HALLIBURTON

Cementing

PICEANCE ENERGY LLC - EBUS

Piceance Federal 28-20E

Patterson 306

Post Job Summary
Cement Surface Casing

Date Prepared: 10/20/2015
Job Date: 10/16/2015

Submitted by: Aaron Katz – Grand Junction Cement Engineer

HALLIBURTON

HALLIBURTON

Cementing Job Summary

The Road to Excellence Starts with Safety

Sold To #: 344919	**Ship To #:** 3681107	**Quote #:**	**Sales Order #:** 0902829846
Customer: PICEANCE ENERGY LLC - EBUS		**Customer Rep:** Matt Settles	
Well Name: PICEANCE FEDERAL	**Well #:** 28-20E		**API/UWI #:** 05-077-10256-00
Field: VEGA	**City (SAP):** COLLBRAN	**County/Parish:** MESA	**State:** COLORADO
Legal Description: NE SW-28-9S-93W-2001FSL-2489FWL			
Contractor: PATTERSON-UTI ENERGY		**Rig/Platform Name/Num:** PATTERSON 306	
Job BOM: 7521			
Well Type: DIRECTIONAL GAS			
Sales Person: HALAMERICA\HX41066		**Srvc Supervisor:** Edward Deussen	

Job

Formation Name				
Formation Depth (MD)	**Top**		**Bottom**	
Form Type			**BHST**	
Job depth MD	1646ft		**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
Casing		16	15.25	65			0	60		
Casing		8.625	8.097	24	8 RD (LT&C)		0	1646		
Open Hole Section			11				60	1656		

Tools and Accessories

Type	Size in	Qty	Make	Depth ft		Type	Size in	Qty	Make
Guide Shoe	8.625			1646		**Top Plug**	8.625	1	HES
Float Shoe	8.625					**Bottom Plug**	8.625	1	HES
Float Collar	8.625					**SSR plug set**			HES
Insert Float	8.625					**Plug Container**	8.625	1	HES
Stage Tool	8.625					**Centralizers**			HES

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	Fresh Water	40	bbl	8.33			4.0	

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	VariCem GJ5	VARICEM (TM) CEMENT	192	sack	12.3	2.46		6.5	14.17
14.17 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	VariCem GJ5	VARICEM (TM) CEMENT	131	sack	12.8	2.18		6.5	12.11
12.11 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	Fresh Water Displacement	Fresh Water Displacement	101.9	bbl	8.3			8.0	

Cement Left In Pipe	**Amount**	44 ft	**Reason**		Shoe Joint
Plug Bumped?	Yes	**Bump Pressure:**	455 psi	**Floats Held?**	Yes
Cement Returns:	30 bbl				

Comment

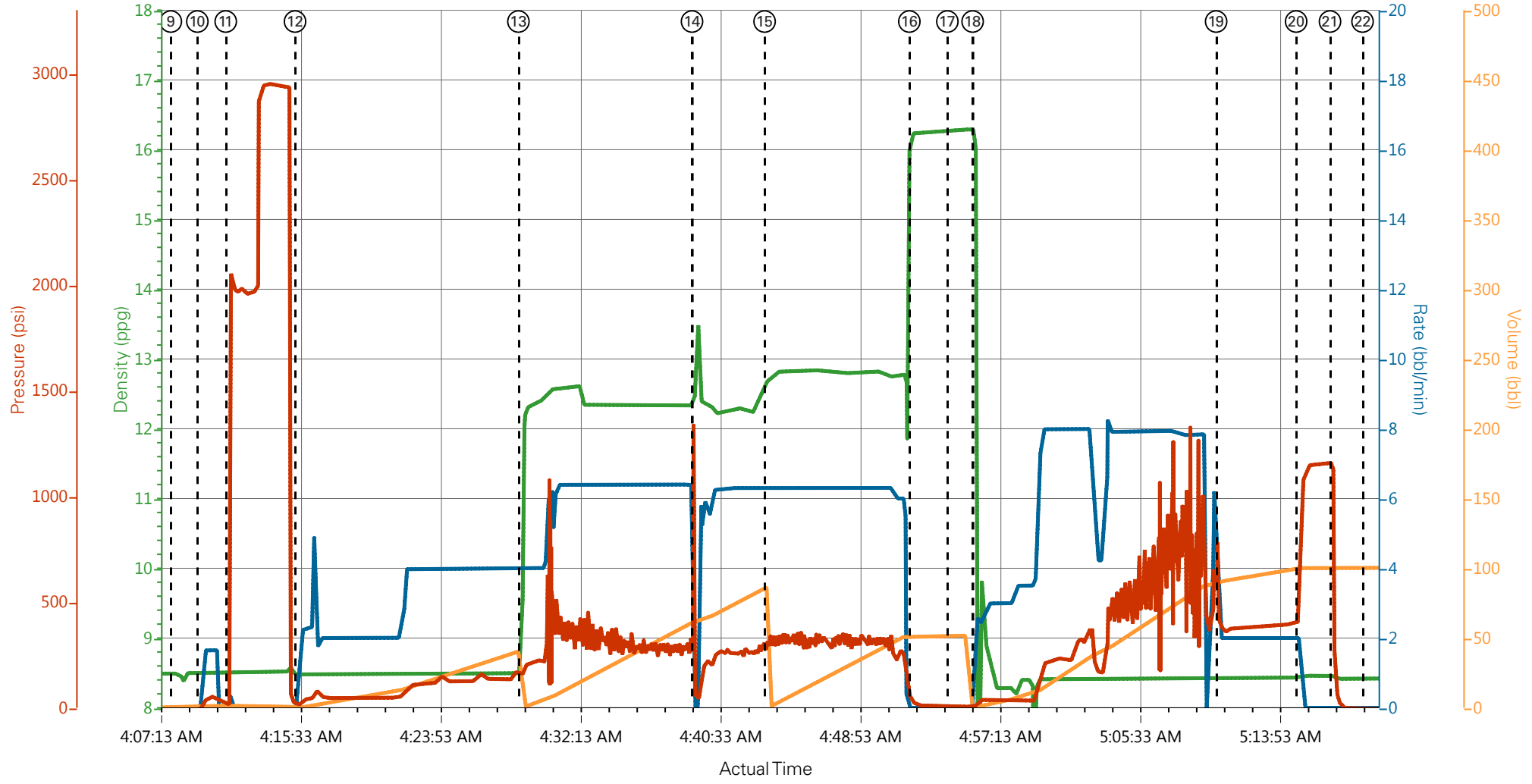
1.0 Real-Time Job Summary

1.1 Job Event Log

Type	Seq. No.	Graph Label	Date	Time	Source	Pass-Side Pump Pressure (psi)	Downhole Density (ppg)	Combined Pump Rate (bbl/min)	Pump Stage Total (bbl)	Comments
Event	1	Call Out	10/15/2015	20:00:00	USER					
Event	2	Pre-Convoy Safety Meeting	10/15/2015	21:45:00	USER					
Event	3	Crew Leave Yard	10/15/2015	22:00:00	USER					1 Elite, 1 660, 1 pickup
Event	4	Arrive at Location	10/16/2015	00:00:00	USER					O/L time 0300
Event	5	Assessment Of Location Safety Meeting	10/16/2015	00:15:00	USER					JSA completed
Event	6	Pre-Rig Up Safety Meeting	10/16/2015	00:45:00	USER					
Event	7	Rig-Up Equipment	10/16/2015	01:00:00	USER					1 hard line to standpipe, 1 bulk hose to 660, 1 water line to upright
Event	8	Pre-Job Safety Meeting	10/16/2015	03:45:00	USER					All HES personnel, rig crew, and company rep
Event	9	Start Job	10/16/2015	04:08:00	USER					TD 1656', TP 1646', SJ 44.11', 11" OH, 8 5/8" 24# J-55 csg, Mud 9.4 ppg
Event	10	Prime Lines	10/16/2015	04:09:34	USER	70	8.33	2.0	2.0	Fresh Water
Event	11	Test Lines	10/16/2015	04:11:16	COM5	2967				Pressure held well
Event	12	Pump H20 Spacer	10/16/2015	04:15:23	COM5	190	8.33	4.0	40.0	Fresh Water
Event	13	Pump Lead Cement	10/16/2015	04:28:42	COM5	280	12.3	6.5	84.1	192 sks, 12.3 ppg, 2.46 yield, 14.17 gal/sk
Event	14	Bottom Plug Rupture	10/16/2015	04:39:03	USER					approx 1350 psi - hit kickouts
Event	15	Pump Tail Cement	10/16/2015	04:43:22	COM5	320	12.8	6.5	50.9	131 sks, 12.8 ppg, 2.18 yield, 12.11 gal/sk
Event	16	Shutdown	10/16/2015	04:51:59	USER					Wash up on top of plug
Event	17	Drop Top Plug	10/16/2015	04:54:15	USER					Plug launched
Event	18	Pump Displacement	10/16/2015	04:55:46	COM5	902	8.33	8.0	101.9	Fresh Water

Event	19	Slow Rate	10/16/2015	05:10:16	USER	420	8.33	2.0	10.0	Good returns throughout job
Event	20	Bump Plug	10/16/2015	05:15:02	COM5	455				30 bbls cement to surface
Event	21	Check Floats	10/16/2015	05:17:03	COM5	1095				Floats held – ½ bbl flowback
Event	22	End Job	10/16/2015	05:19:00	USER					40 lbs sugar – no add hours
Event	23	Pre-Rig Down Safety Meeting	10/16/2015	05:30:00	USER					
Event	24	Rig-Down Equipment	10/16/2015	05:45:00	USER					
Event	25	Pre-Convoy Safety Meeting	10/16/2015	06:15:00	USER					
Event	26	Crew Leave Location	10/16/2015	06:30:00	USER					Thank you for using Halliburton - Ed Deussen and crew

PICEANCE ENERGY - FED 28-20E - 8 5/8" SURFACE



① Call Out n/a;n/a;n/a;n/a
② Pre-Convoy Safety Meeting n/a;n/a;n/a;n/a
③ Crew Leave Yard n/a;n/a;n/a;n/a
④ Arrive at Location n/a;n/a;n/a;n/a
⑤ Assessment Of Location Safety Meeting n/a;n/a;n/a;n/a
⑥ Pre-Rig Up Safety Meeting n/a;n/a;n/a;n/a
⑦ Rig-Up Equipment n/a;n/a;n/a;n/a
⑧ Pre-Job Safety Meeting 8.49;0;-10.7;0
⑨ Start Job 8.49;0;-12.7;0
⑩ Prime Lines 8.5;0;-3.7;0
⑪ Test Lines 8.5;0;16.3;1.5
⑫ Pump H20 Spacer 8.48;0;12.3;0
⑬ Pump Lead Cement 9.37;4;150.83;20.41
⑭ Bottom Plug Rupture 12.89;0;54.3;61.7
⑮ Pump Tail Cement 12.7;6.3;291.3;0.1
⑯ Shutdown 16.22;0;26.3;51.7
⑰ Drop Top Plug 16.27;0;5.3;51.7
⑱ Pump Displacement 14.85;1.7;9.3;0.1
⑲ Slow Rate 8.43;2;395.3;90.5
20 Bump Plug 8.44;2;525.3;100.1
21 Check Floats 8.46;0;976.99;100.3
22 End Job 8.42;0;-6.7;100.3
23 Pre-Rig Down Safety Meeting n/a;n/a;n/a;n/a
24 Rig-Down Equipment n/a;n/a;n/a;n/a
25 Pre-Convoy Safety Meeting n/a;n/a;n/a;n/a
26 Crew Leave Location n/a;n/a;n/a;n/a

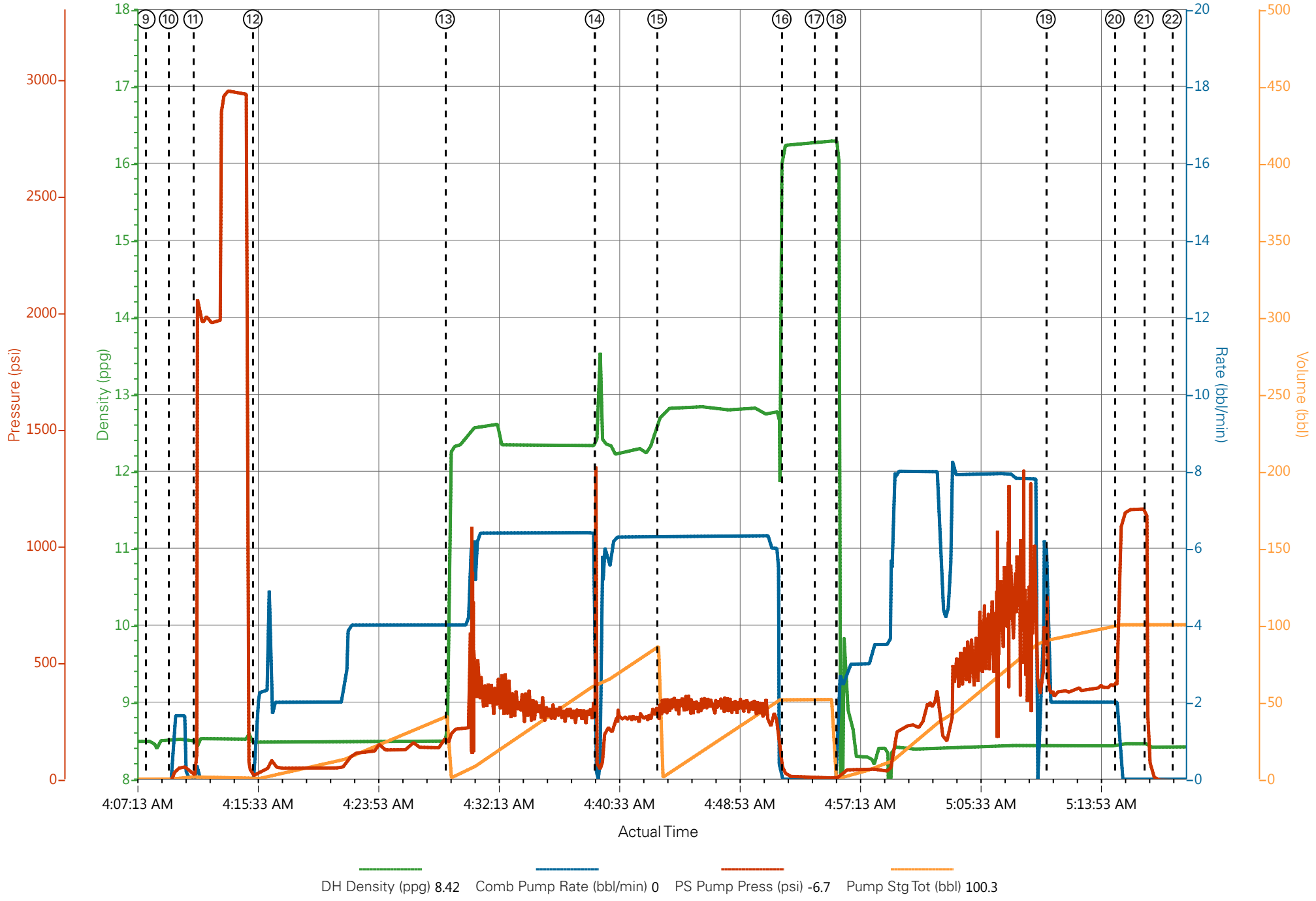
HALLIBURTON | iCem® Service

Created: 2015-10-16 00:30:38, Version: 4.2.393

Edit

Customer : PICEANCE ENERGY LLC
Representative : Matt Settles
Job Date : 10/16/2015
Sales Order # : 902829846
Well : Piceance 28-20E
Elite #1 : Ed Deussen / Kevin Bennett

PICEANCE ENERGY - FED 28-20E - 8 5/8" SURFACE



HALLIBURTON | iCem® Service

Created: 2015-10-16 00:30:38, Version: 4.2.393 Edit

Customer : PICEANCE ENERGY LLC
Representative : Matt Settles

Job Date : 10/16/2015
Sales Order # : 902829846

Well : Piceance 28-20E
Elite #1 : Ed Deussen / Kevin Bennett

HALLIBURTON

Water Analysis Report

Company:	**PICEANCE ENERGY**	**Date:**	**10/15/2015**
Submitted by:	**ED DEUSSEN**	**Date Rec.:**	**10/15/2015**
Attention:	**J.TROUT**	**S.O.#**	**902829846**
Lease	**FED**	**Job Type:**	**SURFACE**
Well #	**28-20E**		

Specific Gravity	***MAX***	**1**	
pH	***8***	**7.5**	
Potassium (K)	***5000***	**400**	**Mg / L**
Calcium (Ca)	***500***	**250**	**Mg / L**
Iron (FE2)	***300***	**0**	**Mg / L**
Chlorides (Cl)	***3000***	**0**	**Mg / L**
Sulfates (SO_4)	***1500***	**<200**	**Mg / L**
Temp	***40-80***	**56**	**Deg**
Total Dissolved Solids		**290**	**Mg / L**

Respectfully: **ED DEUSSEN**

Title: **CEMENTING SUPERVISOR**

Location: **Grand Junction, CO**

HALLIBURTON

CUSTOMER SURVEY

Sales Order #:	**Line Item:**	**Survey Conducted Date:**
0902829846	10	10/16/2015
Customer:		**Job Type (BOM):**
PICEANCE ENERGY LLC - EBUS		CMT SURFACE CASING BOM
Customer Representative:		**API / UWI: (leave blank if unknown)**
MATT SETTLES		05-077-10256-00
Well Name:		**Well Number:**
PICEANCE FEDERAL		0080739661
Well Type:	**Well Country:**	
DIRECTIONAL GAS	USA	
H2S Present:	**Well State:**	**Well County:**
No	COLORADO	MESA

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**	**10/16/2015**
Survey Interviewer	**The survey interviewer is the person who initiated the survey.**	**HB57194**
Customer Participation	**Did the customer partipcipate in this survey? (Y/N)**	**Yes**
Customer Representative	**Enter the Customer representative name**	**MATT SETTLES**
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

HALLIBURTON

CUSTOMER SURVEY

Sales Order #:	**Line Item:**	**Survey Conducted Date:**
0902829846	10	10/16/2015
Customer:		**Job Type (BOM):**
PICEANCE ENERGY LLC - EBUS		CMT SURFACE CASING BOM
Customer Representative:		**API / UWI: (leave blank if unknown)**
MATT SETTLES		05-077-10256-00
Well Name:		**Well Number:**
PICEANCE FEDERAL		0080739661
Well Type:	**Well Country:**	
DIRECTIONAL GAS	USA	
H2S Present:	**Well State:**	**Well County:**
No	COLORADO	MESA

KEY PERFORMANCE INDICATORS

General	
Survey Conducted Date The date the survey was conducted	10/16/2015

Cementing KPI Survey	
Type of Job Select the type of job. (Cementing or Non-Cementing)	0
Select the Maximum Deviation range for this Job What is the highest deviation for the job you just completed? This may not be the maximum well deviation.	Vertical
Total Operating Time (hours) Total Operating Hours Including Rig-up, Pumping, Rig-down. Enter in decimal format.	3
HSE Incident, Accident, Injury HSE Incident, Accident, Injury. This should be recordable incidents only.	No
Was the job purpose achieved? Was the job delivered correctly as per customer agreed design?	Yes
Pumping Hours Total number of hours pumping fluid on this job. Enter in decimal format.	1
Type of Rig Classification Job Was Performed Type Of Rig (classification) Job Was Performed On	Drilling Rig (Portable)
Number Of JSAs Performed Number Of Jsas Performed	5
Was this a Primary Cement Job (Yes / No) Primary Cement Job= Casing job, Liner job, or Tie-back job.	Yes
Number of Unplanned Shutdowns Unplanned shutdown is when injection stops for any period of time.	0
Customer Non-Productive Rig Time (hrs)	0

HALLIBURTON

CUSTOMER SURVEY

Sales Order #:	**Line Item:**	**Survey Conducted Date:**
0902829846	10	10/16/2015
Customer:		**Job Type (BOM):**
PICEANCE ENERGY LLC - EBUS		CMT SURFACE CASING BOM
Customer Representative:		**API / UWI: (leave blank if unknown)**
MATT SETTLES		05-077-10256-00
Well Name:		**Well Number:**
PICEANCE FEDERAL		0080739661
Well Type:	**Well Country:**	
DIRECTIONAL GAS	USA	
H2S Present:	**Well State:**	**Well County:**
No	COLORADO	MESA

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.	
Was the non productive time or the unplanned shutdown caused by a problem with a piece of equipment? Was the non productive time or the unplanned shutdown caused by a problem with a piece of equipment?	No
Did We Run Wiper Plugs? Did We Run Top And Bottom Casing Wiper Plugs?	Both
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)	Not Available
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 cment mixed at designed density divided by total BBLs of cement multiplied by 100	95
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	95
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