

# HALLIBURTON

iCem<sup>®</sup> 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**

Table of Contents

1.1	Executive Summary	3
1.2	Cementing Job Summary	4
1.3	Job Overview	5
1.4	Water Field Test	6
1.5	Job Event Log	7
2.0	Custom Graphs	8
2.1	Custom Graph	8

## 1.1 Executive Summary

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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

### HALLIBURTON

### 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		Src 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
Open Hole Section		13.5	
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	SWIFTCCEM (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

Page 1 of 2

### 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 <sub>f</sub> /100ft <sup>2</sup>	9
6	Actual mud 30 min Gel Strength	lb <sub>f</sub> /100ft <sup>2</sup>	
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

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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





