

# HALLIBURTON

iCem<sup>®</sup> Service

## **EXTRACTION OIL & GAS**

Date: Monday, September 12, 2016

## **WINDER SOUTH #2 Production**

Job Date: Sunday, August 28, 2016

Sincerely,

**Julia Nichols**

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## 1.0 Cementing Job Summary

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### 1.1 Executive Summary

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Halliburton appreciates the opportunity to perform the cementing services on the **Winder South #2 cement Production** 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.

**Approximately 39 barrels of cement were returned to surface.**

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 [Ft. Lupton]**

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*Cementing Job Summary*

*The Road to Excellence Starts with Safety*

Sold To #: 369404		Ship To #: 3749887		Quote #:		Sales Order #: 0903497972					
Customer: EXTRACTION OIL & GAS				Customer Rep:							
Well Name: WINDER SOUTH			Well #: 2		API/UWI #: 05-123-43404-00						
Field: WATTENBERG		City (SAP): WINDSOR		County/Parish: WELD		State: COLORADO					
Legal Description: SE NE-9-8N-87W-2308FNL-508FEL											
Contractor: PATTERSON-UTI ENERGY				Rig/Platform Name/Num: PATTERSON 346							
Job BOM: 7523											
Well Type: HORIZONTAL OIL											
Sales Person: HALAMERICA\HX38199				Srvc Supervisor:							
<b>Job</b>											
Formation Name											
Formation Depth (MD)		Top		Bottom		17075					
Form Type											
BHST											
Job depth MD		17075ft		Job Depth TVD		7130ft					
Water Depth											
Perforation Depth (MD)		From		To							
<b>Well Data</b>											
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			0	1560		0	
Casing		5.5	4.778	20			0	17075	0	7130	
Open Hole Section			7.875				1560	17075	1560	7130	
<b>Tools and Accessories</b>											
Type	Size in	Qty	Make	Depth ft	Type	Size in	Qty	Make			
Guide Shoe	5.5			17100	Top Plug	5.5		HES			
Float Shoe	5.5				Bottom Plug	5.5		HES			
Float Collar	5.5				SSR plug set	5.5		HES			
Insert Float	5.5				Plug Container	5.5		HES			
Stage Tool	5.5				Centralizers	5.5		HES			
<b>Fluid Data</b>											
Stage/Plug #: 1											
Fluid #	Stage Type	Fluid Name			Qty	Qty UoM	Mixing Density lbm/gal	Yield ft <sup>3</sup> /sack	Mix Fluid Gal	Rate bbl/min	Total Mix Fluid Gal
1	11.5 lb/gal Tuned Spacer III	Tuned Spacer III			50	bbl	11.5	3.74		6	
149.34 lbm/bbl		BARITE, BULK (100003681)									
35.40 gal/bbl		FRESH WATER									
0.30 gal/bbl		DUAL SPACER SURFACTANT B, 5 GAL PAIL (100003685)									
0.30 gal/bbl		MUSOL A, 330 GAL TOTE - (790828)									

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*Cementing Job Summary*

Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft3/sack	Mix Fluid Gal	Rate bbl/mi n	Total Mix Fluid Gal
2	ElastiCem	ELASTICEM (TM) SYSTEM	150	sack	13.2	1.57		5	7.48
7.48 Gal		FRESH WATER							
0.90 %		HR-5, 50 LB SK (100005050)							
Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft3/sack	Mix Fluid Gal	Rate bbl/mi n	Total Mix Fluid Gal
3	ElastiCem W/ Super CBL	ELASTICEM (TM) SYSTEM	1950	sack	13.2	1.57		5	7.49
7.49 Gal		FRESH WATER							
0.80 %		HR-5, 50 LB SK (100005050)							
Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft3/sack	Mix Fluid Gal	Rate bbl/mi n	Total Mix Fluid Gal
4	Displacement	Displacement	377	bbl	8.33			8	
Cement Left In Pipe		Amount	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/m3 XXXX			Disp. Temperature: ## °F °C				
Plug Bumped? Yes/No		Bump Pressure: ##### psi MPa			Floats Held? Yes/No				
Cement Returns: ## bbl m3		Returns Density: ## lb/gal kg/m3			Returns Temperature: ## °F °C				
Comment G0T 39 BBL CEMENT BCK TO SURFACE, ALL SPACER.									

## 2.0 Real-Time Job Summary

### 2.1 Job Event Log

Type	Seq. No.	Activity	Graph Label	Date	Time	Source	Comb Pump Rate (bbl/min)	PS Pump Press (psi)	DH Density (ppg)	Comments
		Call Out		8/27/2016	14:00:00					CREW CALLED OUT
		Pre Convoy Safety Meeting		8/27/2016	16:45:00					ALL HES PERSONNEL
		Crew Leave Service Center		8/27/2016	17:00:00					1 P/U, 1 PUMP TRUCK AND 2 BULK TRUCKS LEAVE FT. LUPTON SERVICE CENTER.
		Arrive On Location		8/27/2016	18:30:00					1 P/U, 1 PUMP TRUCK AND 2 BULK TRUCKS ARRIVE ON LOCATION. RIH WITH CASING. ALL EQUIPMENT AND PERSONNEL ON LOCATION.
		Site Assessment		8/27/2016	18:45:00					ALL HES PERSONNEL
		Pre-Rig Up Safety Meeting		8/27/2016	19:00:00					ALL HES PERSONNEL
		Rig Up Equipment		8/27/2016	19:15:00					ALL PERSONNEL
		Casing On Bottom		8/28/2016	16:00:00					OH- 7.825" TD-17075' TVD-7130' TP-17056', PG- 5.5" 20# P-110, FC-17049', ST-7', PC- 1554', PCG- 9.625" 36# J-55, MW-10# OBM, FE-KLX, CENT-150.
		Pre-Job Safety Meeting		8/28/2016	16:15:00					ALL LOCATION PERSONNEL.
		Rig Up Complete		8/28/2016	16:30:00					RIG CIRCULATED AT 10 BBLS/MIN, PRESSURE WAS 1630 PSI WITH UNKNOWN UNITS OF GAS. NO REPORTED LOSSES. RIG CIRCULATED FOR A TOTAL OF 300 BBLS.
Event	1	Start Job	Start Job 17:52	8/28/2016	17:52:10	COM1	0.00	-23.00	0.08	START JOB, FILL LINES WITH 5 BBLS OF FW AHEAD. RETURNS VERIFIED.
Event	2	Pressure Test	Pressure Test 17:58	8/28/2016	17:58:01	USER	0.00	5186.00	8.54	PRESSURE TEST TO 5000 PSI. PRESSURE TEST WAS CONDUCTED IN ACCORDANCE WITH HMS.
Event	3	Pump Spacer	Pump Spacer 18:07	8/28/2016	18:07:50	USER	3.00	262.00	11.39	PUMPED 50 BBLS OF 11.5 PPG TUNED SPACER III. DENSITY WAS VERIFIED WITH PRESSURIZED MUD SCALES

IN ACCORDANCE WITH HMS. CALCULATED TO GET ALL SPACER BACK TO SURFACE; GOT ALL SPACER TO SURFACE.

Event	4	Pump Lead Cement	Pump Lead Cement 18:17	8/28/2016	18:17:39	USER	5.00	271.00	13.11	PUMPED 150 SKS OF ELASTICEM AT 13.2 PPG, 1.57 FT3/SK AND 7.48 GAL/SK. DENSITY WAS VERIFIED WITH PRESSURIZED MUD SCALES IN ACCORDANCE WITH HMS. CALCULATED TO GET ALL LEAD CEMENT TO SURFACE; GOT ALL LEAD BACK TO SURFACE.
Event	5	Pump Tail Cement	Pump Tail Cement 18:24	8/28/2016	18:24:37	USER	6.00	375.00	13.43	PUMPED 1950 SKS OF ELASTICEM AT 13.2 PPG , 1.57 FT3/SK AND 7.49 GAL/SK. DENSITY WAS VERIFIED WITH PRESSURIZED MUD SCALES IN ACCORDANCE WITH HMS. CALCULATED TOT IS 174.25'.
Event	6	Shutdown	Shutdown 19:03	8/28/2016	19:03:34	USER	4.40	245.00	13.36	SHUTDOWN INCURRED DUE TO BULK CEMENT DELIVERY ISSUES.
Event	7	Shutdown	Shutdown 19:58	8/28/2016	19:58:45	USER	2.40	59.00	13.40	SHUTDOWN AFTER PUMPING TAIL CEMENT. PUMPS AND LINES FLUSHED TO CATCH TANK. KLX REP AND HES DROPPED 3RD PARTY PLUG. PLUG LAUNCH CONFIRMED.
Event	9	Pump Displacement	Pump Displacement 20:10	8/28/2016	20:10:45	USER	8.10	118.00	8.74	PUMPED 377 BBLs OF FW DISPLACEMENT. KLX REP ON MIXING UNIT THROUGHOUT DISPLACEMENT.
Event	10	Shutdown	Shutdown 20:56	8/28/2016	20:56:48	USER	4.70	2950.00	8.35	SHUTDOWN AFTER PUMPING 377 BBLs OF FW DISPLACEMENT. FINAL CIRCULATING PRESSURE WAS 2619 PSI.
Event	11	Other	Burst Disc 20:59	8/28/2016	20:59:28	USER	2.00	2895.00	8.45	BURST DISC AT 3680 PSI. PUMPED 5 BBL WET SHOE.
Event	12	End Job	End Job 21:03	8/28/2016	21:03:56	COM1	0.00	-35.00	8.32	END JOB. GOT 39 BBLs OF CEMENT AND 50 BBL OF TUNED SPACER III TO SURFACE.
		Pre Rig-Down Safety Meeting		8/28/2016	21:15:00					ALL HES AND RIG FLOOR PERSONNEL.
		Rig Down Equipment		8/28/2016	21:30:00					ALL HES PERSONNEL.
		Rig Down Completed		8/28/2016	22:30:00					ALL HES EQUIPMENT WAS PREPARED AND STORED FOR TRAVEL .
		Pre Convoy Safety Meeting		8/28/2016	22:45:00					ALL HES PERSONNEL
		Crew Leave Location		8/28/2016	23:00:00					ALL HES PERSONNEL.

Comment

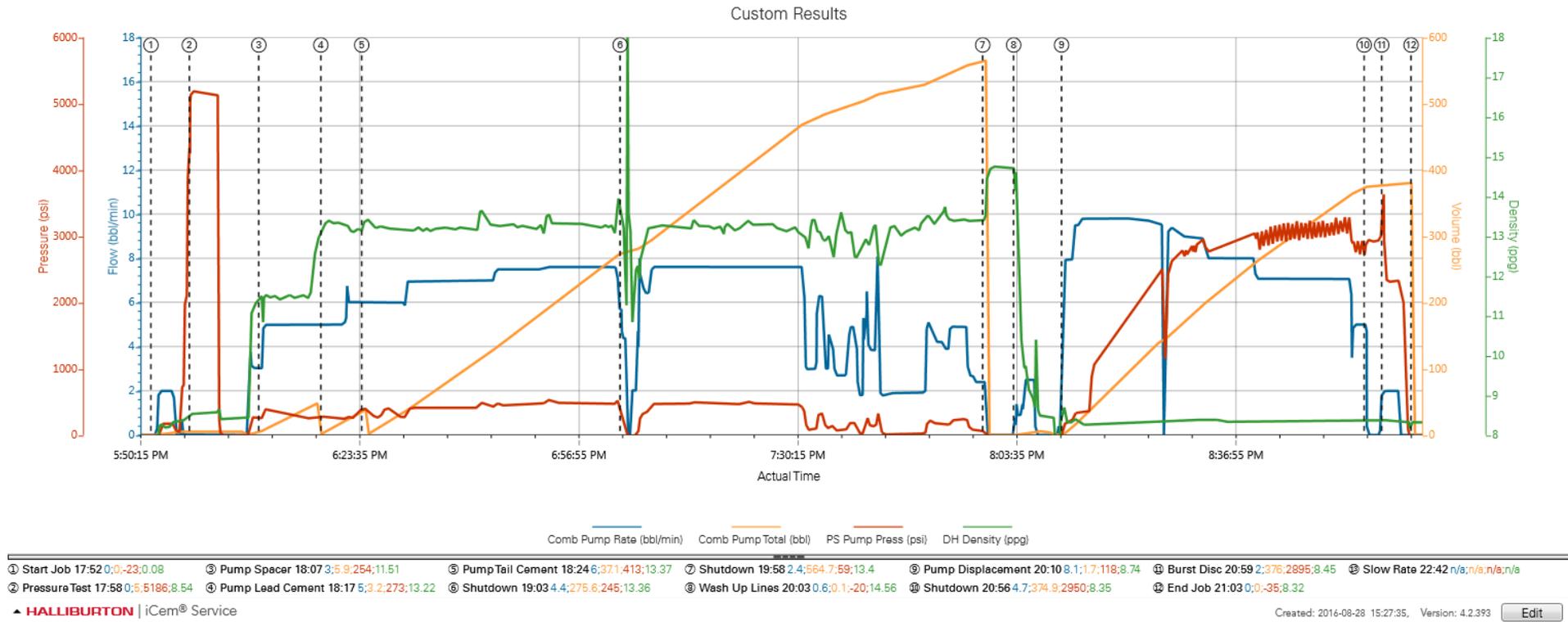
HES USED THE FOLLOWING ITEMS ON THE CEMENT JOB:  
100 LBS SUGAR, 15 GAL MUSOL, 15 GAL DUAL SPACER  
SURFACTANT B, 25 GAL D-AIR 3000L. NOTHING TO  
RETURN TO WAREHOUSE.

Comment

THANK YOU FOR USING HALLIBURTON CEMENT. –  
SHAYNE BITTON.

3.0 Attachments

3.1 Custom Results – Job Chart with Events



3.2 Custom Results – Job Chart without Events

Custom Results

