

Black Hills Exploration & Prod - EBIZ

Homer Deep Unit 9-11CH

SST 66

Post Job Summary

Cement Intermediate Casing

Date Prepared: 12/29/2014

Job Date: 12/18/2014

Submitted by: Patrick Ealey – Grand Junction Cement Engineer

The Road to Excellence Starts with Safety

Sold To #: 306454	Ship To #: 3563765	Quote #: 0021893238	Sales Order #: 0901929882
Customer: BLACK HILLS EXPLORATION & PROD-EBIZ		Customer Rep: PAUL HOFF	
Well Name: HOMER DEEP	Well #: 9-11CH	API/UWI #: 05-045-22489-00	
Field: HANCOCK GULCH	City (SAP): PARACHUTE	County/Parish: GARFIELD	State: COLORADO
Legal Description: NW NW-9-8S-98W-297FNL-418FWL			
Contractor: SST DRLG		Rig/Platform Name/Num: SST 66	
Job BOM: 392189			
Well Type: HORIZONTAL GAS			
Sales Person: HALAMERICA\HX17509		Srcv Supervisor: Dustin Smith	
Job			

Formation Name	
Formation Depth (MD)	Top Bottom
Form Type	BHST
Job depth MD	6523ft Job Depth TVD
Water Depth	Wk Ht Above Floor 5 FT
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		10.75	10.05	40.5	STC	J-55	0	1116		0
Casing		7.625	6.875	29.7	LTC	P-110	0	6523.45		0
Open Hole Section			9.875				1116	6532	0	0

Tools and Accessories									
Type	Size in	Qty	Make	Depth ft	Type	Size in	Qty	Make	
Guide Shoe	7.625	1		6523.45	Top Plug	7.625	1	weatherford	
Float Shoe	7.625	1							
Float Collar	7.625	1		6480.44					
Insert Float	7.625	1			Plug Container	7.625	1	HES	
Stage Tool	7.625	1		3777.76	Centralizers	7.625	38	weatherford	

Miscellaneous Materials									
Gelling Agt	Conc	Surfactant	Conc	Acid Type	Qty	Conc			
Treatment Fld	Conc	Inhibitor	Conc	Sand Type	Size	Conc			

Fluid Data										
Stage/Plug #: 1										
Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft ³ /sack	Mix Fluid Gal	Rate bbl/min	Total Mix Fluid Gal	
1	Mud Flush III (Powder)	Mud Flush III	20	bbl	8.4			4.0		
FRESH WATER										

Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft ³ /sack	Mix Fluid Gal	Rate bbl/mi n	Total Mix Fluid Gal
2	First Stage Lead	EXTENDACEM (TM) SYSTEM	125	sack	12.5	1.73		6	8.22

Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft ³ /sack	Mix Fluid Gal	Rate bbl/mi n	Total Mix Fluid Gal
3	First Stage Tail	ECONOCEM (TM) SYSTEM	325	sack	13.5	1.51		5.5	7.17

Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft ³ /sack	Mix Fluid Gal	Rate bbl/mi n	Total Mix Fluid Gal
4	Displacement Fluid	Displacement Fluid	297.5	bbl	8.4			10.0	

Cement Left In Pipe	Amount	Reason
	43 ft	Shoe Joint

Fluid Data

Stage/Plug #: 2

Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft ³ /sack	Mix Fluid Gal	Rate bbl/mi n	Total Mix Fluid Gal
1	Second Stage Tail	ECONOCEM (TM) SYSTEM	500	sack	12.5	1.88		6	9.89

Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft ³ /sack	Mix Fluid Gal	Rate bbl/mi n	Total Mix Fluid Gal
2	Displacement Fluid	Displacement Fluid	173.4	bbl	8.4			10	

Cement Left In Pipe	Amount	Reason
	43.01 ft	Shoe Joint

Comment

1.1 Job Event Log

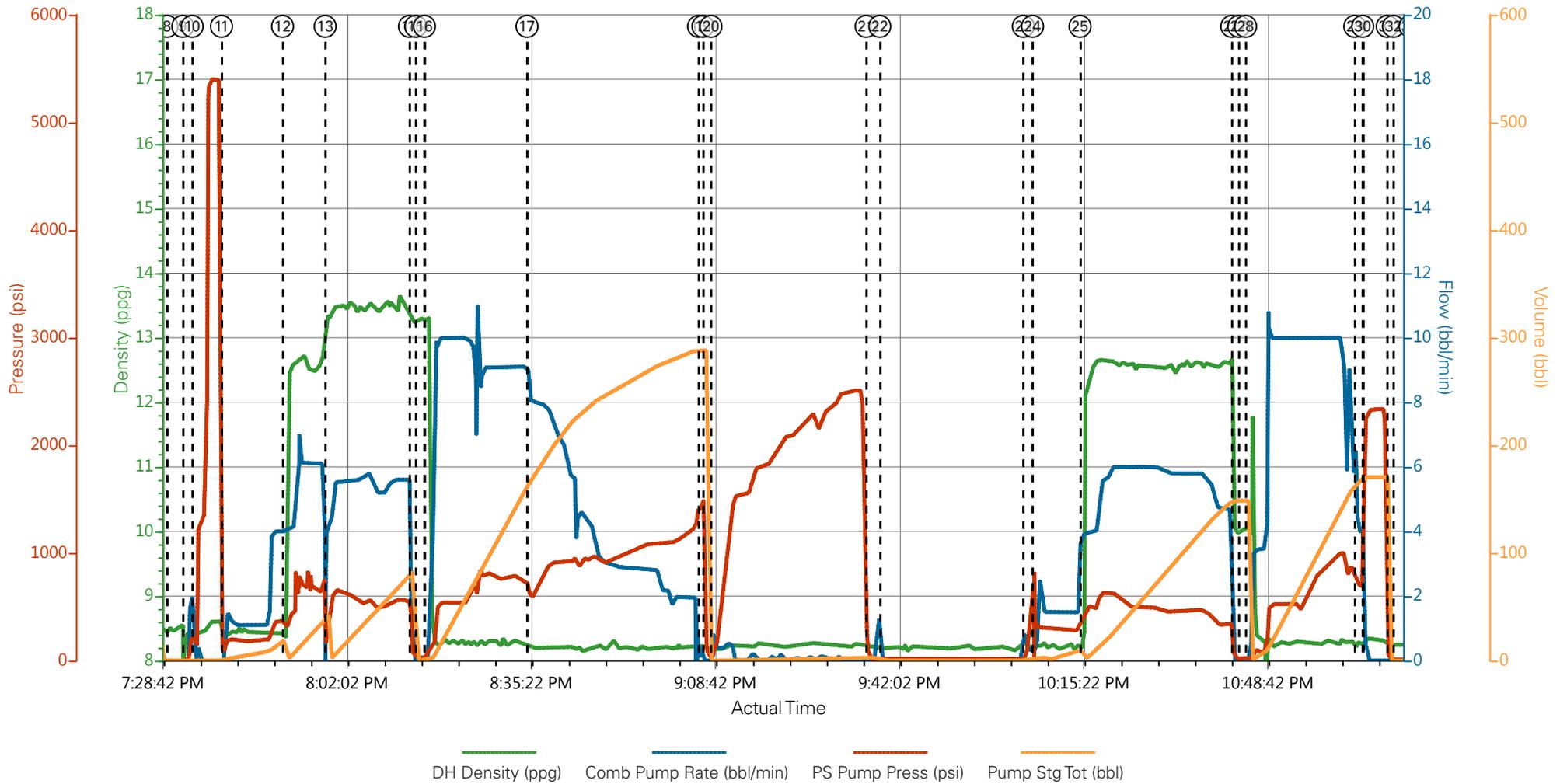
Type	Seq. No.	Activity	Date	Time	Source	DH Density (ppg)	Comb Pump Rate (bbl/min)	PS Pump Press (psi)	Pump Stg Tot (bbl)	Comments
Event	1	Call Out	12/18/2014	09:00:00	USER					ELITE #3
Event	2	Pre-Convoy Safety Meeting	12/18/2014	11:30:00	USER					ALL HES EMPLOYEES
Event	3	Arrive At Loc	12/18/2014	13:00:00	USER					ARRIVED ON LOCATION 1 HOUR EARLY DIDNT START CHARGING TIME UNTIL REQUESTED ON LOCATION TIME RIG RUNNING CASING UPON HES ARRIVAL
Event	4	Assessment Of Location Safety Meeting	12/18/2014	14:30:00	USER					ALL HES EMPLOYEES
Event	5	Pre-Rig Up Safety Meeting	12/18/2014	14:45:00	USER					ALL HES EMPLOYEES
Event	6	Rig-Up Equipment	12/18/2014	14:50:00	USER					1 HT-400 PUMP TRUCK (ELITE #3) 2 660 BULK TRUCKS 1 FIELD STORAGE BIN 1 F-550 PICKUP
Event	7	Pre-Job Safety Meeting	12/18/2014	16:20:00	USER					ALL HES EMPLOYEES AND RIG CREW RIG CIRCULATED 1 BOTTOMS UP PRIOR TO STARTING JOB @ 6 BPM
Event	8	Start Job	12/18/2014	19:30:00	USER					TD: 6532 TP: 6523.45 SJ: 43.01 CSG: 7 5/8 29.7# P-110 MSC@ 3777.76 ACP@ 3780 OH: 9 7/8 MUD WT: 9.6 PPG SURFACE CASING @ 1116 10 3/4 40.5#
Event	9	Prime Pumps	12/18/2014	19:32:50	COM5	8.33	2.0	241	2.0	PRIME LINES WITH 2 BBLS FRESH

										WATER
Event	10	Test Lines	12/18/2014	19:34:33	COM5	8.33	0.0	5408	2.0	PRESSURE TEST OK
Event	11	Pump Spacer 1	12/18/2014	19:39:51	COM5	8.4	4.0	370	20	PUMP 20 BBL MUD FLUSH III SPACER
Event	12	Pump Lead Cement	12/18/2014	19:50:54	COM5	12.5	6.0	670	38.5	125 SKS 12.5 PPG 1.73 YIELD 8.22 GAL/SK LEAD CEMENT WEIGHT VERIFIED VIA PRESSURIZED MUD SCALES
Event	13	Pump Tail Cement	12/18/2014	19:58:37	COM5	13.5	5.5	620	87.4	325 SKS 13.5 PPG 1.51 YIELD 7.17 GAL/SK TAIL CEMENT WEIGHT VERIFIED VIA PRESSURIZED MUD SCALES
Event	14	Shutdown	12/18/2014	20:13:52	USER					
Event	15	Drop Plug	12/18/2014	20:15:00	USER					PLUG AWAY NO PROBLEMS
Event	16	Pump Displacement	12/18/2014	20:16:35	COM5	8.33	10.0	1120	297.5	FRESH WATER DISPLACEMENT
Event	17	Other	12/18/2014	20:35:09	COM5	8.33	2.0	1500	280	SLOW RATE THROUGH MSC RATE AFTER PASSING THROUGH STAGE TOOL ADJUSTED ACCORDING TO WEATHERFORD TOOL HAND
Event	18	Bump Plug	12/18/2014	21:06:12	COM5	8.33	2.0	1500	297.5	PSI BEFORE BUMPING PLUG @ 1500 PSI AND SHUT DOWN ACCORDING TO TOOL HAND
Event	19	Check Floats	12/18/2014	21:07:00	USER					FLOATS HELD 2.5 BBLs BACK TO DISPLACEMENT TANKS
Event	20	Other	12/18/2014	21:08:27	COM5	8.33	0.40	1500	1	PRESSURED UP ACCORDING TO WEATHERFORD TOOL REP SPECS FINAL PRESSURE UP TO 2500 PSI TO SET ACP TOOK 1 BBL TO INFLATE PACKER

Event	21	Release Casing Pressure	12/18/2014	21:36:32	USER					RELEASE PRESSURE
Event	22	Drop Opening Device For Multiple Stage Cementer	12/18/2014	21:39:00	USER					DROP OPENING DEVICE AND WAIT 25 MINUTES
Event	23	Open Multiple Stage Cementer	12/18/2014	22:05:00	COM5	8.33	0.40	740	0.2	MSC OPENED @ 740 PSI
Event	24	Pump Spacer 1	12/18/2014	22:06:40	COM5	8.33	4.0	355	10	PUMP 10 BBL FRESH WATER SPACER
Event	25	Pump Lead Cement	12/18/2014	22:15:15	COM5	12.5	6.0	610	167.4	500 SKS 12.5 PPG 1.88 YIELD 9.89 GAL/SK LEAD CEMENT WEIGHT VERIFIED VIA PRESSURIZED MUD SCALES
Event	26	Shutdown	12/18/2014	22:42:43	USER					
Event	27	Drop Plug	12/18/2014	22:44:00	USER					PLUG AWAY NO PROBLEMS WASHED UP ON TOP OF THE PLUG
Event	28	Pump Displacement	12/18/2014	22:45:14	COM5	8.33	10.0	1000	173.4	FRESH WATER DISPLACEMENT
Event	29	Slow Rate	12/18/2014	23:05:00	USER	8.33	4.0	600	163	SLOW RATE TO BUMP PLUG / CLOSE MSC
Event	30	Bump Plug	12/18/2014	23:06:26	COM5	8.33	4.0	2343	173.4	PSI BEFORE BUMPING PLUG @ 600 BUMPED PLUG UP TO 2343 PSI
Event	31	Check Floats	12/18/2014	23:10:52	USER					FLOATS HELD 1 1/2 BBLS BACK TO DISPLACEMENT TANKS
Event	32	End Job	12/18/2014	23:12:00	COM5					GOOD RETURNS THROUGHOUT THE JOB RETURNED 10 BBLS OF CEMENT OF THE TOP OF THE STAGE TOOL ON 1ST STAGE CALCULATED CEMENT TO SURFACE ON 2ND STAGE - NO CEMENT

						RETURNS TO SURFACE
Event	33	Pre-Rig Down Safety Meeting	12/18/2014	23:15:00	USER	ALL HES EMPLOYEES
Event	34	Rig-Down Equipment	12/18/2014	23:20:00	USER	
Event	35	Pre-Convoy Safety Meeting	12/19/2014	00:50:00	USER	ALL HES EMPLOYEES
Event	36	Crew Leave Location	12/19/2014	01:00:00	USER	THANK YOU FOR USING HALLIBURTON CEMENT DUSTIN SMITH AND CREW

BLACK HILLS - HOMER DEEP 9-11CH - 2 STAGE INTERMEDIATE



- | | | | | |
|---|----------------------|--|---------------------------|--------------------------------|
| ① Call Out | ⑨ Prime Lines | ⑰ Slow Rate | 25 Pump Lead Cement | 33 Pre-Rig Down Safety Meeting |
| ② Pre-Convoy Safety Meeting | ⑩ Test Lines | ⑱ Bump Plug | 26 Shutdown | 34 Rig-Down Equipment |
| ③ Arrive At Loc | ⑪ Pump Mud Flush III | ⑲ Check Floats | 27 Drop Plug | 35 Pre-Convoy Safety Meeting |
| ④ Assessment Of Location Safety Meeting | ⑫ Pump Lead Cement | 20 Set ACP | 28 Pump Displacement | 36 Crew Leave Location |
| ⑤ Pre-Rig Up Safety Meeting | ⑬ Pump Tail Cement | 21 Release Casing Pressure | 29 Slow Rate | |
| ⑥ Rig-Up Equipment | ⑭ Shutdown | 22 Drop Opening Device For Multiple Stage Cementer | 30 Bump Plug / Close Tool | |
| ⑦ Pre-Job Safety Meeting | ⑮ Drop Plug | 23 Open Multiple Stage Cementer | 31 Check Floats | |
| ⑧ Start Job | ⑯ Pump Displacement | 24 Pump Fresh Water Spacer | 32 End Job | |

▼ **HALLIBURTON** | iCem® Service

Created: 2014-12-18 09:56:39, Version: 4.1.85

Edit

Customer: BLACK HILLS EXPLORATION & PROD-EBIZ

Job Date: 12/18/2014 5:39:34 PM

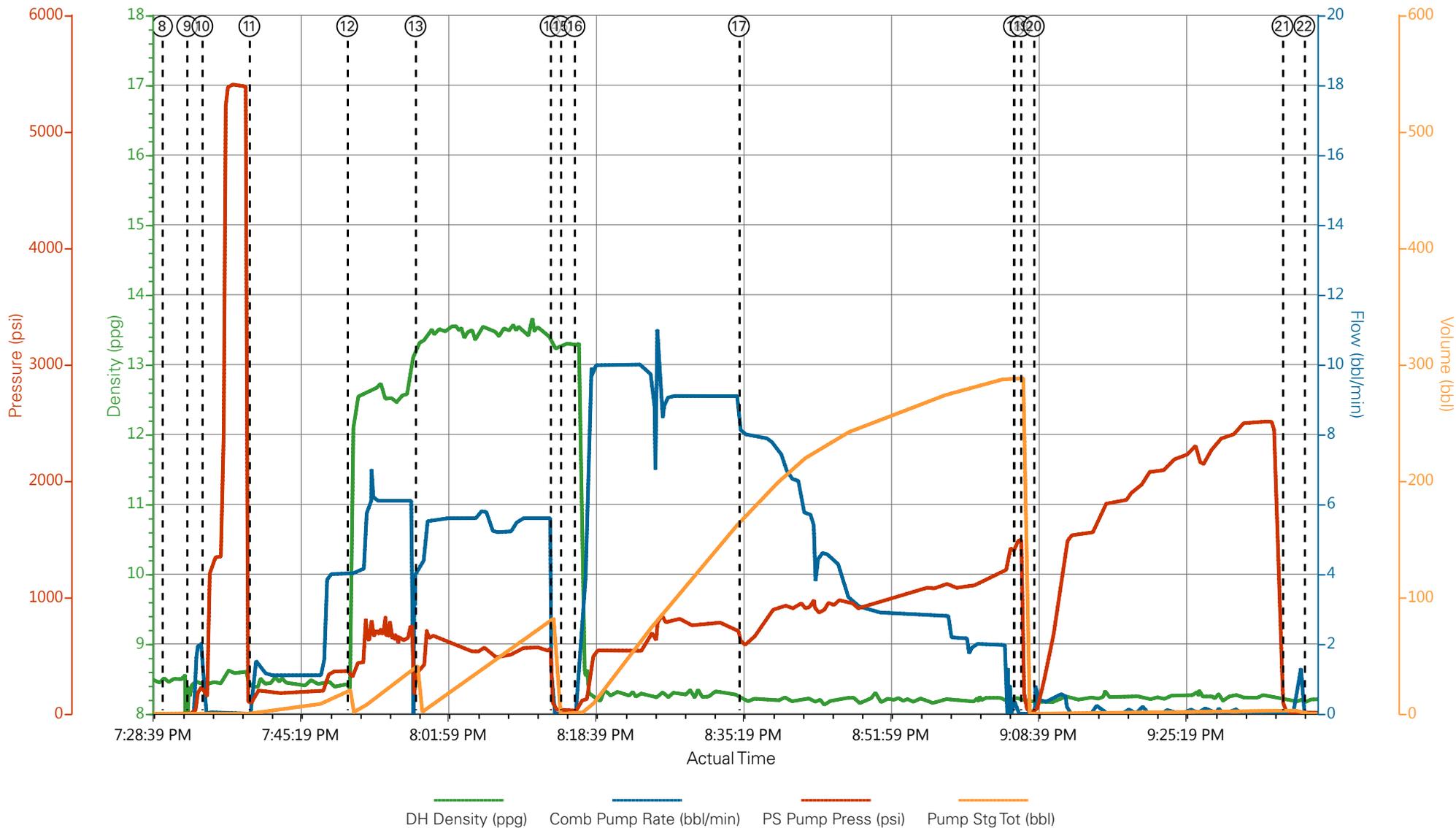
Well: HOMER DEEP 9-11CH

Representative: PAUL HOFF

Sales Order #: 0901929882

ELITE # 3: DUSTIN SMITH / ADAM ANDERSON

BLACK HILLS - HOMER DEEP 9-11CH - 2 STAGE INTERMEDIATE 1ST STAGE



DH Density (ppg) Comb Pump Rate (bbl/min) PS Pump Press (psi) Pump Stg Tot (bbl)

- | | | | | |
|---|--------------------------|----------------------|---------------------|--|
| ① Call Out | ⑥ Rig-Up Equipment | ⑪ Pump Mud Flush III | ⑯ Pump Displacement | 21 Release Casing Pressure |
| ② Pre-Convoy Safety Meeting | ⑦ Pre-Job Safety Meeting | ⑫ Pump Lead Cement | ⑰ Slow Rate | 22 Drop Opening Device For Multiple Stage Cementer |
| ③ Arrive At Loc | ⑧ Start Job | ⑬ Pump Tail Cement | ⑱ Bump Plug | |
| ④ Assessment Of Location Safety Meeting | ⑨ Prime Lines | ⑭ Shutdown | ⑲ Check Floats | |
| ⑤ Pre-Rig Up Safety Meeting | ⑩ Test Lines | ⑮ Drop Plug | ⑳ Set ACP | |

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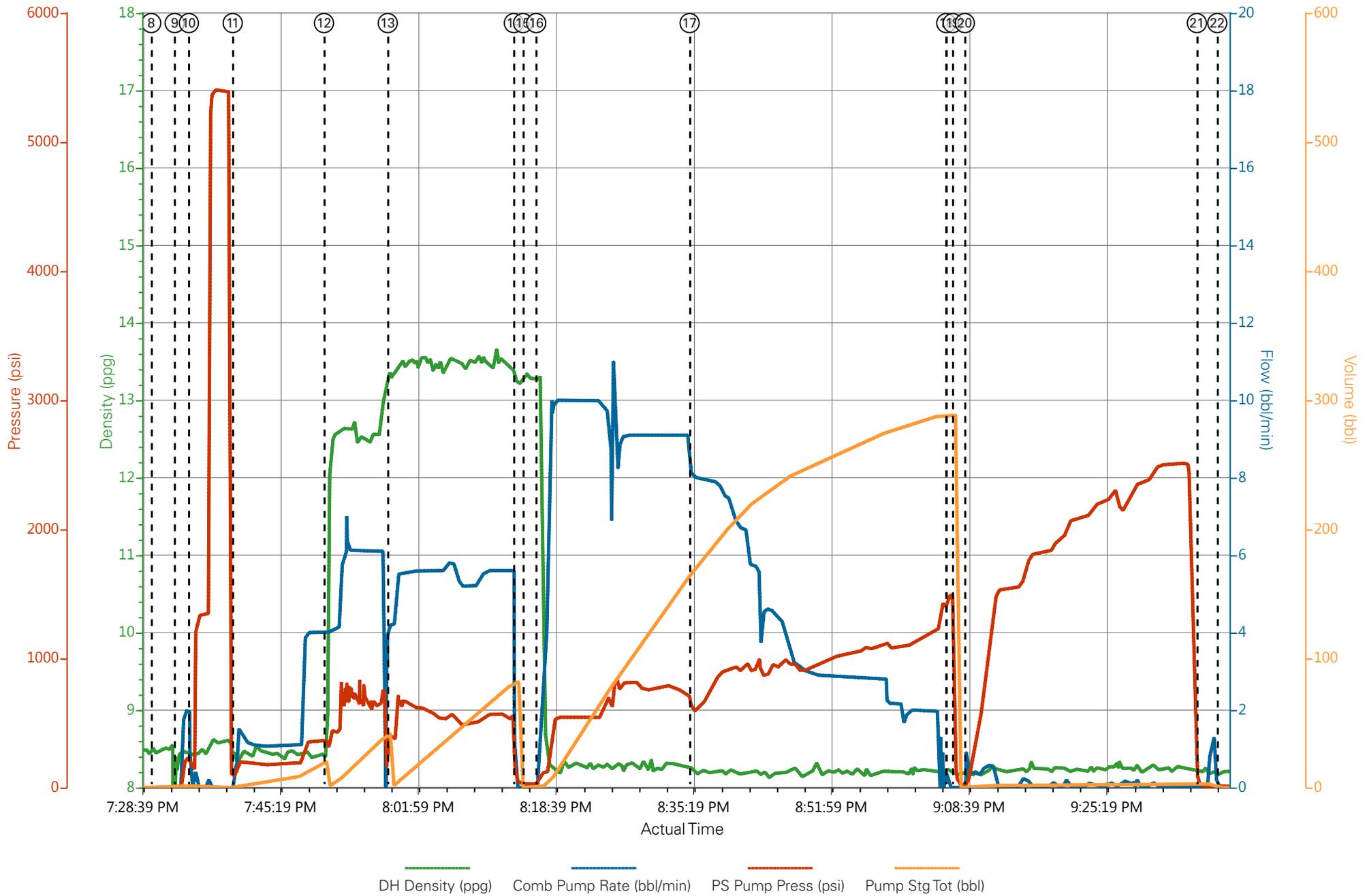
Well: HOMER DEEP 9-11CH

Representative: PAUL HOFF

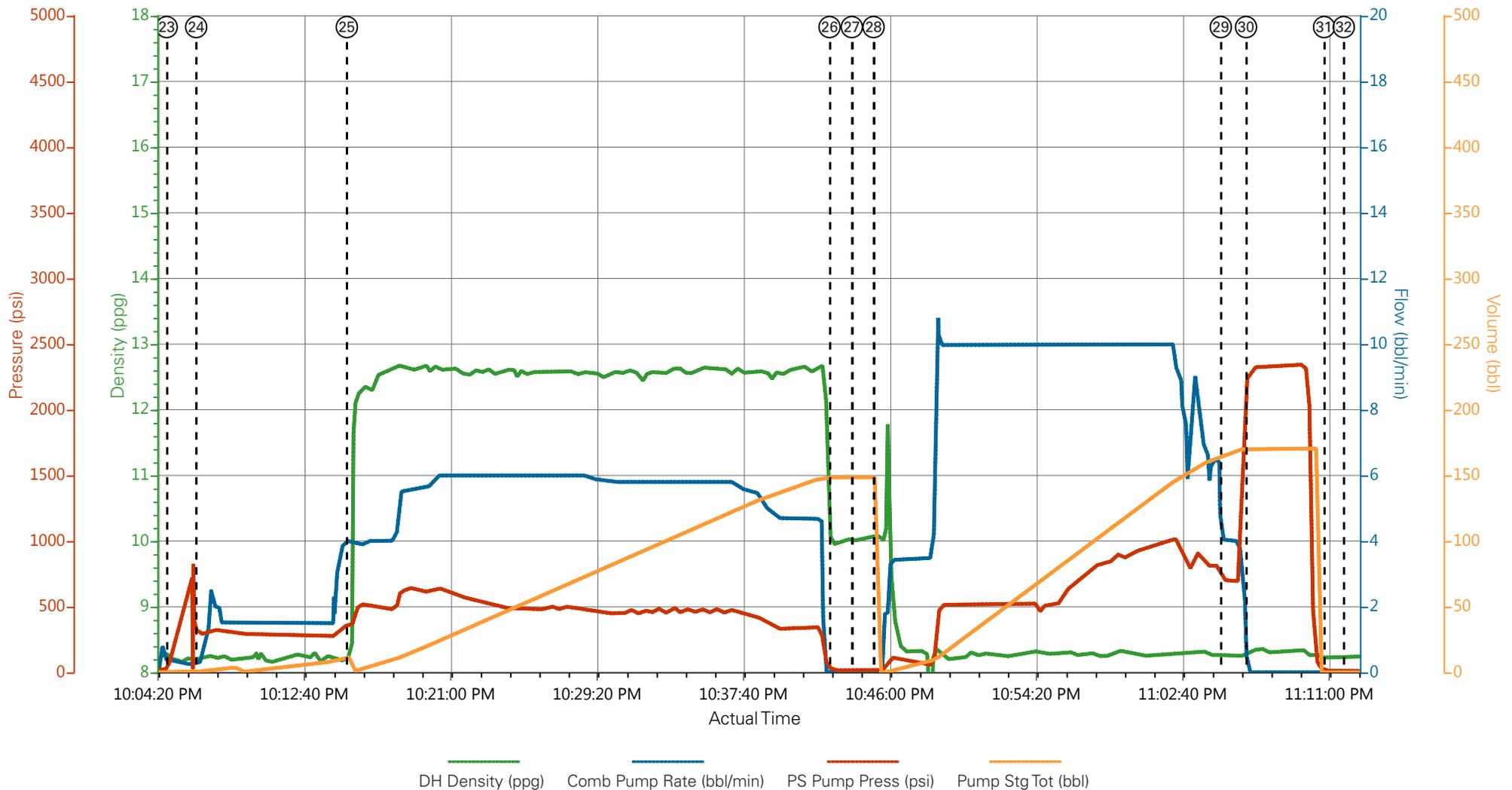
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ELITE # 3: DUSTIN SMITH / ADAM ANDERSON

BLACK HILLS - HOMER DEEP 9-11CH - 2 STAGE INTERMEDIATE 1ST STAGE



BLACK HILLS - HOMER DEEP 9-11CH - 2 STAGE INTERMEDIATE 2ND STAGE



- | | | | | |
|---|----------------------|---------------------------|---|--------------------------|
| ① Call Out | ⑧ Start Job | ⑮ Drop Plug | ⑳ Drop Opening Device For Multiple Stage Cementer | ⑲ Slow Rate |
| ② Pre-Convoy Safety Meeting | ⑨ Prime Lines | ⑯ Pump Displacement | ㉑ Open Multiple Stage Cementer | ㉒ Bump Plug / Close Tool |
| ③ Arrive At Loc | ⑩ Test Lines | ⑰ Slow Rate | ㉒ Pump Fresh Water Spacer | ㉓ Check Floats |
| ④ Assessment Of Location Safety Meeting | ⑪ Pump Mud Flush III | ⑱ Bump Plug | ㉓ Pump Lead Cement | ㉔ End Job |
| ⑤ Pre-Rig Up Safety Meeting | ⑫ Pump Lead Cement | ⑲ Check Floats | ㉔ Shutdown | |
| ⑥ Rig-Up Equipment | ⑬ Pump Tail Cement | ㉑ Set ACP | ㉕ Drop Plug | |
| ⑦ Pre-Job Safety Meeting | ⑭ Shutdown | ㉒ Release Casing Pressure | ㉖ Pump Displacement | |

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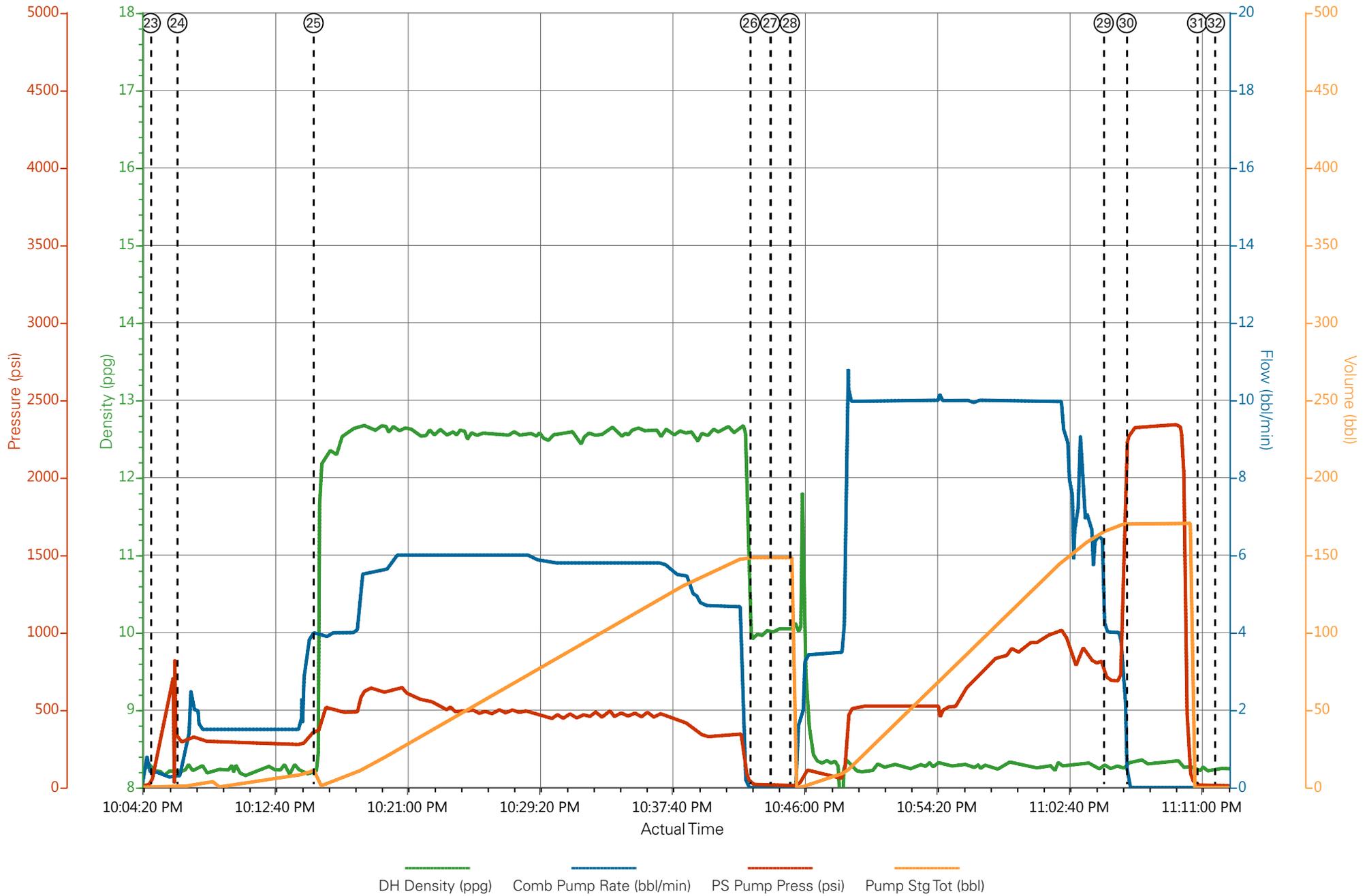
Well: HOMER DEEP 9-11CH

Representative: PAUL HOFF

Sales Order #: 0901929882

ELITE # 3: DUSTIN SMITH / ADAM ANDERSON

BLACK HILLS - HOMER DEEP 9-11CH - 2 STAGE INTERMEDIATE 2ND STAGE



HALLIBURTON

Water Analysis Report

Company: BLACK HILLS

Date: 12/19/2014

Submitted by: DUSTIN SMITH

Date Rec.: _____

Attention: _____

S.O.# 901929882

Lease HOMER DEEP

Job Type: INTERMEDIATE

Well # 9-11CH

Specific Gravity	<i>MAX</i>	1
pH	<i>8</i>	7
Potassium (K)	<i>5000</i>	200 Mg / L
Calcium (Ca)	<i>500</i>	120 Mg / L
Iron (FE2)	<i>300</i>	0 Mg / L
Chlorides (Cl)	<i>3000</i>	0 Mg / L
Sulfates (SO ₄)	<i>1500</i>	UNDER 600 Mg / L
Chlorine (Cl ₂)		0 Mg / L
Temp	<i>40-90</i>	63 Deg
Total Dissolved Solids		740 Mg / L

Respectfully: DUSTIN SMITH

Title: CEMENTING SUPERVISOR

Location: Grand Junction, CO

NOTICE:

This report is limited to the described sample tested. Any person using or relying on this report agrees that Halliburton shall not be liable for any loss or damage whether due to act or omission resulting from such report or

Sales Order #: 0901929882	Line Item: 10	Survey Conducted Date: 12/19/2014
Customer: BLACK HILLS EXPLORATION & PROD-EBIZ		Job Type (BOM): CMT MULTIPLE STAGES BOM
Customer Representative: PAUL HOFF		API / UWI: (leave blank if unknown) 05-045-22489-00
Well Name: HOMER DEEP		Well Number: 0080643625
Well Type: HORIZONTAL GAS	Well Country: USA	
H2S Present: No	Well State: COLORADO	Well County: GARFIELD

Dear Customer,

We hope that you were satisfied with the service quality of this job performed by Halliburton. It is the aim of our management and service personnel to deliver equipment and service of a standard unmatched in the service sector of the energy industry.

Please take the time to let us know if our performance met with your satisfaction. Please be as critical as possible to ensure we constantly improve our service. Your comments are of great value to us and are intended for the exclusive use of Halliburton.

CUSTOMER SATISFACTION SURVEY

CATEGORY	CUSTOMER SATISFACTION RESPONSE	
Survey Conducted Date	The date the survey was conducted	12/19/2014
Survey Interviewer	The survey interviewer is the person who initiated the survey.	HX37079
Customer Participation	Did the customer participate in this survey? (Y/N)	Yes
Customer Representative	Enter the Customer representative name	PAUL HOFF
HSE	Was our HSE performance satisfactory? Circle Y or N	Yes
Equipment	Were you satisfied with our Equipment? Circle Y or N	Yes
Personnel	Were you satisfied with our people? Circle Y or N	Yes
Customer Comment	Customer's Comment	

CUSTOMER SIGNATURE

Sales Order #: 0901929882	Line Item: 10	Survey Conducted Date: 12/19/2014
Customer: BLACK HILLS EXPLORATION & PROD-EBIZ		Job Type (BOM): CMT MULTIPLE STAGES BOM
Customer Representative: PAUL HOFF		API / UWI: (leave blank if unknown) 05-045-22489-00
Well Name: HOMER DEEP		Well Number: 0080643625
Well Type: HORIZONTAL GAS	Well Country: USA	
H2S Present: No	Well State: COLORADO	Well County: GARFIELD

KEY PERFORMANCE INDICATORS

General	
Survey Conducted Date	12/19/2014
The date the survey was conducted	

Cementing KPI Survey	
Type of Job	0
Select the type of job. (Cementing or Non-Cementing)	
Select the Maximum Deviation range for this Job	Vertical
What is the highest deviation for the job you just completed? This may not be the maximum well deviation.	
Total Operating Time (hours)	5
Total Operating Hours Including Rig-up, Pumping, Rig-down. Enter in decimal format.	
HSE Incident, Accident, Injury	No
HSE Incident, Accident, Injury. This should be recordable incidents only.	
Was the job purpose achieved?	Yes
Was the job delivered correctly as per customer agreed design?	
Pumping Hours	3.5
Total number of hours pumping fluid on this job. Enter in decimal format.	
Type of Rig Classification Job Was Performed	Drilling Rig (Portable)
Type Of Rig (classification) Job Was Performed On	
Number Of JSAs Performed	6
Number Of Jsas Performed	
Was this a Primary Cement Job (Yes / No)	Yes
Primary Cement Job= Casing job, Liner job, or Tie-back job.	
Number of Unplanned Shutdowns	0
Unplanned shutdown is when injection stops for any period of time.	
Customer Non-Productive Rig Time (hrs)	0

Sales Order #: 0901929882	Line Item: 10	Survey Conducted Date: 12/19/2014
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Customer Representative: PAUL HOFF		API / UWI: (leave blank if unknown) 05-045-22489-00
Well Name: HOMER DEEP		Well Number: 0080643625
Well Type: HORIZONTAL GAS	Well Country: USA	
H2S Present: No	Well State: COLORADO	Well County: GARFIELD

Lost time due to Halliburton in the start, execution, or completion of an ordered service or product, or delays in a follow-on service. Enter in decimal format. 0 if none.	
Did We Run Wiper Plugs? Did We Run Top And Bottom Casing Wiper Plugs?	Top
If a top plug was run, was the plug bumped? (Yes/No/N/A) If a top plug was run, was the plug bumped? (Yes/No/N/A)	Yes
If applicable, was Halliburton float equipment used? (Yes/No/N/A) If applicable, was Halliburton float equipment used? (Yes/No/N/A)	NO
If applicable, did the floats hold? (Yes/No/N/A) If applicable, did the floats hold? (Yes/No/N/A)	Yes
Mixing Density of Job Stayed in Designed Density Range (0-100%) Density Range defined as +/- .20 ppg. Calculation: Total BBLs cement mixed at designed density divided by total BBLs of cement multiplied by 100	90
Pump Rate (percent) of Job Stayed At Designed Pump Rate Pump Rate range defined as +/- 1bbl/min. Calculation: Total BBLs of fluid pumped at the designed rate divided by Total BBLs of fluid pumped, multiplied by 100	90
If applicable, were there returns throughout the job? (Yes/No/N/A) If applicable, were there returns throughout the job? (Yes/No/N/A)	YES
Nbr of Remedial Plug Jobs Rqd - HES Number Of Remedial Plug Jobs Needed After Primary Plug Pumped By HES	0
Nbr of Remedial Sqz Jobs Rqd - HES Number Of Remedial Squeeze Jobs Required After Primary Job Performed By HES	0