HALLIBURTON

iCem® Service

EXTRACTION OIL & GAS

For: LARRY SIEGEL
Date: Wednesday, August 20, 2014

DIAMOND VALLEY EAST 6

Case 1

Sincerely,
AARON SMITH

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1.1 Executive Summary

Halliburton appreciates the opportunity to perform the cementing services on the **Diamond Valley East #6** 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	Time Zone
Called Out	8/15/14	1430	MST
On Location	8/15/14	1900	MST
Job Started	8/15/14	2316	MST
Job Completed	8/16/14	0023	MST
Departed Location	8/16/14	0100	MST

1.2 Cementing Job Summary

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Cementing Job Summary

The Road to Excellence Starts with Safety

Sold To #: 369404	**Ship To #:** 3537319	**Quote #:**	**Sales Order #:** 0901590171
Customer: EXTRACTION OIL & GAS		**Customer Rep:** LARRY SIEGEL	
Well Name: DIAMOND VALLEY EAST	**Well #:** 6		**API/UWI #:** 05-123-38568-00
Field: WATTENBERG	**City (SAP):** WINDSOR	**County/Parish:** WELD	**State:** COLORADO
Legal Description: SW SW-23-6N-67W-880FSL-155FWL			
Contractor:		**Rig/Platform Name/Num:** Frontier 10	
Job BOM: 7521			
Well Type: HORIZONTAL OIL			
Sales Person: HALAMERICA\HX46524		**Srvc Supervisor:** Aaron Smith	

Job

Formation Name					
Formation Depth (MD)	**Top**		**Bottom**		
Form Type			**BHST**		
Job depth MD	785ft		**Job Depth TVD**	785	
Water Depth			**Wk Ht Above Floor**	6	
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	785	0	785
Open Hole Section			13.5				0	806	0	806

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	1		785		Bottom Plug	9.625		HES
Float Collar	9.625	1		740		SSR plug set	9.625		HES
Insert Float	9.625					Plug Container	9.625	1	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	Fresh Water Spacer	Fresh Water Spacer	20	bbl	8.33			6	

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

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Cementing Job Summary

2	Lead Cement	SWIFTCEM (TM) SYSTEM	360	sack	14.2	1.54		6	7.64
7.64 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	57	bbl	8.33			6	

Cement Left In Pipe	Amount	44 ft	Reason	Shoe Joint
Comment				

1.3 Planned Pumping Schedule

1. **Fill Lines with Water**
    a. Density = 8.33ppg
    b. Volume = 2bbl
2. **Pressure Test Lines to 2500psi**
3. **Pump Water Spacer**
    a. Density = 8.33 lb/gal
    b. Volume = 20 bbl
    c. Rate = 5 bpm
4. **Pump SwiftCem (Lead)**
    a. Density = 14.2
    b. Yield = 1.54
    c. Water Requirement = 7.66
    d. Volume = 360 sks (98 bbls)
    e. Rate = 5 bpm
5. **Drop Top Plug**
6. **Start Displacement**
7. **Pump Displacement Water**
    a. Density = 8.33 lb/gal
    b. Volume = 57 bbls
    c. Rate = 5 bpm
8. Land Plug – Anticipated Final Circulation Pressure 318 psi

Calculated Total Displacement = 57 bbls

1.4 Job Overview

		Units	Description
1	Surface temperature at time of job	°F	
2	Mud type (OBM, WBM, SBM, Water, Brine)	-	
3	Actual mud density	lb/gal	
4	Time circulated before job	HH:MM	
5	Mud volume circulated	Bbls	
6	Rate at which well was circulated	Bpm	
7	Pipe movement during hole circulation	Y/N	
8	Rig pressure while circulating	Psi	
9	Time from end mud circulation to start of job	HH:MM	
10	Pipe movement during cementing	Y/N	
11	Calculated displacement	Bbls	
12	Job displaced by	Rig/HES	
13	Annular before job)?	Y/N	
14	Annular flow after job	Y/N	
15	Length of rat hole	Ft	
16	Units of gas detected while circulating	Units	
17	Was lost circulation experienced at any time ?	Y/N	

1.5 Water Field Test

Item	Recorded Test 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		^{o}F	50-80 ^{o}F	High temps will accelerate; Low temps may risk freezing in cold weather

Submitted Respectfully by: _____

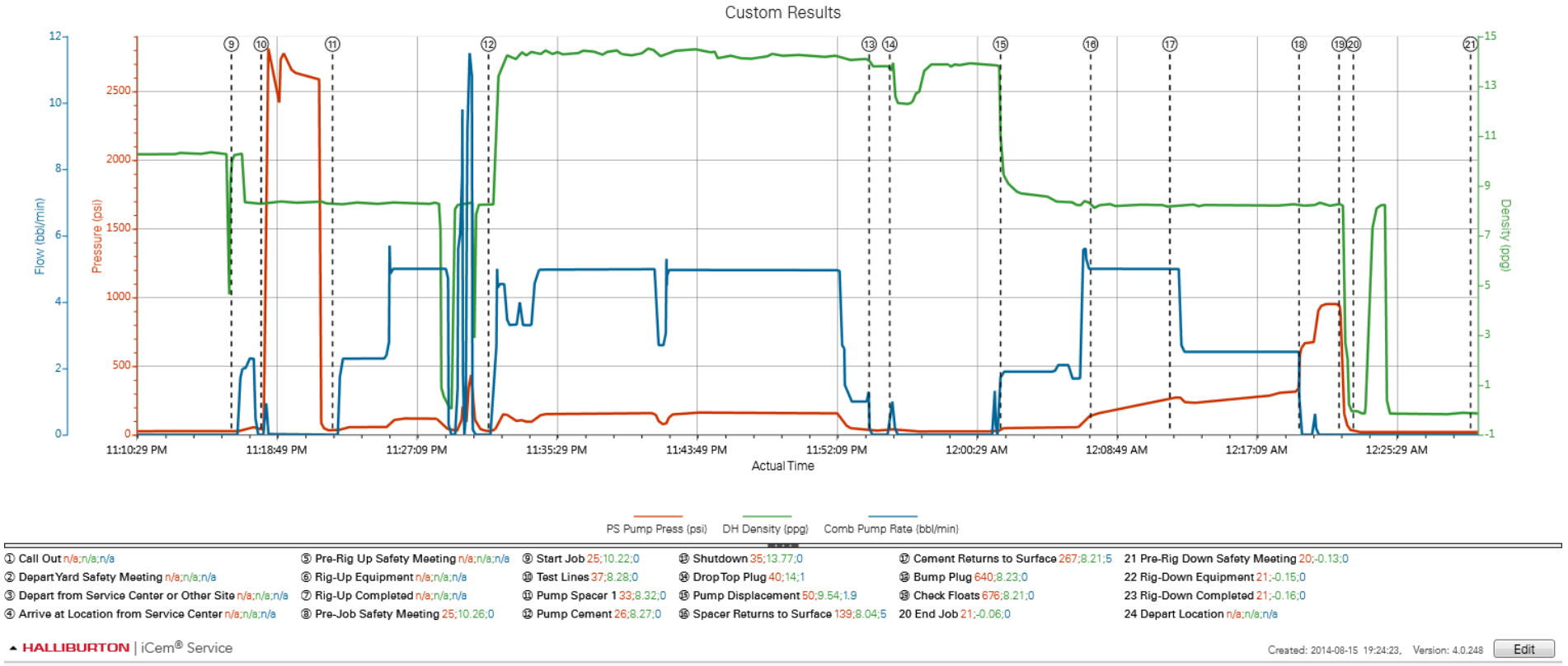
1.6 Job Event Log

Type	Seq. No.	Activity	Graph Label	Date	Time	Comb Pump Rate *(bbl/min)*	DH Density *(ppg)*	PS Pump Press *(psi)*	Comment
Event	1	Call Out	Call Out	8/15/2014	14:30:00				CALLED OUT FOR ON LOCATION @ 2000
Event	2	Depart Yard Safety Meeting	Depart Yard Safety Meeting	8/15/2014	17:45:00				JOURNEY MANAGEMENT MEETING PRIOR TO DEPARTURE
Event	3	Depart from Service Center or Other Site	Depart from Service Center or Other Site	8/15/2014	18:00:00				
Event	4	Arrive at Location from Service Center	Arrive at Location from Service Center	8/15/2014	19:00:00				WITH ALL EQUIPMENT AND MATERIALS, RIG STILL PULLING DRILL PIPE
Event	5	Pre-Rig Up Safety Meeting	Pre-Rig Up Safety Meeting	8/15/2014	19:15:00				RIG-UP JSA WITH HES CREW
Event	6	Rig-Up Equipment	Rig-Up Equipment	8/15/2014	19:30:00				
Event	7	Rig-Up Completed	Rig-Up Completed	8/15/2014	19:50:00				
Event	8	Pre-Job Safety Meeting	Pre-Job Safety Meeting	8/15/2014	22:45:00	0.00	10.26	25.00	WITH CUSTOMER REP AND RIG CREW
Event	9	Start Job	Start Job	8/15/2014	23:16:14	0.00	10.22	25.00	
Event	10	Test Lines	Test Lines	8/15/2014	23:18:00	0.00	8.28	2500.00	@2500 PSI
Event	11	Pump Spacer 1	Pump Spacer 1	8/15/2014	23:22:15	5.00	8.33	33.00	20 BBLS FRESH WATER
Event	12	Pump Cement	Pump Cement	8/15/2014	23:31:32	0.00	14.20	26.00	98 BBLS/360 SKS @ 14.2 PPG, 1.54 YIELD, 7.66 GAL/SK
Event	13	Shutdown	Shutdown	8/15/2014	23:54:12	0.00	14.20	35.00	
Event	14	Drop Top Plug	Drop Top Plug	8/15/2014	23:55:25	1.00	14.20	40.00	PRE-LOADED WEATHERFORD TOP PLUG IN PLUG CONTAINER
Event	15	Pump Displacement	Pump Displacement	8/16/2014	00:02:01	5.00	8.33	50.00	57 BBLS FRESH WATER
Event	16	Other	Spacer Returns to Surface	8/16/2014	00:07:22	5.00	8.04	139.00	@ 15 BBLS DISPLACEMENT 20 BBLS TO SURFACE
Event	17	Other	Cement Returns to Surface	8/16/2014	00:12:06	5.00	8.21	267.00	@ 35 BBLS TO 22 BBLS TO SURFACE
Event	18	Bump Plug	Bump Plug	8/16/2014	00:19:47	0.00	8.23	640.00	FINAL CIRCULATING PRESSURE 318 PSI
Event	19	Check Floats	Check Floats	8/16/2014	00:22:10	0.00	8.21	676.00	.5 BBLS BACK
Event	20	End Job	End Job	8/16/2014	00:23:01	0.00	-0.06	21.00	THANKS AARON SMITH AND CREW
Event	21	Pre-Rig Down Safety Meeting	Pre-Rig Down Safety Meeting	8/16/2014	00:30:00	0.00	-0.13	20.00	RIG-DOWN JSA WITH HES CREW

Event	22	Rig-Down Equipment	Rig-Down Equipment	8/16/2014	00:35:00	0.00	-0.15	21.00	
Event	23	Rig-Down Completed	Rig-Down Completed	8/16/2014	00:50:00	0.00	-0.16	21.00	
Event	24	Depart Location	Depart Location	8/16/2014	01:00:00				JOURNEY MANAGEMENT MEETING PRIOR TO DEPARTURE

2.0 Custom Graphs

2.1 Custom Graph



3.0 Appendix