

HALLIBURTON

iCem[®] Service

SYNERGY RESOURCES CORPORATION

Date: Saturday, November 07, 2015

SRC Vista 43-2N-A

Surface

Job Date: Tuesday, November 03, 2015

Sincerely,

Lauren Roberts

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1.0 Cementing Job Summary

1.1 Executive Summary

Halliburton appreciates the opportunity to perform the cementing services on the **SRC Vista 43-2N-A** 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.

67bbls of cement 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]

Job Times

	Date	Time	Time Zone
Requested Time On Location:	11/02/2015	1900	MTN
Called Out Time:		0800	
Arrived On Location At:		1700	
Job Started At:	11/03/2015	0507	
Job Completed At:		0655	
Departed Location At:		0900	

The Road to Excellence Starts with Safety

Sold To #: 359915		Ship To #: 3701195		Quote #:		Sales Order #: 0902873706					
Customer: SYNERGY RESOURCES CORPORATION						Customer Rep: Kevin Brakovec					
Well Name: SRC Vista			Well #: 43-2N-A			API/UWI #: 05-123-41060					
Field:		City (SAP): JOHNSTOWN		County/Parish: WELD		State: COLORADO					
Legal Description:											
Contractor: ENSIGN DRLG				Rig/Platform Name/Num: ENSIGN 131							
Job BOM: 7521											
Well Type: GAS											
Sales Person: HALAMERICA\HX37727				Srv Supervisor: Vaughn Oteri							
Job											
Formation Name											
Formation Depth (MD)		Top		Bottom							
Form Type				BHST							
Job depth MD		1636ft		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	
Open Hole Section			13.5				0	1636			
Casing		9.625	8.921	36			0	1621			
Tools and Accessories											
Type	Size in	Qty	Make	Depth ft		Type	Size in	Qty	Make		
Guide Shoe	9.625					Top Plug	9.625	1	HES		
Float Shoe	9.625			1621		Bottom Plug	9.625				
Float Collar	9.625			1576		SSR plug set	9.625				
Insert Float	9.625					Plug Container	9.625	1	HES		
Stage Tool	9.625					Centralizers	9.625				
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	Mud Flush III (Powder)	Mud Flush III			20	bbl	8.4				
42 gal/bbl		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	SwiftCem B2	SWIFTCЕМ (TM) SYSTEM	627	sack	13.4	1.79		4	9.5
9.50 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
3	Displacement	Displacement	122	bbl	8.33				
Cement Left In Pipe		Amount	42 ft		Reason			Shoe Joint	
Comment 67bbl of cement back to surface									

1.2 Job Overview

		Units	Description
1	Surface temperature at time of job	°F	60
2	Mud type (OBM, WBM, SBM, Water, Brine)	-	WBM
3	Actual mud density	lb/gal	8.33
4	Pipe movement during hole circulation	Y/N	N
5	Pipe movement during cementing	Y/N	N
6	Calculated displacement	bbls	121
7	Job displaced by	Rig/HES	HES
8	Annular flow before job	Y/N	Y
9	Annular flow after job	Y/N	N
10	Length of rat hole	ft	15
11	Was lost circulation experienced at any time?	Y/N	N

1.3 Water Field Test

Item	Recorded 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	0.0049	ppm	3000 ppm	Can shorten thickening time of cement
Sulfates	<200	ppm	1500 ppm	Will greatly decrease the strength of cement
Total Hardness	215	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 \geq 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	54	°F	50-80 °F	High temps will accelerate; Low temps may risk freezing in cold weather

2.0 Real-Time Job Summary

2.1 Job Event Log

Type	Seq. No.	Activity	Graph Label	Date	Time	Source	PS Pump Press (psi)	DH Density (ppg)	PS Pump Rate (bbl/min)	Comments
Event	1	Safety Meeting - Pre Rig-Up	Safety Meeting - Pre Rig-Up	11/2/2015	03:00:00	USER				Safety Meeting with HES Crew, Prior to Spotting trucks and rigging-up
Event	2	Safety Meeting - Pre Job	Safety Meeting - Pre Job	11/2/2015	04:25:00	USER				Safety Meeting With HES Crew, and all 3rd Party Employees
Event	3	Call Out	Call Out	11/2/2015	08:00:00	USER				Call out from ARC hub
Event	4	Safety Meeting - Service Center or other Site	Safety Meeting - Service Center or other Site	11/2/2015	17:00:00	USER				Journey Management Meeting with HES Crew prior to departing Service Center
Event	5	Arrive At Loc	Arrive At Loc	11/2/2015	18:00:00	USER				Requested on location @1500 then pushed to 1900 arrived on location @1700 met with company rep to discuss job process and concerns, advised that rig was at TD with drill pipe
Event	6	Start Job	Start Job	11/3/2015	05:05:15	COM4				Water Provided by Rig, Tested Good for Mixing Cement
Event	7	Test Lines	Test Lines	11/3/2015	05:12:46	COM4	2217.00	8.30	0.00	Pressure Test Lines to 2215 PSI
Event	8	Pump Spacer 1	Pump Dyed Water Spacer	11/3/2015	05:15:35	COM4	6.00	8.20	0.00	Pump 10 bbls Dyed Water (1 - 2 lb. Bottle of Dye Used)
Event	9	Pump Spacer 2	Pump Mud Flush	11/3/2015	05:21:04	COM4	60.00	8.30	3.00	Pump 20 bbls Mud Flush (80 lbs.)
Event	10	Pump Spacer 1	Pump Fresh Water Spacer	11/3/2015	05:27:46	COM4	75.00	8.28	3.00	Pump 10 bbls Fresh Water
Event	11	Pump Cement	Pump Cement	11/3/2015	05:33:52	COM4	91.00	13.55	2.60	Mix and Pump 627 sks (200 bbls) SwiftCem Cement @ 13.4 lb/gal (Density Verified by Pressurized Scales)
Event	12	Other	Other	11/3/2015	06:03:50	USER	9.00	14.71	1.20	Cement Delivery Issue, Micro-Motion was sucked dry, and read density

heavy until fluid filled line once again.

Event	13	Shutdown	Shutdown	11/3/2015	06:14:29	COM4				
Event	14	Drop Top Plug	Drop Top Plug	11/3/2015	06:15:38	COM4				Released plug witnessed by company rep
Event	15	Pump Displacement	Pump Displacement	11/3/2015	06:16:20	COM4	0.00	17.95	0.00	Pumped 121.4bbl of fresh water to displace cement
Event	16	Bump Plug	Bump Plug	11/3/2015	06:49:11	COM4	988.00	7.87	0.00	Bump plug 500psi over final pump pressure
Event	17	Other	Other	11/3/2015	06:53:03	COM4	994.00	7.86	0.00	Release pressure to pump truck to check float .5bbl back floats held good
Event	18	End Job	End Job	11/3/2015	07:21:28	COM4	1.00	-0.34	0.00	67BBL of cement back to surface

3.0 Attachments

3.1 Case 1-Custom Results.png



