

# HALLIBURTON

iCem<sup>®</sup> Service

## **EXTRACTION OIL & GAS**

Date: Thursday, January 26, 2017

### **Matrix D-29HC Production**

Job Date: Friday, January 06, 2017

Sincerely,

**Julia Nichols**

## Legal Notice

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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 **Matrix D-29HN** 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 40 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 #: 369404	Ship To #: 3633959	Quote #:	Sales Order #: 0903759928							
Customer: EXTRACTION OIL & GAS		Customer Rep:								
Well Name: MATRIX	Well #: D-29HC	API/UWI #: 05-123-40895-00								
Field: GREELEY	City (SAP): GREELEY	County/Parish: WELD	State: COLORADO							
Legal Description: SE SW-29-6N-65W-453FSL-2335FWL										
Contractor: H & P DRLG		Rig/Platform Name/Num: H & P 321								
Job BOM: 7523										
Well Type: HORIZONTAL OIL										
Sales Person: HALAMERICA\HX38199		Srvc Supervisor: Nicholas Roles								
<b>Job</b>										
Formation Name										
Formation Depth (MD)	Top	Bottom								
Form Type		BHST								
Job depth MD	11750ft	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	1655	0	1655
Casing		5.5	4.778	20			0	11750	0	7150
Open Hole Section			7.875				1655	11760	1655	7160
<b>Tools and Accessories</b>										
Type	Size in	Qty	Make	Depth ft	Type	Size in	Qty	Make		
Guide Shoe	5.5				Top Plug	5.5		HES		
Float Shoe	5.5			11760	Bottom Plug	5.5		HES		
Float Collar	5.5				SSR plug set	5.5		HES		
Insert Float	5.5				Plug Container	5.5	1	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		5		
0.30 gal/bbl		MUSOL A, 330 GAL TOTE - (790828)								
149.34 lbm/bbl		BARITE, BULK (100003681)								
35.40 gal/bbl		FRESH WATER								
0.30 gal/bbl		DUAL SPACER SURFACTANT B, 5 GAL PAIL (100003665)								

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## HALLIBURTON

*Cementing Job Summary*

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 W/O CBL	ELASTICEM (TM) SYSTEM	150	sack	13.2	1.57		7	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 Tail	ELASTICEM (TM) SYSTEM	1400	sack	13.2	1.57		6	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	259.5	bbl	8.33			11		
Cement Left In Pipe		Amount	0 ft		Reason			Wet shoe		
Comment Got 40bbbls cement to surface										

## 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)	DH Density (ppg)	DS Pump Press (psi)	Comments
Event	1	Call Out	Call Out	1/6/2017	21:30:00	USER				Crew call out for o/l at 0230
Event	2	Pre-Convoy Safety Meeting	Pre-Convoy Safety Meeting	1/6/2017	01:30:00	USER				all crew aware of hazards and directions. all fit to drive.
Event	3	Arrive at Location from Service Center	Arrive at Location from Service Center	1/6/2017	02:30:00	USER				Met with klx tool hand, company man was asleep, to discuss job details and procedure. Performed hazard hunt and site assessment. Rigged up to front of casing truck and I stopped work to keep crew out of buffer zone. Rig had 1500ft left to run.
Event	4	Pre-Rig Up Safety Meeting	Pre-Rig Up Safety Meeting	1/6/2017	02:45:00	USER				All hse present. Discussed bulk and iron placement and all red zone areas. Caution taped high pressure zones. Talked about freezing temperatures and hazards with hammering iron in negative temps, Crew stayed out of red zone
Event	5	Other	Other	1/6/2017	03:30:00	USER				Water Test- PH-6 Chlo-0 Temp-60, cement-66
Event	6	Standby - Other - see comments	Standby - Other - see comments	1/6/2017	13:41:01	USER				Crew rigged up all water and tested to 60 degrees, PH-6, Chlo-0. We ran all iron but stopped once we were in buffer zone. Applied heater to pump lines and ran warm air through what iron we had rigged up. Got bins fired up and running and waited for rig to finish running casing. Upon rig being done, we finished rigged up rest of iron and then bin was gelled up.
Event	7	Standby - Other - see comments	Standby - Other - see comments	1/6/2017	13:42:00	USER				Before priming pumps I wanted to be sure all air supply going to bins were going to be working properly. Bin fuel filters gelled up and would not turn over. Applied rig heater to engine block and filters to thaw out, once started we could not get bins to air up, even with 3 compressors going to bins. Ended up attaching 2 compressors to load line to fill up tanks, with one going through air assist valve. Got bin compressor to start and put the air on that as well.

Event	8	Standby - Other - see comments	Standby - Other - see comments	1/6/2017	13:42:30	USER				Air build was very slow and only seemed to be building through top air from load line. Found to be the air manifold on bin was either frozen solid or cemented up. Even with hot air from 2 compressors for two hours air manifold would not build air into pods 1,3,and 4. Got pods to build to 20psi through top air and decided to pump job. Was very hard delivery and tried to pump at a rate that would keep density which at times was 2bpm. Was able to pump off cement in 1.5 hrs and keep density.
Event	9	Pressure Test	Pressure Test	1/6/2017	13:43:46	USER				Pumped 3bbls fresh water to fill lines, shutdown and closed 2"valves and performed 500psi k/o function test, once performed continued to bring pressure up to 4500psi. held for a min, no leaks and pressure held.
Event	10	Pump Spacer	Pump Spacer	1/6/2017	13:44:32	USER				Pumped 50bbls tuned spacer III 11.5# 3.74y 23.7g/s with 15g of Musol A, Dual Spacer B and 10g of D-air at 5bpm 150psi.
Event	11	Pump Lead Cement	Pump Lead Cement	1/6/2017	13:45:23	USER				Pumped 150sks or 41.9bbls of 13.2# 1.57y 7.49g/s Elasticem w/o CBL at 6bpm 200psi.
Event	25	Pump Tail Cement	Pump Tail Cement	1/6/2017	13:48:53	USER	0.00	14.38	-76.64	Pumped 1400sks or 391.4bbls of 13.2# 1.57y 7.49g/s Elasticem w/ CBL at 6bpm 250psi.
Event	60	Standby - Other - see comments	Standby - Other - see comments	1/6/2017	13:49:44	USER	0.00	13.49	-70.96	Could not connect with cab5 cable from truck due to wiring issues, went to pull chart and would not download job previous to restarting flecs. Had to restart flecs due to screen freezing up and not letting us get out of a locked screen. When restarted screen worked fine. Shut down flecs about half way through tail cement. or about 185bbls away.
Event	88	Standby - Other - see comments	Standby - Other - see comments	1/6/2017	13:51:21	USER	4.70	13.17	150.64	Had trouble getting 1600 bin to deliver cement. Connected air lines with 3 compressors but air supply line going to bin pods, fluffer valves were either frozen solid in air line manifold or cemented up. Managed to supply air through load line with 2 compressors and got bins up to 20psi but still had hard time getting consistent delivery. Previous to job we had a hard time getting bins to start. bins started up and working but 1600 had gelled up overnight with fuel treatment in filter and tank.
Event	94	Check Weight	Check Weight	1/6/2017	13:52:12	USER	1.68	13.01	-40.66	Weight verified by pressurized mud scales.



Event	313	Check Weight	Check Weight	1/6/2017	13:59:19	USER	4.94	13.31	126.01	Weight verified by pressurized mud scales.
Event	727	Check Weight	Check Weight	1/6/2017	14:11:38	USER	3.84	12.97	36.05	Weight verified by pressurized mud scales.
Event	1278	Check Weight	Check Weight	1/6/2017	14:27:29	USER	6.09	13.20	148.74	Weight verified by pressurized mud scales.
Event	1440	Shutdown	Shutdown	1/6/2017	14:32:30	USER	2.06	13.65	-20.77	Rig blew down lines with air and washed up pumps with 5bbls fresh water to clean lines and pump.
Event	1501	Drop Top Plug	Drop Top Plug	1/6/2017	14:39:46	RTD Import	0.00	7.65	-83.27	Dropped by klx tool hand, witnessed by HSE supervisor and company man.
Event	1502	Pump Displacement	Pump Displacement*	1/6/2017	14:39:50	RTD Import	0.00	7.36	-84.22	Pumped 259.5bbls fresh water at 11bpm 2250psi.
Event	1507	Standby - Other - see comments	Standby - Other - see comments	1/6/2017	14:57:38	USER	9.40	8.35	3081.55	Pressure was stable through job, when I pull charts on RTD file the pressure looks sporadic for some reason.
Event	1513	Bump Plug	Bump Plug	1/6/2017	15:09:30	RTD Import	0.00	8.33	2997.27	Final circulating pressure-2600psi. Bumped at 3150psi held for a min. and brought pressure up at 2bpm. Disc burst at 3800psi. continued to pump 5bbls for wet shoe at 5bpm 2588psi.
Event	1514	Other	Other	1/6/2017	15:12:04	RTD Import	0.00	8.24	-92.74	checked floats and got 1.5bbls back, floats held.
Event	1515	End Job	End Job	1/6/2017	15:13:22	USER	0.00	8.23	-101.26	Got 40bbls cement back to pits.
Event	1517	Safety Meeting - Pre Rig-Down	Safety Meeting - Pre Rig-Down	1/6/2017	15:30:00	USER				All HSE present. Discussed red zone areas and trapped pressure hazards. Watch for suspended loads and rig down procedures, including hand placement, lifting techniques, and swing radius.
Event	1518	Pre-Convoy Safety Meeting	Pre-Convoy Safety Meeting	1/7/2017	17:15:00	USER				All HSE present and fit to drive. Aware of directions and hazards.
Event	1519	Depart Location for Service Center or Other Site	Depart Location for Service Center or Other Site	1/7/2017	17:30:00	USER				Pre journey management prior to departure.

3.0 Attachments

Custom Results – Job Chart with Events

