

From: Timothy Quirk
Sent: Mon Nov 08 16:58:32 2010
To: Richard Vargo
Subject: RE: RP 65
Importance: Normal

Richard,

I asked Myrna to give me the Summit report from March of this year because of the high test volumes we were experiencing at the beginning of the year. I still found it very difficult to relate that to actual lab test demands. In terms of overall lab test volumes, March was a little above average for 2010, so I used that month to come up with my estimates.

March 2010, Actual

- Shelf and DW Casing and Liner jobs billed in Summit – **25**
- SS, Land & Inland Casing and Liner jobs billed in Summit – **36**
- Actual Thickening Time Test Requests for Casing and Liners – **288**

The following tests include all Shelf, DW, SS and Land & Inland Waters work

- Total Thickening Times for Casing and Liners – **412**
 - Pilot – 207
 - Operation (blend) – 184
 - Other – 21
- Total Compatibilities for Casing and Liners – **22**
 - Pilot – 8
 - Operation – 14
- Total Fluid Loss Tests for Casing and Liners – **133**
 - Pilot – 82
 - Operation – 49
 - Other – 2
- Total UCA Tests for Casing and Liners – **205**
 - Pilot – 119
 - Operation – 82
 - Other – 4
- Total Static Gel Strength Tests for Casing and Liners – **34**
 - Pilot – 18
 - Operation – 15
 - Other – 1

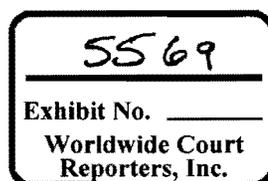
We ran a total of 915 thickening times in March, 412 of which were Casing or Liner jobs for the Shelf, DW, SS, Land and Inland waters. I would estimate that 170 thickening times were tied to shelf and deepwater testing.

Roughly 75% of all Shelf jobs are pilot tested only. The remaining 25% are both Pilot and Blend Tested. In Deepwater, approximately 90% of all tests are with Location Blend samples.

I estimated that 170 thickening times were required for Shelf and Deepwater testing in March. With that being the case, I would estimate an increase of 285 thickening times if we had been required to perform Pilot, Bulkplant and Location tests for each job. This would have brought the thickening time total to 455.

In the first round of pilot testing, I would estimate that it takes about 1.43 times per request to establish the

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thickening time window. With a good starting point from Pilot tests, the Bulkplant and Location sample tests have a much better chance of hitting the requested window the first time. On average, Thickening times are about 27% of all the tests we perform so with an increase of 285 thickening times for the month of March, I would estimate an increase of 1055 total tests for the month (up 31%). This does not include the expected increase in Compatibility and Static Gel Strength Tests.

Spacer, Mud and Slurry Compatibility testing will probably be the most labor intensive part of what we'll face moving forward. Having to test compatibilities with the various ratios of mud, cement and spacer can tie up the lab techs and atmospheric consistometers for a few hours at a time. Currently, Shelf and Deepwater perform compatibility tests on only 10% of all requests, so there will be a huge increase in the future.

I was told that we can expect to see transition time requests nearly equal to that of thickening time requests for casing and liner jobs in the GOM. If that's the case, it is possible we'll need 1 to 2 more Macs II units.

I believe we are good with the 16 HPHT consistometers that we currently have. It takes a tremendous amount of manpower to keep 16 HPHT's running efficiently. When we received the 4 Fann units last year, my plans were to release 4 of the smaller Chandler units. I changed my mind after seeing the increase in test volumes earlier this year. I feel very comfortable with the 16 HPHT's we have now; we'll just need additional staff to run them efficiently.

Major Obstacles:

- **Compressive Strengths**--- We currently we have 20 UCA's (not counting the Stand Alone unit dedicated to field operations). We have space to add about 6 to 7 more units in the high pressure consistometer room. The room is already equipped with chilled water, compressed air and electricity. We will have to develop a better drainage system for the units but that shouldn't be a major issue.
- **Static Gel Strength Tests** ---We just got our third Macs II about a week ago. I expect that we'll need 1 to 2 more units. We can use the two additional HPHT rooms (closets) we had equipped for high temperature consistometer testing.
- **Compatibility / Wettability Tests** – I see the need for 2 additional Wettability Meters and 2 Chan 35 Viscometers.
- **Atmospheric Consistometers** – We have 6 units in place now. For all of the Spacer and Mud compatibilities, I feel we need 6 additional units. We can place them back to back on the island they're on now. We just need additional electrical outlets and modification to the plumbing for chilled water.
- **Increased Lab Staff** – For January through June of 2010 we averaged 108 tests per day. During this time period we had 20 lab technicians, 5 per shift team (including 2 from temp service). This accounts for 5.40 tests per day, per lab technician. Very rarely were we able to keep up with the testing demands during this time period. It was very common to have 30 to 40 tests waiting in line. Basically, we didn't have the manpower to efficiently run 16 HPHT consistometers. Many times we had jobs assigned to all of them but when a test was over, due to understaffing, it took a considerable amount of time to get the next test going again.

Year to date, we have averaged 95.6 tests per day. If our work activities increase by 31%, I think we'll need to staff 6 lab technicians for each shift (24 total). This would require hiring 7 additional lab technicians. Once we get the 2 new hires in the next few weeks, our lab technician total will be 17. In addition, I think we need to consider adding another Chemist.

<u>Month</u>	<u>Tests per day</u>	<u>Month</u>	<u>Tests per day</u>
January	103	June	98
February	102	July	74

March	110	August	66
April	104	September	82
May	128	October	89

I'm probably giving you a lot more information than you need but when I request increasing lab staff and equipment by these numbers, I want to make sure you are very clear on how I came up with the numbers.

I would also like to bring up the point that with the fact that we will be receiving bulk plant and location samples, there is a possibility that we will need additional storage.

Please take a little time to review this and then give me your feedback. The additional lab technicians may seem like a stretched request but keep in mind that even with the 2 new hires, we are still 3 lab technicians short of what we had for the first half of the year.

Great Job Today!!

Thanks,

Tim Quirk

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From: Richard Vargo
Sent: Friday, November 05, 2010 1:00 PM
To: Paul Osborne; Timothy Quirk
Subject: RP 65

Team,

As discussed this morning we are receiving several requests from the operators on additional testing and engineering.

1. All casing strings and liners will require Pilot/Bulk Plant Blend/Location testing.
2. We must perform Opticem hydraulic simulations on every string of pipe.
3. We must perform Opticem centralizer placement simulations on every casing string.
4. All strings will require compatibility testing with the location mud samples.

I am not exactly sure how we will accomplish this but we will do everything on our power to complete the requests.

Obviously the other side of the coin here is we will have to charge for this additional engineering.

One part of the discussion this morning was to develop a sheet with what we do by string. The sheet could identify each for the lab testing performed as well as the simulations. Beside each line item we will show an SAP cost number and price. The spread sheet could be set up with a discount based on the customer and we would be able to pass this out to the field to assure that the representative charges are captured.

Just thoughts.

Tim – You know what you need to do and let me know if you need any help on anything.

Paul – Please let me know if you need additional resources as well.

Thanks to both of you.

Richard F. Vargo Jr.

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