HALLIBURTON

iCem® Service

HALLIBURTON ENERGY INSTITUTE

For:

Date: Thursday, March 05, 2015

KODAK #3

Surface

Job Date: Wednesday, February 18, 2015

Sincerely,

Sebastian Estenssoro

Legal Notice

Warning Disclaimer

Although the information contained in this report is based on sound engineering practices, the copyright owner(s) does (do) not accept any responsibility whatsoever, in negligence or otherwise, for any loss or damage arising from the possession or use of the report whether in terms of correctness or otherwise. The application, therefore, by the user of this report or any part thereof, is solely at the user's own risk.

Limitations of Liability

Except as expressly set forth herein, there are no representations or warranties by Halliburton, express or implied, including implied warranties of merchantability and/or fitness for a particular purpose. In no event will Halliburton or its suppliers be liable for consequential, incidental, special, punitive or exemplary damages (including, without limitation, loss of data, profits, use of hardware, or software). Customer accepts full responsibility for any investment made based on results from the Software. Any interpretations, analyses or modeling of any data, including, but not limited to Customer data, and any recommendation or decisions based upon such interpretations, analyses or modeling are opinions based upon inferences from measurements and empirical relationships and assumptions, which inferences and assumptions are not infallible, and with respect to which professional may differ. Accordingly, Halliburton cannot and does not warrant the accuracy, correctness or completeness of any such interpretation, recommendation, modeling or other products of the Software Product. As such, any interpretation, recommendation or modeling resulting from the Software for the purpose of any drilling, well treatment, production or financial decision will be at the sole risk of Customer. Under no circumstances will Halliburton or its suppliers be liable for any damages.

Table of Contents

1.0 Cementing Job Summary

1.1 Executive Summary

Halliburton appreciates the opportunity to perform the cementing services on the **Kodak 3,** 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
Requested Time On Location:		
Called Out Time:	2/17/2015	1800
Arrived On Location At:	2/17/2015	2130
Job Started At:	2/18/2015	0321
Job Completed At:	2/18/2015	0442
Departed Location At:	2/18/2015	0730

1.2 Planned Pumping Schedule

Event	Pressure (psi)	Rate (bpm)	Volume (bbl)	Sacks	Density (ppg)	Yield (ft3/sk)	WR (gal/sk)
FILL LINES			2		8.33		
PRESSURE TEST	3000						
MUDFLUSH III		2	20		8.34		
PRIMARY CEMENT		3	95	350	14.2	1.54	7.66
DROP TOP PLUG							
DISPLACEMENT		8	58.7		8.33		
SLOW RATE		3					
BUMP PLUG		2					
CHECK FLOATS							
END JOB							

HALLIBURTON

Cementing Job Summary

The Road to Excellence Starts with Safety

Sold To #: 369404	**Ship To #:** 3647448	**Quote #:**	**Sales Order #:** 0902148119
Customer: EXTRACTION OIL & GAS		**Customer Rep:**	
Well Name: KODAK	**Well #:** 3		**API/UWI #:** 05-123-41120-00
Field: WATTENBERG	**City (SAP):** WINDSOR	**County/Parish:** WELD	**State:** COLORADO
Legal Description: NW NW-27-6N-67W-1245FNL-1043FWL			
Contractor: FRONTIER DRLG		**Rig/Platform Name/Num:** FRONTIER 10	
Job BOM: 7521			
Well Type: HORIZONTAL OIL			
Sales Person: HALAMERICA\HX46524		**Srvc Supervisor:** Joseph Scileppi	

Job

Formation Name					
Formation Depth (MD)	Top		Bottom		
Form Type			BHST		
Job depth MD	815ft		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	802	0	802
Open Hole Section			13.5				0	815	0	815

Tools and Accessories

Type	Size in	Qty	Make	Depth ft	Type	Size in	Qty	Make
Guide Shoe	9.625			802	Top Plug	9.625		HES
Float Shoe	9.625				Bottom Plug	9.625		HES
Float Collar	9.625				SSR plug set	9.625		HES
Insert Float	9.625				Plug Container	9.625		HES
Stage Tool	9.625				Centralizers	9.625		HES

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 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

HALLIBURTON

Cementing Job Summary

2	Lead Cement	SWIFTCEM (TM) SYSTEM	350	sack	14.2	1.54		6	7.66
7.63 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	58.7	bbl	8.33			6	

Cement Left In Pipe	Amount	42 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 GOT 20 BBLS OF CMT BACK TO SURFACE

1.3 Job Overview

		Units	Description
1	Surface temperature at time of job	^{o}F	32
2	Mud type (OBM, WBM, SBM, Water, Brine)	-	WBM
3	Actual mud density	lb/gal	8.6
7	Time circulated before job	HH:MM	00:15
12	Time from end mud circulation to start of job	HH:MM	0:20
13	Pipe movement during cementing	Y/N	N
14	Calculated displacement	bbls	58.7
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	13
20	Was lost circulation experienced at any time?	Y/N	N

1.4 Water Field Test

Item	Recorded Value	Units	Max Acceptable Limit	Potential Problems in Exceeding Limit
pH		-	6.0-8.0	Chemicals in the water can cause severe retardation
Chlorides		ppm	3000 ppm	Can shorten thickening time of cement
Sulfates		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		ppm	300 ppm	High concentrations will accelerate the set of the cement
Temperature		°F	50-80 °F	High temps will accelerate; Low temps may risk freezing in cold weather

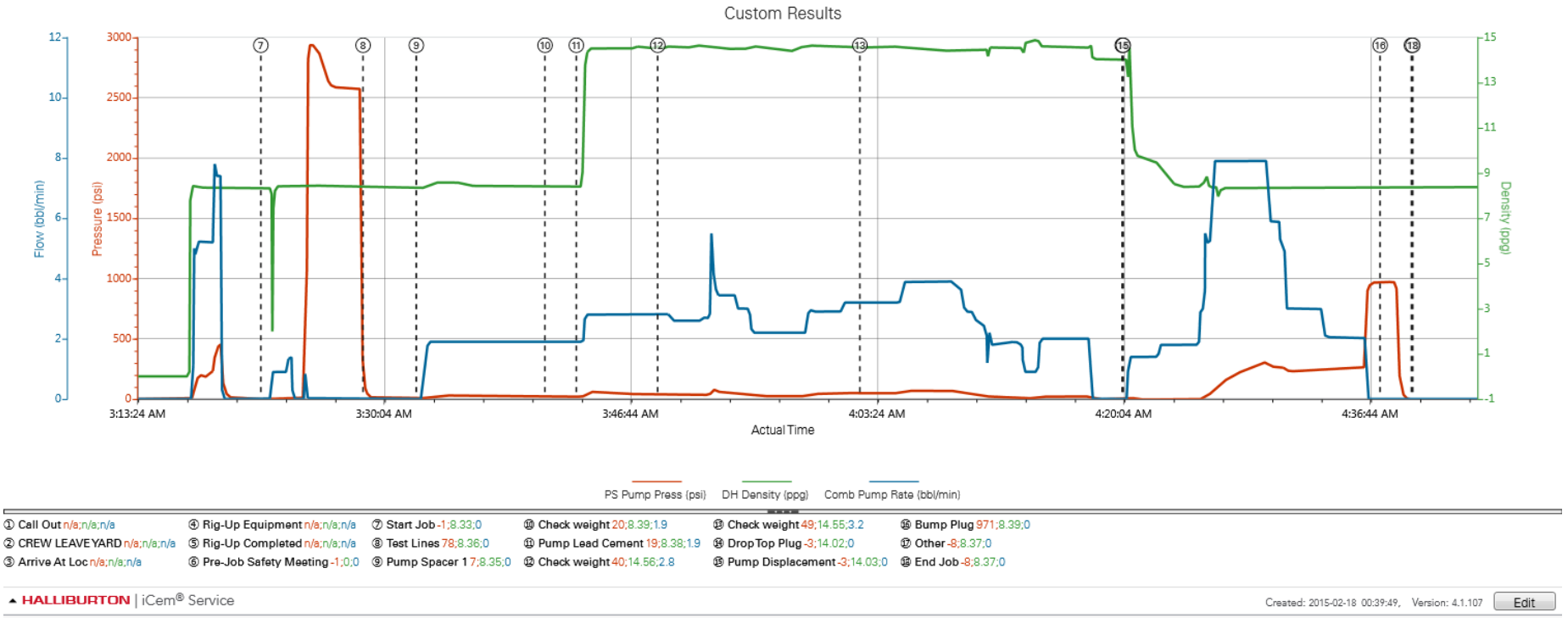
Submitted Respectfully by:

2.0 Real-Time Job Summary

2.1 Job Event Log

Type	Seq. No.	Activity	Graph Label	Date	Time	Source	Comb Pump Rate (bbl/min)	DH Density (ppg)	PS Pump Press (psi)	Comments
Event	1	Call Out	Call Out	2/17/2015	18:00:00	USER				
Event	2	Crew Leave Yard	CREW LEAVE YARD	2/17/2015	21:30:00	USER				
Event	3	Arrive At Loc	Arrive At Loc	2/17/2015	22:30:00	USER				RIG WAS RIGGING UP CASING CREW UPON ARRIVAL HAD 22 JOINTS TO RUN
Event	4	Rig-Up Equipment	Rig-Up Equipment	2/17/2015	23:00:00	USER				
Event	5	Rig-Up Completed	Rig-Up Completed	2/17/2015	23:30:00	USER				
Event	6	Pre-Job Safety Meeting	Pre-Job Safety Meeting	2/18/2015	03:00:00	USER	0.00	0.00	-1.00	JSA W/ ALL INVOLVED PERSONNEL
Event	7	Start Job	Start Job	2/18/2015	03:21:52	COM5	0.00	8.33	-1.00	
Event	8	Test Lines	Test Lines	2/18/2015	03:28:47	COM5	0.00	8.36	78.00	TESTED LINES TO 3000 PSI, NO VISIBLE LEAKS
Event	9	Pump Spacer 1	Pump Spacer 1	2/18/2015	03:32:23	COM5	0.00	8.35	7.00	PUMPED 20 BBLS MUD FLUSH AT 2 BPM AT 24 PSI
Event	10	Check Weight	Check weight	2/18/2015	03:41:05	COM5	1.90	8.39	20.00	
Event	11	Pump Lead Cement	Pump Lead Cement	2/18/2015	03:43:12	COM5	1.90	8.38	19.00	PUMPED 350 SKS OR 96 BBLS 14.2 SWIFTCEM AT 2 BPM AT 20 PSI
Event	12	Check Weight	Check weight	2/18/2015	03:48:42	COM5	2.80	14.56	40.00	
Event	13	Check Weight	Check weight	2/18/2015	04:02:22	COM5	3.20	14.55	49.00	
Event	14	Drop Top Plug	Drop Top Plug	2/18/2015	04:20:06	COM5	0.00	14.02	-3.00	PLUG PRE LOADED AND WITNESSED BY COMPANY REP
Event	15	Pump Displacement	Pump Displacement	2/18/2015	04:20:10	COM5	0.00	14.03	-3.00	PUMPED 58.7 BBLS H20 AT 8 BPM AT 220 PSI
Event	16	Bump Plug	Bump Plug	2/18/2015	04:37:32	COM5	0.00	8.39	971.00	PLUG LANDED AT 281 PSI WE BUMPED ON CALCULATED
Event	17	Other	Other	2/18/2015	04:39:39	COM5	0.00	8.37	-8.00	CHECKED FLOATS WITH 970 PSI GOT 1 BBL BACK TO TRUCK, FLOATS HELD
Event	18	End Job	End Job	2/18/2015	04:39:44	COM5	0.00	8.37	-8.00	

3.0 Job Chart


Custom Results
Flow (bbl/min)
Pressure (psi)
Density (ppg)
Actual Time
3:13:24 AM
3:30:04 AM
3:46:44 AM
4:03:24 AM
4:20:04 AM
4:36:44 AM
PS Pump Press (psi)
DH Density (ppg)
Comb Pump Rate (bbl/min)
① Call Out n/a;n/a;n/a
② CREW LEAVE YARD n/a;n/a;n/a
③ Arrive At Loc n/a;n/a;n/a
④ Rig-Up Equipment n/a;n/a;n/a
⑤ Rig-Up Completed n/a;n/a;n/a
⑥ Pre-Job Safety Meeting -1;0;0
⑦ Start Job -1;8.33;0
⑧ Test Lines 78;8.36;0
⑨ Pump Spacer 1 7;8.35;0
⑩ Check weight 20;8.39;1.9
⑪ Pump Lead Cement 19;8.38;1.9
⑫ Check weight 40;14.56;2.8
⑬ Check weight 49;14.55;3.2
⑭ Drop Top Plug -3;14.02;0
⑮ Pump Displacement -3;14.03;0
⑯ Bump Plug 971;8.39;0
⑰ Other -8;8.37;0
⑱ End Job -8;8.37;0
HALLIBURTON | iCem® Service
Created: 2015-02-18 00:39:49, Version: 4.1.107
Edit