

30 January 2023

December 2022 Quarterly Activities Report

Summary

- New North Sea purchase order
- First order received from the United Arab Emirates for tank cleaning
- HCD receives update on trial in Canada with large producer
- Gulf of Mexico trial expanded to two offshore platforms (post quarter end)
- Update on existing applications and trials (Santos, Texas and India)
- Discussions with new distributors and agents continue
- Sales and marketing progress
- Continued assessment of new energy and energy technology projects for investment

North Sea Purchase Order

On 15 December 2022, HCD announced that it had received a Purchase Order from a large national European energy company to apply HCD Multi-Flow on a North Sea platform suffering from severe paraffin deposition issues resulting in substantial lost production. The Purchase Order was awarded after successful head-to-head laboratory evaluation of HCD Multi-Flow against the incumbent supplier's paraffin inhibitor and paraffin dissolver products.

As previously reported, the Purchase Order is conditional on receiving the required North Sea approvals and registration. To date HCD has completed UK Reach certification, subsea-certification and after exhaustive testing, is in the final stages of completing Cefas registration. Should Cefas registration not occur the purchase is refundable.

HCD expects the trial to commence soon after Cefas registration. If this trial proves successful, a second platform with comparable issues could follow. The initial Purchase Order is for approximately A\$80,000.

Gulf of Mexico Trial Expanded to Two Offshore Platforms

Post quarter end HCD announced that following HCD Multi-Flow's application on paraffin deposits in a subsea pipeline for a mid-cap producer, HCD has been awarded two trials on two wells on offshore platforms by the same producer.

The producer subsequently started injecting HCD Multi-Flow on a continuously flowing offshore well on 12 January 2023. The purpose of this trial is to reduce the paraffin build-up in the production tubing between wax cuttings on this 500 bopd well. The trial is scheduled to run for 90 days.

The producer has also taken receipt of a 350 gallon IBC tote tank of HCD Multi-Flow to be applied at a second offshore platform for production tubing paraffin remediation and inhibition. This well is so waxy that it must be paraffin cut every four hours to maintain production, notwithstanding the incumbent chemical treatment. This will provide a good challenge for HCD's technology.

Update on HCD Multi-Flow Trial in Canada

On 1 December 2022, HCD announced it had received additional feedback from its Canadian Distributor on the paraffin control field trial with a large independent Canadian oil & gas producer. As reported in the September 2022 Quarterly Activities Report, positive results led to the expansion of the trial from one well to nine wells. The field reported that products including HCD Multi-Flow® as a component outperformed those without it. Consequently, they have placed an additional order for approximately A\$37,000 of product to continue the trial.

Positive results have opened additional opportunities with this distributor as they investigate other applications for HCD technology including:

1. stuck rod solvent enhancement
2. heavy oil viscosity control
3. Tri-Phase Squeeze for production enhancement to restore skin damage/near wellbore damage
4. possible use as a pipeline drag reduction

New HCD Tank Cleaning Order for the UAE

HCD announced on 5 October 2022 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 five 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.

Major flooding damage in late 2022 requires repairs to their main operating terminal. These repairs are necessary before the tank cleaning job can commence. The national oil company hopes to have repairs complete to allow them to start the tank cleaning work by late February.

Cooper Basin 30 Well Treatment Update

Cooper Basin well paraffin control chemical treatment for Santos is a seasonal business that takes place during the winter months. This chemical program is presently shut-in for the offseason, however based on the success of last season's chemical program, HCD anticipates an order of HCD Multi-Flow for the 2023 winter season forthcoming.

Purchase Order for India Update

The Purchase Order announced on 8 August 2022 from an independent producer in India for a pilot field trial in Gujarat has been extended so that the producer can treat two wells. Payment is based on success criteria being met and these criteria require refinement before the trials can commence. The trials involve utilising HCD's Tri-Phase Squeeze technology to restore production and enhance oil recovery on a declining well.

Sales & Marketing Progress

During the Quarter HCD can report increased sales and marketing activity via both direct sales activity and through HCD's agents and distributors. The potential sales opportunities are at various stages and include:

- A Texas based distributor has found a client interested in testing HCD's wax remediation and inhibition technology on a waxy field in Utah and potentially in North Dakota;
- A second Texas based distributor is progressing an opportunity with a large national oil company operating in the Eagle Ford Shale of southern Texas and are pushing to trial HCD Multi-Flow paraffin control technology in one of their paraffinic fields;
- A HCD agent in California is marketing HCD technology for paraffin control and for production enhancement in oil & gas fields in Bakersfield, California and is in advanced discussions with a mid-sized producer there;
- A small producer in Australia with a paraffinic field who became aware of HCD's success with Santos, has an expressed interest in trialing HCD Multi-Flow for paraffin control in their waxy field;
- HCD's India based distributor with Latin America operations is once again aggressively marketing HCD's Bit-Flow technology for heavy oil viscosity reduction with a large national oil company in Colombia;

- A joint operating company with operations in Sudan and South Sudan has tested HCD's Bit-Flow chemistry and found it very effective at reducing viscosity of two of their crude oils at low dosage rates. Viscosity reduction is needed to meet pipeline specifications during winter months. The joint operating company is considering two significant orders of Bit-Flow chemistry, one for Sudan crude oil and a second for a South Sudan crude oil. HCD must meet US and Australian government requirements to export chemicals to Sudan and to South Sudan;
- A US supermajor's central flow assurance group has completed paraffin control testing employing their in-house Wax Flow Loop to evaluate the efficacy of HCD Multi-Flow on their waxy crude oil from a Permian Basin field. The company has reported that HCD Multi-Flow performed extremely well to inhibit the formation of paraffin and showed efficacy as a wax dissolver on their Permian crude. The supermajor's flow assurance group now has sufficient data to decide if they will award a field trial of HCD Multi-Flow. As a secondary result of testing success, the supermajor has also indicated a desire to test HCD's technology for asphaltene control on their in-house Asphaltene Flow Loop;
- As an update to a previous report, wax flow loop testing was performed on a waxy Eagle Ford Shale crude and for a West Texas crude for a mid-sized Texas based distributor to demonstrate HCD Multi-Flow's ability to control paraffin. These tests were performed by an independent laboratory;

Although very positive test results using HCD Multi-Flow were seen on each crude oil, the customer has suspended their new technology development group as they focus on selling the company;
- HCD continues to progress with a potential new distributor in North Dakota, USA and has subsequently shipped 4 drums of HCD Multi-Flow in preparation for a field opportunity, as they investigate several potential locations to pilot the product for paraffin control.

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 as noted above. 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 in the current quarter.

As noted above, testing commenced with a US supermajor on 26 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.

At the Jo Mill Field in Texas, flow loop testing from Benchmark Labs indicated 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 (estimated equivalent of ~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 \$1.38m in cash reserves and no debt.

Related party transactions during the quarter were for approximately \$77,000 in Director's fees and \$51,000 in royalty payments.

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")

31 December 2022

Consolidated statement of cash flows	Current quarter \$A'000	Year to date (12 months) \$A'000
1. Cash flows from operating activities		
1.1 Receipts from customers	200	316
1.2 Payments for		
(a) exploration & evaluation	(40)	(100)
(b) development	-	-
(c) production	(190)	(289)
(d) staff costs	(189)	(772)
(e) administration and corporate costs	(47)	(375)
1.3 Dividends received (see note 3)	-	-
1.4 Interest received	3	5
1.5 Interest and other costs of finance paid	(1)	(3)
1.6 Income taxes paid	-	-
1.7 Government grants and tax incentives	-	-
1.8 Other (royalties)	(51)	(254)
1.9 Net cash from / (used in) operating activities	(315)	(1,472)
2. Cash flows from investing activities		
2.1 Payments to acquire or for:		
(a) entities	-	-
(b) tenements	-	-
(c) property, plant and equipment	-	-
(d) exploration & evaluation	-	-
(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 (12 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 (provide details if material)	-	-
2.6	Net cash from / (used in) investing activities		

3.	Cash flows from financing activities		
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	(26)	(101)
3.7	Transaction costs related to loans and borrowings	-	-
3.8	Dividends paid	-	-
3.9	Other (provide details if material)	-	-
3.10	Net cash from / (used in) financing activities	(26)	1,459

4.	Net increase / (decrease) in cash and cash equivalents for the period		
4.1	Cash and cash equivalents at beginning of period	1,722	1,394
4.2	Net cash from / (used in) operating activities (item 1.9 above)	(315)	(1,472)
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)	(26)	1,459

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 (12 months) \$A'000
4.5	Effect of movement in exchange rates on cash held		
4.6	Cash and cash equivalents at end of period	1,381	1,381

5.	Reconciliation of cash and cash equivalents at the end of the quarter (as shown in the consolidated statement of cash flows) to the related items in the accounts	Current quarter \$A'000	Previous quarter \$A'000
5.1	Bank balances	479	1,421
5.2	Call deposits	902	301
5.3	Bank overdrafts		
5.4	Other (provide details)		
5.5	Cash and cash equivalents at end of quarter (should equal item 4.6 above)	1,381	1,722

6.	Payments to related parties of the entity and their associates	Current quarter \$A'000
6.1	Aggregate amount of payments to related parties and their associates included in item 1	(128)
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. Financing facilities	Total facility amount at quarter end \$A'000	Amount drawn at quarter end \$A'000
<i>Note: the term "facility" includes all forms of financing arrangements available to the entity. 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 Total financing facilities		
7.5 Unused financing facilities available at quarter end		
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. Estimated cash available for future operating activities	\$A'000
8.1 Net cash from / (used in) operating activities (item 1.9)	(315)
8.2 (Payments for exploration & evaluation classified as investing activities) (item 2.1(d))	-
8.3 Total relevant outgoings (item 8.1 + item 8.2)	(315)
8.4 Cash and cash equivalents at quarter end (item 4.6)	1,381
8.5 Unused finance facilities available at quarter end (item 7.5)	-
8.6 Total available funding (item 8.4 + item 8.5)	1,381
8.7 Estimated quarters of funding available (item 8.6 divided by item 8.3)	4.4
<i>Note: if the entity has reported positive relevant outgoings (ie a net cash inflow) in item 8.3, answer item 8.7 as "N/A". Otherwise, a figure for the estimated quarters of funding available must be included in item 8.7.</i>	
8.8 If item 8.7 is less than 2 quarters, please provide answers to the following questions:	
8.8.1 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?	
Answer:	
8.8.2 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?	
Answer:	

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

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

Answer:

Note: where item 8.7 is less than 2 quarters, all of questions 8.8.1, 8.8.2 and 8.8.3 above must be answered.

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: 30 January 2023

Authorised by: By the Board
(Name of body or officer authorising release – see note 4)

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.