

**HALLIBURTON**

**Cementing Job Summary**

*The Road to Excellence Starts with Safety*

|   |                              |  |       |                                  |                   |                           |                        |                             |               |               |                     |
|---|------------------------------|--|-------|----------------------------------|-------------------|---------------------------|------------------------|-----------------------------|---------------|---------------|---------------------|
| Sold To #: 345242                                 |                              | Ship To #: 3745305                               |       | Quote #:                         |                   | Sales Order #: 0903506384 |                        |                             |               |               |                     |
| Customer: NOBLE ENERGY INC - EBUS                 |                              |  |       | Customer Rep: Johnny Sanchez     |                   |                           |                        |                             |               |               |                     |
| Well Name: HARPER                                 |                              | Well #: LD21-655                                 |       | API/UWI #: 05-123-43293-00       |                   |                           |                        |                             |               |               |                     |
| Field: WILDCAT                                    |                              | City (SAP): RAYMER                               |       | County/Parish: WELD              |                   | State: COLORADO           |                        |                             |               |               |                     |
| Legal Description: SW NW-22-9N-58W-1821FNL-330FWL |                              |  |       |                                  |                   |                           |                        |                             |               |               |                     |
| Contractor: H & P DRLG                            |                              |  |       | Rig/Platform Name/Num: H & P 517 |                   |                           |                        |                             |               |               |                     |
| Job BOM: 7523                                     |                              |  |       |                                  |                   |                           |                        |                             |               |               |                     |
| Well Type: HORIZONTAL OIL                         |                              |  |       |                                  |                   |                           |                        |                             |               |               |                     |
| Sales Person: HALAMERICA\HB61755                  |                              |  |       | Srcv Supervisor: Brandon Parker  |                   |                           |                        |                             |               |               |                     |
| <b>Job</b>  |                              |  |       |                                  |                   |                           |                        |                             |               |               |                     |
| Formation Name                                    |                              |  |       |                                  |                   |                           |                        |                             |               |               |                     |
| Formation Depth (MD)                              |                              | Top  |       |                                  | Bottom            |                           |                        |                             |               |               |                     |
| Form Type   |                              |  |       |                                  | BHST              |                           | 230 degF               |                             |               |               |                     |
| Job depth MD                                      |                              | 10813ft  |       |                                  | Job Depth TVD     |                           |                        |                             |               |               |                     |
| Water Depth                                       |                              |  |       |                                  | Wk Ht Above Floor |                           | 4                      |                             |               |               |                     |
| Perforation Depth (MD)                            |                              | From   |       |                                  | To                |                           |                        |                             |               |               |                     |
| <b>Well Data</b>                                  |                              |  |       |                                  |                   |                           |                        |                             |               |               |                     |
| 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                               |                   |                           | 0                      | 1934                        | 0             | 1934          |                     |
| Casing  |                              | 5.5  | 4.778 | 20                               |                   |                           | 0                      | 10813                       | 0             | 6521          |                     |
| Open Hole Section                                 |                              |  | 8.5   |                                  |                   |                           | 1900                   | 10828                       | 1934          | 6521          |                     |
| <b>Tools and Accessories</b>                      |                              |  |       |                                  |                   |                           |                        |                             |               |               |                     |
| Type  | Size in                      | Qty  | Make  | Depth ft                         | Type              | Size in                   | Qty                    | Make                        |               |               |                     |
| Guide Shoe  | 5.5                          |  | HES   | 10818                            | Top Plug          | 5.5                       | 1                      | HES                         |               |               |                     |
| Float Shoe  | 5.5                          |  |       |                                  | Bottom Plug       | 5.5                       | 1                      | HES                         |               |               |                     |
| Float Collar                                      | 5.5                          |  | HES   | 10768.6                          | SSR plug set      | 5.5                       |                        | HES                         |               |               |                     |
| Insert Float                                      | 5.5                          |  |       |                                  | Plug Container    | 5.5                       |                        | HES                         |               |               |                     |
| Stage Tool  | 5.5                          |  |       |                                  | Centralizers      | 5.5                       |                        | HES                         |               |               |                     |
| <b>Fluid Data</b>                                 |                              |  |       |                                  |                   |                           |                        |                             |               |               |                     |
| Stage/Plug #: 1                                   |                              |  |       |                                  |                   |                           |                        |                             |               |               |                     |
| 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   | 11.5 lb/gal Tuned Spacer III | Tuned Spacer III                                 |       |                                  | 40                | bbl                       | 11.5                   | 3.78                        |               | 4             |                     |
| 0.40 gal/bbl                                      |                              | MUSOL(R) A, BULK (100003696)                     |       |                                  |                   |                           |                        |                             |               |               |                     |
| 36.09 gal/bbl                                     |                              | FRESH WATER                                      |       |                                  |                   |                           |                        |                             |               |               |                     |
| 0.40 gal/bbl                                      |                              | DUAL SPACER SURFACTANT B, 5 GAL PAIL (100003665) |       |                                  |                   |                           |                        |                             |               |               |                     |
| 147.42 lbm/bbl                                    |                              | BARITE, BULK (100003681)                         |       |                                  |                   |                           |                        |                             |               |               |                     |

last updated on 9/3/2016 8:31:59 AM

Page 1 of 2

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| Fluid #                     | Stage Type                         | Fluid Name                             | Qty                       | Qty UoM | Mixing Density<br>lbm/gal      | Yield<br>ft3/sack | Mix Fluid<br>Gal | Rate<br>bbl/min | Total Mix<br>Fluid<br>Gal |  |
|-----------------------------|------------------------------------|--|---------------------------|---------|--------------------------------|-------------------|------------------|-----------------|---------------------------|--|
| 2                           | 11.5 lb/gal<br>Tuned Spacer<br>III | Tuned Spacer III                       | 0                         | bbl     | 11.5                           | 3.79              |                  | 4.5             |                           |  |
| 36.09 gal/bbl               |                                    | FRESH WATER                            |                           |         |                                |                   |                  |                 |                           |  |
| 147.42 lbm/bbl              |                                    | BARITE, BULK (100003681)               |                           |         |                                |                   |                  |                 |                           |  |
| Fluid #                     | Stage Type                         | Fluid Name                             | Qty                       | Qty UoM | Mixing Density<br>lbm/gal      | Yield<br>ft3/sack | Mix Fluid<br>Gal | Rate<br>bbl/min | Total Mix<br>Fluid<br>Gal |  |
| 3                           | Elasticem Lead<br>w/o CBL          | ELASTICEM (TM) SYSTEM                  | 42                        | 150sack | 13.2                           | 1.57              |                  | 5               | 7.53                      |  |
| 7.53 Gal                    |                                    | FRESH WATER                            |                           |         |                                |                   |                  |                 |                           |  |
| Fluid #                     | Stage Type                         | Fluid Name                             | Qty                       | Qty UoM | Mixing Density<br>lbm/gal      | Yield<br>ft3/sack | Mix Fluid<br>Gal | Rate<br>bbl/min | Total Mix<br>Fluid<br>Gal |  |
| 4                           | ElastiCem Lead<br>W/ CBL           | ELASTICEM (TM) SYSTEM                  | 131                       | 460sack | 13.2                           | 1.6               |                  | 5               | 7.69                      |  |
| 7.69 Gal                    |                                    | FRESH WATER                            |                           |         |                                |                   |                  |                 |                           |  |
| Fluid #                     | Stage Type                         | Fluid Name                             | Qty                       | Qty UoM | Mixing Density<br>lbm/gal      | Yield<br>ft3/sack | Mix Fluid<br>Gal | Rate<br>bbl/min | Total Mix<br>Fluid<br>Gal |  |
| 5                           | EconoCem Tail                      | ECONOCEM (TM) SYSTEM                   | 206.5                     | 690sack | 13.5                           | 1.68              |                  | 5               | 7.98                      |  |
| 7.98 Gal                    |                                    | FRESH WATER                            |                           |         |                                |                   |                  |                 |                           |  |
| 0.40 %                      |                                    | HR-5, 50 LB SK (100005050)             |                           |         |                                |                   |                  |                 |                           |  |
| Fluid #                     | Stage Type                         | Fluid Name                             | Qty                       | Qty UoM | Mixing Density<br>lbm/gal      | Yield<br>ft3/sack | Mix Fluid<br>Gal | Rate<br>bbl/min | Total Mix<br>Fluid<br>Gal |  |
| 6                           | Displacement                       | FW Displacement                        | 238                       | bbl     | 8.33                           |                   |                  | 8               |                           |  |
| Cement Left In Pipe         |                                    | Amount                                 | 44.77 ft                  |         | Reason                         |                   |                  | Shoe Joint      |                           |  |
| Mix Water:                  |                                    | pH ## 6                                | Mix Water Chloride:## ppm |         | Mix Water Temperature:## °F °C |                   |                  |                 |                           |  |
| Cement Temperature:## °F °C |                                    | Plug Displaced by:## lb/gal kg/m3 XXXX |                           |         | Disp. Temperature:## °F °C     |                   |                  |                 |                           |  |
| Plug Bumped? Yes            |                                    | Bump Pressure:1650 psi MPa             |                           |         | Floats Held? Yes               |                   |                  |                 |                           |  |
| Cement Returns:0            |                                    | Returns Density:## lb/gal kg/m3        |                           |         | Returns Temperature:## °F °C   |                   |                  |                 |                           |  |
| Comment                     |                                    |  |                           |         |                                |                   |                  |                 |                           |  |

## 2.0 Real-Time Job Summary

### 2.1 Job Event Log

| Type  | Seq. No. | Activity                                 | Graph Label                              | Date     | Time     | Source | Driv-Side Pump Pressure<br>(psi) | Downhole Density<br>(ppg) | Combined Pump Rate<br>(bbl/min) | Pump Stage Total<br>(bbl) | Comments   |
|-------|----------|--|--|----------|----------|--------|----------------------------------|---------------------------|---------------------------------|---------------------------|--|
| Event | 1        | Call Out                                 | Call Out                                 | 9/2/2016 | 03:00:00 | USER   |                                  |                           |                                 |                           | crew called out to 5.5 production, 1 elite pump trk, 1 660 and 2 field silios and 1 pickup trk. 5 Halliburton field hands                            |
| Event | 2        | Pre-Convoy Safety Meeting                | Pre-Convoy Safety Meeting                | 9/2/2016 | 05:45:00 | USER   |                                  |                           |                                 |                           | safety meeting with all HES personnel to discuss safety issues associatd with travel   |
| Event | 3        | Depart from Service Center or Other Site | Depart from Service Center or Other Site | 9/2/2016 | 06:15:00 | USER   |                                  |                           |                                 |                           |  |
| Event | 4        | Arrive at Location from Service Center   | Arrive at Location from Service Center   | 9/2/2016 | 08:30:00 | USER   |                                  |                           |                                 |                           | met with Noble company rep and went over job numbers, water sources and iron placement.  |
| Event | 5        | Assessment Of Location Safety Meeting    | Assessment Of Location Safety Meeting    | 9/2/2016 | 08:32:00 | USER   |                                  |                           |                                 |                           | water temp 65, ph6, sul <200, chlo 0. td10828, sj 44.77, fc 10768.60, tp 10813.37,sp 1934, 5.5" casing 20Lb p110, wf 9.8                             |
| Event | 6        | Pre-Rig Up Safety Meeting                | Pre-Rig Up Safety Meeting                | 9/2/2016 | 08:40:00 | USER   |                                  |                           |                                 |                           | meeting with all HES prsonnel to discuss safety/hazards associated with rigging up equipment   |
| Event | 7        | Rig-Up Equipment                         | Rig-Up Equipment                         | 9/2/2016 | 08:50:00 | USER   |                                  |                           |                                 |                           |  |
| Event | 8        | Standby - Other - see comments           | Standby - Other - see comments           | 9/2/2016 | 10:00:00 | USER   |                                  |                           |                                 |                           | wait for rig to land casing  |
| Event | 9        | Casing on Bottom                         | Casing on Bottom                         | 9/2/2016 | 12:30:00 | USER   |                                  |                           |                                 |                           | rid started circulating, circulated at 8BPM  |
| Event | 10       | Pre-Job Safety Meeting                   | Pre-Job Safety Meeting                   | 9/2/2016 | 13:30:00 | USER   |                                  |                           |                                 |                           | meeting with all personnel on location to discuss safety/hazards associated with the job and also covered job procedures. all personnel signed a jsa |
| Event | 11       | Start Job                                | Start Job                                | 9/2/2016 | 14:06:51 | COM6   |                                  |                           |                                 |                           |  |

|       |    |                  |   |          |          |      |        |       |      |      |  |
|-------|----|------------------|---|----------|----------|------|--------|-------|------|------|--|
| Event | 12 | Pump Water       | Fill Lines FW                           | 9/2/2016 | 14:08:19 | USER | 0.00   | 6.14  | 0.80 | 0.1  | fill lines with 2BBL's of fw at 2BPM top psi was 50psi   |
| Event | 13 | Test Lines       | Test Lines                              | 9/2/2016 | 14:10:59 | USER | 40.00  | 8.33  | 0.00 | 2.2  | test kickputs, test 5th gear stall and test high pressure to 3987, pressure held great   |
| Event | 14 | Test Lines       | Test Lines                              | 9/2/2016 | 14:17:19 | USER | 41.00  | 8.37  | 0.80 | 2.3  | tesp ibop to 4500psi   |
| Event | 15 | Pump Spacer      | Pump Tuned Spacer with Liquid Additives | 9/2/2016 | 14:26:00 | USER | 26.00  | 8.36  | 0.90 | 0.1  | pumped 40BBL's of tuned spacer at 11.5ppg, 3.78 yield, 23.8 gal/sk, wet chems added 16 gallons musol, 16 gallons dual spacer, 5 gallons of d-air. pumped at 4.5BPM and average pressure was 170ps. weighed using high pressure mud scales    |
| Event | 16 | Pump Spacer 2    | Pump Tuned Spacer                       | 9/2/2016 | 14:35:38 | USER | 182.00 | 11.47 | 4.40 | 33.9 | pumped 40BBL's of spacer at 11.5ppg, 3.79 yield, 24.4 gal/sk, pumped at 4.5BPM and average pressure was 170psi. weight was confirmed by using high pressure mud scales.  |
| Event | 17 | Shutdown         | Shutdown                                | 9/2/2016 | 14:45:19 | USER | 49.00  | 11.65 | 0.00 | 74.6 | to drop bottom plug  |
| Event | 18 | Drop Bottom Plug | Drop Bottom Plug                        | 9/2/2016 | 14:48:19 | USER | 42.00  | 11.53 | 0.00 | 0.0  | confirmed by Noble company rep and HES supervisor  |
| Event | 19 | Pump Lead Cement | Pump Lead Cement                        | 9/2/2016 | 14:50:29 | USER | 56.00  | 11.56 | 1.40 | 0.4  | pumped 41.94bbls' of elasticem lead cmt with out cbl, 150sks, 13.2ppg, 1.57 yield, 7.53 gal/sk, pumped at 6bpm pressure 380psi. checked weight using high pressure mud scales. wet sample left on location                                   |
| Event | 20 | Pump Lead Cement | Pump Lead Cement                        | 9/2/2016 | 14:58:00 | USER | 402.00 | 13.20 | 6.00 | 41.9 | pumped 131bbl's of elasticem lead cmt, 460sks, with cbl, 13.2ppg, 1.60 yield, 7.69 gal/sk, pumped at 5BPM to keep up with cmt silo, average pressure was 310psi. checked weight using high pressure mud scales. wet samples left on location |
| Event | 21 | Pump Tail Cement | Pump Tail Cement                        | 9/2/2016 | 15:23:59 | USER | 314.00 | 13.09 | 4.90 | 1.9  | pumped 206.5bbl's of econocem tail cmt, 13.5ppg, 1.68yield, 7.98 gal/sk, 690 sks, pumped at 5BPM an average pressure was 400psi. confirmed weight using high   |

|       |    |  |  |          |          |      |         |       |      |       |   |
|-------|----|--|--|----------|----------|------|---------|-------|------|-------|---|
|       |    |  |  |          |          |      |         |       |      |       | pressure mud scales. wet sample left on location  |
| Event | 22 | Shutdown   | Shutdown   | 9/2/2016 | 16:07:00 | USER | 69.00   | 13.53 | 0.00 | 206.9 | to drop top plug  |
| Event | 23 | Other  | Wash Pump  | 9/2/2016 | 16:12:10 | USER | 17.00   | 13.65 | 0.00 | 0.0   | clean pump to cuttings tank   |
| Event | 24 | Drop Top Plug                                    | Drop Top Plug                                    | 9/2/2016 | 16:20:39 | USER | -2.00   | 8.19  | 0.00 | 0.0   | confirmed by Noble company rep and HES supervisor   |
| Event | 25 | Pump Displacement                                | Pump FW Displacement                             | 9/2/2016 | 16:22:39 | USER | 55.00   | 8.18  | 3.40 | 0.6   | pumped calculated 238BBL's of FW displacement with MMCR   |
| Event | 26 | Slow Rate  | Slow Rate  | 9/2/2016 | 16:52:49 | USER | 1587.00 | 8.33  | 3.00 | 223.7 | slow rate to 3BPM to land plug at 220 away  |
| Event | 27 | Bump Plug  | Bump Plug  | 9/2/2016 | 16:58:29 | USER | 1946.00 | 8.37  | 2.10 | 240.7 | plug bumped at calculated 238, pressure 1650psi kicked out pumps at 2150psi and pressure climbed to 2250 and held like a rock |
| Event | 28 | Check Floats                                     | Check Floats                                     | 9/2/2016 | 17:02:29 | USER | 3.00    | 8.31  | 0.00 | 240.7 | HES floats held 3BBL's back to the trk  |
| Event | 29 | End Job  | End Job  | 9/2/2016 | 17:03:55 | COM6 |         |       |      |       |   |
| Event | 30 | Pre-Rig Down Safety Meeting                      | Pre-Rig Down Safety Meeting                      | 9/2/2016 | 17:05:00 | USER | -9.00   | 8.33  | 0.00 | 0.0   | meeting with all HES personnel to discuss safety/hazards associated with rigging down   |
| Event | 31 | Rig-Down Equipment                               | Rig-Down Equipment                               | 9/2/2016 | 17:15:00 | USER | 0.00    | 0.02  | 0.00 | 0.0   |   |
| Event | 32 | Pre-Convoy Safety Meeting                        | Pre-Convoy Safety Meeting                        | 9/2/2016 | 18:16:00 | USER |         |       |      |       | meeting with all HES peronnel to discuss safety/hazards associated with driving   |
| Event | 33 | Depart Location for Service Center or Other Site | Depart Location for Service Center or Other Site | 9/2/2016 | 18:20:00 | USER |         |       |      |       |   |
| Event | 34 | Returns To Surface                               | Returns To Surface                               | 9/2/2016 | 18:23:00 | USER |         |       |      |       | true hole calucated 3.5BBL's of tuned spacer, did not get spacer to surface   |
| Event | 35 | Other  | Other  | 9/2/2016 | 18:25:00 | USER |         |       |      |       | Thank You for Choosing Halliburton Cement. Parker and Crew(713)703-3283   |