HALLIBURTON

iCem® Service

Post Job Report

EXTRACTION

For:

Date: Saturday, September 13, 2014

EXTRACTION OIL AND GAS DIAMOND VALLEY EAST 8

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Sincerely,

EXTRACTION OIL AND GAS DIAMOND VALLEY EAST 8

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EXTRACTION OIL AND GAS DIAMOND VALLEY EAST 8

1.1 Executive Summary

Halliburton appreciates the opportunity to perform the cementing services on the **Diamond Valley East #8** cement **Production Liner** 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
Requested Time On Location			
Called Out			
On Location	9/11/14	1730	MST
Job Started	9/11/14	1838	MST
Job Completed	9/11/14	2316	MST
Departed Location	9/12/14	0000	MST

EXTRACTION OIL AND GAS DIAMOND VALLEY EAST 8

1.2 Cementing Job Summary

HALLIBURTON *Cementing Job Summary*

The Road to Excellence Starts with Safety

Sold To #: 369404	**Ship To #:** [illegible] 3670499	**Quote #:**	**Sales Order #:** 0901650127
Customer: EXTRACTION OIL & GAS		**Customer Rep:**	
Well Name: DIAMOND VALLEY EAST	**Well #:** 8		**API/UWI #:** 05-123-38564-00
Field: WATTENBERG	**City (SAP):** WINDSOR	**County/Parish:** WELD	**State:** COLORADO
Legal Description: SW SW-23-6N-67W-912FSL-155FWL			
Contractor:		**Rig/Platform Name/Num:** FRONTIER 10	
Job BOM: 7525			
Well Type: HORIZONTAL OIL			
Sales Person: HALAMERICA\HX46524		**Srvc Supervisor:** Joseph Fantasia	

Job

Formation Name			
Formation Depth (MD)	**Top**	**Bottom**	
Form Type		**BHST**	
Job depth MD	16766ft	**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
Drill Pipe		4	3.34	14			0	7291	0	0
Casing		7	6.276	26		L-80	0	7406	0	0
Casing		4.5	3.92	13.5		L-80	7291	16766	0	0
Open Hole Section			6				7406	16776	0	0

Tools and Accessories

Type	Size in	Qty	Make	Depth ft	Type	Size in	Qty	Make
Guide Shoe	4.5	1		16766	Top Plug	4.5	1	HES
Float Shoe	4.5	1			Bottom Plug	4.5	1	HES
Float Collar	4.5	1			SSR plug set	4.5	1	HES
Insert Float	4.5	1			Plug Container	4.5	1	HES
Stage Tool	4.5	1			Centralizers	4.5	1	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	11.5 lb/gal Tuned Spacer III	Tuned Spacer III	40	bbl	11.5	3.75	24.2	4	
36 gal/bbl		FRESH WATER							
148.73 lbm/bbl		BARITE, BULK (100003681)							

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HALLIBURTON *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	Lead Cement	ECONOCEM (TM) SYSTEM	712	sack	13.8	1.4	6.46	5	6.46
6.46 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	199	bbl	8.33			5	

Cement Left In Pipe	Amount	5 ft	Reason	Shoe Joint
Comment				

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1.3 Job Overview

		Units	Description
1	Surface temperature at time of job	^{o}F	50
2	Mud type (OBM, WBM, SBM, Water, Brine)	-	obm
3	Actual mud density	lb/gal	9.3
4	Actual mud Plastic Viscosity (PV)	cP	
5	Actual mud Yield Point (YP)	$lb_f/100ft^2$	
6	Actual mud 30 min Gel Strength	$lb_f/100ft^2$	
7	Time circulated before job	HH:MM	
8	Mud volume circulated	Bbls	
9	Rate at which well was circulated	Bpm	5
10	Pipe movement during hole circulation	Y/N	n
11	Rig pressure while circulating	Psi	900
12	Time from end mud circulation to start of job	HH:MM	0030
13	Pipe movement during cementing	Y/N	n
14	Calculated displacement	Bbls	207
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	
19	Units of gas detected while circulating	Units	0
20	Was lost circulation experienced at any time?	Y/N	n

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1.4 Water Field Test

Item	Recorded Test 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		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	0	ppm	300 ppm	High concentrations will accelerate the set of the cement
Temperature	75	^{o}F	50-80 ^{o}F	High temps will accelerate; Low temps may risk freezing in cold weather

Submitted Respectfully by: _____

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1.5 Job Event Log

Type	Seq. No.	Activity	Graph Label	Date	Time	Source	Combined Pump Rate *(bbl/min)*	Downhole Density *(ppg)*	Pass-Side Pump Pressure *(psi)*	Comment
Event	1	Arrive at Location from Service Center	Arrive at Location from Service Center	9/11/2014	10:30:00	USER				ARRIVE AT LOCATION AT 1030. RIG RUNNING IN LINER. PERFORM SITE ASSESSMENT AND PRE RIG UP SAFETY MEETING WITH CREW.
Event	2	Start Job	Start Job	9/11/2014	17:30:00	USER				PERFORM PRE JOB SAFETY MEETING WITH ALL PRESENT PERSONELL.
Event	3	Drop Ball	Drop Ball	9/11/2014	18:03:53	USER	0.00	8.47	168.00	3RD PARTY DROPS BALL.
Event	4	Start Job	Start Job	9/11/2014	18:38:30	COM4	0.00	8.35	266.00	
Event	5	Test Lines	Test Lines	9/11/2014	18:42:25	COM4	0.00	8.42	4812.00	PRESSURE TEST LINES TO 4700 PSI.
Event	6	Pump Ball	Pump Ball	9/11/2014	18:55:35	USER	2.00	8.26	295.00	PUMP BALLS TO SEAT USING MUD. 5 BBLS/MIN AT 1800 PSI.
Event	7	Ball on Seat	Ball on Seat	9/11/2014	19:31:01	USER	0.00	9.62	1466.00	BALL ON SEAT AFTER 157 BBLS. 1800 PSI.
Event	8	Set Tool	Set Tool	9/11/2014	19:32:27	USER	0.00	9.57	2311.00	PRESSURE UP TO 2500 PSI AND HOLD 3 MIN TO SET HANGER.
Event	9	Ball Out	Ball Out	9/11/2014	19:37:56	USER	1.00	9.61	3634.00	PRESSURE UP TO 3750 PSI TO PUSH BALL THROUGH SEAT.
Event	10	Pump Spacer 1	Pump Spacer 1	9/11/2014	19:55:55	COM4	1.50	11.51	392.00	PUMP 40 BBLS TUNED SPACER MIXED AT 11.5 PPG USING SUPPLIED WATER. DENSITY VERIFIED BY SCALE.
Event	11	Pump Cement	Pump Cement	9/11/2014	20:13:24	COM4	4.50	13.86	431.00	PUMP 177 BBLS (712 SKS) ECONOCEM MIXED AT 13.8 PPG USING SUPPLIED WATER. DENSITY VERIFIED BY SCALE.
Event	12	Shutdown	Shutdown	9/11/2014	20:54:12	COM4	0.00	13.83	256.00	
Event	13	Clean Lines	Clean Lines	9/11/2014	20:56:31	COM4	1.00	13.61	171.00	CLEAN LINES TO PIT.
Event	14	Drop Top Plug	Drop Top Plug	9/11/2014	21:01:39	COM4	0.00	8.29	158.00	3RD PARTY TOP PLUG PRELOADED IN 3RD PARTY CEMENT HEAD.
Event	15	Pump Displacement	Pump Displacement	9/11/2014	21:02:16	COM4	0.00	8.22	158.00	GOOD RETURNS THROUGHOUT. SLOW RATE FROM 56 TO 70 TO PICK UP WIPER PLUG. PLUG PICKED UP AT 61 BBLS INTO DISPLACEMENT.
Event	16	Bump Plug	Bump Plug	9/11/2014	21:47:58	USER	2.90	8.09	1758.00	PLUG LANDED AT 1756 PSI. PRESSURE BROUGHT TO 2600 PSI AND HELD 3 MIN. TOTAL DISPLACEMENT OF 199 BBLS. WATER.

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Event	17	Set Packer	Set Packer	9/11/2014	21:56:46	USER	0.00	8.09	163.00	3RD PARTY SETS PACKER.
Event	18	Pressure Test	Pressure Test	9/11/2014	22:10:02	USER	0.00	8.14	2533.00	PRESSURE TEST BACKSIDE TO 2500 PSI FOR 5 MIN.
Event	19	Sting out	Sting out	9/11/2014	22:17:57	USER	0.00	8.11	163.00	RIG STINGS OUT OF HANGER.
Event	20	Circulate Well	Circulate Well	9/11/2014	22:23:42	COM4	4.60	8.10	1433.00	CIRCULATE ON TOP OF LINER UNTIL CLEAN. SPACER TO SURFACE AT 115 BBLS INTO CIRCULATION AND WATER BACK AT 160 BBLS. APPROX 40 BBLS SPACER AND 5 BBLS CEMENT TO SURFACE.
Event	21	End Job	End Job	9/11/2014	23:16:26	USER	0.00	-0.28	157.00	PERFORM PRE RIG DOWN SAFETY MEETING PRIOR TO RIGGING DOWN LINES.
Event	22	Depart Location	Depart Location	9/12/2014	00:00:00	USER				JOURNEY MGMNT. DEPART LOCATION

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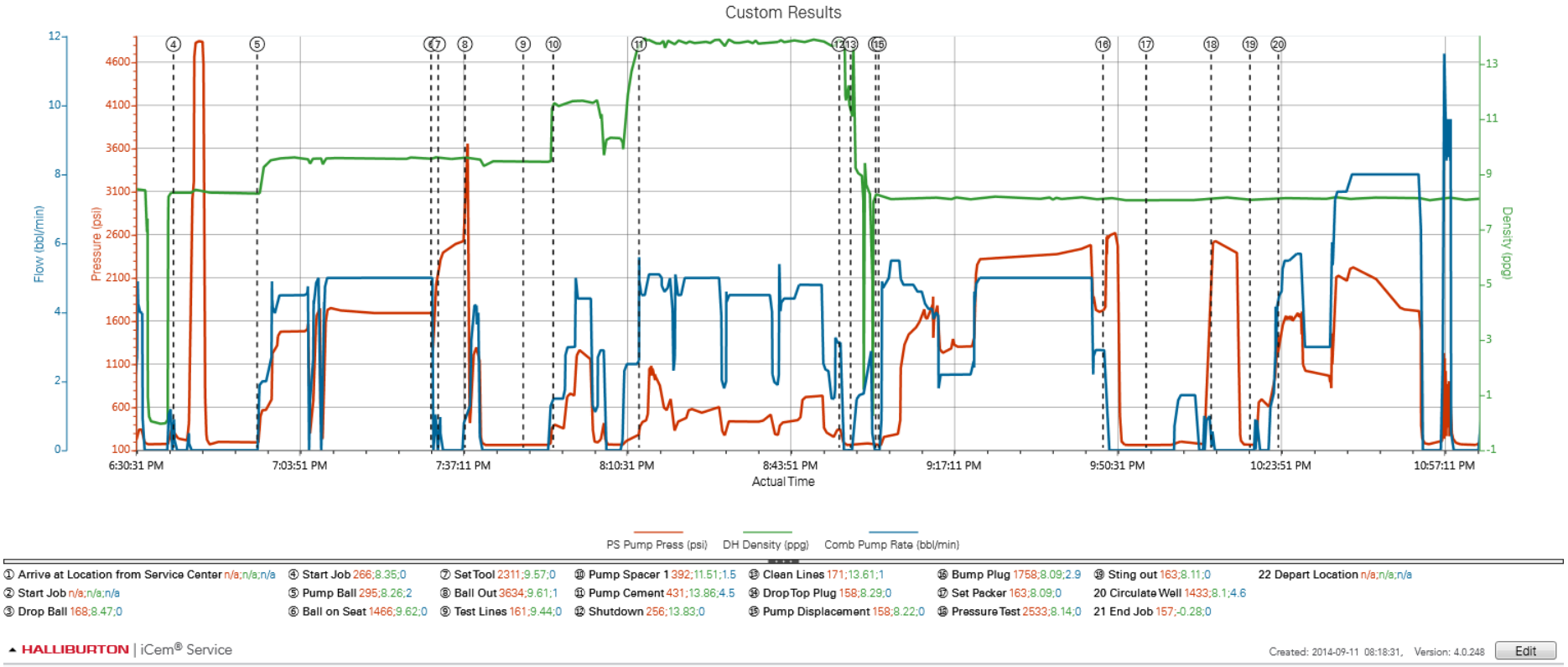
2.0 Custom Graphs

2.1 Custom Graph



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3.0 Appendix

Insert additional information regarding the job here (i.e. bulk and pilot testing, pre-job modeling, etc….)