

# HALLIBURTON

iCem<sup>®</sup> Service

## ENCANA OIL & GAS (USA) INC

**For:**

Date: Saturday, June 28, 2014

**2F-5H-F267**

ECANA VOGEL-MCCOY 2F-5H-F267 PROD

Sincerely,

**Sebastian Estensoro**



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## **1.1 Executive Summary**

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Halliburton appreciates the opportunity to perform the cementing services on the **Vogl McCoy 2F-5H-F267** cement **Production** 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.

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**

	<b>Date</b>	<b>Time</b>	<b>Time Zone</b>
<b>Called Out</b>	5/5/2014	18:00	MST
<b>On Location</b>	5/5/2014	22:45	MST
<b>Job Started</b>	5/6/2014	7:06	MST
<b>Job Completed</b>	5/6/2014	9:17	MST
<b>Departed Location</b>	5/6/2014	9:45	MST



**1.2** Cementing Job Summary

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**HALLIBURTON**

**Cementing Job Summary**

*The Road to Excellence Starts with Safety*

Sold To #: 340078	Ship To #: 3191320	Quote #:	Sales Order #: 0901292406
Customer: ENCANA OIL & GAS (USA) INC. - EBUS		Customer Rep: CHARLIE PARKER	
Well Name: VOGL-MCCOY	Well #: 2F-5 H-F267	API/UWI #: 05-123-37779-00	
Field: WATTENBERG	City (SAP): FIR	County/Parish: WELD	State: COLORADO
Legal Description: SE NW-5-2N-67W-2597FNL-2363FWL			
Contractor:	Rig/Platform Name/Num: H&P 278		
Job BOM: 7523			
Well Type: HORIZONTAL OIL			
Sales Person: HALAMERICA\HB50180		Srcv Supervisor: Joseph Barras	
<b>Job</b>			

Formation Name	
Formation Depth (MD)	Top Bottom
Form Type	BHST
Job depth MD	15175ft 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		7	6.366	23		N-80	0	7609	0	0
Casing		4.5	3.92	13.5		P-110	0	15175	0	0
Open Hole Section			6.125				7609	15187	0	0

**Tools and Accessories**

Type	Size in	Qty	Make	Depth ft	Type	Size in	Qty	Make
Guide Shoe	4.5			15175	Top Plug	4.5		HES
Float Shoe	4.5				Bottom Plug	4.5		HES
Float Collar	4.5				SSR plug set	4.5		HES
Insert Float	4.5				Plug Container	4.5		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**

Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft <sup>3</sup> /sack	Mix Fluid Gal	Rate bbl/min	Total Mix Fluid Gal
1	13 lb/gal Tuned Spacer III	Tuned Spacer III	30	bbl	13	8.93			
33.90 gal/bbl		FRESH WATER							
235.92 lbm/bbl		BARITE, 100 LB SK (100003680)							

**HALLIBURTON**

*Cementing Job Summary*

Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft <sup>3</sup> /sack	Mix Fluid Gal	Rate bbl/min	Total Mix Fluid Gal
2	ExpandaCem B2	EXPANDACEM (TM) SYSTEM	570	sack	13.8	1.67			7.72
7.72 Gal		FRESH WATER							
Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft <sup>3</sup> /sack	Mix Fluid Gal	Rate bbl/min	Total Mix Fluid Gal
3	Fresh Water	Fresh Water	0	bbl	8.3				
<b>Cement Left In Pipe</b>		<b>Amount</b>	<b>ft</b>	<b>Reason</b>			<b>Shoe Joint</b>		
<b>Comment</b>									

### 1.3 Planned Pumping Schedule

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1. **Fill Lines with Water**
  - a. Density = 8.33 lb/gal
  - b. Volume = 2bbl
2. **Pressure Test Lines to Xpsi**
3. **Pump Tuned Spacer III**
  - a. Density = 13 lb/gal
  - b. Volume = 30 bbl
  - c. Rate = 2 bpm
4. **Pump ExpandaCem B2 (Primary)**
  - a. Density = 13.8
  - b. Yield = 1.67
  - c. Water Requirement = 7.72
  - d. Volume = 570 sks (169.5 bbls)
  - e. Rate = 5 bpm
5. **Drop Top Plug**
6. **Start Displacement**
7. **Pump Displacement Water**
  - a. Density = 9 lb/gal
  - b. Volume = 229.25 bbls
  - c. Rate = 5bpm
8. Land Plug – Anticipated Final Circulation Pressure 2280 psi

**Calculated Total Displacement = 229.25 bbls**

### 1.4 Job Overview

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		Units	Description
1	Surface temperature at time of job	°F	
2	Mud type (OBM, WBM, SBM, Water, Brine)	-	
3	Actual mud density	lb/gal	
4	Time circulated before job	HH:MM	
5	Mud volume circulated	Bbls	
6	Rate at which well was circulated	Bpm	
7	Pipe movement during hole circulation	Y/N	

<b>8</b>	Rig pressure while circulating	Psi	
<b>9</b>	Time from end mud circulation to start of job	HH:MM	
<b>10</b>	Pipe movement during cementing	Y/N	
<b>11</b>	Calculated displacement	Bbls	
<b>12</b>	Job displaced by	Rig/HES	
<b>13</b>	Annular before job)?	Y/N	
<b>14</b>	Annular flow after job	Y/N	
<b>15</b>	Length of rat hole	Ft	
<b>16</b>	Units of gas detected while circulating	Units	
<b>17</b>	Was lost circulation experienced at any time ?	Y/N	

**1.5 Water Field Test**

Item	Recorded Test Value	Units	Max. Acceptable Limit	Potential Problems in Exceeding Limit
pH		----	6.0 - 8.0	Chemicals in the water can cause severe retardation
Chlorides		ppm	3000 ppm	Can shorten thickening time of cement
Sulfates		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		ppm	300 ppm	High concentrations will accelerate the set of the cement
Temperature		°F	50-80 °F	High temps will accelerate; Low temps may risk freezing in cold weather

**Submitted Respectfully by:** \_\_\_\_\_

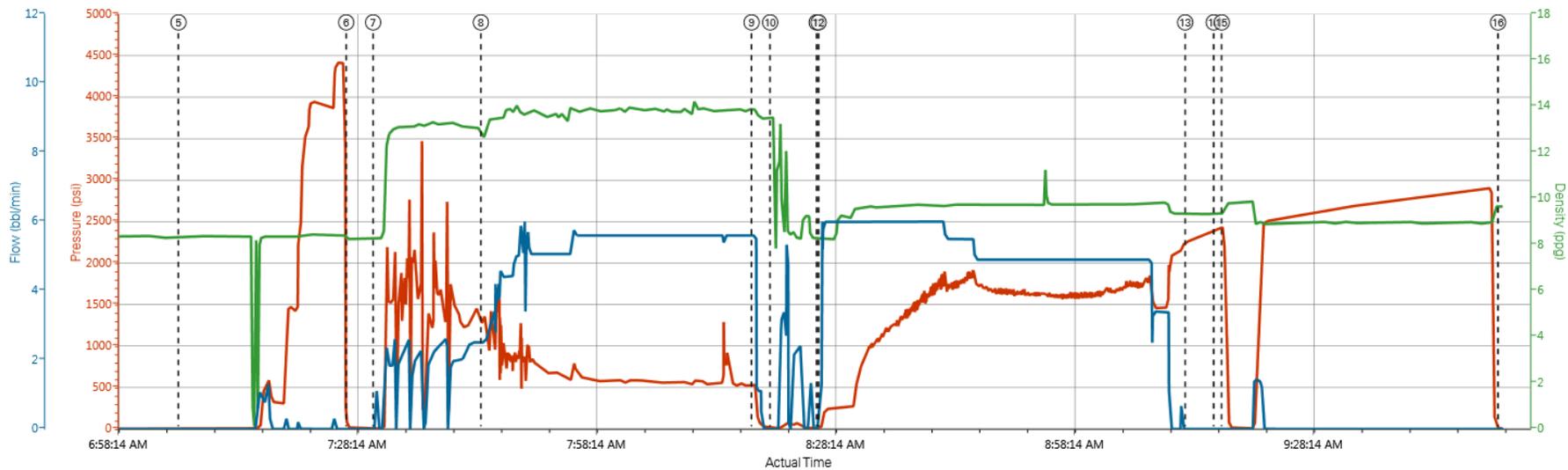
**1.6 Job Event Log**

Type	Seq. No.	Activity	Graph Label	Date	Time	Source	DH Density (ppg)	Comb Pump Rate (bbl/min)	PS Pump Press (psi)	PS Pmp Stg Tot (bbl)	Comment
Event	1	Arrive at Location from Service Center	Arrive at Location from Service Center	5/5/2014	10:45:00	USER					
Event	2	Rig-Up Equipment	Rig-Up Equipment	5/5/2014	11:00:00	USER					
Event	3	Rig-Up Completed	Rig-Up Completed	5/6/2014	00:01:00	USER					
Event	4	Safety Meeting - Pre Job	Safety Meeting - Pre Job	5/6/2014	04:30:00	USER					HES AND RIG CREW
Event	5	Start Job	Start Job	5/6/2014	07:06:05	COM4	8.33	0.00	1.00	18.6	
Event	6	Test Lines	Test Lines	5/6/2014	07:27:07	COM4	8.26	0.00	20.00	20.2	
Event	7	Pump Spacer 1	Pump Spacer 1	5/6/2014	07:30:30	COM4	8.26	0.00	4.00	20.2	30 BBLS TUNED SPACER III @ 13PPG/8.93 YIELD/42.30
Event	8	Pump Cement	Pump Cement	5/6/2014	07:44:01	COM4	12.60	2.50	1279.00	0.0	169 BBLS OF EXPANDACEM @13.8 PPG/1.67 YIELD / 7.72 GALS./PER SKS
Event	9	Clean Lines	Clean Lines	5/6/2014	08:18:00	USER	13.88	5.60	549.00	179.0	
Event	10	Other	Other	5/6/2014	08:20:19	COM4	13.55	0.00	23.00	181.1	3 BBLS RETARDED WATER
Event	11	Drop Top Plug	Drop Top Plug	5/6/2014	08:26:09	COM4					.25 BBLS OF RETARDED WATER/ DROP BALLS
Event	12	Pump Displacement	Pump Displacement	5/6/2014	08:26:24	COM4	8.24	1.10	22.00	0.0	226 BBLS OF BRINE WATER/1798 PSI
Event	13	Bump Plug	Bump Plug	5/6/2014	09:12:24	COM4	9.35	0.00	2261.00	229.8	2280 PSI
Event	14	Check Floats	Check Floats	5/6/2014	09:16:00	USER	9.35	0.00	2414.00	229.8	2BBLS BACK TO TRUCK
Event	15	Other	Other	5/6/2014	09:17:00	COM4	9.48	0.00	2218.00	229.8	CASING TEST @ 2500 PSI FOR 30 MINS
Event	16	End Job	End Job	5/6/2014	09:51:40	COM4	9.65	0.00	5.00	231.3	

2.0 Attachments

2.1 ECANA VOGEL-MCCOY 2F-5H-F267 PROD-Custom Results.png

EnCana Vogl-McCoy 2F-5H-F267 Production



PS Pump Press (psi) DH Density (ppg) Comb Pump Rate (bb/min)

- ① Arrive at Location from Service Center n/a;n/a;n/a
- ② Rig-Up Equipment n/a;n/a;n/a
- ③ Rig-Up Completed n/a;n/a;n/a
- ④ Safety Meeting - Pre Job 22;0.76;0
- ⑤ Start Job 1;8.33;0
- ⑥ Test Lines 20;8.26;0
- ⑦ Pump Spacer 14;8.26;0
- ⑧ Pump Cement 1279;12.6;2.5
- ⑨ Clean Lines 549;13.88;5.6
- ⑩ Other 23;13.55;0
- ⑪ Drop Top Plug 15.6;8.37;1.1
- ⑫ Pump Displacement 22;8.24;1.1
- ⑬ Bump Plug 2261;9.35;0
- ⑭ Check Floats 2414;9.35;0
- ⑮ Other 2218;9.48;0
- ⑯ End Job 5;9.65;0

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