

CYNOSURE ENERGY LLC

FED 14-15-6-21

Frontier 28

## **Post Job Summary**

# **Cement Production Casing**

Date Prepared: 12/27/2014

Job Date: 12/11/2014

Submitted by: Aaron Katz – Grand Junction Cement Engineer

## The Road to Excellence Starts with Safety

Sold To #: 373950	Ship To #: 3557152	Quote #:	Sales Order #: 0901916753
Customer: CYNOSURE ENERGY LLC		Customer Rep: BOYD COTTAM	
Well Name: FEDERAL	Well #: 14/15-6-21	API/UWI #: 05-045-22454-00	
Field: KOKOPELLI	City (SAP): NEW CASTLE	County/Parish: GARFIELD	State: COLORADO
Legal Description: SE NE-21-6S-91W-2343FNL-720FEL			
Contractor:		Rig/Platform Name/Num: Frontier 28	
Job BOM: 7523			
Well Type: DIRECTIONAL GAS			
Sales Person: HALAMERICA\HB50180		Srvc Supervisor: Christopher Kukus	

### Job

Formation Name			
Formation Depth (MD)	Top		Bottom
Form Type			BHST
Job depth MD	8014ft		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		9.625	8.921	36	STC	J-55	0	1503	0	0
Casing	0	4.5	4	11.6	LTC	J-55	0	8014	0	0
Open Hole Section			7.875				1503	8025	0	0

### Tools and Accessories

Type	Size in	Qty	Make	Depth ft	Type	Size in	Qty	Make
Guide Shoe	4.5	1		8014	Top Plug	4.5	1	HES
Float Shoe	4.5				Bottom Plug	4.5		HES
Float Collar	4.5	1		7967.78	SSR plug set	4.5		HES
Insert Float	4.5				Plug Container	4.5	1	HES
Stage Tool	4.5				Centralizers	4.5		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			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
2	EconoCem	EXPANDASEAL (TM) SYSTEM	300	sack	11.5	2.28		6	12.74
12.79 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	VersaCem	VERSACEM (TM) SYSTEM	350	sack	12.5	1.83		6	8.7
8.98 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
4	ExpandaCem	EXPANDACEM (TM) SYSTEM	900	sack	13.1	1.67		6	7.88
7.93 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
5	Fresh Water Displacement	Fresh Water Displacement	123.5	bbl	8.34			4	
Cement Left In Pipe		Amount	46 ft		Reason		Shoe Joint		
Comment									

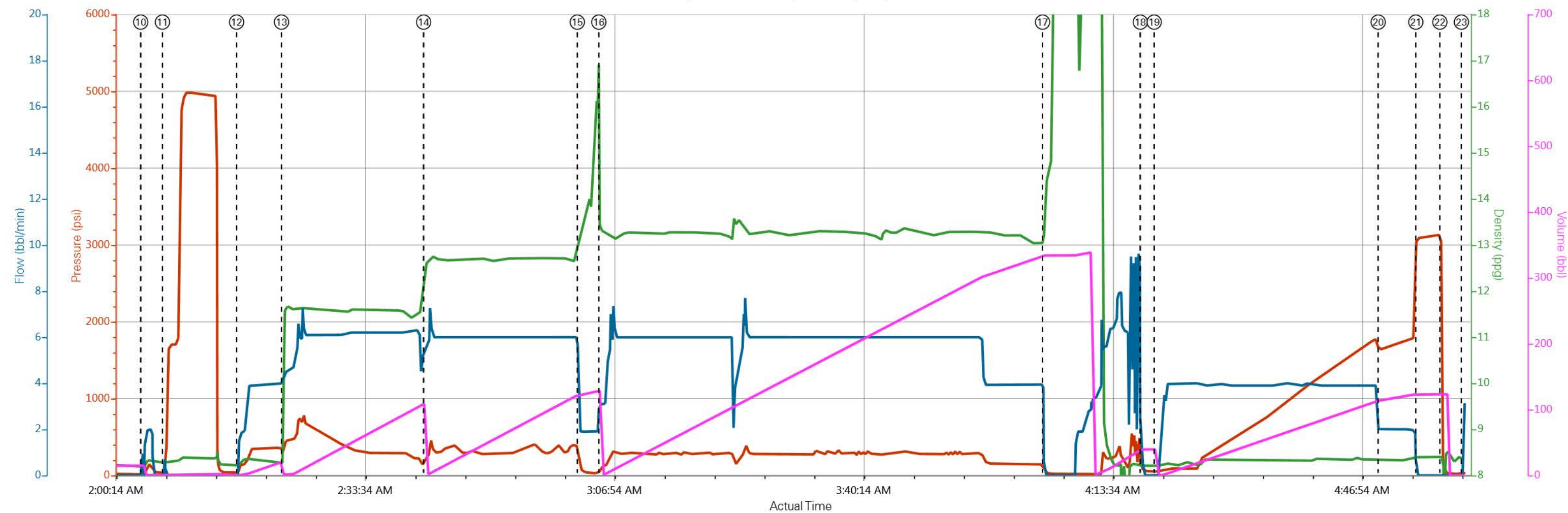
## 1.1 Job Event Log

Type	Seq No.	Graph Label	Date	Time	Source	PS Pump Press (psi)	DH Density (ppg)	Comb Pump Rate (bbl/min)	Pump Stg Tot (bbl)	Comment
Event	1	Call Out	12/10/2014	12:00:53	USER					HES CREW CALLED OUT AT 12:00 WITH ON LOCATION TIME OF 18:00
Event	2	Pre-Convoy Safety Meeting	12/10/2014	14:50:35	USER					ALL HES CREW MEMBERS
Event	3	Crew Leave Yard	12/10/2014	15:00:43	USER					HES CREW AND EQUIPMENT WAS READY AND LEFT THE YARD AT 15:00
Event	4	Arrive at Location from Service Center	12/10/2014	18:00:50	USER					HES CREW ARRIVED ON TIME AT 18:00 RIG WAS RUNNING CASING CREW WAITED OFF LOCATION TILL RIG WAS DONE RUNNING CASING
Event	5	Assessment Of Location Safety Meeting	12/11/2014	00:20:57	USER					ALL HES CREW MEMBERS
Event	6	Pre-Rig Up Safety Meeting	12/11/2014	00:25:07	USER					ALL HES CREW MEMBERS
Event	7	Rig-Up Equipment	12/11/2014	00:30:17	USER					RIG UP IRON TO RIG FLOOR, WASH UP LINE TO CUTTINGS TANK, FRESH WATER LINES TO FRAC TANKS, BULK LINES TO BULK TRUCKS AND BIN
Event	8	Pre-Job Safety Meeting	12/11/2014	01:35:03	USER					ALL HES CREW MEMBERS AND RIG CREW
Event	9	Start Job	12/11/2014	01:52:35	COM 5					TD: 8025 TP: 8014 SJ: 46.22 FC: 7967.78 CSG: 4 1/2 11.6# J-55 OH: 8 3/4 SF CSG: 9 5/8 36# J-55 AT 1503 MESA: 5110 MUD: 9 VISC: 34 RIG CIRCULATED FOR TWO HOURS BEFORE CEMENT JOB WITH FULL RETURNS
Event	10	Prime Lines	12/11/2014	02:03:49	COM 5	170.0	8.33	2.0	2.0	PRIME LINES WITH 2 BBLS FRESH WATER
Event	11	Test Lines	12/11/2014	02:06:43	COM 5	5000.0	8.34	0.00	2.0	PRESSURE TEST OK AT 5000 PSI KICK OUTS WORKING STALL OUT AT 1707 PSI

Event	12	Pump Spacer 1	12/11/2014	02:16:38	COM 5	358.0	8.44	4.0	20.0	PUMP 20 BBLS OF MUD FLUSH SPACER WELL HAD FULL RETURNS
Event	13	Pump Scavenger Cement	12/11/2014	02:22:39	COM 5	360.00	11.5	6.0	121.8	LEAD SCAVENGER 300 SKS 11.5 PPG 2.28 YIELD 12.74 GAL/SK SCAVENGER CEMENT WEIGHT VERIFIED BY MUD SCALE WET AND DRY SAMPLES WERE TAKEN TOTAL OF 121.8 BBLS PUMP AWAY
Event	14	Pump Lead Cement	12/11/2014	02:41:39	COM 5	248.00	12.58	6.0	114.1	VERSACEM 350 SKS 12.5 PPG 1.83 YIELD 8.7 GAL/SK LEAD CEMENT WEIGHT VERIFIED BY MUD SCALE WET AND DRY SAMPLES WERE TAKEN TOTAL OF 114.1 BBLS PUMP AWAY
Event	15	Comment	12/11/2014	03:02:12	USER	153.00	13.16	1.90	2.0	DURING GOING TO TAIL CEMENT THE MIXING TUB STARTED TO POWDER OFF HES SLOW RATE TO FIX TUB THEN RESUME MIXING AND RATE
Event	16	Pump Tail Cement	12/11/2014	03:05:05	COM 5	106.00	13.12	6.0	267.7	EXPANDA CEM 900 SKS 13.1 PPG 1.67 YIELD 7.88 GAL/SK TAIL CEMENT WEIGHT VERIFIED BY MUD SCALE WET AND DRY SAMPLES WERE TAKEN TOTAL OF 267.7 BBLS PUMP AWAY
Event	17	Shutdown / Clean Lines	12/11/2014	04:04:26	USER	59.00	13.13	0.00	267.7	SHUTDOWN END OF CEMENT READY TANKS FOR DISPLACEMENT / SWAP OVER TO WASH UP LINES AND CLEAN LINES AND PUMP TO CUTTINGS TANK WITH 10 BBLS OF FRESH WATER
Event	18	Drop Top Plug	12/11/2014	04:17:30	USER					TOP PLUG AWAY NO ISSUES
Event	19	Pump Displacement	12/11/2014	04:19:21	COM 5	510.0	8.44	4.0	123.5	PUMP 123.5 BBLS OF KCL DISPLACEMENT 13 BAGS OF KCL WERE USED
Event	20	Slow Rate	12/11/2014	04:49:19	USER	1642.00	8.34	2.00	114.1	SLOW RATE TO BUMP PLUG
Event	21	Bump Plug	12/11/2014	04:54:20	COM 5	1800.0	8.40	2.0	123.5	BUMP PLUG WITH 123.5 BBLS AWAY PRESSURE AT 1800 PSI AND WAS TOOK UP TO 3134 PSI
Event	22	Check Floats	12/11/2014	04:57:34	USER	3134.0	8.41	0.00	123.5	FLOATS HELD WITH 1.5 BBLS BACK TO DISPLACEMENT TANKS
Event	23	End Job	12/11/2014	05:00:27	COM 5					CEMENT JOB WENT GOOD NO ISSUES, NO SPACER OR CEMENT TO SURFACE WELL DID HAVE FULL RETURNS THROUGH OUT CEMENT

						JOB
Event	24	Post-Job Safety Meeting (Pre Rig-Down)	12/11/2014	05:10:34	USER	ALL HES CREW MEMBERS
Event	25	Pre-Rig Down Safety Meeting	12/11/2014	05:20:47	USER	ALL HES CREW MEMBERS
Event	26	Rig-Down Equipment	12/11/2014	05:30:59	USER	RIG DOWN RIG FLOOR, GROUND IRON AND WASH UP LINE, FRESH WATER LINES, BLOW DOWN BULK EQUIPMENT AND RIG DOWN LINES , WASH UP AND BLOW DOWN PUMP
Event	27	Pre-Convoy Safety Meeting	12/11/2014	06:20:12	USER	ALL HES CREW MEMBERS
Event	28	Crew Leave Location	12/11/2014	06:30:17	USER	THANK YOU FOR USING HALLIBURTON CEMENT CHRIS KUKUS AND CREW HAVE A NICE DAY

CYNOSURE ENERGY / FEDERAL 14/15-6-21 / 4 1/2 PRODUCTION CASING

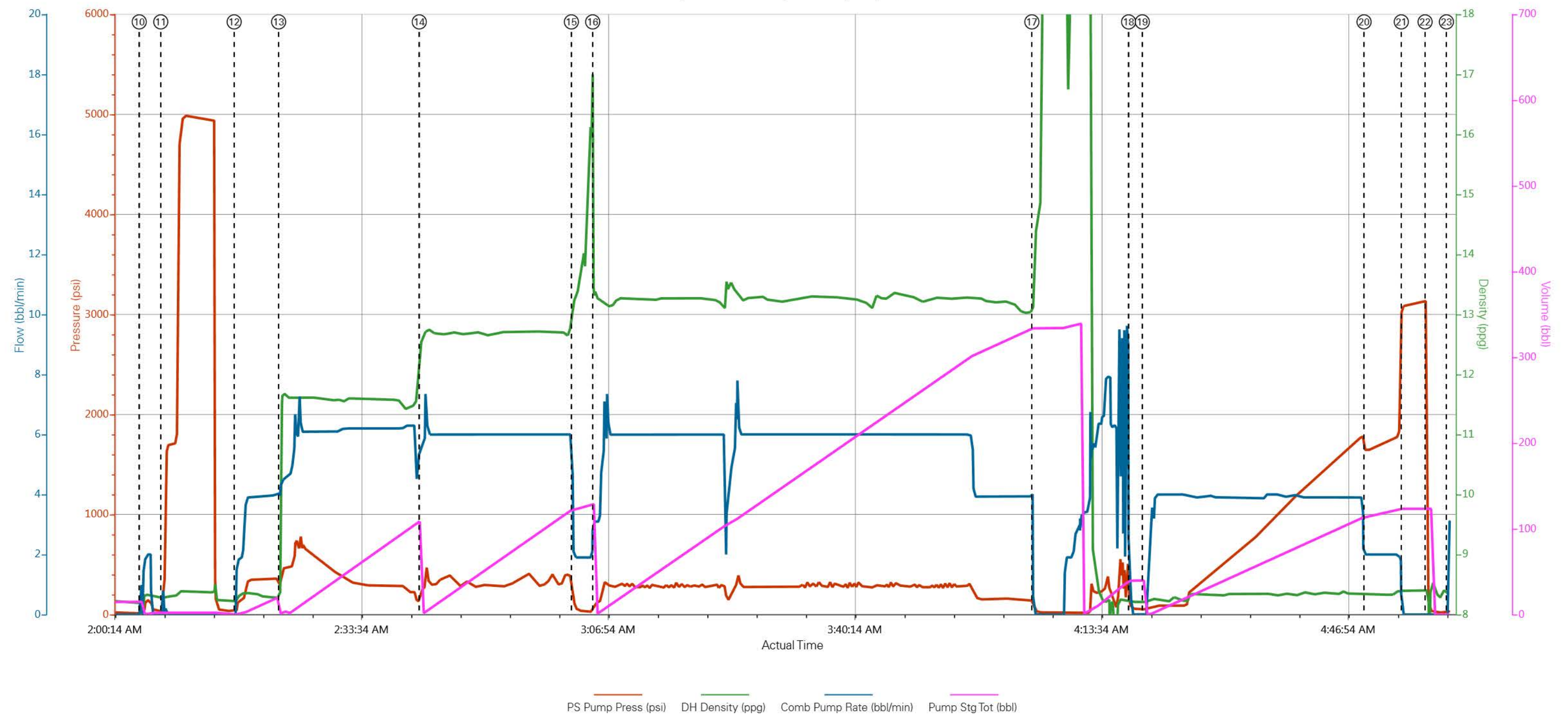


PS Pump Press (psi)    DH Density (ppg)    Comb Pump Rate (bbl/min)    Pump Stg Tot (bbl)

- |  |                          |                          |   |
|--|--------------------------|--------------------------|---|
| ① Call Out                               | ⑧ Pre-Job Safety Meeting | ⑮ Comment                | 22 Check Floats                           |
| ② Pre-Convoy Safety Meeting              | ⑨ Start Job              | ⑯ Pump Tail Cement       | 23 End Job                                |
| ③ Crew Leave Yard                        | ⑩ Prime Lines            | ⑰ Shutdown / Clean Lines | 24 Post-Job Safety Meeting (Pre Rig-Down) |
| ④ Arrive at Location from Service Center | ⑪ Test Lines             | ⑱ Drop Top Plug          | 25 Pre-Rig Down Safety Meeting            |
| ⑤ Assessment Of Location Safety Meeting  | ⑫ Pump Spacer 1          | ⑲ Pump Displacement      | 26 Rig-Down Equipment                     |
| ⑥ Pre-Rig Up Safety Meeting              | ⑬ Pump Scavenger Cement  | 20 Slow Rate             | 27 Pre-Convoy Safety Meeting              |
| ⑦ Rig-Up Equipment                       | ⑭ Pump Lead Cement       | 21 Bump Plug             | 28 Crew Leave Location                    |



CYNOSURE ENERGY / FEDERAL 14/15-6-21 / 4 1/2 PRODUCTION CASING





# HALLIBURTON

## Water Analysis Report

Company: CYNOSURE ENERGY

Submitted by: CHRIS KUKUS

Attention: LARRY COOKSEY

Lease FEDERAL

Well # 14/15-6-21

Date: 12/10/2014

Date Rec.: 12/10/2014

S.O.# 901916753

Job Type: PRODUCTION

Specific Gravity	<i>MAX</i>	<b>1</b>
pH	<i>8</i>	<b>7</b>
Potassium (K)	<i>5000</i>	<b>0</b> Mg / L
Calcium (Ca)	<i>500</i>	<b>120</b> Mg / L
Iron (FE2)	<i>300</i>	<b>0</b> Mg / L
Chlorides (Cl)	<i>3000</i>	<b>0</b> Mg / L
Sulfates (SO <sub>4</sub> )	<i>1500</i>	<b>UNDER 400</b> Mg / L
Hardness		<b>50</b> Mg / L
Temp	<i>40-80</i>	<b>50</b> Deg
Total Dissolved Solids		<b>130</b> Mg / L

Respectfully: CHRIS KUKUS

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 if

<b>Sales Order #:</b> 0901916753	<b>Line Item:</b> 10	<b>Survey Conducted Date:</b> 12/11/2014
<b>Customer:</b> CYNOSURE ENERGY LLC		<b>Job Type (BOM):</b> CMT PRODUCTION CASING BOM
<b>Customer Representative:</b>		<b>API / UWI: (leave blank if unknown)</b> 05-045-22454-00
<b>Well Name:</b> FEDERAL		<b>Well Number:</b> 0080638657
<b>Well Type:</b> DIRECTIONAL GAS	<b>Well Country:</b> USA	
<b>H2S Present:</b> No	<b>Well State:</b> COLORADO	<b>Well County:</b> 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	12/11/2014
Survey Interviewer	The survey interviewer is the person who initiated the survey.	HX35027
Customer Participation	Did the customer participate in this survey? (Y/N)	No
Customer Representative	Enter the Customer representative name	
HSE	Was our HSE performance satisfactory? Circle Y or N	
Equipment	Were you satisfied with our Equipment? Circle Y or N	
Personnel	Were you satisfied with our people? Circle Y or N	
Customer Comment	Customer's Comment	

<b>CUSTOMER SIGNATURE</b>
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*KEY PERFORMANCE INDICATORS*

General	
<b>Survey Conducted Date</b> The date the survey was conducted	12/11/2014

Cementing KPI Survey	
<b>Type of Job</b> Select the type of job. (Cementing or Non-Cementing)	0
<b>Select the Maximum Deviation range for this Job</b> What is the highest deviation for the job you just completed? This may not be the maximum well deviation.	Vertical
<b>Total Operating Time (hours)</b> Total Operating Hours Including Rig-up, Pumping, Rig-down. Enter in decimal format.	6
<b>HSE Incident, Accident, Injury</b> HSE Incident, Accident, Injury. This should be recordable incidents only.	No
<b>Was the job purpose achieved?</b> Was the job delivered correctly as per customer agreed design?	Yes
<b>Operating Hours (Pumping Hours)</b> Total number of hours pumping fluid on this job. Enter in decimal format.	4.5
<b>Customer Non-Productive Rig Time (hrs)</b> 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.	0
<b>Type of Rig Classification Job Was Performed</b> Type Of Rig (classification) Job Was Performed On	Drilling Rig (Portable)
<b>Number Of JSAs Performed</b> Number Of Jsas Performed	6
<b>Number of Unplanned Shutdowns</b> Unplanned shutdown is when injection stops for any period of time.	0
<b>Was this a Primary Cement Job (Yes / No)</b>	Yes

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<b>H2S Present:</b> No	<b>Well State:</b> COLORADO	<b>Well County:</b> GARFIELD

Primary Cement Job= Casing job, Liner job, or Tie-back job.	
<b>Did We Run Wiper Plugs?</b> Did We Run Top And Bottom Casing Wiper Plugs?	Top
<b>Mixing Density of Job Stayed in Designed Density Range (0-100%)</b> Density Range defined as +/- .20 ppg. Calculation: Total BBLs cement mixed at designed density divided by total BBLs of cement multiplied by 100	80
<b>Was Automated Density Control Used?</b> Was Automated Density Control (ADC) Used ?	Yes
<b>Pump Rate (percent) of Job Stayed At Designed Pump Rate</b> 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	80
<b>Nbr of Remedial Sqz Jobs Rqd - Competition</b> Number Of Remedial Squeeze Jobs Required After Primary Job Performed By Competition	0
<b>Nbr of Remedial Plug Jobs Rqd - HES</b> Number Of Remedial Plug Jobs Needed After Primary Plug Pumped By HES	0
<b>Nbr of Remedial Sqz Jobs Rqd - HES</b> Number Of Remedial Squeeze Jobs Required After Primary Job Performed By HES	0