

HALLIBURTON

iCem[®] Service

Post Job Report

ENCANA OIL & GAS (USA) INC

Date: Sunday, June 01, 2014

2A-5 H-E267

Encana Production Vogl-McCoy #2A-5 H-E267

Sincerely,
Matt Bulinski

Table of Contents

| | | |
|-------------------|-----------------------|------------------------------|
| 1.1 | Cementing Job Summary | 3 |
| | 4 | |
| 1.2 | Job Overview | 5 |
| 1.3 | Water Field Test | 6 |
| 1.4 | Job Event Log | 7 |
| 2.0 Custom Graphs | | Error! Bookmark not defined. |
| 2.1 | Custom Graph | 9 |

Job Times

| | Date | Time | Time Zone |
|----------------------------|--------|-------|-----------|
| Requested Time On Location | 6-1-14 | 09:30 | |
| Called Out | 6-1-14 | 06:30 | |
| On Location | 6-1-14 | 08:45 | |
| Job Started | 6-1-14 | 12:54 | |
| Job Completed | 6-1-14 | 14:39 | |
| Departed Location | 6-1-14 | 16:00 | |

1.1 Cementing Job Summary

HALLIBURTON

Call for service

Saturday, May 31, 2014 2:52:40 AM

| The Road to Excellence Starts with Safety | | | | | | | | | | | |
|---|--------------------|---------------------------------------|---|-----------------------------------|----------------------------|-----------|-----------|------------|------------|-------------|----------|
| Sold To #: 340078 | | Ship To #: 3113302 | | Primary Sales Order #: 0901394674 | | | | | | | |
| Customer: ENCANA OIL & GAS (USA) INC. - EBUS | | | Job Purpose: 7523 CMT PRODUCTION CASING BOM | | | | | | | | |
| Well Name: VOGL-MCCOY | | Well #: 2A-5 H-E267 | | API/UWI #: 05-123-37819-00 | | | | | | | |
| Field: WATTENBERG | City: LONGMONT | Country/Parish: WELD | | State/Prov: COLORADO | | | | | | | |
| Legal Description: | | | | | | | | | | | |
| Rig Name & Number / Phone Number: H&P 522 / 970-812-4791 | | | | Location: LAND | | | | | | | |
| myCem id#: | | Job Criticality Status: GREEN | | iFacts Request id#: | | | | | | | |
| Contacts | | | | | | | | | | | |
| Type | Name | Email | Phone | | | | | | | | |
| Account Rep | Allison Cormier | Allison.Cormier@halliburton.com | +13077054802 | | | | | | | | |
| Service Coordinator | Jonathan Snyder | Jonathan.Snyder@Halliburton.com | +17203830979 | | | | | | | | |
| Company Man | | | | | | | | | | | |
| PPE, Safety Huddles, JSA's, HOC & Near Miss Reporting, BBP Observations | | | | | | | | | | | |
| Distance/Mileage(1 way) Svcs: 75 mile | | Distance/Mileage(1 way) Mtls: 75 mile | | | | | | | | | |
| | | Rqstd Job Start Date/Time: | | 05/31/2014 | | | | | | | |
| HSE Information | | | | | | | | | | | |
| H2S Present: | | Unknown | | CO2 Present: Unknown | | | | | | | |
| Drive Safely. Lights On for Safety. Wear Seat Belts. Observe all HES / Customer Safety Policies. | | | | | | | | | | | |
| Directions: | | | | | | | | | | | |
| CR 8 WEST TO HWY 85, NORTH TO HWY 52, WEST TO CR 19, NORTH TO CR 24, WEST TO CR 15, NORTH 0.5 MILES AND GO EAST INTO LOCATION | | | | | | | | | | | |
| Instruction | | | | | | | | | | | |
| | | | | | | | | | | | |
| Job Info / Well Data | | | | | | | | | | | |
| Job Depth (MD) ft | Job Depth (TVD) ft | Well Fluid Type | Well Fluid Weight lbm/gal | Displacement Fluid | Displ Fluid Weight lbm/gal | | | | | | |
| 11600 | 7100 | Water Based Mud | 9 | Fresh Water | 8.3 | | | | | | |
| BHST degF | BRCT degF | Log Temp degF | | Time Since Circ Stopped HH:MM:SS | | | | | | | |
| | | | | | | | | | | | |
| Job Tubulars/Tools | | | | | | | | | | | |
| Description | Size in | Weight lbm/ft | ID in | Thread | Grade | Top MD ft | Btm MD ft | Top TVD ft | Btm TVD ft | Shoe Jnt ft | % Excess |
| Intermediate Casing | 7 | 23 | 6.366 | | N-80 | 0 | 7360 | 0 | 7100 | | |
| Production Open Hole | | | 6.125 | | | 7500 | 11600 | | | | 20 |
| Production Casing | 4.5 | 13.5 | 3.92 | | P-110 | 0 | 11600 | 0 | 7100 | | |

Call For Service

901394674

HALLIBURTON
Page 1 of 5

| Mud conditioning plan | | | | | | | | | | |
|---|----------------------------|---------------------------|---------------|------|-----------------|-----------------------------|--------------------|--------------|--------------------------|------------------------------|
| The condition of the drilling fluid is one of the most important variables in achieving a cement barrier. Prior to cementing, circulate the mud at the planned highest displacement rate for the cement job for at least 2 bottoms-up until the well is clean, mud is free of gas and pump pressures have stabilized. | | | | | | | | | | |
| Materials | | | | | | | | | | |
| Stage/Plug #: 1 | | | | | | | | | | |
| Fluid # | Fluid Name | Package/SBM/Material Name | Rqstd Del Qty | UOM | Density lbm/gal | Yield ft ³ /sack | Water Req Gal/sack | Rate bbl/min | Total Mix Fluid Gal/sack | Surface Batch Mixing Time |
| 1 | 13 lb/gal Tuned Spacer III | | 40 | bbl | 13 | 8.93 | 33.9 | 2 | | |
| 235.92 lbm/bbl | | Barite | | | | | | | | |
| iFacts Testid # | | | | | | | | | | |
| Fluid # | Fluid Name | Package/SBM/Material Name | Rqstd Del Qty | UOM | Density lbm/gal | Yield ft ³ /sack | Water Req Gal/sack | Rate bbl/min | Total Mix Fluid Gal/sack | Surface Batch Mixing Time hr |
| 2 | ExpandaCem B2 | EXPANDACEM (TM) SYSTEM | 569 | sack | 13.8 | 1.67 | 7.7 | 4 | 7.7 | |
| iFacts Testid # | | | | | | | | | | |
| Fluid # | Fluid Name | Package/SBM/Material Name | Rqstd Del Qty | UOM | Density lbm/gal | Yield ft ³ /sack | Water Req Gal/sack | Rate bbl/min | Total Mix Fluid Gal/sack | Surface Batch Mixing Time |
| 3 | Fresh Water | | 179.1 | bbl | 8.3 | | | 6 | | |
| iFacts Testid # | | | | | | | | | | |
| Caution: Displacement quantities and densities are estimates ONLY! Do not use them for the actual job. | | | | | | | | | | |
| Packaged Materials | | | | | | | | | | |
| SAP # | Material | | Qty | | UOM | | Comments | | | |
| | FRESH WATER | | 5735.7 | | Gal | | | | | |

1.2 Job Overview

| | | Units | Description |
|----|---|-------------------------------------|-------------|
| 1 | Surface temperature at time of job | °F | 75 |
| 2 | Mud type (OBM, WBM, SBM, Water, Brine) | - | WBM |
| 3 | Actual mud density | lb/gal | 10.55 |
| 4 | Actual mud Plastic Viscosity (PV) | cP | 18 |
| 5 | Actual mud Yield Point (YP) | lb _f /100ft ² | 18 |
| 6 | Actual mud 30 min Gel Strength | lb _f /100ft ² | 32 |
| 7 | Time circulated before job | HH:MM | 2hr |
| 8 | Mud volume circulated | Bbls | 338 |
| 9 | Rate at which well was circulated | Bpm | 6 |
| 10 | Pipe movement during hole circulation | Y/N | Y |
| 11 | Rig pressure while circulating | Psi | |
| 12 | Time from end mud circulation to start of job | HH:MM | 15mins |
| 13 | Pipe movement during cementing | Y/N | Y |
| 14 | Calculated displacement | Bbls | 220 |
| 15 | Job displaced by | Rig/HES | HES |
| 16 | Annular flow before job | Y/N | Y |
| 17 | Annular flow after job | Y/N | N |
| 18 | Length of rat hole | Ft | |
| 19 | Units of gas detected while circulating | Units | |
| 20 | Was lost circulation experienced at any time? | Y/N | N |

1.3 Water Field Test

| Item | Recorded Test Value | Units | Max. Acceptable Limit | Potential Problems in Exceeding Limit |
|------------------|---------------------|-------|-----------------------|---|
| pH | 6.5 | ---- | 6.0 - 8.0 | Chemicals in the water can cause severe retardation |
| Chlorides | 38 | 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 | 1 | ppm | 300 ppm | High concentrations will accelerate the set of the cement |
| Temperature | 65 | °F | 50-80 °F | High temps will accelerate; Low temps may risk freezing in cold weather |

Submitted Respectfully by: _____ **Matt Bulinski** _____

1.4 Job Event Log

| Type | Seq. No. | Activity | Graph Label | Date | Time | Source | DH Density (ppg) | PS Pump Press (psi) | Comb Pump Rate (bbl/min) | Comment |
|-------|----------|-----------------------------|-----------------------------|----------|----------|--------|------------------|---------------------|--------------------------|---|
| Event | 1 | Depart Yard Safety Meeting | Depart Yard Safety Meeting | 6/1/2014 | 07:00:00 | USER | | | | JSA on Job Materials, pre-tripping trucks, and driving to location |
| Event | 2 | Arrive At Loc | Arrive At Loc | 6/1/2014 | 08:45:00 | USER | | | | Arrived 45mins early and rig is on schedule 1400' from bottom. Finished running Csg at 10:45 |
| Event | 3 | Safety Meeting - Pre Rig-Up | Safety Meeting - Pre Rig-Up | 6/1/2014 | 09:00:00 | USER | | | | JSA on Hazard Hunt, rigging up bulk trucks, and iron to rig |
| Event | 4 | Rig-Up Equipment | Rig-Down Equipment | 6/1/2014 | 09:15:00 | USER | | | | |
| Event | 5 | Rig-Up Completed | Rig-Up Completed | 6/1/2014 | 10:00:00 | USER | | | | |
| Event | 6 | Safety Meeting - Pre Job | Safety Meeting - Pre Job | 6/1/2014 | 11:00:00 | USER | 8.23 | 6.00 | 0.00 | JSA with Company Man, Rig hands, Black Hawk, Tool Hand, and HES on finish rig up to rig and pump schedule |
| Event | 7 | Start Job | Start Job | 6/1/2014 | 12:54:09 | COM5 | -12.09 | 1.00 | 0.00 | |
| Event | 8 | Test Lines | Test Lines | 6/1/2014 | 13:02:34 | COM5 | 8.34 | 445.00 | 0.00 | 5300psi Pressure Test Lines, Held Solid |
| Event | 9 | Pump Spacer 1 | Pump Spacer 1 | 6/1/2014 | 13:09:04 | COM5 | 12.67 | 896.00 | 2.00 | 40bbl Tuned Spacer 13ppg, 8.93yield, 33.9gal/sk, Mixed with rig water and # verify by pressurized mud scales. Avg 5bbl/min with 870psi |
| Event | 10 | Pump Cement | Pump Cement | 6/1/2014 | 13:18:06 | COM5 | 13.69 | 601.00 | 4.00 | 569sks Expandacem cmt, 13.8ppg, 1.67yield, 7.7gal/sk, Mixed with rig water and # verify by pressurized mud scales. Avg 6bbl/min with 500psi |
| Event | 11 | Pump Spacer 1 | Pump Spacer 1 | 6/1/2014 | 13:50:04 | COM5 | 13.78 | 238.00 | 3.70 | 3bbls MMCR at 3bbl/min 200psi |

| | | | | | | | | | | |
|-------|----|-------------------------------------|-------------------------------------|----------|----------|------|--------|---------|------|--|
| Event | 12 | Shutdown | Shutdown | 6/1/2014 | 13:50:57 | COM5 | 8.20 | 91.00 | 3.80 | Shutdown |
| Event | 13 | Clean Lines | Clean Lines | 6/1/2014 | 13:52:04 | COM5 | -12.21 | 12.00 | 1.20 | Wash 10bbls Clean water through lines |
| Event | 14 | Drop Top Plug | Drop Top Plug | 6/1/2014 | 13:55:57 | COM5 | 8.14 | 7.00 | 0.00 | Black Hawk drop latch Plug |
| Event | 15 | Pump Spacer 1 | Pump Spacer 1 | 6/1/2014 | 13:57:16 | USER | 8.14 | 8.00 | 1.20 | Pump 1bbl MMCR flush plug out |
| Event | 16 | Shutdown | Shutdown | 6/1/2014 | 13:57:35 | USER | 8.22 | 74.00 | 0.00 | Black Hawk drop wiper balls |
| Event | 17 | Pump Displacement | Pump Displacement | 6/1/2014 | 13:58:18 | COM5 | 8.16 | 15.00 | 0.00 | 200bbls Brine water displacment with last 20bbls Fresh water. Avg 7bbl/min with 1500psi |
| Event | 18 | Bump Plug | Bump Plug | 6/1/2014 | 14:36:29 | COM5 | 8.24 | 1782.00 | 3.40 | Slowed down last 10bbls to 3bbl/min to bump.. Plug landed at 1695psi and brought to 2405psi for 2mins. Floats Held |
| Event | 19 | End Job | End Job | 6/1/2014 | 14:39:32 | COM5 | 8.30 | 14.00 | 0.00 | |
| Event | 20 | Safety Meeting - Pre Rig-Down | Safety Meeting - Pre Rig-Down | 6/1/2014 | 14:40:00 | USER | 8.15 | 6.00 | 0.00 | JSA with rig hands, Black Hawk, and HES hands on rigging down Iron from Head, rig, and bulk trucks |
| Event | 21 | Rig-Down Equipment | Rig-Down Equipment | 6/1/2014 | 15:00:00 | USER | | | | |
| Event | 22 | Rig-Down Completed | Rig-Down Completed | 6/1/2014 | 16:00:00 | USER | | | | |
| Event | 23 | Safety Meeting - Departing Location | Safety Meeting - Departing Location | 6/1/2014 | 16:02:00 | USER | | | | JSA on Location clean up, pre-tripping trucks, and driving back to Brighton yard |

2.0 Real Time

2.1 Graph

