

HALLIBURTON

iCem[®] Service

GREAT WESTERN OIL & GAS LLC

For:

Date: Wednesday, October 29, 2014

GREAT WESTERN POSTLE IC 11-279HN

Case 1

Sincerely,

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1.1 Executive Summary

Halliburton appreciates the opportunity to perform the cementing services on the **Well Name and Number** cement **Job Type** 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.

This space is provided to enter in a brief summary of the job. Below are some important items to discuss”

- 1. Quality of circulation before and during the job**
- 2. The final circulating pressure**
- 3. Whether or not any of the fluids that Halliburton pumped were returned to surface during the job**
- 4. Whether or not a flare was present at any point during the job**
- 5. A brief explanation any abnormalities on the job chart**
- 6. If we deviated from the original job plan, a brief explanation why we did so**

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	10/29/14	0430	
On Location	10/29/14	0800	
Job Started	10/29/14	0956	
Job Completed	10/29/14	1325	
Departed Location	10/29/14	1500	

1.2 Cementing Job Summary

Insert Planned Pump Schedule from Proposal or actual Job Procedure built for job

1.3 Planned Pumping Schedule

- 1. Fill Lines with Water**
 - a. Density = X
 - b. Volume = X
- 2. Pressure Test Lines to Xpsi**
- 3. Pump X Spacer**
 - a. Density = X lb/gal
 - b. Volume = X bbl
 - c. Rate = X bpm
- 4. Pump X Spacer**
 - a. Density = X lb/gal
 - b. Volume = X bbl
 - c. Rate = X bpm
- 5. Pump X Spacer**
 - a. Density = X lb/gal
 - b. Volume = X bbl
 - c. Rate = X bpm
- 6. Drop Bottom Plug**
- 7. Pump X (Lead)**
 - a. Density = X
 - b. Yield = X
 - c. Water Requirement = X
 - d. Volume = X sks (X bbls)
 - e. Rate = X bpm
- 8. Pump X (Tail)**
 - a. Density = X
 - b. Yield = X
 - c. Water Requirement = X
 - d. Volume = X sks (X bbls)
 - e. Rate = X bpm
- 9. Drop Top Plug**
- 10. Start Displacement**
- 11. Pump Displacement Water**
 - a. Density = X lb/gal
 - b. Volume = X bbls
 - c. Rate = X bpm
12. Land Plug – Anticipated Final Circulation Pressure X psi

Calculated Total Displacement = X bbls

1.4 Job Overview

		Units	Description
1	Surface temperature at time of job	°F	42
2	Mud type (OBM, WBM, SBM, Water, Brine)	-	WBM
3	Actual mud density	lb/gal	10.2
4	Time circulated before job	HH:MM	03:00
5	Mud volume circulated	Bbls	
6	Rate at which well was circulated	Bpm	
7	Pipe movement during hole circulation	Y/N	N
8	Rig pressure while circulating	Psi	
9	Time from end mud circulation to start of job	HH:MM	00:45
10	Pipe movement during cementing	Y/N	N
11	Calculated displacement	Bbls	135
12	Job displaced by	Rig/HES	HES
13	Annular before job)?	Y/N	N
14	Annular flow after job	Y/N	N
15	Length of rat hole	Ft	5
16	Units of gas detected while circulating	Units	17
17	Was lost circulation experienced at any time ?	Y/N	N

Lost Circulation Details

Squeeze Job Information

		Units	Description
1	Was the well full prior to cementing?	Y/N	
2	Injection Rate #1 & Pressure	psi/bpm	
3	Injection Rate #2 & Pressure	psi/bpm	
4	Injection Rate #2 & Pressure	psi/bpm	
5	Initial ISIP	psi	
6	Final ISIP	psi	

Plug Job Information

		Units	Description
1	Density of well fluid exiting well prior to job	lb/gal	
2	Density of well fluid entering well prior to job	lb/gal	
3	Was the well full prior to cementing?	Y/N	
4	How many joints of workstring pulled wet?	# Joints	
5	Depth of workstring for circulation after the plug?	ft	
6	Calculated Plug Height	ft	

1.5 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	58	°F	50-80 °F	High temps will accelerate; Low temps may risk freezing in cold weather

Submitted Respectfully by: _____ **BRAD HINKLE** _____

1.6 Job Event Log

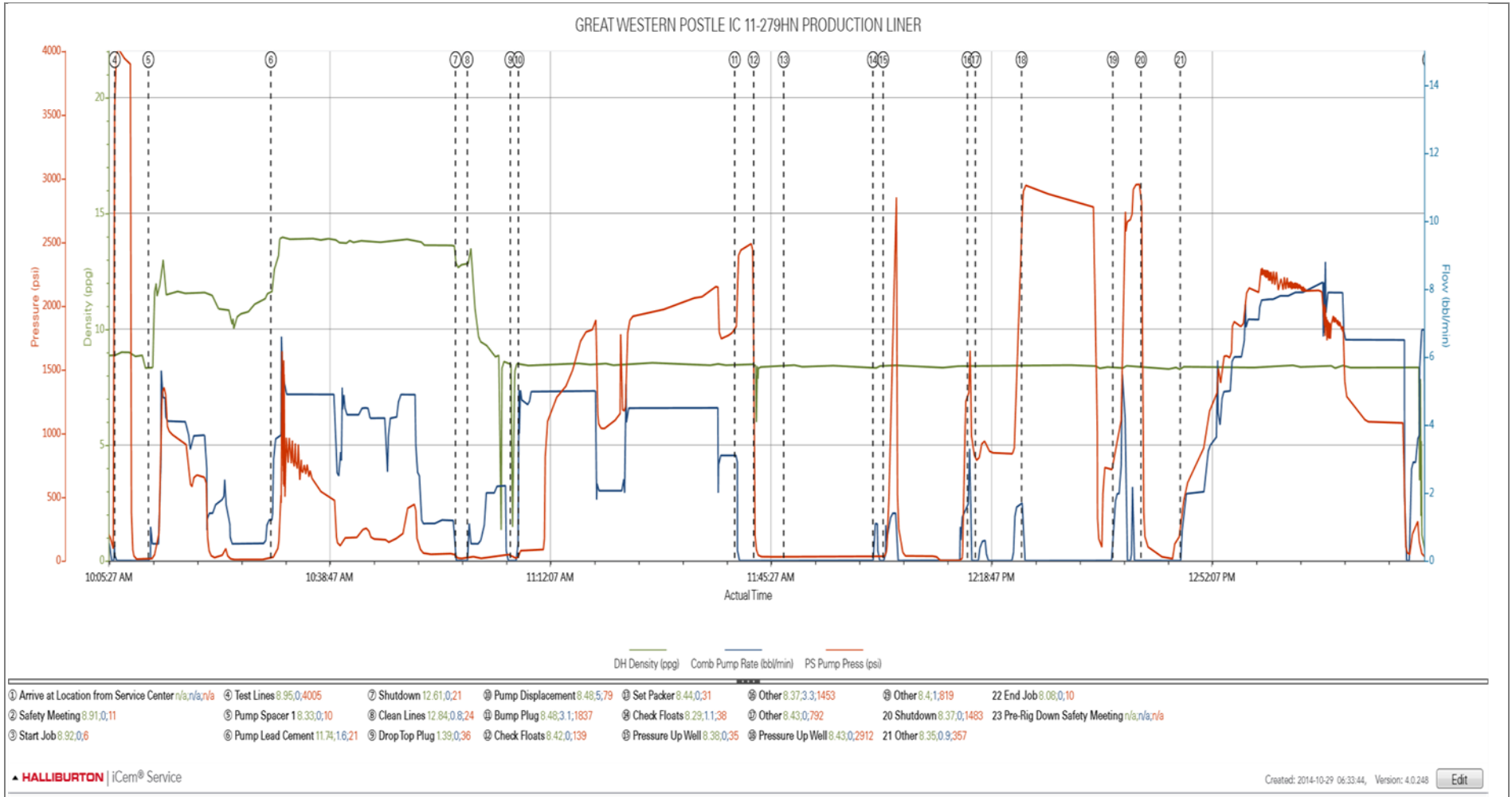
Type	Seq. No.	Activity	Graph Label	Date	Time	Source	DH Density (ppg)	Comb Pump Rate (bbl/min)	PS Pump Press (psi)	Comment
Event	1	Arrive at Location from Service Center	Arrive at Location from Service Center	10/29/2014	08:00:00	USER				ARRIVE AT LOCATION AND PERFORM A SITE ASSESSMENT AND PRE-RIG UP SAFETY MEETING. BEGIN RIGGING UP IRON AND TRUCKS.
Event	2	Safety Meeting	Safety Meeting	10/29/2014	09:15:00	USER	8.91	0.00	11.00	PRE-JOB SAFETY MEETING WITH ALL PERSONNEL ON LOCATION.
Event	3	Start Job	Start Job	10/29/2014	09:56:45	COM5	8.92	0.00	6.00	
Event	4	Test Lines	Test Lines	10/29/2014	10:06:33	COM5	8.95	0.00	3999.00	PRESSURE TEST LINES.
Event	5	Pump Spacer 1	Pump Spacer 1	10/29/2014	10:11:38	COM5	8.33	0.00	10.00	PUMP 40 BBLs TUNED SPACER MIXED AT 11.5 PPG USING SUPPLIED WATER. DENSITY VERIFIED BY SCALES.
Event	6	Pump Lead Cement	Pump Lead Cement	10/29/2014	10:30:09	COM5	11.73	1.60	21.00	PUMP 89 BBLs EXPANDACEM (300 SACKS) MIXED AT 13.8 PPG USING SUPPLIED WATER. DENSITY VERIFIED BY SCALES.
Event	7	Shutdown	Shutdown	10/29/2014	10:58:03	COM5	12.61	0.00	21.00	
Event	8	Clean Lines	Clean Lines	10/29/2014	10:59:51	COM5	12.84	0.80	24.00	WASH PUMPS AND LINES.
Event	9	Drop Top Plug	Drop Top Plug	10/29/2014	11:06:21	COM5	1.39	0.00	36.00	DART PRELOADED.
Event	10	Pump Displacement	Pump Displacement	10/29/2014	11:07:33	COM5	8.48	5.00	78.00	PUMP 135 BBLs FRESH WATER SUPPLIED BY RIG. FIRST 10 BBLs MMCR ADDED, SECOND 10 BBLs SUGAR ADDED, BIOCIDES ADDED FOR 100 BBLs. GOOD RETURNS THROUGHOUT.

Event	11	Bump Plug	Bump Plug	10/29/2014	11:40:14	COM5	8.48	3.10	1837.00	BUMP PLUG AT 1740 PSI. PRESSURE BROUGHT TO 2400 PSI AND HELD FOR 3 MINUTES.
Event	12	Check Floats	Check Floats	10/29/2014	11:43:06	USER	8.42	0.00	139.00	FLOATS HELD. 1.25 BBLS BACK.
Event	13	Set Packer	Set Packer	10/29/2014	11:47:38	USER	8.44	0.00	31.00	
Event	14	Check Floats	Check Floats	10/29/2014	12:01:08	USER	8.28	1.10	37.00	PUMP 3 BBLS WATER TO ESTABLISH CIRCULATION. SHUTDOWN AND RIG CLOSED PIPE RAMS.
Event	15	Pressure Up Well	Pressure Up Well	10/29/2014	12:02:40	COM5	8.37	0.00	35.00	BACKSIDE PRESSURE TEST TO 3000 PSI FAILED DUE TO LEAKY VALVE ON RIG KILL LINE.
Event	16	Other	Other	10/29/2014	12:15:24	USER	8.36	3.20	1448.00	PRESSURE UP TO 1800 TO ALLOW RIG TO STING OUT DRILL PIPE FROM PACKER.
Event	17	Other	Other	10/29/2014	12:16:37	COM5	8.45	0.00	791.00	THIRD PARTY TOOL HAND DECIDED TO TEST DOWN DRIPP PIPE. PUMP 3 BBLS TO ESTABLISH CIRCULATION.
Event	18	Pressure Up Well	Pressure Up Well	10/29/2014	12:23:35	COM5	8.44	0.00	2899.00	PRESSURE TEST TO 3000 PSI. HELD FOR 10 MINUTES.
Event	19	Other	Other	10/29/2014	12:37:23	COM5	8.40	1.00	819.00	ROLL HOLE WITH FRESH WATER TO CLEAN HOLE.
Event	20	Shutdown	Shutdown	10/29/2014	12:41:37	USER	8.36	0.00	1569.00	SHUTDOWN BECAUSE RIG WAS NOT OPEN TO FLOW LINE. RELEASED PRESSURE AND ALLOWED RIG TO DOUBLE CHECK EVERY VALVE THAT WAS NEEDED OPEN WAS OPEN BEFORE HES WAS GOOD TO ROLL HOLE CLEAN
Event	21	Other	Other	10/29/2014	12:47:34	USER	8.35	0.90	347.00	ROLL HOLE WITH 215 BBLS FRESH WATER UNTIL

										CLEAN. 40 BBLS SPACER TO SURFACE.
Event	22	End Job	End Job	10/29/2014	13:25:02	COM5	7.97	0.00	10.00	
Event	23	Pre-Rig Down Safety Meeting	Pre-Rig Down Safety Meeting	10/29/2014	13:26:00	USER				PRE-RIG DOWN SAFETY MEETING WITH HES AND RIG PERSONNEL.

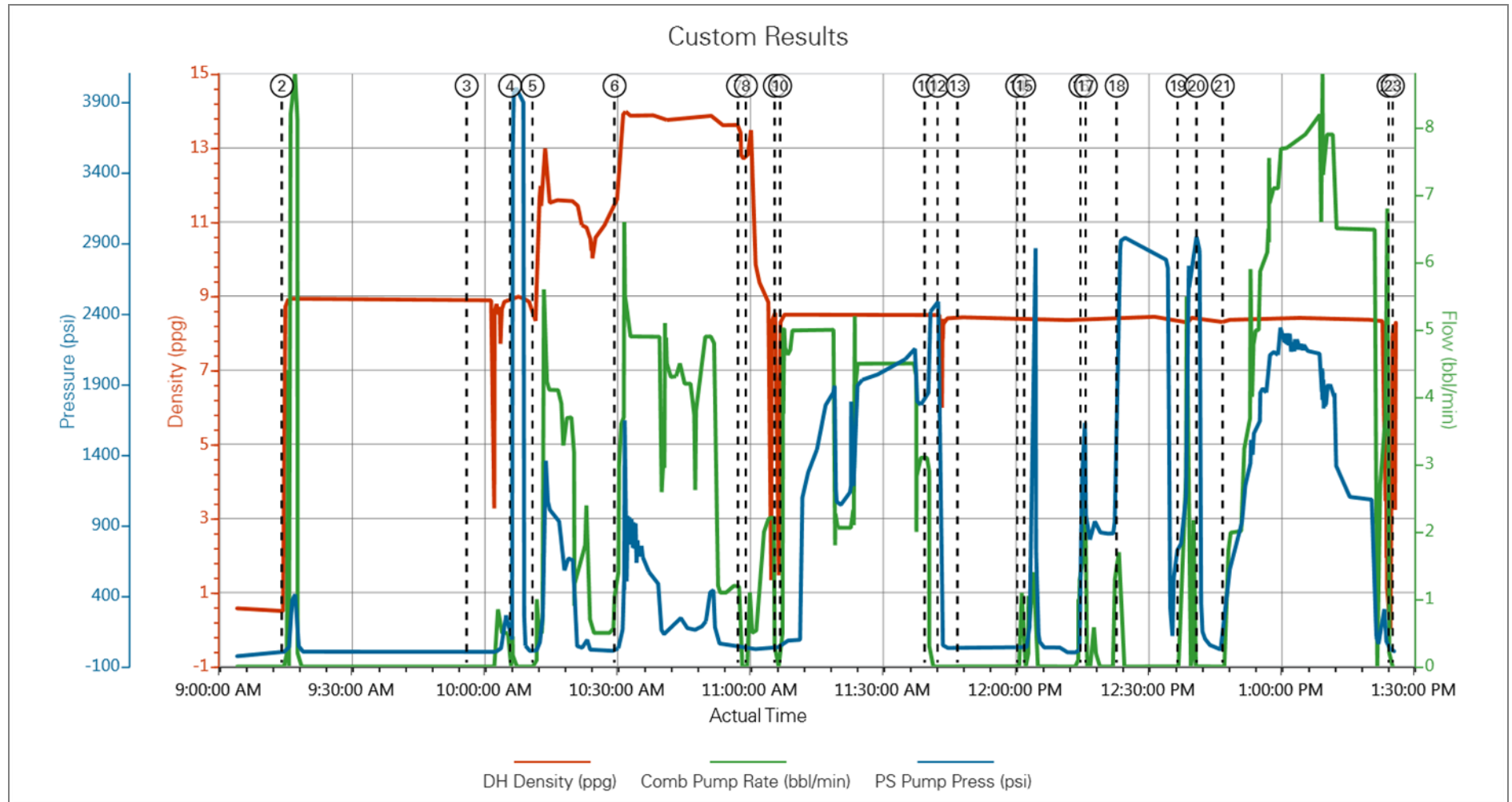
2.0 Attachments

2.1 GREAT WESTERN POSTLE IC 11-279HN.png



3.0 Custom Graphs

3.1 Custom Graph



4.0 Appendix

Insert Planned Pump Schedule from Proposal or actual Job Procedure built for job