

# HALLIBURTON

iCem<sup>®</sup> Service

## **VERDAD RESOURCES LLC**

**For: Andy Boshard**

Date: Monday, August 28, 2017

Case 1

Job Date: Monday, August 28, 2017

Sincerely,

**Brad Hinkle and Crew**

## Legal Notice

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## 1.0 Job Design

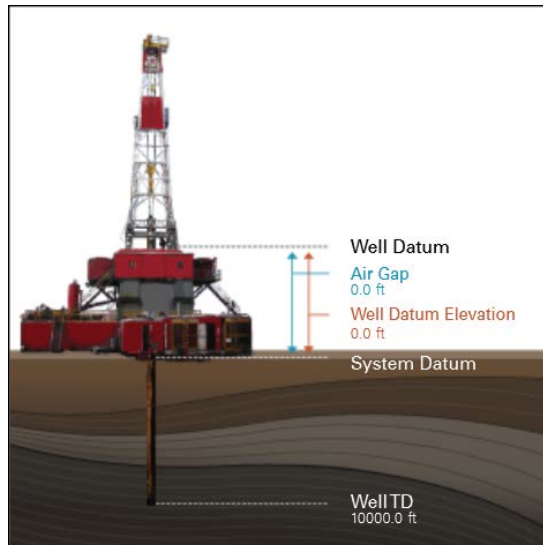
### 1.1 Overview

**Job Type** Primary Cement Job

**Injection Path** Casing/Conventional

**Foam Job** No

#### Well Snapshot



#### Simulations Performed

### 1.2 Pressure Schedule Inputs

**Pressure Mode** Conventional

### 1.3 Pressure Schedule Table

Start (Pump Volume in bbl)	End (Pump Volume in bbl)	Pressure (psi)
0.00	End	0.00

### 1.4 Time of Stages

Graph Label	Time (min)	Stage Starts Pumping	Stage Enters Annulus
①	0.0	Call Out	
②	0.0	Safety Meeting - Pre Job	
③	0.0	Depart Yard Safety Meeting	
④	0.0	Arrive at Location from Service Center	

⑤	0.0	Job Numbers
⑥	0.0	Start Job
⑦	0.0	Pump Spacer 1
⑧	0.0	Pump Lead Cement
⑨	0.0	Check Weight
⑩	0.0	Check Weight
⑪	0.0	Pump Tail Cement
⑫	0.0	Check Weight
⑬	0.0	Comment
⑭	0.0	Test Lines
⑮	0.0	
⑯	0.0	Drop Top Plug
⑰	0.0	Pump Displacement
⑱	0.0	Check Floats
⑲	0.0	Bump Plug
20	0.0	Pressure Up
21	0.0	Pre-Rig Down Safety Meeting
22	0.0	Depart Location for Service Center or Other Site
23	0.0	Comment

## 2.0 Real-Time Job Summary

### 2.1 Job Event Log

Type	Seq. No.	Activity	Graph Label	Date	Time	Source	DH Density (ppg)	Comb Pump Rate (bbl/min)	DS Pump Press (psi)	Comments
Event	1	Call Out	Call Out	8/27/2017	14:30:00	USER				Crew called for an on location of 2030. Crew was Bradley Hinkle, Vitalijs Neverdasovs, Jim Krichmar, Saiaiga Tauiliili, Howard Lancaster and Mark Duncan. Cement still needed loaded which delayed arrival of crew.
Event	2	Depart Yard Safety Meeting	Depart Yard Safety Meeting	8/27/2017	23:30:00	USER				Pre-journey safety meeting.
Event	3	Arrive at Location from Service Center	Arrive at Location from Service Center	8/28/2017	00:01:00	USER				Sign in, perform a site assessment and pre rig-up safety meeting. Rig began circulating at 2300. Cement loaded in full and on location by 0200. HES rigged up and pump primed up by 0200.
Event	4	Other	Job Numbers	8/28/2017	00:05:00	USER				TD: 17175 TP:17160 Float: 17075. Wet Shoe Sub: 17020. TVD: 7071. 5.5" 20# casing inside a 8.5" OH. 9.625" 36# surface casing set at 1730. Mud weight 10.3 ppg.
Event	5	Comment	Comment	8/28/2017	05:00:00	USER				Received word from lab that cement test results were given the green light and we were good to pump job.

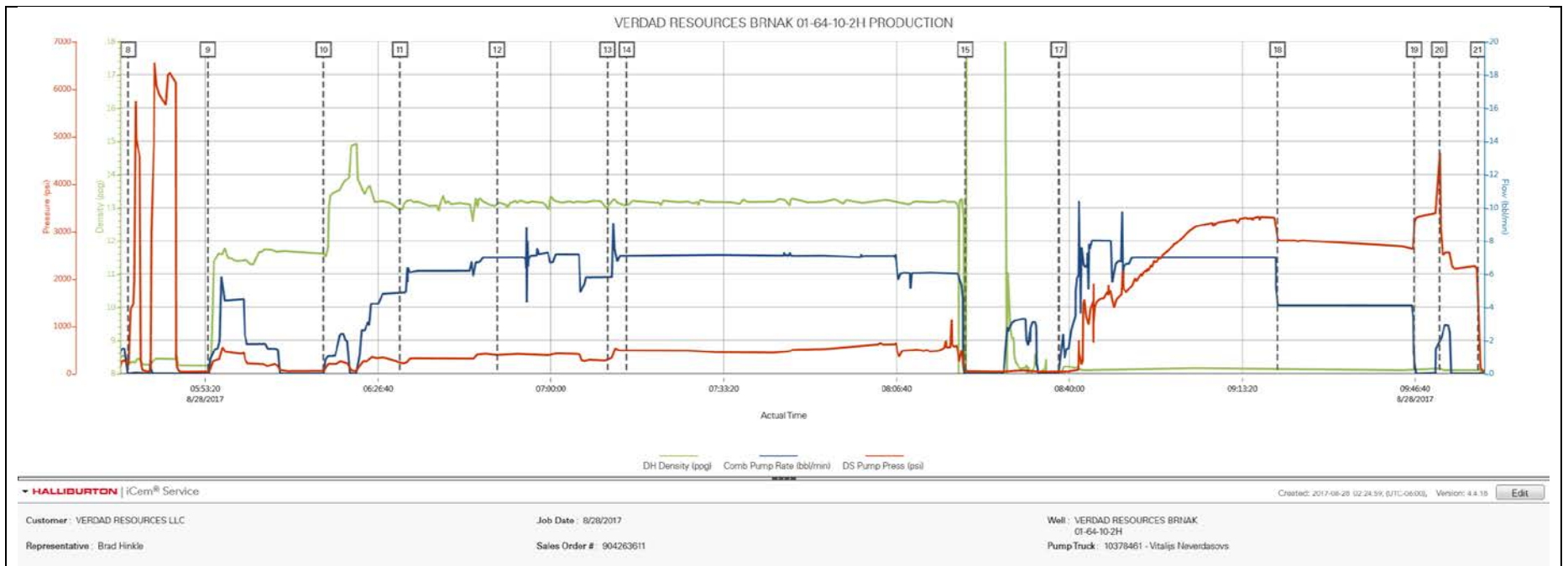
Event	6	Safety Meeting - Pre Job	Safety Meeting - Pre Job	8/28/2017	05:05:00	USER				Pre-job safety meeting with all personnel on location.
Event	7	Start Job	Start Job	8/28/2017	05:36:01	COM4	8.43	0.00	36.00	
Event	8	Test Lines	Test Lines	8/28/2017	05:38:27	USER	8.32	0.00	194.00	Pressure test lines with a 500 PSI electronic kick-out test. Manual pop off released pressure due to higher pressure test. Installed a valve and retested.
Event	9	Pump Spacer 1	Pump Spacer 1	8/28/2017	05:53:50	COM4	8.23	0.00	41.00	Pump 40 bbls Tuned Spacer mixed at 11.5 ppg with surfactants added throughout. Density verified by pressurized scales.
Event	10	Pump Lead Cement	Pump Lead Cement	8/28/2017	06:16:08	COM4	11.62	0.00	51.00	Pump 293 bbls (1045 sacks) ElastiCem mixed at 13.2 ppg. Density verified by pressurized scales.
Event	11	Check Weight	Check Weight	8/28/2017	06:30:52	COM4	12.97	4.90	227.00	Cement weighed at 13.2 ppg.
Event	12	Check Weight	Check Weight	8/28/2017	06:49:38	COM4	13.16	7.00	385.00	Cement weighed at 13.2 ppg.
Event	13	Pump Tail Cement	Pump Tail Cement	8/28/2017	07:10:54	COM4				Pump 463 bbls (1275 sacks) NeoCem mixed at 13.2 ppg. Density verified by pressurized scales.
Event	14	Check Weight	Check Weight	8/28/2017	07:14:35	COM4	13.09	7.10	490.00	Cement weighed at 13.2 ppg.
Event	15	Shutdown	Shutdown	8/28/2017	08:19:54	COM4				
Event	16	Drop Top Plug	Drop Top Plug	8/28/2017	08:37:54	COM4	-0.06	0.00	39.00	Top plug preloaded. Witnessed by customer.
Event	17	Pump Displacement	Pump Displacement	8/28/2017	08:37:58	COM4	-0.08	0.00	39.00	Pump 378 bbls fresh water with Biocide added

throughout. Cement retarder added in first 40 bbls. Good returns throughout. 40 bbls Tuned Spacer and 100 bbls cement to surface. More cement was seen to surface than expected. Cement volumes were checked again and mix water was checked to verify correct amount of water was used to mix cement.

Event	18	Comment	Comment	8/28/2017	09:20:07	USER	8.13	4.10	2821.00	Rig had issues diverting cement to overboard tank. Slowed rate while rig hands worked to get hoses swapped around.
Event	19	Bump Plug	Bump Plug	8/28/2017	09:46:28	USER	8.13	1.70	3114.00	Bump plug at 2640 and increase 500 PSI over. Held until pressure leveled off.
Event	20	Pressure Up	Pressure Up	8/28/2017	09:51:20	USER	8.16	1.80	4473.00	Pressure up to shear pins and shift sleeve. Sleeve shifted at 4676 PSI. Pumped 5 bbls for wet shoe.
Event	21	Check Floats	Check Floats	8/28/2017	09:58:47	USER	8.04	0.00	1765.00	2 bbls back. Floats held.
Event	22	Pre-Rig Down Safety Meeting	Pre-Rig Down Safety Meeting	8/28/2017	10:10:00	USER	8.08	1.80	49.00	Pre-rig down safety meeting.
Event	23	Depart Location for Service Center or Other Site	Depart Location for Service Center or Other Site	8/28/2017	11:15:00	USER				Pre-journey safety meeting.

## 3.0 Attachments

### 3.1 VERDAD RESOURCES BRNAK 01-64-10-2H PRODUCTION.png



## 4.0 Custom Graphs

### 4.1 Custom Graph

