Hydrocarbon Dynamics

Advancing Crude Oil Mobility

AGM Presentation May 2021

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In addition, there are a number of risks, both specific to HCD and of a general nature, which may affect the future operating and financial performance of HCD and the value of an investment in HCD including but not limited to economic conditions, stock market fluctuations, oil demand and price movements, regulatory risks, operational risks, environmental risks, and reliance on key personnel.

Accordingly, this presentation does not purport to contain all information which may be required in order to make an informed assessment of HCD's prospects. You should conduct your own investigation, perform your own analysis, and seek your own advice from your professional advisor before making any investment decision.

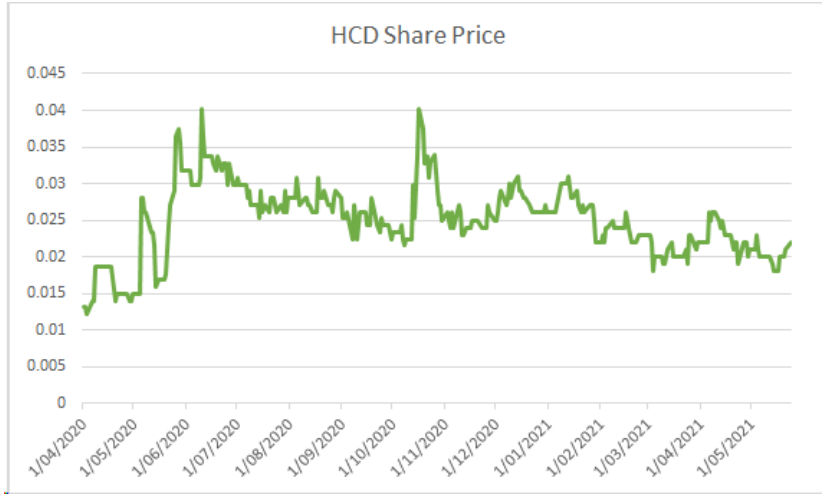
Corporate Summary

ASX listed - Energy focused

Board & Management	
Stephen Mitchell	Non-Executive Chairman
Bill Tarantino	CEO- Chemical Division
Nick Castellano	Executive Director
Ray Shorrocks	Non-Executive Director
Allan Ritchie	Non-Executive Director
Andrew Seaton	Non-Executive Director
Julie Edwards	Company Secretary & CFO

Shareholder Summary	
S Mitchell	10.2%
S McGregor Super Fund	8.8%
Lowell Resources Fund	4.0%
Wheelbarrow Investments	3.3%
CHAG Pty Ltd	3.2%
HSBC	2.2%
Top 20 Holders	50.4%

Capital Structure	
Cash:	$2.0m (31 Mar 2021)
Share Price:	$0.02
Issued Cap:	440.3m Shares
Market Cap:	$8.8 Million
Incentive Shares Options	14.05m (expiry 01/09/2021) 46.27m (expiry 31/10/2022 @3c)



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2020 - Year in Review

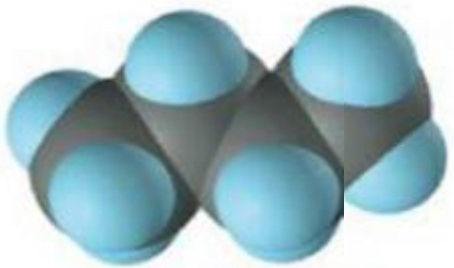
- Commenced with the appointment of Bill Tarantino as CEO- chemical division (Ex Baker Hughes) and non-executive director, Andrew Seaton (Ex Santos CFO)
- After a strategic review the board adopted a new sales strategy that included:
  - New product mix and new product branding
  - New business model
  - New Pricing for Products
- Significant Cost Cuts (~$1m/year)
- 2020 and 2021 to date have been difficult. Significant loss of momentum due to Covid-19 meant restrictions on travel, sales visits to field and office sites, volatile industry conditions
- Few Field trials undertaken with exception in Canada and forthcoming Australian test
- Some Successful testing in Labs on oils from producers in the Gulf of Mexico, Canada, & Colombia

HCD Technology

HCD PhaseShift suite of chemistries utilize small, specially engineered carbon-based molecules that reduce the Van der Waals attractive forces between like molecules in order to reliquefy large agglomerations of wax and asphaltene deposits naturally occurring in heavy crude oils.

Fewer than 5 carbon atoms

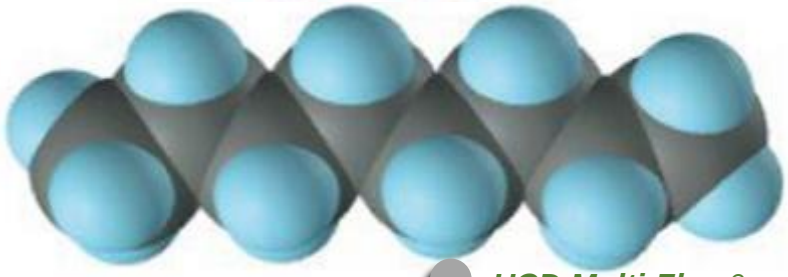
Gaseous at room temperature



C_4H_{10}

5-15 carbon atoms

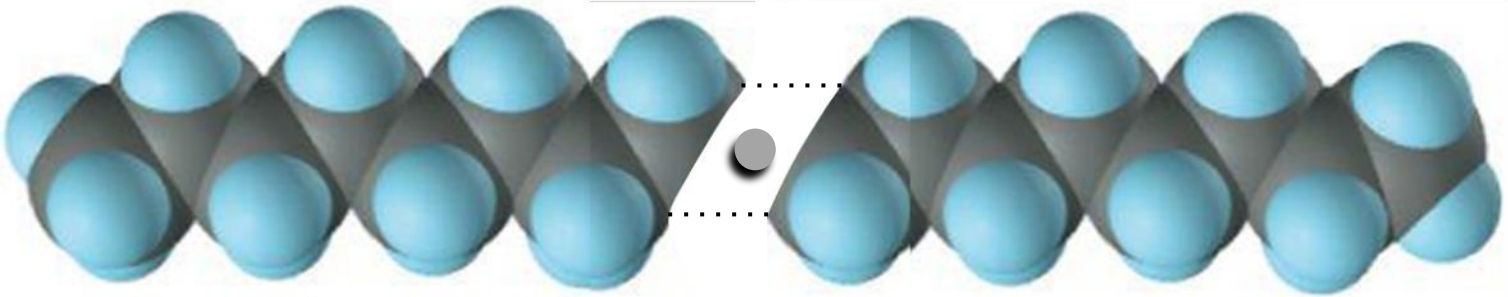
Liquid at room temperature



C_8H_{18}

HCD Multi-Flow® molecule

>15 carbon atoms
Solid at room temperature



$C_{16}H_{34}$

The paraffin now passes into the liquid phase at room temperature

Technology Used from Well bore to Refinery

- Improves oil production onshore and offshore by reducing viscosity and mitigating paraffin and asphaltene depositions in production equipment
- Reduces reliance on, and costs of, diluents and chemical treatments
- Provides flow assurance for onshore and offshore pipelines by liquefying paraffin and asphaltene depositions. Reduces reliance on traditional solutions of heat, solvents and mechanical pigging
- Liquefies oil sludge in transport and storage facilities, transforms the way cleaning operations are undertaken and recovers saleable hydrocarbons from the sludge

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Value Creation Strategy

The value creation strategy for Hydrocarbon Dynamics is now threefold:

1. **Sell HCD Products and Technology to the Oil Industry**
   Targeting oil producers, pipeline operators, tank cleaners and refiners. Established agents & distributors in the USA, Canada, China, India, the Middle East, Colombia & parts of Europe

2. **Build a Portfolio of Upstream Projects**
   Invest in known oil accumulations where the application of HCD technology may lead to commercial extraction, reserves growth and cash flow. One project in Utah currently though farm-in partner has not signed final agreement and uncertainty exists that this will be completed

3. **Evaluate Additional Energy Technologies for Investment**

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Strategic Direction and Current Priorities

Bill Tarantino - CEO HCD Chemicals

Strategic Plan – Roadmap for Success

The development of a new Strategic Plan, a roadmap for transforming the organization, was the top priority in the first half of 2020.

It followed a thorough review of Hydrocarbon Dynamics' structure, markets and its method of doing business and highlights key strategic imperatives needed to transform the company.

The strategic plan employs a market-focused business approach to drive strategic and tactical decisions necessary to meet growth forecast and includes the following four key imperatives:

- redesigned business model
- marketing investment
- pricing and market intelligence
- supplement product offerings

Implement new business model

HCD
- wholesale, non-service model

Distributors
- small to mid-sized, regional, ***oil field chemical companies***

Target Customers
- initial focus on tier 3 & tier 2 producers

Marketing investment

- focus on delivering the tools needed to drive market penetration with consistent and clear messaging

Branding Initiative
- developed market specific branding

Marcom
- brochure, case histories, presentations

Sales Packets
- for distributors/agents

Pricing and market intelligence

- most profitable markets to focus on where customer needs best fit HCD capabilities
- focus on continuous treatment applications
- understand pricing by market segment and application
- ongoing

Supplement product offerings

- enhance program performance for specific market and application needs
- jointly with branding and pricing imperatives
- improve market penetration
- allow pricing flexibility

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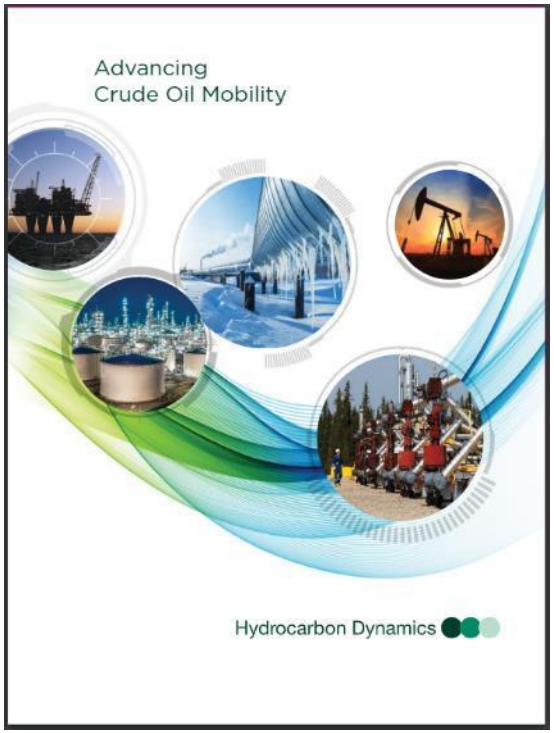
Executing on Initiatives – Marketing Tools

Sales Tools for Distributors

Developed a common language and consistent messaging

New company marketing brochure

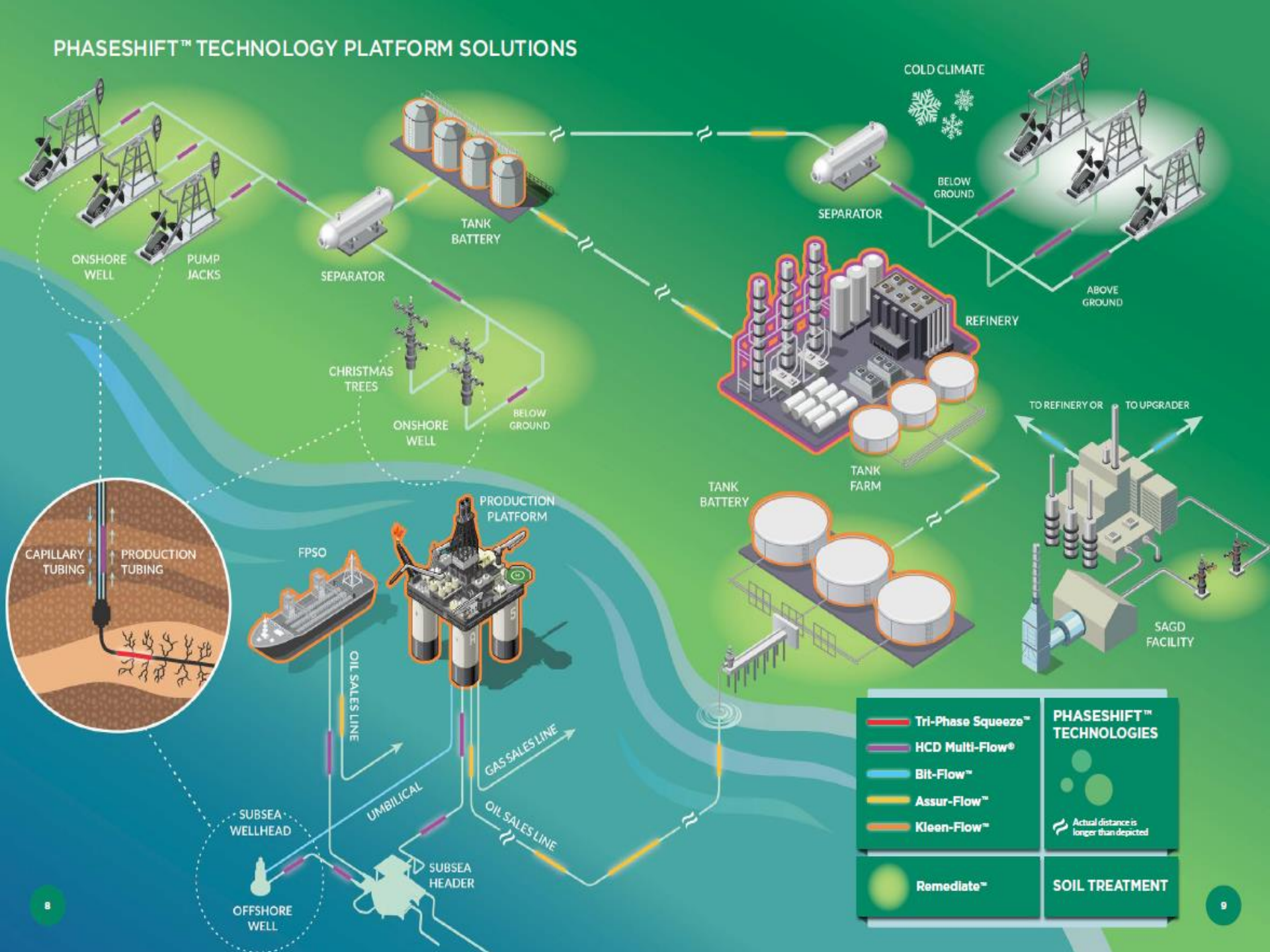


Rebranded HCD product line

Updated and revised case histories, technical papers, and presentations, both sales and technical

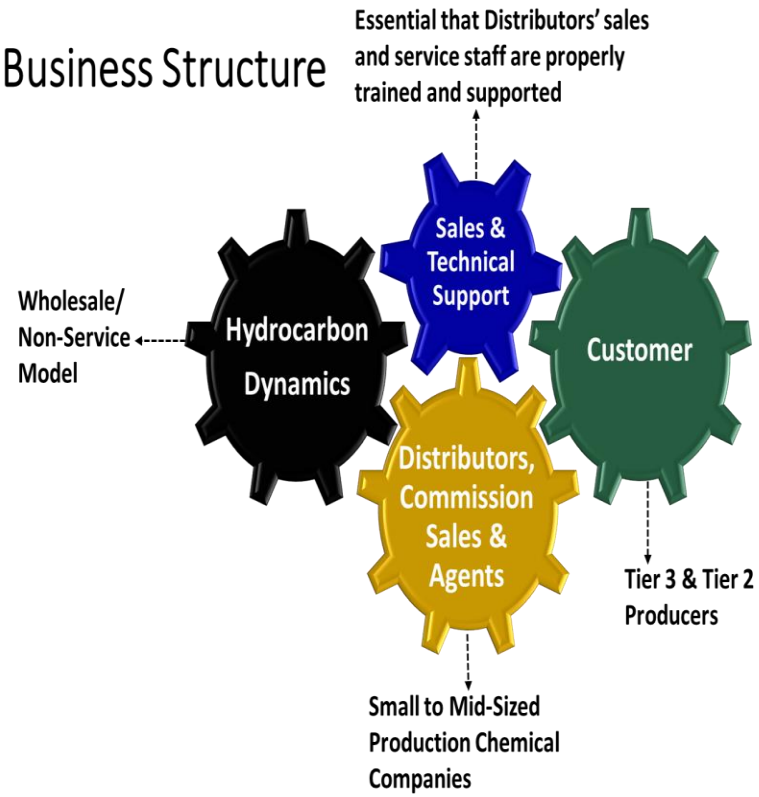
Updated videos and company website

PHASESHIFT™ TECHNOLOGY PLATFORM SOLUTIONS



Executing on Initiatives – Distributors and Agents

Business Structure



New Distributors in 2020

North America 7 New Distributors	1 Global	1 APAC
• 4 US based • 3 Canada based	• India based • Initial focus – India and South America	• Malaysia based • Initial focus – Malaysia and Indonesia

Existing Distributors/Agents

2 MEAP	1 India	1 Malaysia
• 1 China • 1 Middle East	• 1 India focused	• Malaysia and Indonesia focus

New Distributor Highlights

Two new key Distributors with substantial reach can be a game changer for HCD

- **Imperative Chemical Partners**

  Imperative was formed by combining WadeCo, Impact, and Flocap and is a major player in the Permian Basin with significant operations in the Bakken, Eagle Ford, Delaware and Permian Basins. The company also operates in Oklahoma, Colorado and Illinois and has full manufacturing and analytical capabilities.

- **Dorf Ketal**

  Dorf Ketal is an India based organization with Global operations in upstream and downstream oil and gas chemicals. Dorf Ketal has operations in key industrial centers in the U.S., India, China, Brazil, Argentina, Netherlands, U.A.E., Bahrain, Singapore and Malaysia and have full manufacturing and analytical capabilities.

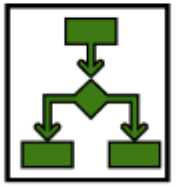
Sample of HCD Partner Initiatives

Examples of some of the initiatives HCD's partners are working on include:

- **Canada** – one of our Canadian Distributors is focusing on waxy crudes is currently working on multiple opportunities for HCD Multi-Flow that we expect to materialize over the remainder of the year, most of which are with substantial companies.
- **North America** – HCD major new North American distributor is to identify up to three fields to evaluate our ability to remediate and inhibit paraffin and or asphaltenes with HCD Multi-Flow.
- **West Texas** – HCD distributor trialed HCD Multi-Flow on two stripper wells in West Texas that they were unable to treat for paraffin remediation and inhibition. Monitoring was accomplished with paraffin coupons. The coupons significantly improved with HCD Multi-Flow. One well was pulled and found to be completely clean, validating HCD Multi-Flow.
- **Central Texas** – a new Texas based distributor initiated a trial with HCD Multi-Flow on 1 April to resolve severe paraffin related issues after numerous failures.

effective collaboration

strategize & plan



execute

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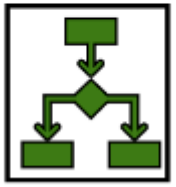
Sample of HCD Partner Initiatives

Examples of some of the initiatives HCD's partners are working on include:

- **India** – our Agent and new Distributor are working on three important opportunities in India with large companies.
- **Colombia** – heavy oil viscosity reduction with HCD technology to significantly reduce or eliminate the diluent required to meet pipeline viscosity specifications and increase produced oil throughput.
  - Results of third-party testing on this crude confirm our technology's ability to reduce viscosity as previously seen with similar heavy Colombian crudes.
- **Indonesia Operator** – HCD's new Distributor submitted a proposal to aid the production of heavy oil from an unproduced zone.

effective collaboration

strategize & plan



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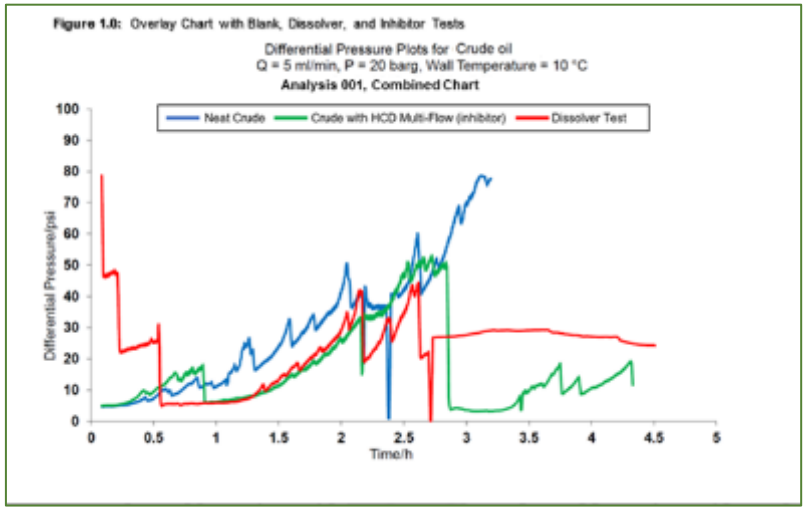
Evaluation Testing Breakthrough

Challenging the Status Quo

HCD Multi-Flow is a unique technology that challenges conventional thinking.

Laboratory testing remains a continuing and critical part of HCD's product development and marketing.

- Contemporary laboratory analysis used to determine the effectiveness of conventional paraffin inhibitors has limited value when used to assess HCD Multi-Flow.
- HCD Multi-Flow was evaluated by an independent, UK based Laboratory in May utilizing Dynamic Flow Loop testing to measure its ability to mitigate the damaging effects of a severely waxy North Sea crude. These tests yielded very promising results for evaluating the effectiveness of our chemistry.
- The graph to the right shows that HCD Multi-Flow performed well at removing existing paraffin deposition, and as a paraffin inhibitor.



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Current Priorities – Australia

Australian Paraffin Pilot Test

- Paraffinic crude is produced in Australia's Cooper Basin and is therefore a target area for HCD technology.
- A 6-month pilot was recently started utilizing HCD Multi-Flow to control paraffin deposition in flowlines, tanks and an export line for a mid cap producer in Australia.
- Success here will likely lead to an increase in the scope of work and opportunities with other producers in the region.

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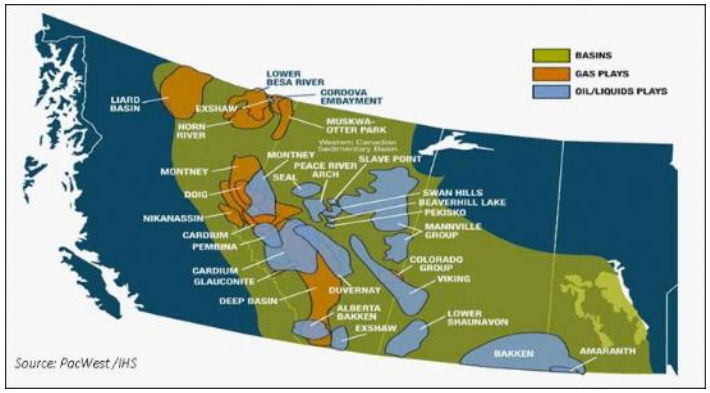
Current Priorities – Canada



Paraffinic Crude Oil Region:

The COVID 19 pandemic caused serious delays in Canadian opportunities. We anticipate increased activity as restrictions are eased.

- One of HCD's Canadian distributors is positioned to start trials in the Montney and Cardium fields with large TSX listed producers.
- Additionally, this distributor is close to closing a field trial with a mid cap pipeline company that has paraffin deposition issues.
- A Canadian distributor is expanding the reach of our technology to hydraulic fracturing chemicals and has created numerous formulas blended with HCD Multi-Flow. HCD Multi-Flow will be utilized to reduce the formation of sludge and difficult microemulsions that can develop during fracking and seen in frac flowbacks.

Current Priorities – Canada

Oil Sands & Heavy Oil Sector:

HCD activity in the sector has been hampered by COVID 19

- Our chemical technology reduces heavy oil viscosity and seeks to replace significant volumes of “diluents” that are used to produce, transport & store heavy oil.
- Encouraging test results and pervious field trials in China and Colombia suggests the addition of Bit-Flow may reduce diluent requirements by up to 50%.
- HCD has a path with two distributors focusing on this business sector in 2021 and inroads have been made with a large TSX listed Canadian Producer.

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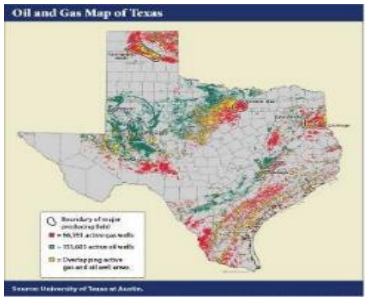
Current Priorities – USA

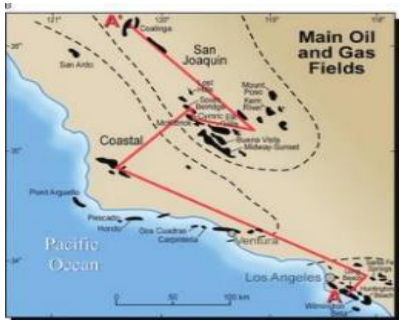
Our new distributors are bringing numerous opportunities in the US

- One Distributor expects to trial HCD technology in up to three fields



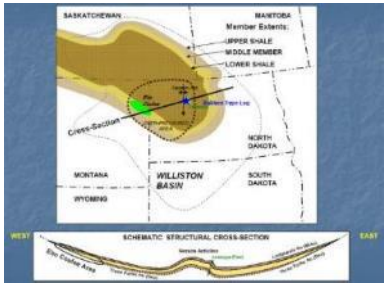
Texas

Waxy crudes of the Permian/Delaware basin, old shelf
South Texas, Eagle Ford Shale
Central Texas – trial started on 1 May 2021 on an extremely difficult to treat stripper well



California

Heavy Oil – Cat Canyon (Diluent), San Ardo, Midway Sunset field
Waxy crudes – San Joaquin Facilities
of the Fruitvale and 10-Section leases



Dakotas

Bakken Shale & Williston Basin

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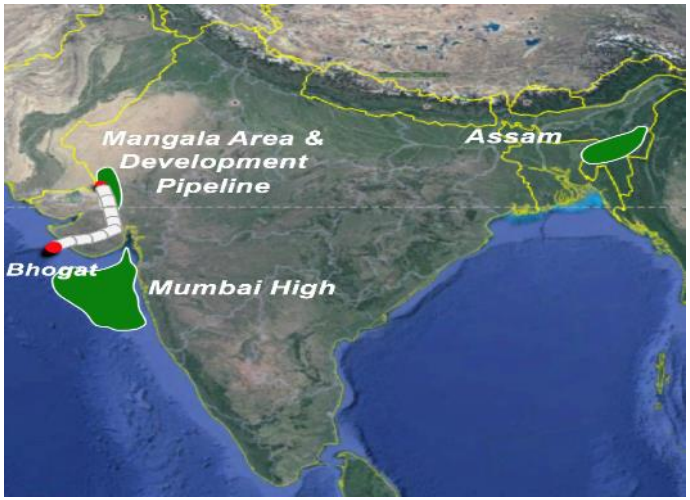
Current Priorities – North Sea

Paraffinic North Sea crude

HCD strives to help producers who struggle with the effects of hydrocarbon-based deposition that can lead to loss of production.

- HCD has presented its technology to a large cap producer in the North Sea who is dealing with serious paraffin deposition in a well with a production rate greater than 2000 BOPD.
- Collaboration with the producer's technology team led to Dynamic Flow Loop testing of their waxy crude. Test results confirmed that HCD Multi-Flow is effective at removing existing paraffin deposits as well as inhibiting the formation of new ones for this waxy North Sea crude.

Current Priorities – India



Agent Activity

- Proposal submitted for two separate trials in Gujarat
  1. Tri-Phase Squeeze for production enhancement
  2. Pour point reduction
- Continues to work opportunity for a field test with a large NOC for pipeline, wellhead, and sludge in Assam

We continue to prioritize the Mangala pipeline, and our new distributor brings potential for pipeline crude oil mobility pilot test

- Mangala Export pipeline potential treatment opportunity with a large cap producer in India
- Potential for trial on a 20 km export pipeline or pipelines from the Bhogat terminal to the SPM (single point mooring equipment) section of a 115,000 BOPD pipeline.

Current Priorities – South America

Ombu block in southern Colombia

There is a renewed focus on heavy oilfields of Colombia and South America with a new Distributor who has operations in the region.

- HCD is working together on a prospective heavy oil project in the Ombu block in southern Colombia where testing revealed that our chemistry may reduce crude oil viscosity by up to 75% and reduce or even eliminate the need for diluent.

Potential VI opportunity for bunker fuel in Ecuador

- Samples being pulled for testing

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Current Priorities – Indonesia

Developing a new distributor model aligned with HCD's corporate strategy.

Our New Distributor is finding opportunities in the region.

- The initial opportunity for HCD technology is to aid an operator in Indonesia to produce heavy oil from an unproduced zone.
- A proposal has been submitted by our distributor.

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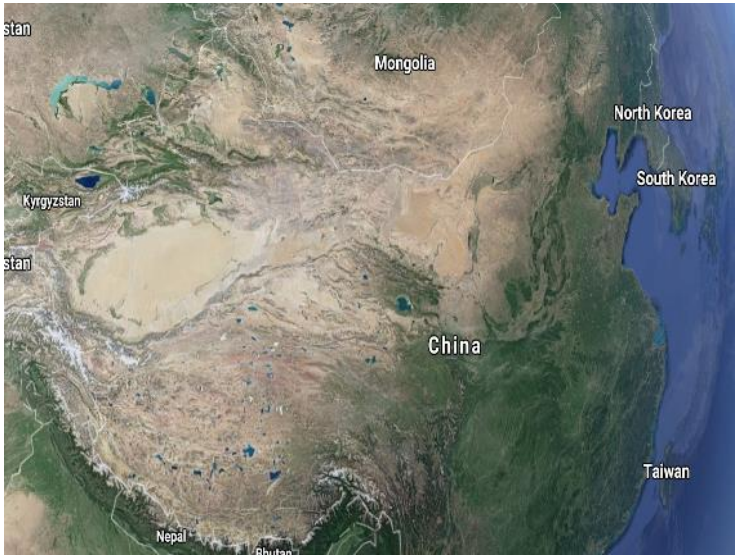
Current Priorities – China



Shear rate s-1	Temperature ℃	Viscosity Mpa·s (without MF)	Viscosity Mpa·s (Two days after injecting MF)	Reducing %	Viscosity Mpa·s (Four days after injecting MF)	Reducing %
170	20	1496.04	1165.89	22.07%	512.76	**65.73%**
170	30	813.82	704.3	13.46%	279.74	**65.63%**
170	50	300.96	291.51	3.14%	104.23	**65.37%**

Previous successful pilot in CNPC's heavy oil field in North West China where expensive diluent is used for viscosity reduction. Adding HCD Multi-Flow® gave the following results:

- diluent use was reduced by 40%,
- Viscosity was reduced by 65%
- Production increased by 22%

COVID has impacted progress in China and in particular access to the above-mentioned field remains open only to provincial residents however positive discussions have commenced recently

- Paraffin issues in an alternate and accessible substantial oilfield in North West China which to date have not been resolved by any chemical tests
- Initial testing with HCD Multi-Flow® is expected to commence soon
- The wells appear to be excellent candidates for continuous injection treatment that could result in continuous sales of HCD Multi-Flow®

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Current Priorities – Middle East

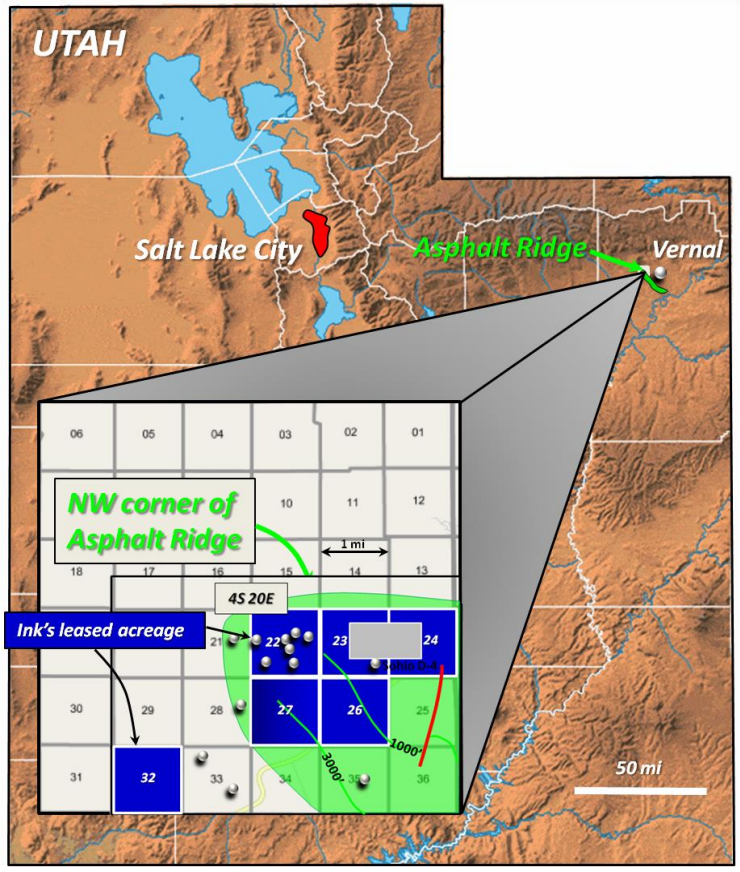
Saudi Arabia

- Aramco opportunities have been affected by COVID. Recent discussions suggest we can pursue the remaining tests and reschedule the tank clean

Iraq

- Basrah Oil Company (BOC) have restarted discussions regarding a tank clean and a pipeline clean-up. BOC operates the giant oilfields of Southern Iraq including Rumaila & produce approximately 3.2 million barrels of oil per day
- BOC have performed their own lab tests and have reported successful results including viscocity reduction, API uplift and no precipitates (i.e. HCD does not foul BOC crude)

Upstream Project – Utah



- Utah Oil Sands are estimated by the Utah Geological Survey (UGS) to contain 14-15 billion barrels of oil.
- Indago has leased 3,459 acres over part of Asphalt Ridge in the Uinta Basin. Independent certifiers, Netherland Sewell & Associates, have estimated an OOIP of 141.7 million barrels (mmbbl), and Contingent Resources of 12.4 mmbbl of 2C.
- Previous operators have drilled around INK's acreage indicating an oil saturated reservoir 27-53 metres thick at depths from 60-914m. Published results (UGS) from 6 wells drilled within INK's acreage report oil saturation of 65.6% of 10-14^0 API oil in sandstones with porosity of 30.3% & permeability of 524 mD.
- HCD signed MOU with Valkor that envisaged Valkor would fund 3 vertical wells or 1 horizontal well to earn up to 65% in deeper areas and up to 85% in the shallow 'mineable' areas. Valkor has not completed the farm in and are unlikely to do so.

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The Year Ahead

2021 Focus and Path Forward

As noted earlier, the direct and indirect effects of Covid 19 caused HCD marketing to lose significant momentum. HCD anticipates that the loosening of COVID restrictions and increase in oil price will generate momentum in the coming months.

- Distributor base – drive & strengthen existing distributor base while adding critical new ones in strategic areas
- Product screening – develop testing protocol to effectively evaluate the performance of HCD chemistry and generate literature data for distributors and customers
- Trials and treatment – focus on and build on current trials and potential trials in the Gulf of Mexico, other US basins, Canada, Australia, India, the North Sea, Colombia, Indonesia and China
- HCD must remain flexible in adapting to the industry and investment climate it finds itself in and will always look for opportunities to enhance shareholder value including possible investment in new energy technologies.

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Thank You

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Trial Successes/Lab Results

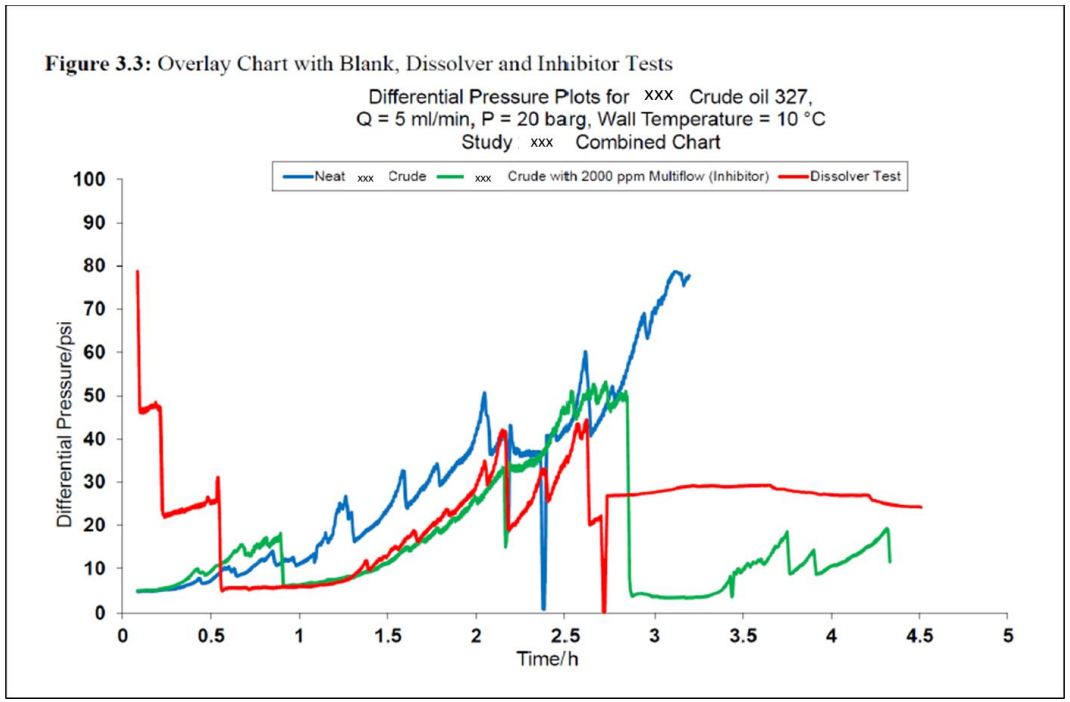
Field Successes

PROJECT	PURPOSE	DOSAGE RATE IN FIELD	RESULTS/STATUS
Whitecap (Western Canada)	Paraffin remediation and inhibition	250 ppm HCD Multi-Flow	Increased oil production by an average of ~12% across all wells; Decreased OPEX costs projected to be >$0.50/ BOE (not including the production increase); Significantly reduced the quantity of chemical needed (250 ppm vs. 1,250 ppm); Ended the need for demulsifier chemical treatment; Eliminated the need for hot oiling; eliminated need for solvent soaks.
Smart Chemical Two well trial (West Texas)	Paraffin remediation and inhibition	250 ppm HCD Multi-Flow	Treating two well that the distributor has been unsuccessful on to date. Paraffin coupons significantly cleaner with HCD Multi-Flow treatment and the wax is much softer. One well pulled and the pump, rods and tubulars are clean!
Petralis(Texas)	Increase Production in 3 wells	5 drums of MF/1 drums SR 7 lbs MicroPhase per Well	5-month avg oil production increase 186% /Gas increase of 316%
Oil India (India)	Increase Well Production Rates (Tri-Phase Squeeze)	10 drums MF/1 drums SR/10lbs MicroPhase per Well	64% Increase in oil production before Pump Failed for 11-week shutdown (retrial requested)
Cairn Energy (India)	Reduce Pour Point of oil in 105,000bopd pipeline	500– 5000 ppm MF	Modest decrease in pour point due to wrong equipment and sludge filled holding tank utilized in trial (retrial requested)
Petronas Platform	Restore production to 9,000 bopd	250 ppm HCD Multi-Flow	Pdn resumed for 5 years after 2 yr shut-in with PP reduction and emulsions broken
Kuwait	Viscosity Reduction in 1 well	20 drums used	Results Pending – Greater Burgan Field
China CNPC	Diluent Reduction in 1 well	38,000 bopd field @ 2,000ppm	Diluent may be reduced by 40%, viscosity by 65%, production increased 22%.
California 1 & 2		1,000 bopd field @ 2,000ppm	Diluent requirement reduced by 40% and organic deposition successfully removed from water pipe
Canada - Alberta	Improve Production of waxy oil	<200ppm continuous feed	4 wells treated. Pdn increase @ 150% over 6 months
Utah 1 & 2 (Newfield)	Pour Point Reduction	23,000 bopd @ 1,000ppm	Pour Point reduced by 14°C (25F). Company taken over

Lab & Bench-Top Success- Seeking Field Trials

PROJECT	LAB RESULT	STATUS
Repsol (Uk) Off Shore Paraffinated Crude	Performed closed loop test. Cleaned deposited wax in 30 seconds and showed affinity to prevent new wax deposition.	Performing closed loop test on their current product to compare results with those of HCD Multi-Flow * See attached slide for detailed results (32)
Colombian Heavy Crude (Qifa Field Battery #4)	Colombia crude sampled at Tank Battery #4 in the Qifa field at 1,000 PPM HCD Multi-Flow in an active system showed API uplift from 13.4 to 14.7, BS&W was reduced by 50% and Viscosity was also reduced by 50%. Overall good results.	Awaiting a trial *See attached slide for detailed results (33)
Colombian Heavy Crude (Qifa 340 Tank 020)	Colombia crude was sampled at 340 Tank 020 in the Qifa field. API was increased from 13.4 to 14.7 with the addition of approximately 1,000 PPM of HCD Multi-Flow in an active system. BS&W was reduced by 50% and Viscosity was reduced approximately 50% as well. Results of MF additions were good results.	Awaiting approval for trial
India (Ongc)	TESTING IN PROGRESS	Awaiting results
Colombian Heavy Crude (Emerald Oil)	EMERALD OIL Colombian crude was tested for Viscosity and API gravity. At 30C and 1250 PPM injection rate in field Viscosity dropped 75% while API increased from 8.9 to 10.2. Very good results	Awaiting approval for trial

Dynamic Flowloop Testing



Customer Technology Comment:

The blue line is the neat XXX crude oil with no chemical added and you can see the dp rises due to wax deposition.

The red line is when HCD Multi-Flow chemical is added to the crude oil and you can see that it works as a dissolver reducing the dp in the Flow Loop from the wax deposited from the blank test.

The green line is starting off from a clean Flow Loop to determine its efficiency as a wax inhibitor and you can see the dp rises initially and then drops back down to near baseline as wax is dissolved rises slightly and remains steady-ish.

Independent Laboratory statement:

HCD Multi-Flow chemical was evaluated for its performance as a wax dissolver and wax inhibitor I xxx crude oil.

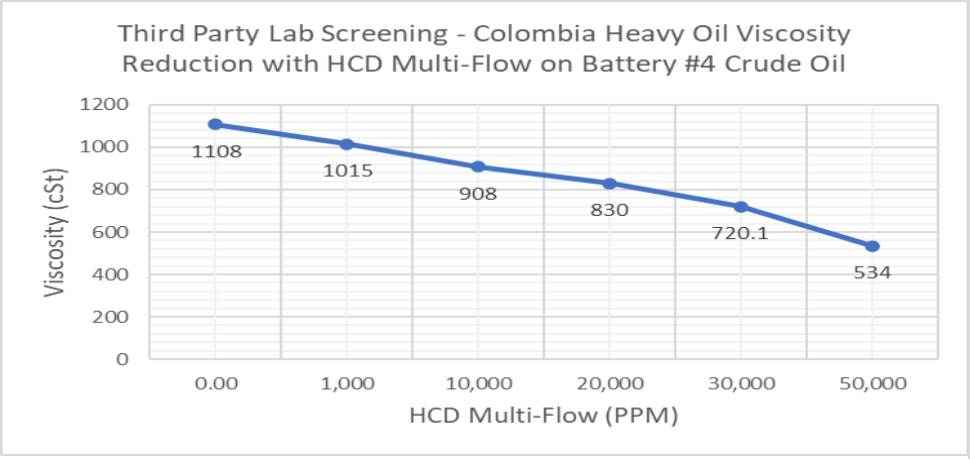
When applied as a dissolver in xxx crude, it removed pre-deposited wax within a cooled test capillary in approximately 30 minutes. It also limited subsequent deposition so that the differential pressure increase was less than half that which occurred in a blank test with xxx crude.

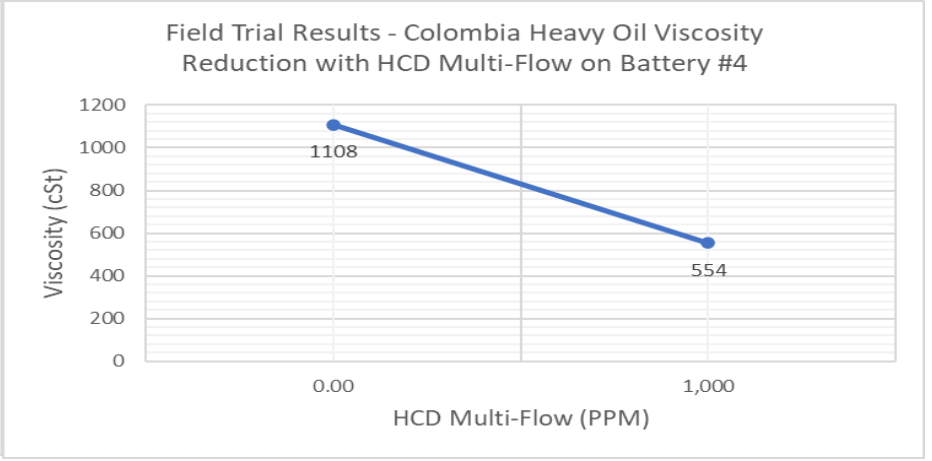
When applied as an inhibitor in xxx crude, it reduced both the rate and overall extent of wax deposition compared with a blank test. It also appeared to affect the nature of the wax deposits formed, with indications that the deposits were more easily removed under continued flow.

Colombia Heavy Oil Independent Lab testind vs. Field Results

Trial Results vs. Third Party Laboratory Analysis of HCD Multi-Flow on Heavy Colombian Crude Oil

			Qifa Field Colombia	Qifa Field Colombia	Qifa Field Colombia	Qifa Field Colombia	Qifa Field Colombia	Qifa Field Colombia	Qifa Field Colombia	Qifa Field Colombia	Qifa Field Colombia	Qifa Field Colombia
Date/Nos			4/5/2019									
Test Group	Units	Method	Baseline Battery #4	Battery #4 1% MF	Battery #4 2% MF	Battery #4 3% MF	Battery #4 5% MF	340 TK-020 Baseline	340-Tank -020 1% MF	340 TK-020 2% MF	340 TK-020 3% MF	340 TK-020 5% MF
API Gravity, Crude	° API	ASTM D-5002	13.4	13	13	14.4	14.7	13.4	13.7	14.1	14.5	14.8
Kinematic Viscosity	cSt @ 158ºF	ASTM D-445	1108	908	830	720.1	534	1105	970.1	835.1	650	547.4
BS&W	%	ASTM D-96M/4007	0.50%	0.25%	0.25%	0.25%	0.25%	0.50%	0.25%	0.25%	0.25%	0.25%
TRIAL RESULTS NOTES							Colombia crude sampled at Tank Battery #4 in the Quifa field at 1,000 PPM HCD Multi-Flow in an active system showed API uplift from 13.4 to 14.7, BS&W was reduced by 50% and Viscosity was also reduced by 50%. Overall good results.					Colombia crude was sampled at 340 Tank 020 in the Quifa field. API was increased from 13.4 to 14.7 with the addition of approximately 1,000 PPM of HCD Multi-Flow in an active system. BS&W was reduced by 50% and Viscosity was reduced approximately 50% as well. Results of MF additions were good results.





Testing Implications on Dosage Rates

- Tests and trials indicate dosage rates of HCD products for use in pipelines and continuous down-hole applications on viscous crudes are typically between 250 - 750 ppm
- Tests and trials indicate dosage rates of HCD products for use in heavy, extra heavy and viscous crudes are in the 1,000 – 2,000 ppm range
- Dosage rates will always vary considerably depending on individual applications and oil composition
- New product range and pricing to be confirmed before June 30th but indicative cost to producers for baseline product follows:

Multi-Flow Dosage Rates (ppm)	250	500	750	1000	2000
End User Cost/bbl (US$)*	$0.27	$0.53	$0.80	$1.07	$2.14
Annual Cost for 50,000bbl/day user	$4.8m	$9.6m	$14.4m	$19.2m	$38.5m

* Based on the North American recommended retail price of HCD standard Multi-Flow. Other MF based products will have different pricing

Hydrocarbon Dynamics
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