

# HALLIBURTON

iCem<sup>®</sup> Service

## **SYNERGY RESOURCES CORPORATION**

United States of America

### **SRC Williams 12-4-5NM-C**

Production

Synergy

Job Date: Sunday, December 25, 2016

Sincerely,

**Derek Trier**

## Legal Notice

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## 1.0 Cementing Job Summary

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### 1.1 Executive Summary

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Halliburton appreciates the opportunity to perform the cementing services on the **SRC Williams 12-4-5NM-C** cement **Production** 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.

**Approximately, 18bbl 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]**

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*Cementing Job Summary**The Road to Excellence Starts with Safety*

Sold To #: 359915	Ship To #: 3735435	Quote #:	Sales Order #: 0903738173							
Customer: SYNERGY RESOURCES CORPORATION		Customer Rep: Lovel Young								
Well Name: SRC WILLIAMS	Well #: 12-4-5NM-C	API/UWI #: 05-123-43167-00								
Field: WATTENBERG	City (SAP): JOHNSTOWN	County/Parish: WELD	State: COLORADO							
Legal Description: NE NW-4-4N-67W-1100FNL-2423FWL										
Contractor: PRECISION DRLG		Rig/Platform Name/Num: PRECISION 462								
Job BOM: 7523										
Well Type: HORIZONTAL OIL										
Sales Person: HALAMERICA/HX38199		Srv Supervisor: Jacob Nelson								
Job										
Formation Name										
Formation Depth (MD)	Top	Bottom								
Form Type	BHST									
Job depth MD	13637ft	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	LTC	J-55	0	1763	0	1763
Casing		5.5	4.778	20		P-110	0	13637	0	6845
Open Hole Section			8.5				1763	13637	1763	6845
Tools and Accessories										
Type	Size in	Qty	Make	Depth ft		Type	Size in	Qty	Make	
Guide Shoe	5.5			13637		Top Plug	5.5		HES	
Float Shoe	5.5					Bottom Plug	5.5		HES	
Float Collar	5.5					SSR plug set	5.5		HES	
Insert Float	5.5					Plug Container	5.5		HES	
Stage Tool	5.5					Centralizers	5.5		HES	
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	Tuned Spacer III	Tuned Spacer III	0	bbl	11.5	3.75		6		
0.30 gal/bbl		MUSOL A, 330 GAL TOTE - (790828)								
0.30 gal/bbl		DUAL SPACER SURFACTANT B, 5 GAL PAIL (100003665)								
149.34 lbm/bbl		BARITE, BULK (100003681)								
35.60 gal/bbl		FRESH WATER								

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## Cementing Job Summary

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	ElastiCem Lead	ELASTICEM (TM) SYSTEM		sack	13.2	1.57		6	7.52
7.52 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	NeoCem Tail	NeoCem TM		sack	13.2	2.08		4	9.98
9.98 Gal		FRESH WATER							
0.25 %		SCR-100 (100003749)							
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
4	MMCR Displacement	MMCR Displacement	0	bbl	8.34				
0.50 gal/bbl		MICRO MATRIX CEMENT RETARDER, 5 GAL PAIL (100003781)							
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
5	Clay-Web Displacement	Clay-Web Displacement	0	bbl	8.33				
0.05 gal/bbl		CLA-WEB - TOTE (101985045)							
Cement Left In Pipe	Amount	88 ft			Reason			Shoe Joint	
Mix Water:	pH ##	Mix Water Chloride: ## ppm			Mix Water Temperature: ## °F °C				
Cement Temperature: ## °F °C	Plug Displaced by: ## lb/gal kg/m3 XXXX				Disp. Temperature: ## °F °C				
Plug Bumped? Yes/No	Bump Pressure: ##### psi MPa				Floats Held? Yes/No				
Cement Returns: ## bbl m3	Returns Density: ## lb/gal kg/m3				Returns Temperature: ## °F °C				
Comment									

## 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)	Comb Pump Rate (bbl/min)	Pump Stg Tot (bbl)	Comments
Event	1	Start Job	Start Job	12/25/2016	08:50:24	COM5	-23.70	8.43	0.00	0.00	TD: 13669', TVD: 6845', KOP: 6188', TC: 13659', CSNG: 5.5" 20# P-110, BOPC, 1778' 9.625" 36#, MW: 9.9#.
Event	2	Pump Water	Fill Lines	12/25/2016	08:51:29	USER	10.30	8.57	2.10	0.00	Fill lines with 5 bbls of fresh water.
Event	3	Test Lines	Test Lines	12/25/2016	08:55:18	COM5	34.30	8.25	0.00	0.12	Pressure test lines to 4500 psi.
Event	4	Pump Spacer 1	Pump Tuned Spacer	12/25/2016	09:04:03	COM5	115.30	8.16	3.10	0.03	Pumped 40 bbls of Tuned Spacer at 11.5 ppg. Yield: 3.75, Gal/sk: 23.8. 10 gals of D-Air, 15 gals of Musol A, and 15 gals of Dual Spacer B added. Density verified with mud scale.
Event	5	Pump Lead Cement	Pump Lead Cement	12/25/2016	09:14:12	COM5	520.30	12.41	6.00	0.95	Pumped 976 sks/ 273 bbls of ElastiCem at 13.2 ppg. Yield: 1.57, Gal/sk: 7.52. Density verified with mud scale.
Event	6	Pump Tail Cement	Pump Tail Cement	12/25/2016	09:55:12	COM5	346.30	13.12	7.00	6.70	Pumped 856 sks/ 317 bbls of NeoCem at 13.2 ppg. Yield: 2.08, Gal/sk: 9.98. Density verified with mud scale.
Event	7	Shutdown	Shutdown	12/25/2016	10:47:55	USER	11.30	13.93	0.00	8.09	Shutdown to wash up mixing head and tubs.
Event	8	Clean Lines	Clean Lines	12/25/2016	10:50:06	COM5	41.30	15.05	3.40	0.01	Flush pumps and clean lines with 10 bbls of clean fresh water.
Event	9	Pump Displacement	Pump Displacement	12/25/2016	10:53:47	COM5	41.30	8.32	4.40	0.01	Total displacement to bump is 301 bbls. Dropped 3rd party plug. Company man witnessed plug launch. Pump away plug with 7 bbls for a wet shoe.
Event	10	Shutdown	Shutdown	12/25/2016	10:55:18	USER	23.30	8.37	0.00	0.17	Shutdown after 7 bbls of displacement to drop a 2nd plug. Company man witnessed

											plug launch.
Event	11	Spacer Returns to Surface	Spacer Returns to Surface	12/25/2016	11:25:57	USER	2391.30	8.37	7.50	5.90	Got back 40 bbls of Tuned Spacer and 18 bbls of cement to surface as calculated.
Event	12	Bump Plug	Bump Plug	12/25/2016	11:39:11	USER	1899.30	8.34	2.90	7.52	Bumped first plug at 2000 psi. Plug burst at 3000 psi. Pumped the 7 bbls for a wet shoe.
Event	13	Bump Plug	Bump Plug	12/25/2016	11:42:24	USER	1952.30	8.37	0.00	7.69	Bumped 2nd plug at 1900 psi. Plug burst at 3800 psi.
Event	14	Check Floats	Check Floats	12/25/2016	11:42:56	USER	237.30	8.29	0.00	7.69	Floats held. Got 2.0 bbls back.
Event	15	End Job	End Job	12/25/2016	11:46:12	COM5	-56.70	8.25	0.00	0.00	Thank you for choosing Halliburton cementing and the crew of Jacob Nelson.

## 3.0 Attachments

### 3.1 Synergy-Custom Results.png

