BaraOmni™ Hybrid Separation System

COMPACT, MOBILE TECHNOLOGY REMOVES ULTRA-FINE SOLIDS AND TREATS WASTE STREAMS

CHALLENGE
Maintaining fluid properties requires constant management. As drilling fluids are used, ultra-fine low-gravity solids (LGS) accumulate and can negatively impact fluid performance. Previously, there have not been any effective, field-proven technology solutions for the removal of these ultra-fine LGS, and dilution has been typically used to address this issue, which escalates costs. The result of this process has been large volumes of spent fluids containing high concentrations of LGS.

Additionally, the treatment, handling, and transport of oil-contaminated drill cuttings, centrifuge underflow, and other waste streams can have a major impact on customer approvals for expenditure (AFEs) and risk exposure. Efficiently separating hydrocarbons from drill cuttings can help drastically reduce disposal volumes and the toxicity of remaining wastes while enabling the recovery or reuse of fluids. Technology alternatives capable of delivering dry, separated solids can be too complex and cost prohibitive for many land operations and cannot effectively process drilling fluids.

SOLUTION
The Halliburton BaraOmni™ hybrid separation system combines advanced solids control with waste treatment capabilities to improve operational and environmental performances. To achieve these results, this patented technology process uses low heat in a high-vacuum environment to produce pre-mix quality drilling fluids and dry separated solids, while recovering up to 99.5 percent of the fluid. When processing drilling fluids or drilling cuttings, the residual oil content on the separated solids meets < 1 percent total petroleum hydrocarbons (TPH).

By effectively removing ultra-fine LGS, which was not previously possible, the hybrid separation system delivers better-performing, longer-lasting fluid systems. This eliminates the need for dilution and improves operators’ abilities to recover drilling fluids so they can drill more wells with less fluid volumes.

The technology features the ability to treat drilling fluids, contaminated solids, and other hydrocarbon waste streams with a single compact and highly mobile system. This efficient system reduces the need for traditionally complex solids control and waste management equipment setups. As a result, operators can minimize waste transportation, offsite treatment, and storage to reduce environmental exposure and total cost of ownership.

FEATURES
» Combined low energy and vacuum treatment process
» Near instantaneous extraction and condensation of vapors
» Onshore system contained within a standard 53-foot trailer
» Minimal ancillary equipment required

BENEFITS
» Treats drilling fluids, cuttings, and other hydrocarbon wastes with a single system
» Provides effective removal of ultra-fine solids to deliver pre-mix quality drilling fluids
» Results in separated solids that can achieve < 1 percent TPH
» Recovers up to 99.5 percent of drilling fluids without degradation
» Enables easy transportation, installation, and mobilization
» Reduces personnel requirements
» Lower power requirements
» Offers easy repair and maintenance

APPLICATIONS
» Land
» Solids control
» Waste treatment
» Rigsites
» Liquid mud plants
## BaraOmni™ Hybrid Separation System Specifications

<table>
<thead>
<tr>
<th></th>
<th>Single Separation Module</th>
<th>Dual Separation Module</th>
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<tbody>
<tr>
<td><strong>Processing Capacity</strong></td>
<td>Drill cuttings: 30-40 tonnes per day</td>
<td>Drill cuttings: 60-80 tonnes per day</td>
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<td></td>
<td>Drilling fluids: 20-25 tonnes per day (80-100 bbl/day)</td>
<td>Drilling fluids: 40-50 tonnes per day (160-200 bbl/day)</td>
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<td><strong>Fluid Recovery Efficiency</strong></td>
<td>&gt; 99%</td>
<td>&gt; 99%</td>
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<tr>
<td><strong>Residual Oil on Solids</strong></td>
<td>&lt; 1% wt TPH</td>
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<td><strong>Running Load</strong></td>
<td>265 kW</td>
<td>500 kW</td>
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<td><strong>Voltage</strong></td>
<td>480 VAC</td>
<td>480 VAC</td>
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<tr>
<td><strong>Certification</strong></td>
<td>cULus</td>
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<tr>
<td><strong>Feed Mix Tank Capacity</strong></td>
<td>1000 L (6.3 bbl)</td>
<td>2000 L (13 bbl)</td>
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<td><strong>Dimensions</strong></td>
<td>Single self-contained standard trailer Length: 53’ (16 m) Width: 8.6 (2.6 m) Height: 13’2” (4 m)</td>
<td>Single standard trailer with support skid Length: 53’ (16 m) Width: 8.6 (2.6 m) Height: 13’2” (4 m)</td>
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<tr>
<td><strong>Weight</strong></td>
<td>30,400 kg (67,000 lb)</td>
<td>31,800 kg (70,000 lb)</td>
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<td><strong>Control System</strong></td>
<td>Fully automated programmable logic controller (PLC) with dual 14” human machine interface (HMI) screen</td>
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For more information, contact your local Halliburton representative or visit us on the web at www.halliburton.com