Schlumberger
East Division Technology Center

Laboratory Cement Test Report – Lead Field Blend

Horseheads District Laboratory

Service Order: 2190103

Fluid No	**: HNY150339FL1**	Client	: **Northeast Natural Energy**	Location / Rig	: **Patterson 254**	Signatures	
Date	: Sep-24-2015	Well Name	: **MIP 3H**	Field	:		Justice Amoah

Job Type	**Production**	Depth	**13925.0 ft**	TVD	**7688.0 ft**
BHST	**145 degF**	BHCT	**143 degF**	BHP	**7000 psi**
Starting Temp.	80 degF	Time to Temp.	00:59 hr:mn	Heating Rate	1.07 degF/min
Starting Pressure	534 psi	Time to Pressure	00:59 hr:mn	Schedule	9.6-1

Composition

Slurry Density	**15.00 lb/gal**	**Yield**	**1.26 ft3/sk**	**Mix Fluid**	**4.350 gal/sk**
Solid Vol. Fraction	**53.8 %**	Porosity	46.2 %	Slurry type	**Conventional**

Code	Concentration	Sack Reference	Component	Blend Density	Lot Number
FlexSEAL 15		**100 lb of BLEND**	Blend	**154.24 lb/ft3**	8-13-15/4-5
DI water	**4.265 gal/sk**		Base Fluid		
D202	**0.200 %BWOB**		Dispersant		42474-4
D046	**0.200 %BWOB**		Antifoam		CW5H0456A1
D201	**0.290 %BWOB**		Retarder		G050815-02
D153	**0.200 %BWOB**		Antisettling		3102015
D206	**0.050 gal/sk**		Antifoam		S1230141
F103	**0.010 gal/sk**		Surfactant		144523
D174	**4.000 %BWOB**		Expanding ce		CW5H0415A1
D167	**0.200 %BWOB**		Fluid loss		DAFA006804
D801	**0.025 gal/sk**		**Retarder**		11E-24

Rheology Geometry: R1B5 F1.0 S/N 1093

Temperature	80 degF			143 degF		
(rpm)	Up (deg)	Down (deg)	Average (deg)	Up (deg)	Down (deg)	Average (deg)
300	**128.0**	**128.0**	**128.0**	**85.0**	**85.0**	**85.0**
200	**99.0**	**101.0**	**100.0**	**66.0**	**60.0**	**63.0**
100	**67.0**	**68.0**	**67.5**	**40.0**	**35.0**	**37.5**
60	**53.0**	**53.0**	**53.0**	**30.0**	**24.0**	**27.0**
30	**40.0**	**40.0**	**40.0**	**20.0**	**15.0**	**17.5**
6	**25.0**	**26.0**	**25.5**	**9.0**	**6.0**	**7.5**
3	**20.0**	**22.0**	**21.0**	**7.0**	**5.0**	**6.0**

10 sec Gel	24 deg - 28.50 lbf/100ft2	10 deg - 11.88 lbf/100ft2
10 min Gel	50 deg - 59.38 lbf/100ft2	36 deg - 42.76 lbf/100ft2
Rheo. computed	Viscosity: 217.001 cP Yield Point: 33.97 lbf/100ft2	Viscosity: 171.268 cP Yield Point: 10.58 lbf/100ft2

Thickening Time S/N 455

Cement Set Condition: Set hard

Consistency	Time
30 Bc	**06:20 hr:mn**
50 Bc	**06:33 hr:mn**
70 Bc	**06:37 hr:mn**
100 Bc	**06:50 hr:mn**

UCA Compressive Strength S/N 263LC

UCA test run at 145 degF

Time	CS
16:11 hr:mn	**50 psi**
19:48 hr:mn	**500 psi**
12:00 hr:mn	**6 psi**
24:00 hr:mn	**738 psi**

Free Fluid

0.3 mL/250mL **(0.12%)** in 2 hrs
At 143 degF and 45 deg incl
Sedimentation : **None**

Comments

Slurry Density Verified by Pressurized Mud Balance (S/N 2071208): 15.0 ppg
Field Blended by Bulk Plant Crew:A
AS 35868 (SG 2.40) + AS 37306 (SG 2.40) in Silo 30167
Spiked with 0.025gps D801
Non-spike TT @ 70Bc 3:55 hr:mn

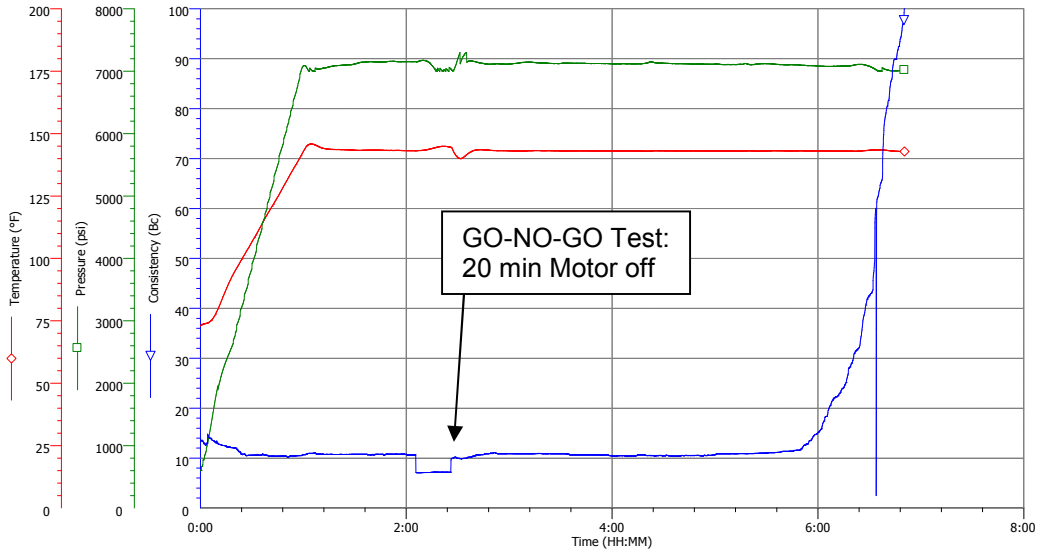
Schlumberger Private

Thickening Time Test

15.0 ppg ChelseaFlex
BHST: 145°F BHCT: 143°F
.2%D202+.2%D046+.29%D201+.2%D153+4.0%D174+.20%D167+.05gpsD206+.01gpsF103+.025gpsD801
AS 35868 + AS 37306 for Silo 30167
Spiked w / .025gpsD801

Northeast Natural Energy
MIP 3H

30Bc 6:20:45
50Bc 6:33:10
70
100 Bc 6:50:25



SCHLUMBERGER
Horseheads, NY District Laboratory

Test File Name: HNY150339FL1 Cons. #7 Retest #1.tst
Instrument S/N: 455
Test performed by: Casey Dombert

Test Start - 9/22/2015 10:36:28 PM
Test Stop - 9/23/2015 5:26:53 AM

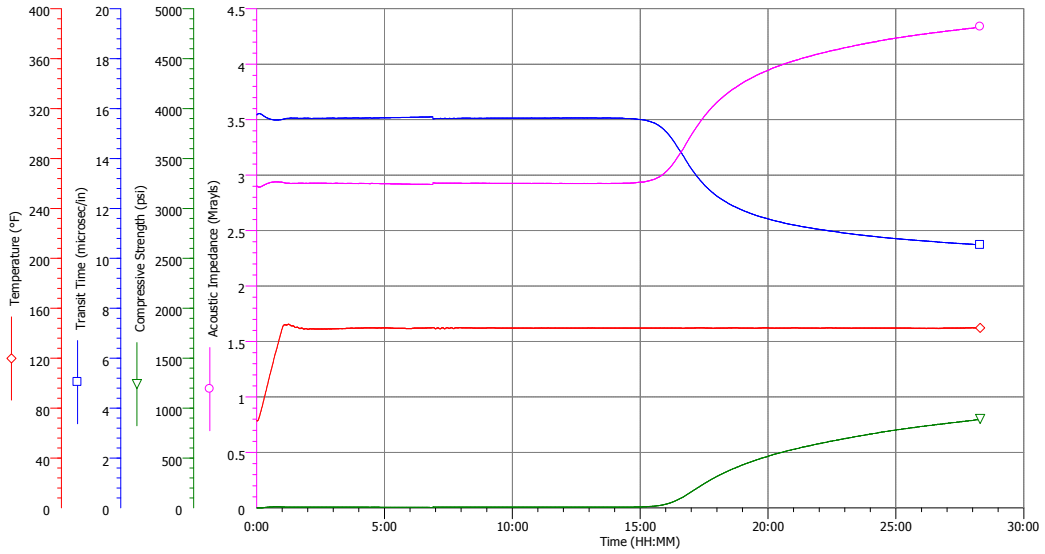
Compressive Strength Test

UCA Test run at 145 degF

HNY150339FL1 UCA # 2LC.tst S/N 263LC
Test Start: 9/23/2015 9:15:31 AM
Test Stop: 9/24/2015 1:33:23 PM
15.0 ppg
Compressive strength type B (more than 14 lb/gal)
AS 35868 + AS 37306 in Silo 30167

Well ID: MIP3H
Customer: Northeast Nartural Energy
FlexSEAL 15
4.0%D174+0.2%D202+0.2%D046+0.29%D201+0.2%D153=0.25d167=0.05gpsD206=0.01gpsF103+0.025gpsD801
Production

BHCT: 143°F
BHST: 145°F
50psi @ 16:11:30
500psi @ 19:48:00
Current CS: 889 psi



SCHLUMBERGER
Horseheads, NY District Laboratory

Test File Name: HNY150339FL1 UCA # 2LC.tst
Printed: 9/24/2015 3:01:04 PM

Page 1

Invalid signature

X

Erik Larson
LT2
Signed by: elarson@slb.com