

# HALLIBURTON

iCem<sup>®</sup> Service

## **EXTRACTION OIL & GAS**

Date: Tuesday, September 13, 2016

## **WINDER SOUTH #3 Production**

Job Date: Saturday, September 03, 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 #3** 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 41 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]**

## HALLIBURTON

## Cementing Job Summary

## The Road to Excellence Starts with Safety

Sold To #: 389404	Ship To #: 3749843	Quote #:	Sales Order #: 0903513217							
Customer: EXTRACTION OIL & GAS		Customer Rep:								
Well Name: WINDER SOUTH	Well #: 3	API/UWI #: 05-123-43408-00								
Field: WATTENBERG	City (SAP): WINDSOR	County/Parish: WELD	State: COLORADO							
Legal Description: SE NE-9-8N-67W-2308FNL-488FEL										
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								
Form Type	BHST									
Job depth MD	17000ft	Job Depth TVD								
Water Depth		Wk Ht Above Floor								
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	1556		1556
Casing		5.5	4.778	20			0	16963	0	6939
Open Hole Section			7.875				1556	16963	0	6939
<b>Tools and Accessories</b>										
Type	Size in	Qty	Make	Depth ft		Type	Size in	Qty	Make	
Guide Shoe	5.5			16963		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	4.38		6		
149.34 lbm/bbl		BARITE, BULK (100003681)								
35.40 gal/bbl		FRESH WATER								
0.20 lbm/bbl		FE-2 (100001615)								
3 lbm/bbl		CHEM, FDP-C1193-15, 50 LB Sack - (975466)								
3 lbm/bbl		CHEM, FDP-C1195-15, 50 LB SACK - (975229)								

## HALLIBURTON

## Cementing Job Summary

0.14 gal/bbl		MUSOL A, 330 GAL TOTE - (790828)							
0.14 gal/bbl		DUAL SPACER SURFACTANT B, 5 GAL PAIL (100003885)							
Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft3/sack	Mix Fluid Gal	Rate bbl/min	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/min	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/min	Total Mix Fluid Gal
4	Displacement	Displacement	376	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									

## 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		9/2/2016	20:00:00					CREW CALLED OUT
		Pre Convoy Safety Meeting		9/2/2016	21:45:00					ALL HES PERSONNEL
		Crew Leave Service Center		9/2/2016	22:00:00					1 P/U, 1 PUMP TRUCK AND 2 BULK TRUCKS LEAVE FT. LUPTON SERVICE CENTER.
		Arrive On Location		9/2/2016	23:30:00					1 P/U, 1 PUMP TRUCK AND 2 BULK TRUCKS ARRIVE ON LOCATION. RIH WITH CASING. ALL EQUIPMENT AND PERSONNEL ON LOCATION.
		Site Assessment		9/2/2016	23:45:00					ALL HES PERSONNEL
		Pre-Rig Up Safety Meeting		9/3/2016	00:01:00					ALL HES PERSONNEL
		Rig Up Equipment		9/3/2016	00:15:00					ALL PERSONNEL
		Casing On Bottom		9/3/2016	14:30:00					OH- 7.825" TD-16968' TVD-6939' TP-16963', PG- 5.5" 20# P-110, FC-16958', ST-5.2', PC- 1556', PCG- 9.625" 36# J-55, MW-9.9# OBM, FE-KLX, CENT-180.
		Pre-Job Safety Meeting		9/3/2016	16:15:00					ALL LOCATION PERSONNEL.
		Rig Up Complete		9/3/2016	16:30:00					RIG CIRCULATED AT 10 BBLS/MIN, PRESSURE WAS 700 PSI WITH UNKNOWN UNITS OF GAS. NO REPORTED LOSSES. RIG CIRCULATED FOR A TOTAL OF 525 BBLS.
Event	1	Start Job	Start Job 16:14	9/3/2016	16:14:08	COM1	0.00	51.00	8.22	START JOB, FILL LINES WITH 5 BBLS OF FW AHEAD. RETURNS VERIFIED.
Event	2	Pressure Test	Pressure Test 16:21	9/3/2016	16:21:52	USER	0.00	4991.00	8.28	PRESSURE TEST TO 5000 PSI. PRESSURE TEST WAS CONDUCTED IN ACCORDANCE WITH HMS.
Event	3	Pump Spacer	Pump Spacer 16:31	9/3/2016	16:31:27	USER	2.90	403.00	11.38	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 16:45	9/3/2016	16:45:53	USER	5.90	472.00	13.33	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 41.5 BBL; GOT ALL LEAD BACK TO SURFACE.
Event	5	Pump Tail Cement	Pump Tail Cement 16:58	9/3/2016	16:58:45	USER	7.00	588.00	13.45	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 114.86'.
Event	6	Shutdown	Shutdown 18:22	9/3/2016	18:22:24	USER	0.00	91.00	13.89	SHUTDOWN AFTER PUMPING TAIL CEMENT. PUMPS AND LINES FLUSHED TO CATCH TANK. KLX REP AND HES DROPPED 3RD PARTY PLUG. PLUG LAUNCH CONFIRMED.
Event	7	Pump Displacement	Pump Displacement 18:34	9/3/2016	18:34:05	USER	0.00	68.00	8.38	PUMPED 376 BBLs OF FW DISPLACEMENT. KLX REP ON MIXING UNIT THROUGHOUT DISPLACEMENT.
Event	8	Shutdown	Shutdown 19:31	9/3/2016	19:31:20	USER	5.00	2873.00	8.32	SHUTDOWN AFTER PUMPING 376 BBLs OF FW DISPLACEMENT. FINAL CIRCULATING PRESSURE WAS 2873 PSI.
Event	9	Pump Displacement	Pump Displacement 19:33	9/3/2016	19:33:11	USER	1.80	3285.00	8.33	BURST DISC AT 3667 PSI. PUMPED 5 BBL WET SHOE.
Event	11	End Job	End Job 19:37	9/3/2016	19:37:55	COM1	0.00	103.00	8.29	END JOB. GOT 41 BBLs OF CEMENT AND 50 BBL OF TUNED SPACER III TO SURFACE.
		Pre Rig-Down Safety Meeting		9/3/2016	21:15:00					ALL HES AND RIG FLOOR PERSONNEL.
		Rig Down Equipment		9/3/2016	21:30:00					ALL HES PERSONNEL.
		Rig Down Completed		9/3/2016	22:30:00					ALL HES EQUIPMENT WAS PREPARED AND STORED FOR TRAVEL.
		Pre Convoy Safety Meeting		9/3/2016	22:45:00					ALL HES PERSONNEL
		Crew Leave Location		9/3/2016	23:00:00					ALL HES PERSONNEL.
		Comment								HES USED THE FOLLOWING ITEMS ON THE CEMENT



JOB: 7 GAL MUSOL, 7 GAL DUAL SPACER SURFACTANT  
B, 10 GAL D-AIR 3000L AND 10 GAL MMCR. NOTHING  
TO RETURN TO WAREHOUSE.

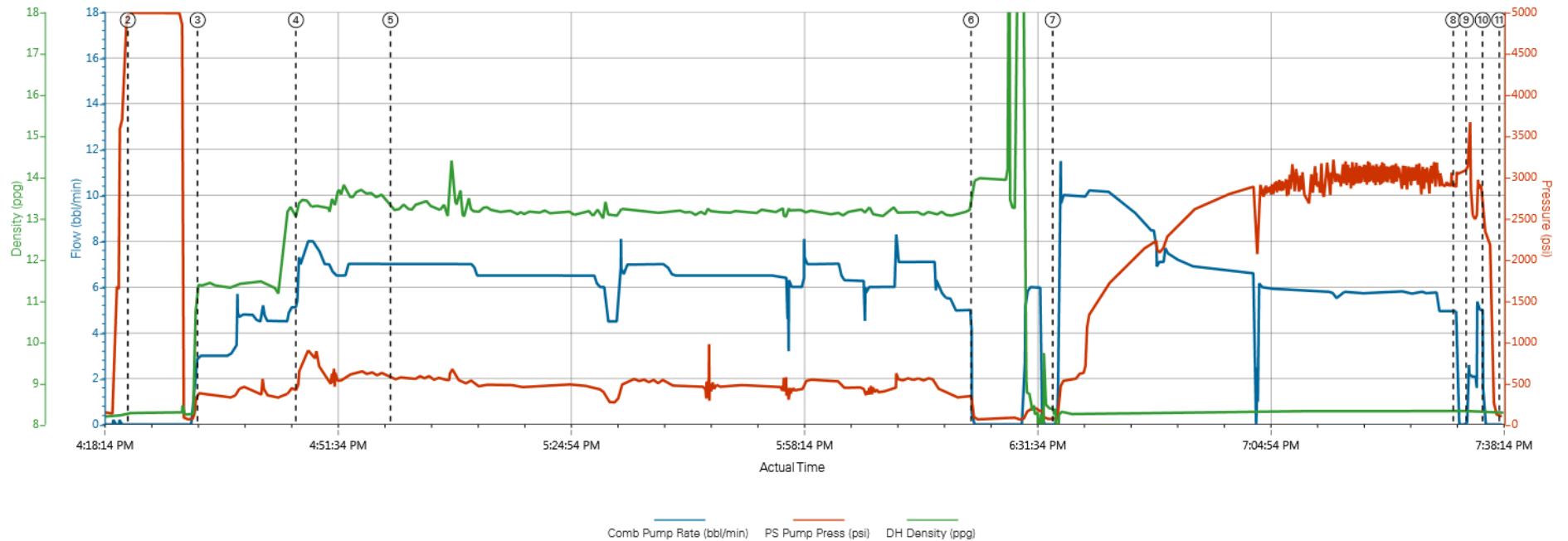
THANK YOU FOR USING HALLIBURTON CEMENT. –  
SHAYNE BITTON.

Comment										
Event	11	End Job	End Job 19:37	9/3/2016	19:37:55	COM1	0.00	103.00	8.29	END JOB. GOT 41 BBLS OF CEMENT AND 50 BBL OF TUNED SPACER III TO SURFACE.

## 3.0 Attachments

### 3.1 Job Chart with Events

Custom Results



① Start Job 16:14 0;51;8.22    ③ Pump Spacer 16:31 3;382;11.41    ⑤ Pump Tail Cement 16:58 7;553;13.21    ⑦ Pump Displacement 18:34 0;68;8.38    ⑨ Pump Displacement 19:33 1.8;3285;8.33    ⑪ End Job 19:37 0;103;8.29  
② Pressure Test 16:21 0;4991;8.28    ④ Pump Lead Cement 16:45 5.9;472;13.33    ⑥ Shutdown 18:22 0;91;13.89    ⑧ Shutdown 19:31 5;2873;8.32    ⑩ Shutdown 19:35 0;2332;8.3

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3.2 Job Chart without Events

