

HALLIBURTON

Cementing Job Summary

The Road to Excellence Starts with Safety

| | | | | | | | | | | | |
|--|----------------------------|---------------------------|-------------------------|-------------------------------------|---|-----------------------------------|-------------------------------|-----------------------|----------------------|----------------------|----------------------------|
| Sold To #: 345242 | | Ship To #: 3630396 | | Quote #: | | Sales Order #: 0903355651 | | | | | |
| Customer: NOBLE ENERGY INC - EBUS | | | | Customer Rep: Charles Culver | | | | | | | |
| Well Name: HESTON | | | Well #: LD06-630 | | | API/UWI #: 05-123-40815-00 | | | | | |
| Field: WILDCAT | | City (SAP): RAYMER | | County/Parish: WELD | | State: COLORADO | | | | | |
| Legal Description: SE SE-5-9N-58W-952FSL-330FEL | | | | | | | | | | | |
| Contractor: H & P DRLG | | | | | Rig/Platform Name/Num: H & P 517 | | | | | | |
| Job BOM: 7523 | | | | | | | | | | | |
| Well Type: HORIZONTAL OIL | | | | | | | | | | | |
| Sales Person: HALAMERICA/HB61755 | | | | | Srvc Supervisor: Aaron Smith | | | | | | |
| Job | | | | | | | | | | | |
| Formation Name | | | | | | | | | | | |
| Formation Depth (MD) | | Top | | | Bottom | | | | | | |
| Form Type | | | | | BHST | | 230 degF | | | | |
| Job depth MD | | 16240ft | | | Job Depth TVD | | 5825 | | | | |
| Water Depth | | | | | Wk Ht Above Floor | | 3 | | | | |
| 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 | 0 | 9.625 | 8.921 | 36 | | | 0 | 1913 | 0 | 1913 | |
| Casing | 0 | 5.5 | 4.778 | 20 | | | 0 | 16228 | 0 | 5825 | |
| Open Hole Section | | | 8.5 | | | | 1913 | 16240 | 1913 | 5825 | |
| Tools and Accessories | | | | | | | | | | | |
| Type | Size in | Qty | Make | Depth ft | | Type | Size in | Qty | Make | | |
| Guide Shoe | 5.5 | | | | | Top Plug | 5.5 | 1 | HES | | |
| Float Shoe | 5.5 | 1 | SSII | 16228 | | Bottom Plug | 5.5 | 2 | HES | | |
| Float Collar | 5.5 | 1 | SSII | 16185 | | SSR plug set | 5.5 | | HES | | |
| Insert Float | 5.5 | | | | | Plug Container | 5.5 | | HES | | |
| Stage Tool | 5.5 | | | | | Centralizers | 5.5 | | 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 | 11 lb/gal Tuned Spacer III | Tuned Spacer III | | | 40 | bbl | 11 | 4.74 | | | |
| 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 |

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|--|----------------------------|------------------------|------------|----------------|-------------------------------|-----------------------|----------------------|---------------------|----------------------------|--|
| 2 | 11 lb/gal Tuned Spacer III | Tuned Spacer III | 40 | bbl | 11 | 4.75 | | | | |
| 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 | Expandacem w/o CBL | EXPANDACEM (TM) SYSTEM | 150 | sack | 13.2 | 1.604 | | 5 | 7.68 | |
| 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 | Expandacem | EXPANDACEM (TM) SYSTEM | 486 | sack | 13.2 | 1.603 | | | 7.69 | |
| 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 | |
| 5 | EconoCem | ECONOCEM (TM) SYSTEM | 1445 | sack | 13.5 | 1.679 | | | 8 | |
| 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 | |
| 6 | Displacement | Displacement | 358 | bbl | 8.33 | | | | | |
| Cement Left In Pipe | | Amount | 43 ft | | Reason | | | Shoe Joint | | |
| Comment 5 bbls spacer to surface, | | | | | | | | | | |

2.0 Real-Time Job Summary

2.1 Job Event Log

| Type | Seq. No. | Activity | Graph Label | Date | Time | Source | Combined Pump Rate (bbl/min) | Pass-Side Pump Pressure (psi) | Downhole Density (ppg) | Comments |
|-------|----------|--|--|-----------|----------|--------|---------------------------------|----------------------------------|---------------------------|---|
| Event | 1 | Call Out | Call Out | 6/19/2016 | 04:00:00 | USER | | | | For on location @ 1000 |
| Event | 2 | Depart from Service Center or Other Site | Depart from Service Center or Other Site | 6/19/2016 | 07:00:00 | USER | | | | Journey management meeting held prior to departure. |
| Event | 3 | Arrive at Location from Service Center | Arrive at Location from Service Center | 6/19/2016 | 09:00:00 | USER | | | | With all equipment and material. Rig running casing. |
| Event | 4 | Pre-Rig Up Safety Meeting | Pre-Rig Up Safety Meeting | 6/19/2016 | 09:30:00 | USER | | | | JSA to discuss the hazards of rig-up |
| Event | 5 | Rig-Up Equipment | Rig-Up Equipment | 6/19/2016 | 09:35:00 | USER | | | | |
| Event | 6 | Rig-Up Completed | Rig-Up Completed | 6/19/2016 | 10:15:00 | USER | | | | |
| Event | 7 | Pre-Job Safety Meeting | Pre-Job Safety Meeting | 6/19/2016 | 13:30:00 | USER | | | | With all essential personnel |
| Event | 8 | Start Job | Start Job | 6/19/2016 | 13:55:13 | COM5 | | | | With water supplied from frac tanks, water tested fine to mix cement (pH 7, temp 76F, Cl 0) |
| Event | 9 | Test Lines | Test Lines | 6/19/2016 | 14:05:55 | COM5 | 0.00 | 3584.00 | 8.41 | Test IBOP @3500 psi, |
| Event | 10 | Test Lines | Test Lines | 6/19/2016 | 14:09:15 | COM5 | 0.00 | 5051.00 | 8.45 | @5000 psi. |
| Event | 11 | Drop Bottom Plug | Drop Bottom Plug | 6/19/2016 | 14:11:35 | COM5 | | | | Hand dropped HWE bottom plug, verified by customer rep. |
| Event | 12 | Pump Spacer 1 | Pump Spacer 1 | 6/19/2016 | 14:13:42 | COM5 | 3.10 | 239.00 | 11.00 | 40 bbls tuned spacer @11 ppg. Added surfactants: 15 gal musol A, 15 gal dual spacer. Used 5 gal d-air to control air entrainment. |
| Event | 13 | Pump Spacer 2 | Pump Spacer 2 | 6/19/2016 | 14:20:30 | USER | 5.00 | 383.00 | 10.91 | 40 bbls tuned spacer @ 11 ppg, |
| Event | 14 | Drop Bottom Plug | Drop Bottom Plug | 6/19/2016 | 14:29:24 | COM5 | | | | Hand dropped HWE bottom plug verified by customer rep. |
| Event | 15 | Pump Lead Cement | Pump Lead Cement | 6/19/2016 | 14:35:50 | COM5 | 4.10 | 409.00 | 13.33 | 150 sks (43 bbls) Elasticem @ 13.2 ppg. Weight was verified with pressurized scales. |

| | | | | | | | | | | |
|-------|----|--|--|-----------|----------|------|-------|---------|-------|--|
| Event | 16 | Pump Lead Cement | Pump Lead Cement | 6/19/2016 | 14:41:48 | COM5 | 8.10 | 684.00 | 13.21 | 486 SKS (138 bbls) Elasticem @ 13.2 ppg. Weight was verified with pressurized scales every pot swap. |
| Event | 17 | Pump Tail Cement | Pump Tail Cement | 6/19/2016 | 15:03:23 | COM5 | 8.00 | 639.00 | 13.35 | 1445 sks (432 bbls) Econocem @ 13.5 ppg. Weight was verified with pressurized scales every 50 bbls. |
| Event | 18 | Other | Other | 6/19/2016 | 15:26:37 | USER | | | | Silo two's discharge valve was stuck. HES slowed rate to adjust weight. |
| Event | 19 | Shutdown | Shutdown | 6/19/2016 | 15:53:32 | COM5 | | | | Rig blew lines down. |
| Event | 20 | Drop Top Plug | Drop Top Plug | 6/19/2016 | 16:06:27 | COM5 | | | | Hand dropped HWE top plug in casing, verified by customer rep. |
| Event | 21 | Clean Lines | Clean Lines | 6/19/2016 | 16:08:46 | COM5 | | | | Wash pumps and lines to the tank. |
| Event | 22 | Pump Displacement | Pump Displacement | 6/19/2016 | 16:17:58 | COM5 | 10.00 | 388.00 | 8.43 | 358 bbls fresh water with aldecide. |
| Event | 23 | Spacer Returns to Surface | Spacer Returns to Surface | 6/19/2016 | 16:51:05 | USER | | | | 5 bbls of spacer total returned to surface. Calculated top of lead cement is 1774'. |
| Event | 24 | Bump Plug | Bump Plug | 6/19/2016 | 16:54:43 | USER | 0.00 | 2375.00 | 8.10 | @ 500 over. final circulating pressure 2056 psi |
| Event | 25 | Check Floats | Check Floats | 6/19/2016 | 16:57:23 | USER | 0.00 | 586.00 | 8.08 | 4 bbls back, floats held. |
| Event | 26 | End Job | End Job | 6/19/2016 | 17:00:00 | USER | | | | Thanks Aaron Smith and Crew |
| Event | 27 | Pre-Rig Down Safety Meeting | Pre-Rig Down Safety Meeting | 6/19/2016 | 17:05:00 | USER | | | | JSA to discuss the hazards of rig-up |
| Event | 28 | Rig-Down Equipment | Rig-Down Equipment | 6/19/2016 | 17:10:00 | USER | | | | |
| Event | 29 | Rig-Down Completed | Rig-Down Completed | 6/19/2016 | 17:45:00 | USER | | | | |
| Event | 30 | Depart Location for Service Center or Other Site | Depart Location for Service Center or Other Site | 6/19/2016 | 18:00:00 | USER | | | | Journey management meeting held prior to departure. Journey called into dispatch |