

HALLIBURTON

iCem[®] Service

GREAT WESTERN OIL & GAS LLC

DeTienne FD 10-279HC

Sincerely,
Justin Lansdale

Legal Notice

Warning Disclaimer

Although the information contained in this report is based on sound engineering practices, the copyright owner(s) does (do) not accept any responsibility whatsoever, in negligence or otherwise, for any loss or damage arising from the possession or use of the report whether in terms of correctness or otherwise. The application, therefore, by the user of this report or any part thereof, is solely at the user's own risk.

Limitations of Liability

Except as expressly set forth herein, there are no representations or warranties by Halliburton, express or implied, including implied warranties of merchantability and/or fitness for a particular purpose. In no event will Halliburton or its suppliers be liable for consequential, incidental, special, punitive or exemplary damages (including, without limitation, loss of data, profits, use of hardware, or software). Customer accepts full responsibility for any investment made based on results from the Software. Any interpretations, analyses or modeling of any data, including, but not limited to Customer data, and any recommendation or decisions based upon such interpretations, analyses or modeling are opinions based upon inferences from measurements and empirical relationships and assumptions, which inferences and assumptions are not infallible, and with respect to which professional may differ. Accordingly, Halliburton cannot and does not warrant the accuracy, correctness or completeness of any such interpretation, recommendation, modeling or other products of the Software Product. As such, any interpretation, recommendation or modeling resulting from the Software for the purpose of any drilling, well treatment, production or financial decision will be at the sole risk of Customer. Under no circumstances will Halliburton or its suppliers be liable for any damages.

Table of Contents

- 1.0 Cementing Job Summary 4
 - 1.1 Executive Summary4
 - 1.2 Planned Pumping Schedule7
 - 1.3 Job Overview8
 - 1.4 Water Field Test.....9
- 2.0 Real-Time Job Summary 10

1.0 Cementing Job Summary

1.1 Executive Summary

Halliburton appreciates the opportunity to perform the cementing services on the **DeTienne FD10-279HC** cement **Surface** casing job. A pre-job safety meeting was held before the job where details of the job were discussed, potential safety hazards were reviewed, and environmental compliance procedures were outlined.

Halliburton maintains a continuous quality improvement process and appreciates any comments or suggestions that you may have. Halliburton again thanks you for the opportunity to perform service work on this well. We hope to be your solutions provider for future projects.

Respectfully,

Halliburton Brighton

	Date	Time (24hr)
Callout:	2/23/15	1900
On Location:	2/24/2015	0045
Job Started:	2/24/2015	0252
Job Completed:	2/24/2015	0508
Departed Location:	2/24/2015	0600
Verified Ticket With:	2/24/2015	STEPHANIE

The Road to Excellence Starts with Safety

Sold To #: 346459	Ship To #: 3649280	Quote #:	Sales Order #: 0902158106
Customer: GREAT WESTERN OIL & GAS LLC - eBUS	Customer Rep:		
Well Name: DeTienne	Well #: FD10-279HC	API/UWI #:	
Field:	City (SAP): WINDSOR	County/Parish: WELD	State: COLORADO
Legal Description:			
Contractor: CRAIG ENERGY	Rig/Platform Name/Num: CRAIG 4		
Job BOM: 7521			
Well Type: GAS			
Sales Person: HALAMERICA\HB60191	Srvc Supervisor: Aaron Smith		
Job			

Formation Name			
Formation Depth (MD)	Top		Bottom
Form Type			BHST
Job depth MD	1053ft	Job Depth TVD	1053
Water Depth		Wk Ht Above Floor	5
Perforation Depth (MD)	From	To	



Well Data

Description	New / Used	Size in	ID in	Weight lbm/ft	Thread	Grade	Top MD ft	Bottom MD ft	Top TVD ft	Bottom TVD ft
Casing		9.625	8.921	36	STC	J-55	0	1053	0	0
Open Hole Section			13.5				0	1065	0	0

Tools and Accessories

Type	Size in	Qty	Make	Depth ft		Type	Size in	Qty	Make
Guide Shoe	9.625					Top Plug	9.625	1	HES
Float Shoe	9.625	1	SSII	1053		Bottom Plug	9.625		HES
Float Collar	9.625	1	SSII	1010		SSR plug set	9.625		HES
Insert Float	9.625					Plug Container	9.625		HES
Stage Tool	9.625					Centralizers	9.625		HES

Miscellaneous Materials

Gelling Agt		Conc		Surfactant		Conc	Acid Type		Qty	Conc
Treatment Fld		Conc		Inhibitor		Conc	Sand Type		Size	Qty

Fluid Data

Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft ³ /sack	Mix Fluid Gal	Rate bbl/min	Total Mix Fluid Gal
1	Fresh Water Spacer	FRESH WATER/RED DYE	10	bbl	8.4			6	

Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft ³ /sack	Mix Fluid Gal	Rate bbl/min	Total Mix Fluid Gal
---------	------------	------------	-----	---------	------------------------	-----------------------------	---------------	--------------	---------------------

HALLIBURTON

Cementing Job Summary

2	SwiftCem B2	SWIFTCEN (TM) SYSTEM	465	sack	14.2	1.54		6	7.66
7.66 Gal		FRESH WATER							
Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft ³ /sack	Mix Fluid Gal	Rate bbl/min	Total Mix Fluid Gal
3	Displacement	Displacement	78	bbl	8.33			6	
Cement Left In Pipe		Amount	42 ft				Reason		Shoe Joint
Mix Water:		pH ##	Mix Water Chloride:## ppm			Mix Water Temperature:## °F °C			
Cement Temperature:		## °F °C	Plug Displaced by:## lb/gal kg/m ³ XXXX			Disp. Temperature:## °F °C			
Plug Bumped?		Yes/No	Bump Pressure:#### psi MPa			Floats Held? Yes/No			
Cement Returns:		## bbl m ³	Returns Density:## lb/gal kg/m ³			Returns Temperature:## °F °C			
Comment									

1.2 Planned Pumping Schedule

1.3 Pump Schedule

Description	Stage No.	Density (ppg)	Rate (bbl/min)	Yield (ft ³ /sack)	Water Req. (gal/sack)	Volume (bbl)	Bulk Cement (sacks)	Duration (min)
Great Western Surface Mud	1	8.50	5.00			0.00		0.00
Water	2	8.33	6.00			10.00		1.67
Great Western Surface Cement	3	14.20	6.00	1.5304	7.622	126.75	465.00	21.13
Top Plug/Start Displacement								
Great Western Surface Mud	4	8.50	6.00			79.24		13.21
Total:						215.99		36.00

**Pump schedule may include additional rows for displacement if "Automatic Rate Adjustment" was enabled and ECDs approached the fracture gradient.*

1.3 Job Overview

Job OverView			
		Units	Description
1	Surface temperature at time of job	°F	7
2	Mud type (OBM, WBM, SBM, Water, Brine)	-	WBM
3	Actual mud density	lb/gal	8.5
4	Time circulated before job	HH:MM	1:00
5	Mud volume circulated	bbls	170
6	Rate at which well was circulated	bpm	3
7	Pipe movement during circulation	Y/N	n
8	Rig pressure while circulating	psi	90
9	Time from end mud circulation to start of job	HH:MM	0:30
10	Pipe movement during cementing	Y/N	n
11	Calculated displacement	bbls	78
12	Job displaced by	Rig/HES	hes
13	Annular before Job	Y/N	n
14	Annular flow after job	Y/N	n
15	Length of rat hole	ft	8
16	Units of gas detected while circulating	Units	0
17	Was lost circulation experienced at any time?	Y/N	n

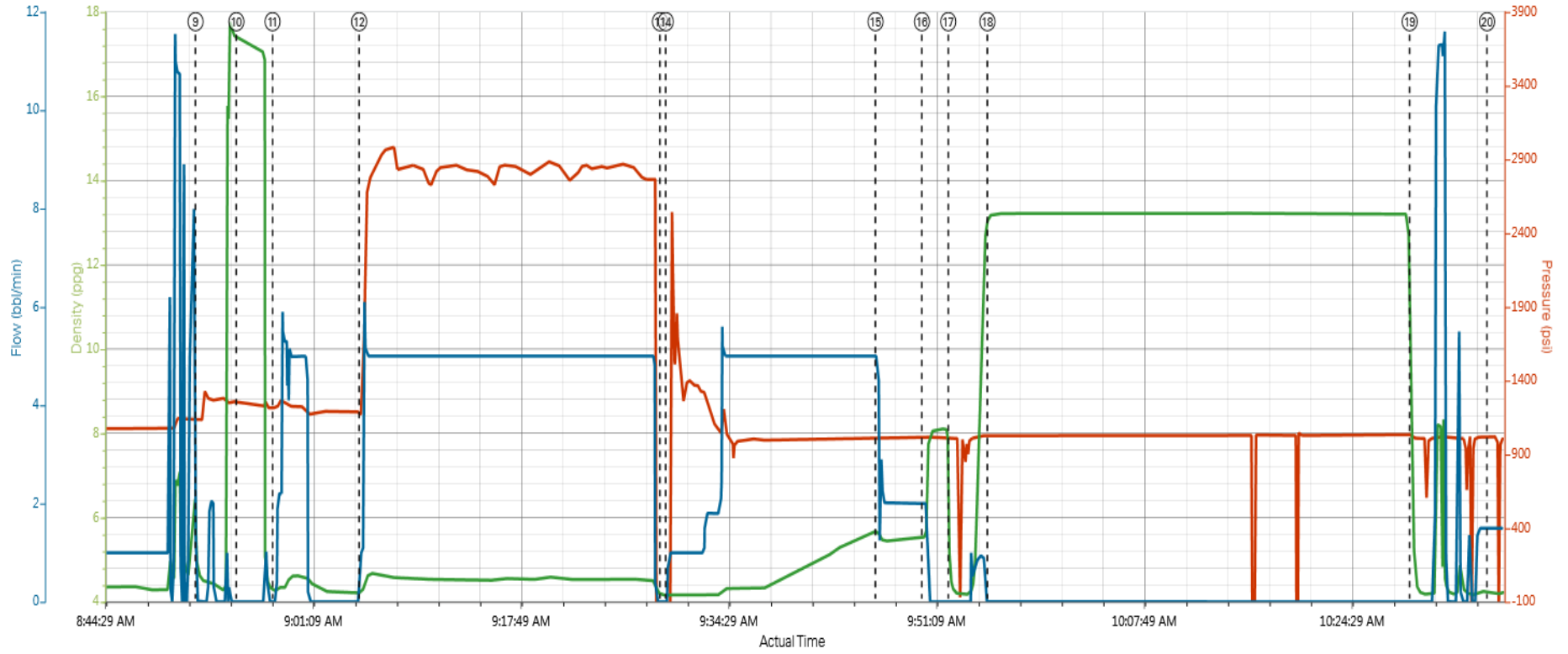
1.4 Water Field Test

Cement Mix Water Requirements

Item	Recorded Test Value	Max Acceptable Limit	Potential Problems in Exceeding Limit
pH	7	5 to 8.5	Chemicals in water can cause severe retardation
Chlorides	80	3000 mg/L	Can accelerate the set time on cement 1% ~ 4800 mg/L
Sulfates	<200	1500 mg/L	Will greatly decrease its strength to the point where it may not set up at all
Total Hardness or Alkalinity	>25	500 mg/L	Will retard cement and decrease its strength (only occurs @ pH ≥ 8.3)
Calcium	0	500 mg/L	High concentrations will accelerate the set of cement
Bicarbonates	215	1000 mg/L	Will greatly decrease its strength to the point where it may not set up at all
Iron	0	300 mg/L	High concentrations will accelerate the set of cement
Potassium	0	5000 ppm	High concentrations will accelerate the set of cement
Water Temp	51	50F to 80F	High temps will accelerate; Low temps may risk freezing in cold weather

1	Call Out	2/23/2015 19:00				FOR ON LOCATION @ 0100				
2	Depart Yard Safety Meeting	2/23/2015 23:45				JOURNEY MANAGMENT MEETIN PRIOR TO DEPARTURE				
3	Depart from Service Center or Other Site	2/23/2015 23:55								
4	Arrive at Location from Service Center	2/24/2015 0:45				WITH ALL EQUIPMENT AND MATERIALS, UPON ARRIVAL RIG WAS CIRCULATING ON BOTTOM				
5	Pre-Rig Up Safety Meeting	2/24/2015 0:55				RIG-UP JSA WITH HES CREW				
6	Rig-Up Equipment	2/24/2015 1:00								
7	Rig-Up Completed	2/24/2015 1:30								
8	Pre-Job Safety Meeting	2/24/2015 2:00	0	6.59	50	WITH ALL ESSENTIAL PERSONNEL				
9	Start Job	2/24/2015 2:52	0	15.14	61					
10	Test Lines	2/24/2015 2:53	0	15.13	36	@3400 PSI				
11	Pump Spacer 1	2/24/2015 2:56	0	15.11	148	10 BBLS FRESH WATER WITH 2LBS RED DYE				
12	Pump Cement	2/24/2015 3:27	0	7.85	70	128 BBLS/465 SKS 14.2 PPG1.54 YIELD, 7.64 GAL/SK, VERIFIED WITH PRESSURIZED SCALES				
13	Check Weight	2/24/2015 3:36	4.1	14.28	139	VERIFIED WEIGHT WITH PRESSURIZED SCALES				
14	Check Weight	2/24/2015 3:43	5.1	14.48	180	VERIFIED WEIGHT WITH PRESSURIZED SCALES AFTER SWITCH				
15	Check Weight	2/24/2015 3:53	5.1	14.06	167	VERIFIED WEIGHT WITH PRESSURIZED SCALES				
16	Shutdown	2/24/2015 4:03	0	13.98	157					
17	Drop Top Plug	2/24/2015 4:07	0	13.81	1	PLUG LOADED IN CASING AFTER SWAGE WAS PULLED OF CASING				
18	Pump Displacement	2/24/2015 4:11	1.6	12.04	5	78 BBLS FRESH WATER				
19	Other	2/24/2015 4:22	5	8.28	114	@ 48 BBLS DISPLACEMENT 10 BBLS TO SURFACE				
20	Other	2/24/2015 4:25	5	8.27	188	@58 BBLS DISPLACEMENT 20 BBLS TO SURFACE				
21	Bump Plug	2/24/2015 4:35	0	8.29	1324	@ 1000 OVER FINAL CIRCULATING PRESSURE, FINAL CIRCULATING PRESSURE 289 PSI.				
22	Other	2/24/2015 4:37	0	8.33	2415	@2400 FOR 30 MINUTES				
23	Pre-Rig Down Safety Meeting	2/24/2015 5:07	0	8.44	2831	RIG-DOWN JSA WITH HES CREW				
24	Check Floats	2/24/2015 5:07	0	8.53	2831	FLOATS HELD 1 BBLS BACK				
25	End Job	2/24/2015 5:08				CALLED ARS TO VERIFY TICKET				
26	Rig-Down Equipment	2/24/2015 5:20								
27	Rig-Down Completed	2/24/2015 5:40								
28	Depart Location Safety Meeting	2/24/2015 5:55				JOURNEY MANGEMENT MEETING PRIOR TO DEPARTURE				
29	Depart Location for Service Center or Other Site	2/24/2015 6:00				THANKS AARON SMITH AND CREW				

Custom Results



DH Density (ppg) PS Pump Press (psi) Comb Pump Rate (bbl/min)

- | | | | | | | |
|--|--------------------------------|------------------------------------|---------------------------------|--|---------------------------|------------------------|
| ① Arrive at Location from Service Center n/a;n/a;n/a | ④ Rig-Up Equipment n/a;n/a;n/a | ⑦ Circulate Well n/a;n/a;n/a | ⑩ Test Lines 8.73;3723;0 | ⑬ Drop Plug -0.34;-52;0 | ⑯ Bump Plug 7.89;339;2 | ⑲ End Test 7.93;1152;0 |
| ② Assessment Of Location Safety Meeting n/a;n/a;n/a | ⑤ Rig-Up Completed n/a;n/a;n/a | ⑧ Pre-Job Safety Meeting 8.2;-37;1 | ⑪ Fresh Water w/ Dye 8.61;-24;0 | ⑭ Pump Displacement -0.26;-54;1 | ⑰ Check Floats 7.88;48;0 | ⑳ End Job 7.92;-28;1.5 |
| ③ Pre Rig Up Safety Meeting n/a;n/a;n/a | ⑥ Casing on Bottom n/a;n/a;n/a | ⑨ Start Job 8.31;112;0 | ⑫ Pump Cement 8.66;-23;1 | ⑮ Cement Returns to Surface 7.88;387;5 | ⑱ Casing Test 7.95;2520;0 | |