

HALLIBURTON

iCem[®] Service

Post Job Report

ENSIGN UNITED STATES DRILLING

For:

Date: Saturday, September 13, 2014

Synergy SRC Kiehn 31-4CHZ Surface

ENSIGN SRC KIEHN 31-4CHZ SURFACE

Sincerely,

Derek Trier

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1.1 Executive Summary

Halliburton appreciates the opportunity to perform the cementing services on the **SRC Kiehn 31-4CHZ** 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 [Fort Lupton]

Job Times

	Date	Time	Time Zone
Requested Time On Location	9-13-2014	1230	MST
Called Out	9-13-2014	0800	
On Location	9-13-2014	1200	
Job Started	9-13-2014	1300	
Job Completed	9-13-2014	1500	
Departed Location	9-13-2014	1530	

1.2 Cementing Job Summary

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Cementing Job Summary

The Road to Excellence Starts with Safety

Sold To #: 301256	Ship To #: 3542569	Quote #:	Sales Order #: 0901664096							
Customer: ENSIGN UNITED STATES DRILLING		Customer Rep:								
Well Name: SRC KIEHN	Well #: 31-4CHZ	API/UWI #: 05-123-39719-00								
Field: WATTENBERG	City (SAP): JOHNSTOWN	County/Parish: WELD	State: COLORADO							
Legal Description: SW SE-4-4N-68W-201FSL-1828FEL										
Contractor:		Rig/Platform Name/Num: ENSIGN 131								
Job BOM: 7521										
Well Type: HORIZONTAL OIL										
Sales Person: HALAMERICA/H117930		Srcv Supervisor: Joseph Fantasia								
Job										
Formation Name										
Formation Depth (MD)	Top	Bottom								
Form Type	BHST									
Job depth MD	604	Job Depth TVD								
Water Depth		Wk Ht Above Floor								
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			0	604		584
Open Hole Section			13.5				0	604	0	604
Fluid Data										
Stage/Plug #: 1										
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	
1	SwiftCem B2	SWIFTCEM (TM) SYSTEM	200	sack	13.4	1.79	9.48	5	9.48	
			94 lbm	TYPE I / II CEMENT, BULK (101439798)						
			9.48 Gal	FRESH WATER						
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	Displacement	Displacement	42	bbl	8.33			5		
Cement Left in Pipe		Amount	39 FT		Reason		Shoe Joint			
Comment 8 BBLS CEMENT TO SURFACE										

last updated on 9/13/2014 3:43:39 PM

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1.3 Job Overview

		Units	Description
1	Surface temperature at time of job	°F	80
2	Mud type (OBM, WBM, SBM, Water, Brine)	-	OBM
3	Actual mud density	lb/gal	9.5
4	Actual mud Plastic Viscosity (PV)	cP	10
5	Actual mud Yield Point (YP)	lb _f /100ft ²	9
6	Actual mud 30 min Gel Strength	lb _f /100ft ²	
7	Time circulated before job	HH:MM	0100
8	Mud volume circulated	Bbls	
9	Rate at which well was circulated	Bpm	
10	Pipe movement during hole circulation	Y/N	N
11	Rig pressure while circulating	Psi	
12	Time from end mud circulation to start of job	HH:MM	0030
13	Pipe movement during cementing	Y/N	N
14	Calculated displacement	Bbls	42
15	Job displaced by	Rig/HES	HES
16	Annular flow before job	Y/N	N
17	Annular flow after job	Y/N	N
18	Length of rat hole	Ft	20
19	Units of gas detected while circulating	Units	0
20	Was lost circulation experienced at any time?	Y/N	N

1.4 Water Field Test

Item	Recorded Test Value	Units	Max. Acceptable Limit	Potential Problems in Exceeding Limit
pH	7	----	6.0 - 8.0	Chemicals in the water can cause severe retardation
Chlorides	0	ppm	3000 ppm	Can shorten thickening time of cement
Sulfates	<200	ppm	1500 ppm	Will greatly decrease the strength of cement
Total Hardness		ppm	500 mg/L	High concentrations will accelerate the set of the cement
Calcium		ppm	500 ppm	High concentrations will accelerate the set of the cement
Total Alkalinity		ppm	1000 ppm	Cement is greatly retarded to the point where it may not set up at all (typically occurs @ pH ≥ 8.3).
Bicarbonates		ppm	1000 ppm	Cement is greatly retarded to the point where it may not set up at all
Potassium		ppm	5000 ppm	High concentrations will shorten the pump time of cement (indicates the presence of chlorides, therefore if Potassium levels are measured as high, so should the chlorides)
Iron	0	ppm	300 ppm	High concentrations will accelerate the set of the cement
Temperature	75	°F	50-80 °F	High temps will accelerate; Low temps may risk freezing in cold weather

Submitted Respectfully by: _____

1.5 Job Event Log

Type	Seq. No.	Activity	Graph Label	Date	Time	Source	Combined Pump Rate (bbl/min)	Downhole Density (ppg)	Pass-Side Pump Pressure (psi)	Comment
Event	1	Arrive at Location from Service Center	Arrive at Location from Service Center	9/13/2014	12:00:00	USER				ARRIVE AT LOCATION. RIG RUNNING CASING. 3 JOINTS LEFT. PERFORM SITE ASSESSMENT AND PRE RIG UP SAFETY MEETING WITH CREW.
Event	2	Start Job	Start Job	9/13/2014	13:26:42	COM4	0.00	8.20	101.00	PERFORM PRE JOB SAFETY MEETING WITH ALL PRESENT PERSONELL.
Event	3	Test Lines	Test Lines	9/13/2014	13:28:55	COM4	0.00	8.31	1947.00	PRESSURE TEST LINES TO 2000 PSI.
Event	4	Pump Spacer 1	Pump Spacer 1	9/13/2014	13:35:24	COM4	0.00	8.24	112.00	PUMP 10 BBLs FRESH WATER WITH 2 LBS RED DYE ADDED AS TRACER.
Event	5	Pump Cement	Pump Cement	9/13/2014	13:47:16	COM4	1.00	13.66	139.00	PUMP 63 BBLs (200 SKS) SWIFTCEM MIXED AT 13.4 PPG USING SUPPLIED WATER. DENSITY VERIFIED BY SCALE.
Event	6	Shutdown	Shutdown	9/13/2014	14:03:08	COM4	3.00	13.51	142.00	
Event	7	Drop Top Plug	Drop Top Plug	9/13/2014	14:04:19	COM4	0.00	13.02	101.00	TOP PLUG PRELOADED
Event	8	Pump Displacement	Pump Displacement	9/13/2014	14:05:56	COM4	0.00	13.21	105.00	GOOD RETURNS THROUGHOUT. CEMENT TO SURFACE AT 34 BBLs INTO 42 BBLs TOTAL DISPLACEMENT. APPROX 8 BBLs CEMENT TO SURFACE.
Event	9	Bump Plug	Bump Plug	9/13/2014	14:21:54	COM4	2.00	7.86	317.00	PLUG LANDED AT 317 PSI. PRESSURE BROUGHT TO 900 PSI AND HELD 5 MIN.
Event	10	Check Floats	Check Floats	9/13/2014	14:28:46	USER	0.00	7.74	989.00	FLOATS HELD. 1 BBL BACK.
Event	11	End Job	End Job	9/13/2014	14:43:17	COM4	0.00	-0.57	105.00	PERFORM PRE RIG DOWN SAFETY MEETING PRIOR TO RIGGING DOWN LINES.

2.0 Custom Graphs

2.1 Custom Graph



