iFacts™ Laboratory Management System
Dynamic repository of global test results from Halliburton fluids laboratories

Halliburton has several hundred field laboratories for fluids testing around the world. Each laboratory is responsible for the quality-control testing of drilling fluids, cement slurry system designs, and stimulation/fracturing fluids for use in customer wells in the region or district to which it is dedicated. Although the laboratories are geographically dispersed, laboratory operations are standardized and the test results are captured and globally accessible through iFacts™ laboratory management system.

All material and fluid samples are registered, scanned and referenced via a barcode scanning label. Whether the samples are captured in the warehouse, the bulk plant or on the rig site, each carries a standard minimum-information bar-coded label. This information is then captured in the iFacts system and the sample is dynamically followed through all requested test. The sample information includes:

- Material name
- Date sampled
- By whom it is sampled
- Rig or well name
- Batch/Lot number

Each sample is assigned an appropriate series of tests. The test requests are submitted through the iFacts system where the requests are reviewed and assigned to a technician. The iFacts system allows testing data to be attached to the repository so the requesting engineers/technical professionals can thoroughly review and approve the requests. Examples of tests that can be performed and recorded include:

- Ultrasonic Cement Analyzer (UCA)
- Fluid Loss
- Thickening time (TT)
- API Rheology
- Mixability
- Free Fluid

The iFacts system includes a text messaging feature that pushes communications to in-system technical professionals via email or mobile devices regarding test results. Once testing is completed, results are reviewed up through the most senior technical expert specified. The review process includes a review of both the test procedures and the results data. The centralization of the data eliminates the need for technical professionals to travel to other laboratories to review and/or audit the test results. The review status is noted in the system and once deemed “acceptable” the system notes the tests as “completed” and reports can be generated to provide to the customer. Thus, the iFacts system provides complete traceability of the chain of custody from sample capture to the standardized customer report. This system facilitates the involvement of appropriate expertise before the job is run. Additionally, it creates an intrinsic feedback loop to routinely capture and implement process improvement opportunities due to the centralization and cumulative nature of the data.

The iFacts laboratory management system enables anytime and anywhere access to a depth of test data that can be referenced by job types, test type, specific parameters such as temperatures, densities, fluid type, and more. This increases the efficiency in optimizing fluid designs globally by enabling local laboratories to leverage the collective knowledge.

**Benefits**

- Streamlined workflow process with a record of personnel, equipment used, changes at any stage, etc.
- Anytime/anywhere access (where VPN is available)
- Improved service quality regarding sample registration and quality assurance/quality control via barcode labeling and barcode scan into the system
- Test results logged in real time
- Engineers receive automatically-generated text messages about the testing
- Availability of data for all testing conducted by job type, test type and more

### iFacts™ Laboratory Management System

<table>
<thead>
<tr>
<th>Warehouse, bulk plant or rig-site samples receive barcode labels</th>
<th>Material name; Date sampled; By whom it is sampled; Rig or well name Batch/lot number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access</td>
<td>VPN / anytime / anywhere</td>
</tr>
<tr>
<td>Test projects captured</td>
<td>&gt;300,000 by EOY 2012</td>
</tr>
</tbody>
</table>
Samples are labeled, weighed, and scanned into the iFacts™ Laboratory Management System.

Test results available for reference include laboratory data-driven charts.

Customer reports are standardized, yet customizable down to the level of detail requested by the customer.

For more information on iFacts™ Laboratory Management System, please call your local Halliburton representative or email us at cementing@halliburton.com.

© 2013 Halliburton. All rights reserved. Sales of Halliburton products and services will be in accord solely with the terms and conditions contained in the contract between Halliburton and the customer that is applicable to the sale.