



Patented Water Treatment Technology: Hi-Flow® Process

High-Efficiency Free Oil In Water Treatment Process

CETCO Oilfield Services Hi-Flow Process is a simple and robust system that can treat high rates of free oil in water, allowing the operator to discharge fluid back into the environment in compliance with legislative requirements.

The Hi-Flow Process utilises a specifically designed media composition and orientation within canisters which are stacked and sealed onto internal guide rods.

The fluid is forced through the media where the physical pathways and media interactions force free oil to merge and release for accelerated gravitational separation.

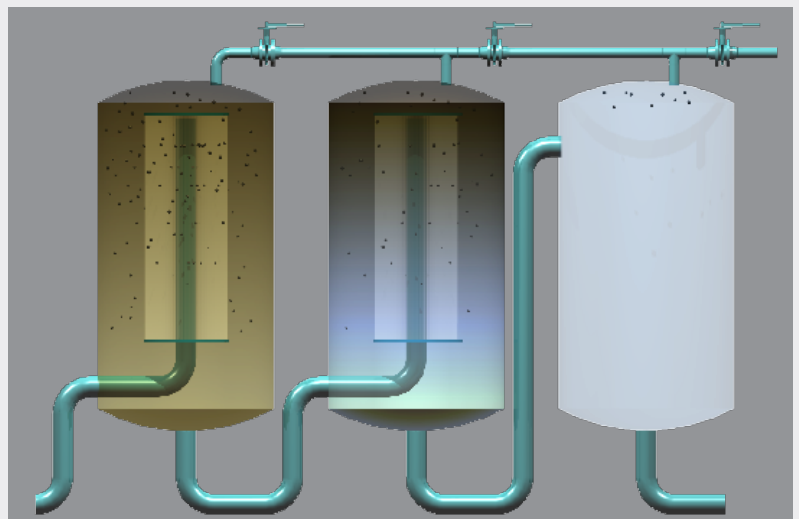
The Hi-Flow Process can deliver oil in water reductions from 400-500 ppm to discharge levels below 10ppm on a constant basis without media replacement. It can also accept intermittent peak concentrations of 1000ppm without impacting performance.

The Hi-Flow Process can handle small to large volumes of liquid from 250 BWPd trial systems to more than 20,000 BWPd skid mounted units. It is not impacted by large fluctuations in free oil inlet concentrations and can be used on projects of short or long duration.



Benefits

- Improves existing Process to meet discharge criteria
- Low Opex
- Lower Capex costs for flow capacity
- Less deckspace and weight requirements
- Low media replacement costs
- Reduced chemical usage



WATER TREATMENT



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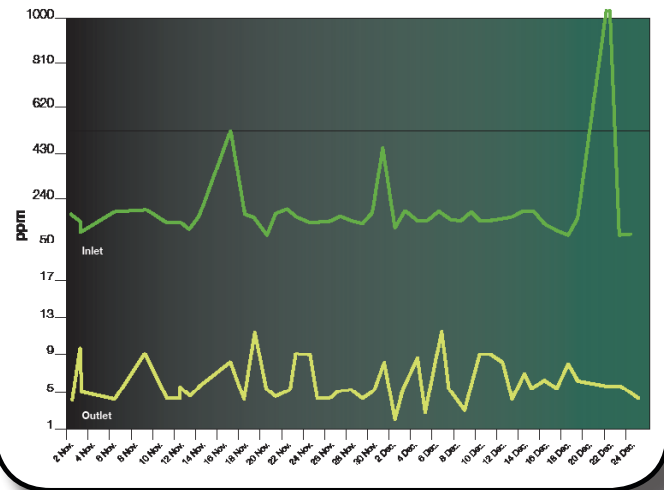
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Field Results

| Date | Sample Time | LP Separator out | Overboard water | Oil Removal | Total Barrels |
|----------------|-------------|------------------|-----------------|--------------|---------------|
| | | Inlet PPM | Outlet PPM | Efficiency | |
| 1 Oct | 15:00 | 457 | 4 | 99.12 | 311 |
| 2 Oct | 15:30 | 189 | 3 | 98.41 | 554 |
| 5 Oct | 15:00 | 107 | 3 | 97.20 | 804 |
| | 18:00 | 219 | 14 | 93.61 | 2,320 |
| 6 Oct | 6:00 | 188 | 6 | 96.81 | 3,758 |
| | 12:00 | 33 | 7 | 78.79 | 4,688 |
| | 18:00 | 20 | 6 | 70.00 | 5,968 |
| 7 Oct | 12:00 | 228 | 6 | 97.37 | 8,160 |
| | 18:00 | 80 | 5 | 93.75 | 9,480 |
| 8 Oct | 6:00 | 256 | 8 | 96.88 | 11,848 |
| | 12:00 | 34 | 5 | 85.29 | 12,623 |
| | 18:00 | 27 | 6 | 77.78 | 12,998 |
| 9 Oct | 11:00 | 10 | 5 | 50.00 | 17,393 |
| | 13:00 | 20 | 6 | 70.00 | 18,285 |
| | 19:00 | 12 | 4 | 66.67 | 18,787 |
| | 10 Oct | 0:00 | 20 | 4 | 80.00 |
| | 6:00 | 18 | 2 | 88.89 | 20,266 |
| | 12:00 | 17 | 4 | 76.47 | 20,884 |
| | 18:00 | 18 | 4 | 77.78 | 21,111 |
| Average | | 103 | 5 | 83.94 | 11,023 |

Results from CETCO Oilfield Services Hi-Flow Process



Technical Parameters

Current equipment can be provided on a temporary basis to handle the following process parameters:

- Design Pressure: up to 16.5 barg (240 psi)
- Design Temperature: 0° C-100° C
- Design Flow Rates: No minimum flow

Units can be manufactured for installation to client specifications.

- We have small test/trial unit—250 BPD (1.7m³/hr)
- Other units currently up to—25,000 BPD(165m³/hr)
- Pressure drop across complete system at 2 barg

System Requirements

Inlet line pressure of approximately 4 barg, with a differential pressure across the system of 2-3 barg. (Pumps can be provided if required)

Utility Requirements

Water supply for flushing/draining

Features

- Can reach environmental discharge requirements without further treatment
- Reduced media costs
- High turndown capability
- Handles fluctuating inflow without affecting performance
- Simple robust system with minimum operator intervention
- Small footprint
- Refresh of media by backflushing

