to be received. These results will be submitted for Cefas registration and should lead to a positive Cefas approval and a trial in the North Sea. HCD Multi-Flow is also undergoing compatibility testing with the incumbent wax prevention products used in the producer's offshore application and has passed 2 of the 3 compatibility tests with one result remaining. The independent testing group, Intertek UK, will be running this testing and results are expected very soon to further move us toward this offshore application.

Testing commenced with a US supermajor oil and gas company on 26<sup>th</sup> September on their in-house Wax Flow Loop. They will be performing two types of experiments with HCD Multi-Flow the first is a wax dissolver tests and second a wax inhibition tests. Tests will be performed at multiple dosages to develop dosage response curves with HCD Multi-Flow.

Viscosity reduction testing was performed on a crude oil from a large producer in Sudan using the ASTM viscosity method. HCD Multi-Flow was found to be the superior product in viscosity reduction at 100 PPM as performed by their own in-house laboratories.

Jo Mill field Flow loop testing from Benchmark Labs indicated a very significant success at both removal of paraffin deposition as well as prevention of paraffin deposition when HCD Multi-Flow is fed at a laboratory rate of 1200 PPM (equivalent to 300 PPM feed rate in the field) showing HCD Multi-Flow is an excellent paraffin inhibitor and paraffin deposition cleaning chemical.

## **Finance**

At the end of the quarter HCD had \$1.7m in cash reserves and no debt.

Related party transactions during the quarter were for approximately \$81,000 in Director's fees (\$93,000 previous quarter) and \$69,000 in royalty payments (\$89,000 previous quarter).

Approved by the board of Directors.

For further information please contact:

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ASX Code: HCD

## Appendix 5B

### Mining exploration entity or oil and gas exploration entity quarterly cash flow report

Name of entity

Hydrocarbon Dynamics Limited

ABN

75 117 387 354

Quarter ended ("current quarter")

30 September 2022

Consolidated statement of cash flows	Current quarter \$A'000	Year to date (9 months) \$A'000
<b>1. Cash flows from operating activities</b>		
1.1 Receipts from customers	96	116
1.2 Payments for		
(a) exploration & evaluation (if expensed)	(25)	(60)
(b) development		
(c) production	(53)	(99)
(d) staff costs	(211)	(583)
(e) administration and corporate costs	(132)	(328)
1.3 Dividends received (see note 3)		
1.4 Interest received	1	2
1.5 Interest and other costs of finance paid	(2)	(2)
1.6 Income taxes paid	-	-
1.7 Government grants and tax incentives	-	-
1.8 Other (Royalty)	(69)	(203)
<b>1.9 Net cash from / (used in) operating activities</b>	<b>(395)</b>	<b>(1,157)</b>

<b>2. Cash flows from investing activities</b>		
2.1 Payments to acquire:		
(a) entities		
(b) tenements		
(c) property, plant and equipment		
(d) exploration & evaluation (if capitalised)		
(e) investments		
(f) other non-current assets		

## Mining exploration entity or oil and gas exploration entity quarterly cash flow report

Consolidated statement of cash flows		Current quarter \$A'000	Year to date (9 months) \$A'000
2.2	Proceeds from the disposal of:		
	(a) entities		
	(b) tenements		
	(c) property, plant and equipment		
	(d) investments		
	(e) other non-current assets		
2.3	Cash flows from loans to other entities		
2.4	Dividends received (see note 3)		
2.5	Other (Bond)		
<b>2.6</b>	<b>Net cash from / (used in) investing activities</b>	-	-

<b>3.</b>	<b>Cash flows from financing activities</b>		
3.1	Proceeds from issues of equity securities (excluding convertible debt securities)	-	1,615
3.2	Proceeds from issue of convertible debt securities		
3.3	Proceeds from exercise of options		
3.4	Transaction costs related to issues of equity securities or convertible debt securities	-	(55)
3.5	Proceeds from borrowings		
3.6	Repayment of borrowings	(35)	(75)
3.7	Transaction costs related to loans and borrowings		
3.8	Dividends paid		
3.9	Other (provide details if material)		
<b>3.10</b>	<b>Net cash from / (used in) financing activities</b>	<b>(35)</b>	<b>1,485</b>

<b>4.</b>	<b>Net increase / (decrease) in cash and cash equivalents for the period</b>		
4.1	Cash and cash equivalents at beginning of period	2,152	1,394
4.2	Net cash from / (used in) operating activities (item 1.9 above)	(395)	(1,157)
4.3	Net cash from / (used in) investing activities (item 2.6 above)	-	-
4.4	Net cash from / (used in) financing activities (item 3.10 above)	(35)	1,485

## Mining exploration entity or oil and gas exploration entity quarterly cash flow report

<b>Consolidated statement of cash flows</b>		<b>Current quarter \$A'000</b>	<b>Year to date (9 months) \$A'000</b>
4.5	Effect of movement in exchange rates on cash held	-	-
<b>4.6</b>	<b>Cash and cash equivalents at end of period</b>	<b>1,722</b>	<b>1,722</b>

<b>5.</b>	<b>Reconciliation of cash and cash equivalents</b> at the end of the quarter (as shown in the consolidated statement of cash flows) to the related items in the accounts	<b>Current quarter \$A'000</b>	<b>Previous quarter \$A'000</b>
5.1	Bank balances	1,421	1,851
5.2	Call deposits	301	301
5.3	Bank overdrafts		
5.4	Other (provide details)		
<b>5.5</b>	<b>Cash and cash equivalents at end of quarter (should equal item 4.6 above)</b>	<b>1,722</b>	<b>2,152</b>

<b>6.</b>	<b>Payments to related parties of the entity and their associates</b>	<b>Current quarter \$A'000</b>
6.1	Aggregate amount of payments to related parties and their associates included in item 1	(150)
6.2	Aggregate amount of payments to related parties and their associates included in item 2	-

Note: if any amounts are shown in items 6.1 or 6.2, your quarterly activity report must include a description of, and an explanation for, such payments



## Mining exploration entity or oil and gas exploration entity quarterly cash flow report

7. <b>Financing facilities</b>	<b>Total facility amount at quarter end \$A'000</b>	<b>Amount drawn at quarter end \$A'000</b>
<i>Note: the term "facility" includes all forms of financing arrangements available to the entity.</i>		
<i>Add notes as necessary for an understanding of the sources of finance available to the entity.</i>		
7.1	Loan facilities	
7.2	Credit standby arrangements	
7.3	Other (please specify)	
7.4	<b>Total financing facilities</b>	
7.5	<b>Unused financing facilities available at quarter end</b>	
7.6	Include in the box below a description of each facility above, including the lender, interest rate, maturity date and whether it is secured or unsecured. If any additional financing facilities have been entered into or are proposed to be entered into after quarter end, include a note providing details of those facilities as well.	

8. <b>Estimated cash available for future operating activities</b>	<b>\$A'000</b>	
8.1	Net cash from / (used in) operating activities (Item 1.9)	(395)
8.2	Capitalised exploration & evaluation (Item 2.1(d))	-
8.3	Total relevant outgoings (Item 8.1 + Item 8.2)	(395)
8.4	Cash and cash equivalents at quarter end (Item 4.6)	1,722
8.5	Unused finance facilities available at quarter end (Item 7.5)	-
8.6	Total available funding (Item 8.4 + Item 8.5)	1,722
8.7	<b>Estimated quarters of funding available (Item 8.6 divided by Item 8.3)</b>	4.36

8.8 If Item 8.7 is less than 2 quarters, please provide answers to the following questions:

1. Does the entity expect that it will continue to have the current level of net operating cash flows for the time being and, if not, why not?

2. Has the entity taken any steps, or does it propose to take any steps, to raise further cash to fund its operations and, if so, what are those steps and how likely does it believe that they will be successful?

3. Does the entity expect to be able to continue its operations and to meet its business objectives and, if so, on what basis?

**Compliance statement**

- 1 This statement has been prepared in accordance with accounting standards and policies which comply with Listing Rule 19.11A.
- 2 This statement gives a true and fair view of the matters disclosed.

Date: 21 October 2022

Authorised: By the Board

**Notes**

1. This quarterly cash flow report and the accompanying activity report provide a basis for informing the market about the entity's activities for the past quarter, how they have been financed and the effect this has had on its cash position. An entity that wishes to disclose additional information over and above the minimum required under the Listing Rules is encouraged to do so.
2. If this quarterly cash flow report has been prepared in accordance with Australian Accounting Standards, the definitions in, and provisions of, *AASB 6: Exploration for and Evaluation of Mineral Resources* and *AASB 107: Statement of Cash Flows* apply to this report. If this quarterly cash flow report has been prepared in accordance with other accounting standards agreed by ASX pursuant to Listing Rule 19.11A, the corresponding equivalent standards apply to this report.
3. Dividends received may be classified either as cash flows from operating activities or cash flows from investing activities, depending on the accounting policy of the entity.
4. If this report has been authorised for release to the market by your board of directors, you can insert here: "By the board". If it has been authorised for release to the market by a committee of your board of directors, you can insert here: "By the [name of board committee – eg Audit and Risk Committee]". If it has been authorised for release to the market by a disclosure committee, you can insert here: "By the Disclosure Committee".
5. If this report has been authorised for release to the market by your board of directors and you wish to hold yourself out as complying with recommendation 4.2 of the ASX Corporate Governance Council's *Corporate Governance Principles and Recommendations*, the board should have received a declaration from its CEO and CFO that, in their opinion, the financial records of the entity have been properly maintained, that this report complies with the appropriate accounting standards and gives a true and fair view of the cash flows of the entity, and that their opinion has been formed on the basis of a sound system of risk management and internal control which is operating effectively.