

# HALLIBURTON

iCem<sup>®</sup> Service

## **SYNERGY RESOURCES CORPORATION**

Date: Saturday, December 19, 2015

### **Synergy SRC Vista 44-2N-A**

Intermediate

Job Date: Tuesday, December 01, 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 44-2N-A** cement **Intermediate** 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.

**14 bbls. 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**

	<b>Date</b>	<b>Time</b>	<b>Time Zone</b>
Requested Time On Location:	12/01/2015	0300	MTN
Called Out Time:	11/30/2015	2100	
Arrived On Location At:	12/01/2015	0215	
Job Started At:		0846	
Job Completed At:		1124	
Departed Location At:		1200	

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## Cementing Job Summary

The Road to Excellence Starts with Safety

Sold To #: 359915	Ship To #: 3700825	Quote #:	Sales Order #: 0902944441							
Customer: SYNERGY RESOURCES CORPORATION		Customer Rep: Kevin Brakovech								
Well Name: SRC Vista	Well #: 44-2-N-A	API/UWI #: 05-123-41055								
Field:	City (SAP): JOHNSTOWN	County/Parish: WELD	State: COLORADO							
Legal Description:										
Contractor: ENSIGN DRLG		Rig/Platform Name/Num: ENSIGN 131								
Job BOM: 7522										
Well Type: GAS										
Sales Person: HALAMERICA\HX38199		Srvc Supervisor: Kendall Broom								
Job										
Formation Name										
Formation Depth (MD)	Top	Bottom								
Form Type		BHST								
Job depth MD	7425ft	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	654		
Casing		7	6.276	26		P-110	0	7412		
Open Hole Section			8.75				654	7425		
Tools and Accessories										
Type	Size in	Qty	Make	Depth ft	Type	Size in	Qty	Make		
Guide Shoe	7	1			Top Plug	7	1	HES		
Float Shoe	7	1		7412	Bottom Plug	7	1	HES		
Float Collar	7	1			SSR plug set					
Insert Float	7	1			Plug Container	7	1	HES		
Stage Tool	7	1			Centralizers					
Miscellaneous Materials										
Gelling Agt		Conc		Surfactant		Conc	Acid Type		Qty	Conc
Treatment Fld		Conc		Inhibitor		Conc	Sand Type		Size	Qty
Fluid Data										
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	Fresh Water W/ Red Dye	Fresh Water W/ Red Dye	10	bbl	8.33					

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(v. 4.2.393)

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## Cementing Job Summary

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
2	11.5 lb/gal Tuned Spacer III	Tuned Spacer III	20	bbl	11.5	3.86		4	
36.09 gal/bbl		FRESH WATER							
145.18 lbm/bbl		BARITE, BULK (100003681)							
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
3	ElastiCem B2	ELASTICEM (TM) SYSTEM	850	sack	13.8	1.6		4	7.09
0.25 %		HR-5, 50 LB SK (100005050)							
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
4	Displacement	Displacement	274	bbl	8.33				
Cement Left In Pipe    Amount 37.29 ft    Reason    Shoe Joint									
Comment									

## 1.2 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	ppm	3000 ppm	Can shorten thickening time of cement
Sulfates	<200	ppm	1500 ppm	Will greatly decrease the strength of cement
Total Hardness	25	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	79.8	°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

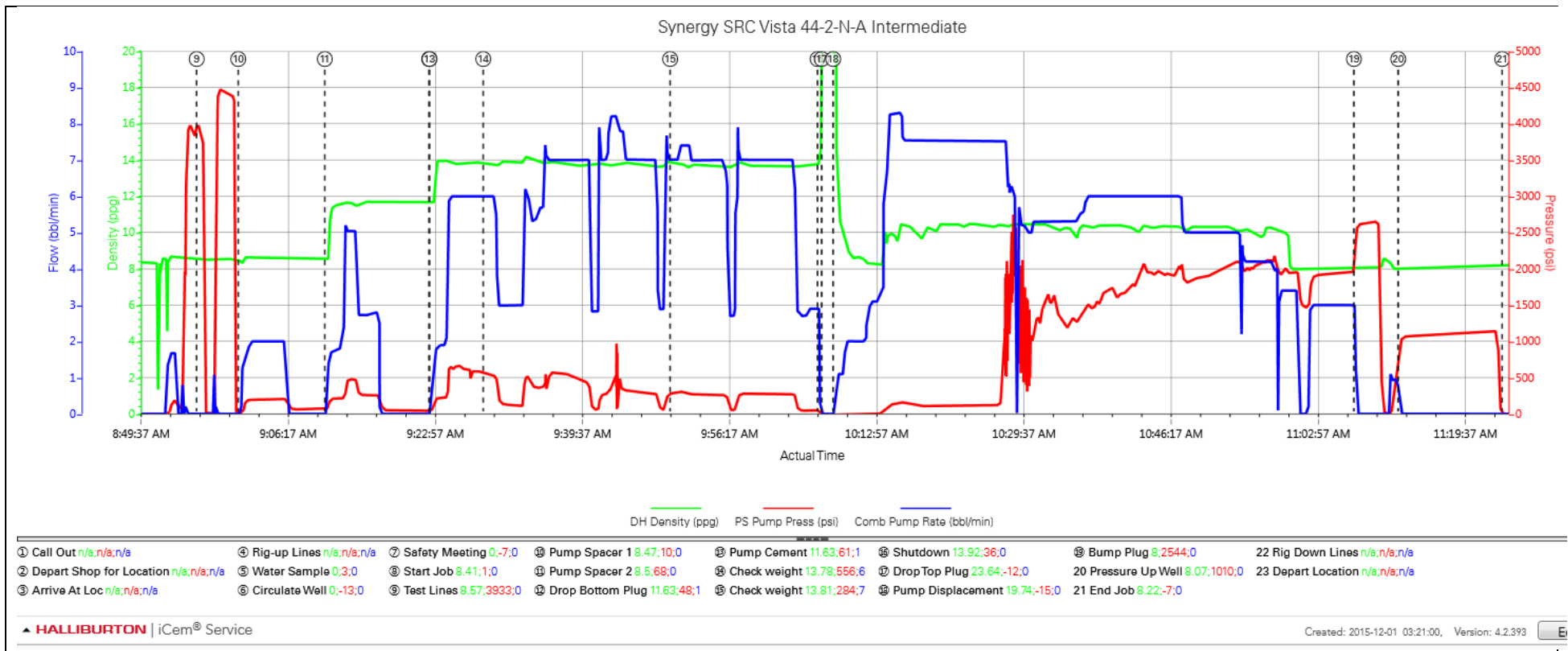
Type	Seq. No.	Activity	Graph Label	Date	Time	Source	DH Density (ppg)	PS Pump Press (psi)	Comb Pump Rate (bbl/min)	Comments
Event	1	Call Out	Call Out	11/30/2015	21:00:00	USER				Called crew out to be on location at 0300
Event	2	Depart Shop for Location	Depart Shop for Location	12/1/2015	01:30:00	USER				Held a safety meeting before leaving for location
Event	3	Arrive At Loc	Arrive At Loc	12/1/2015	02:15:00	USER				Arrived on location and met with the company man. Rig still had 10 joints to go. Circulated on each joint
Event	4	Rig-up Lines	Rig-up Lines	12/1/2015	02:30:00	USER				Held a hazard hunt before spotting in trucks and rigging up lines
Event	5	Other	Water Sample	12/1/2015	05:45:00	USER				Temp. 79.8, Hardness 25, PH 7, Sulfate <200, Chloride 0, Iron 0.
Event	6	Circulate Well	Circulate Well	12/1/2015	07:05:32	USER				Circulating 7 bpm, 1000 psi. Mud visc.40
Event	7	Safety Meeting	Safety Meeting	12/1/2015	08:15:00	USER				Held a safety meeting with the rig crew to discuss the operation and safety
Event	8	Start Job	Start Job	12/1/2015	08:46:00	COM4	8.41	1.00	0.00	Filled lines with 2 bbl water
Event	9	Test Lines	Test Lines	12/1/2015	08:56:12	COM4	8.57	3933.00	0.00	Tested lines to 4482 psi
Event	10	Pump Spacer 1	Pump Spacer 1	12/1/2015	09:00:55	COM4	8.47	10.00	0.00	Pumped 10 bbl water with red dye
Event	11	Pump Spacer 2	Pump Spacer 2	12/1/2015	09:10:43	COM4	8.50	68.00	0.00	Pumped 20 bbl spacer, 11.5#, 3.86 yield, 24.8 gal/sks
Event	12	Drop Bottom Plug	Drop Bottom Plug	12/1/2015	09:22:32	COM4	11.63	48.00	1.00	Dropped plug preloaded and witnessed by the company man
Event	13	Pump Cement	Pump Cement	12/1/2015	09:22:35	COM4	11.63	61.00	1.00	Pumped 242.2 bbl ElastiCem. 850 sacks, 13.8#, 1.6 yield, 7.09 gal/sks
Event	14	Check Weight	Check weight	12/1/2015	09:28:40	COM4	13.78	556.00	6.00	Verified weight with pressurized scales
Event	15	Check Weight	Check weight	12/1/2015	09:49:50	COM4	13.81	284.00	7.00	Verified weight with pressurized scales
Event	16	Shutdown	Shutdown	12/1/2015	10:06:32	COM4	13.92	36.00	0.00	Washed cement head



Event	17	Drop Top Plug	Drop Top Plug	12/1/2015	10:07:00	USER	23.64	-12.00	0.00	Dropped plug preloaded and witnessed by the company man
Event	18	Pump Displacement	Pump Displacement	12/1/2015	10:08:18	COM4	19.74	-15.00	0.00	Pumped 274 bbl displacement, calculated 274. got all spacer and 14 bbl cement back
Event	19	Bump Plug	Bump Plug	12/1/2015	11:07:17	COM4	8.00	2544.00	0.00	Bumped plug at 2535 psi final lift was 1970. checked floats and got 2 bbl back on the truck
Event	20	Pressure Up Well	Pressure Up Well	12/1/2015	11:12:18	COM4	8.07	1010.00	0.00	Pressured up well to 1000psi for a 10 min casing test
Event	21	End Job	End Job	12/1/2015	11:24:05	COM4				
Event	22	Rig Down Lines	Rig Down Lines	12/1/2015	11:35:59	USER				Held a safety meeting before rigging down lines
Event	23	Depart Location	Depart Location	12/1/2015	12:00:00	USER				Held a safety huddle before leaving location

3.0 Attachments

3.1 Synergy SRC Vista 44-2-N-A Intermediate-Custom Results.png



Synergy SRC Vista 44-2-N-A Intermediate

