

HALLIBURTON

iCem[®] Service

ENSIGN UNITED STATES DRILLING

Date: Wednesday, August 13, 2014

SRC KIEHN C-4C HZ

Case 1

Sincerely,

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1.1 Executive Summary

Halliburton appreciates the opportunity to perform the cementing services on the **SRC Kiehn C-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 [Brighton]

Job Times

	Date	Time	Time Zone
Called Out	7/24/2014	11:00:00	MT
On Location	7/24/2014	16:15:00	MT
Job Started	7/24/2014	20:04:31	MT
Job Completed	7/24/2014	21:19:03	MT

1.2 Cementing Job Summary

Sold To #: 301256		Ship To #: 3542580		Quote #:		Sales Order #: 0901534642				
Customer: ENSIGN UNITED STATES DRILLING				Customer Rep: Sam L. Mikesell						
Well Name: SRC KIEHN		Well #: C-4CHZ		API/UWI #: 05-123-39718-00						
Field: WATTENBERG		City (SAP): JOHNSTOWN		County/Parish: WELD		State: COLORADO				
Legal Description: SW SE 4-4N-88W-201FSL-1738FEL										
Contractor:				Rig/Platform Name/Num: Ensign 131						
Job BOM: 7521										
Well Type: HORIZONTAL OIL										
Sales Person: HALAMERICA\HX38199				Srv Supervisor: Brandon Nielson						
Job										
Formation Name										
Formation Depth (MD)		Top		Bottom						
Form Type				BHST						
Job depth MD		558ft		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	3	9.625	8.921	36			0	558		558
Open Hole Section			13.5				0	578	0	578
Fluid Data										
Stage/Plug #: 1										
Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft ³ /sack	Mix Fluid Gal	Rate bbl/min	Total Mix Fluid Gal	
1	Mud Flush III (Powder)	Mud Flush III	12	bbl	8.4					
42 gal/bbl		FRESH WATER								
Fluid Data										
Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft ³ /sack	Mix Fluid Gal	Rate bbl/min	Total Mix Fluid Gal	
2	SwiftCem B2	SWIFTCM (TM) SYSTEM	200	sack	13.4	1.79		6	9.48	
94 lbm		TYPE I / II CEMENT, BULK (101439798)								
9.48 Gal		FRESH WATER								
Fluid Data										
Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft ³ /sack	Mix Fluid Gal	Rate bbl/min	Total Mix Fluid Gal	
3	Displacement	Displacement	41.2	bbl	9					
Cement Left in Pipe		Amount	Reason			Shoe Joint				

HALLIBURTON

*Summary Report*

Crew: _____
Job Start Date: 7/24/2014

Sales Order #: 0901534642
WO #: 0901534642
PO/AFE #: 413575

Customer: ENSIGN UNITED STATES
DRILLING
UWI / API Number: 05-123-39718-00
Well Name: SRC KIEHN
Well No: C-4CHZ

Field: WATTENBERG
County/Parish: WELD
State: COLORADO
Latitude: 40.335810
Longitude: -105.005137
Sect / Twn / Rng: 4/4/68

Job Type: CMT SURFACE
CASING BOM
Service Supervisor: Brandon Nielson
Cust Rep Name: Sam L. Mikesell
Cust Rep Phone #:

Remarks:

The Information Stated Herein Is Correct	Customer Representative Signature 	Date 6-24-14
	Customer Representative Printed Name	

1.3 Planned Pumping Schedule

- 1. Fill Lines with Water**
 - a. Density = 8.33
 - b. Volume = 2 bbl
- 2. Pressure Test Lines to 2500psi**
- 3. Pump Water Spacer**
 - a. Density = 8.33 lb/gal
 - b. Volume = 10 bbl
 - c. Rate = 5 bpm
- 4. Pump Mud Flush Spacer**
 - a. Density = 8.4 lb/gal
 - b. Volume = 12 bbl
 - c. Rate = 5 bpm
- 5. Pump Water Spacer**
 - a. Density = 8.33 lb/gal
 - b. Volume = 10 bbl
 - c. Rate = 5 bpm
- 6. Pump SwiftCem (Lead)**
 - a. Density = 13.4
 - b. Yield = 1.79
 - c. Water Requirement = 9.48
 - d. Volume = 200 sks (63.8 bbls)
 - e. Rate = 5 bpm
- 7. Drop Top Plug**
- 8. Start Displacement**
- 9. Pump Displacement Water**
 - a. Density = 9 lb/gal
 - b. Volume = 41.2 bbls
 - c. Rate = 6 bpm
10. Land Plug – Anticipated Final Circulation Pressure 188 psi

Calculated Total Displacement = 41.2 bbls

1.4 Job Overview

		Units	Description
1	Surface temperature at time of job	°F	
2	Mud type (OBM, WBM, SBM, Water, Brine)	-	WBM
3	Actual mud density	lb/gal	
4	Time circulated before job	HH:MM	
5	Mud volume circulated	Bbls	
6	Rate at which well was circulated	Bpm	
7	Pipe movement during hole circulation	Y/N	N
8	Rig pressure while circulating	Psi	
9	Time from end mud circulation to start of job	HH:MM	
10	Pipe movement during cementing	Y/N	N
11	Calculated displacement	Bbls	41.2
12	Job displaced by	Rig/HES	HES
13	Annular before job)?	Y/N	N
14	Annular flow after job	Y/N	N
15	Length of rat hole	Ft	
16	Units of gas detected while circulating	Units	
17	Was lost circulation experienced at any time ?	Y/N	N

1.5 Job Event Log

Type	Seq. No.	Activity	Graph Label	Date	Time	Source	PS Pump Press (psi)	PS Pump Rate (bbl/min)	Recirc Density (ppg)	DH Density (ppg)	Comment
Event	1	Call Out	Call Out	7/24/2014	11:00:00	USER					
Event	2	Crew Leave Yard	Crew Leave Yard	7/24/2014	15:30:00	USER					
Event	3	Arrive At Loc	Arrive At Loc	7/24/2014	16:15:00	USER					
Event	4	Assessment Of Location Safety Meeting	Assessment Of Location Safety Meeting	7/24/2014	16:30:00	USER					UPON ARRIVAL RIG WAS RIGGING UP CASING CREW TO START RUNNING CASING.
Event	5	Rig-up Lines	Rig-up Lines	7/24/2014	17:15:00	USER					
Event	6	Rig-Up Completed	Rig-Up Completed	7/24/2014	17:45:00	USER					
Event	7	Casing on Bottom	Casing on Bottom	7/24/2014	18:45:00	USER	-2.00	0.00	0.00	5.83	
Event	8	Pre-Job Safety Meeting	Pre-Job Safety Meeting	7/24/2014	19:30:00	USER	3.00	0.00	0.47	8.33	JSA WITH ALL INVOLVED PERSONS.
Event	9	Start Job	Start Job	7/24/2014	20:04:31	COM8	-1.00	0.00	0.47	-0.09	
Event	10	Test Lines	Test Lines	7/24/2014	20:12:10	COM8	9.00	0.00	8.22	8.33	TESTED LINES TO 2500 PSI NO VISIBLE LEAKS
Event	11	Pump Spacer 1	Pump Spacer 1	7/24/2014	20:14:50	COM8	3.00	0.00	8.17	8.35	10 BBL FRESH WATER PUMPED AT 3 BPM AND 49 PSI
Event	12	Pump Spacer 1	Pump Spacer 1	7/24/2014	20:18:37	COM8	51.00	3.10	13.33	8.29	12 BBL MUD FLUSH PUMPED AT 3 BPM AND 56 PSI
Event	13	Pump Spacer 1	Pump Spacer 1	7/24/2014	20:21:50	COM8	60.00	3.10	13.10	8.37	10 BBL DYE WATER PUMPED AT 3 BPM AND 71 PSI.
Event	14	Pump Cement	Pump Cement	7/24/2014	20:25:07	COM8	71.00	3.10	13.39	8.40	63.8 BBL OR 200 SKS MIXED AT 13.4 PPG WITH FRESH WATER. PUMPED AT 5 BPM AND 77 PSI
Event	15	Shutdown	Shutdown	7/24/2014	20:41:54	COM8	2.00	0.00	-0.10	13.13	
Event	16	Drop Top Plug	Drop Top Plug	7/24/2014	20:42:00	COM8	1.00	0.00	-0.10	13.15	PLUG PRE LOADED WITNESSED BY COMPANY

											REP.
Event	17	Pump Displacement	Pump Displacement	7/24/2014	20:42:05	COM8	1.00	0.00	-0.10	13.15	41.2 BBL FRESH WATER PUMPED AT 3 BPM AND 156 PSI. CEMENT RETURNED TO SURFACE 29 BBL INTO LEAVING US WITH 12 BBL BACK.
Event	18	Bump Plug	Bump Plug	7/24/2014	21:15:50	COM8	1045.00	0.00	-0.10	8.15	PLUG BUMPED AT 188 PSI. BROUGHT UP TO 500 PSI AND HELD 5 MINUTE.
Event	19	Test Lines	Test Casing	7/24/2014	21:15:54	COM8	1045.00	0.00	-0.10	8.16	BROUGHT PRESSURE UP TO 1025 PSI AND TESTED CASING FOR 15 MINUTES.
Event	20	Other	Check Floats.	7/24/2014	21:16:04	COM8	1046.00	0.00	-0.10	8.17	RELEASED PRESSURE AT 1045 PSI AND GOT .5 BBL BACK TO THE TRUCK.
Event	21	End Job	End Job	7/24/2014	21:19:03	COM8	4.00	0.00	-0.10	8.07	

2.0 Custom Graphs

2.1 Custom Graph



