

**APOLLO OPERATING
1538 WAZEE ST #200
DENVER, Colorado**

E.L. Minch
E.L. Minch 24-4 RD-D

Ensign/Ensign/55

Post Job Summary **Cement Production Casing**

Date Prepared: 4/30/12
Version: 1

Service Supervisor: LAVALLEY, LARRY

Submitted by: FRY, DOMINIK

HALLIBURTON

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Wellbore Geometry

| Job Tubulars | | | | | MD | | TVD | | Excess | Shoe Joint Length |
|-------------------|-------------------|---------|-------|-----------|--------|-----------|--------|-----------|--------|-------------------|
| Type | Description | Size in | ID in | Wt lbm/ft | Top ft | Bottom ft | Top ft | Bottom ft | % | ft |
| Casing | Surface Casing | 8.63 | 8.097 | 24.00 | 0.00 | 700.00 | | | | |
| Open Hole Section | Open Hole | | 7.875 | | 700.00 | 7,539.00 | | | | |
| Casing | Production Casing | 4.50 | 4.000 | 11.60 | 0.00 | 7,513.00 | | | | 14.00 |

Pumping Schedule

| Stage /Plug # | Fluid # | Fluid Type | Fluid Name | Surface Density lbm/gal | Avg Rate bbl/min | Surface Volume | Downhole Volume |
|---------------|---------|---------------|--------------------|-------------------------|------------------|----------------|-----------------|
| 1 | 1 | Spacer | Fresh Water Spacer | 8.33 | 5.00 | 20.0 bbl | 20.0 bbl |
| 1 | 2 | Spacer | MUD FLUSH III | 8.40 | 5.00 | 24.0 bbl | 24.0 bbl |
| 1 | 3 | Spacer | Fresh Water Spacer | 8.33 | 5.00 | 10.0 bbl | 10.0 bbl |
| 1 | 4 | Cement Slurry | ExtendaCem 11.3# | 11.30 | 8.00 | 300.0 sacks | 300.0 sacks |
| 1 | 5 | Cement Slurry | FracCem B2 13.5# | 13.50 | 8.00 | 200.0 sacks | 200.0 sacks |
| 1 | 6 | Spacer | ClayWeb III | 8.33 | 8.00 | 116.0 Gal | 116.0 Gal |

Job Summary

Job Information

| | | | |
|---|-------------------------|--|-------------------------|
| Job Start Date | 4/26/2012 2:00:00 AM | Pipe Movement During Hole Circulation | Reciprocated |
| Job MD | 7,650.0 ft | Pipe Movement During Cementing | Reciprocated |
| Job TVD | 7,539.0 ft | Calculated Displacement | 116.00 bbl |
| Height of Plug Container/Swage Above Rig Floor | 6.0 ft | Job Displaced by (rig/halco) | Cement Unit HP Pumps |
| Surface Temperature at Time of Job | 67 degF | Annular flow Before Job? (Water/Gas) | Unknown |
| Mud Type | Water Based Mud | Annular flow After Job? (Water/Gas) | Unknown |
| Actual Mud Density | 10 lbm/gal | Length of Rat Hole | 17.00 ft |
| Time Circulated before job | 2.00 hour(s) | | |

Cementing Equipment

| | | | |
|--------------------------------------|---|--|-----------------------------------|
| Number of Centralizers Used | 30 | Plug set used? | Yes |
| Pipe Centralization | Above and Below Production Intervals | Brand of Plug set used? | Halliburton Energy Services |
| Brand of Float Equipment Used | Halliburton Energy Services | Did Plugs Bump? | Yes |
| Did Float Equipment Hold? | Yes | Calculated Pressure to Bump Plugs | 1,110.0 psig |
| | | Did Stage Cementing Tool Open Properly? | Unknown |

Service Supervisor Reports

Job Log

| Date/Time | Chart # | Activity Code | Pump Rate | Cum Vol | Pump | Pressure (psig) | Comments |
|------------------|---------|-------------------|-----------|---------|------|-----------------|---|
| 04/26/2012 01:53 | | Start Job | | | | | |
| 04/26/2012 02:02 | | Test Lines | | | | 3682.0 | |
| 04/26/2012 02:04 | | Pump Spacer 1 | 5 | 20 | | 171.0 | RIG WATER WITH CLAY-WEBB III ADDED |
| 04/26/2012 02:09 | | Pump Spacer 2 | 5 | 24 | | 300.0 | RIG WATER WITH MUDFLUSH III ADDED |
| 04/26/2012 02:14 | | Pump Spacer 1 | 5 | 10 | | 372.0 | RIG WATER WITH CLAY-WEBB III ADDED |
| 04/26/2012 02:16 | | Pump Lead Cement | 8 | 131 | | 410.0 | 300 SKS EXTENDACEM MIXED @ 11.3 PPG |
| 04/26/2012 02:36 | | Pump Tail Cement | 8 | 62 | | 232.0 | 200 SKS FRACCEM MIXED @ 13.5 PPG |
| 04/26/2012 02:52 | | Shutdown | | | | | |
| 04/26/2012 02:52 | | Clean Lines | | | | | |
| 04/26/2012 02:52 | | Drop Top Plug | | | | | PRELOADED HES LATCH DOWN PLUG |
| 04/26/2012 02:53 | | Pump Displacement | 8 | 116 | | 1044.0 | RIG WATER WITH CLAY-WEBB III ADDED |
| 04/26/2012 03:12 | | Bump Plug | 3 | | | 2002.0 | CALCULATED PRESSURE TO LAND WAS 1110. CAUGHT CEMENT AT 62 BBLS AWAY |
| 04/26/2012 03:13 | | End Job | | | | | |

The Road to Excellence Starts with Safety

| | | | |
|--|--------------------|---|-------------------------|
| Sold To #: 353960 | Ship To #: 2923742 | Quote #: | Sales Order #: 9468350 |
| Customer: APOLLO OPERATING | | Customer Rep: LIBHART, DON | |
| Well Name: E.L. Minch | | Well #: 24-4 RD-D | API/UWI #: 05-123-35402 |
| Field: WATTENBURG | City (SAP): MEAD | County/Parish: Weld | State: Colorado |
| Lat: N 40.249 deg. OR N 40 deg. 14 min. 58.164 secs. | | Long: W 105.01 deg. OR W -106 deg. 59 min. 22.236 secs. | |
| Contractor: Ensign | | Rig/Platform Name/Num: Ensign55 | |
| Job Purpose: Cement Production Casing | | | |
| Well Type: Development Well | | Job Type: Cement Production Casing | |
| Sales Person: FLING, MATTHEW | | Srvc Supervisor: LAVALLEY, LARRY | MBU ID Emp #: 419296 |

Job Personnel

| HES Emp Name | Exp Hrs | Emp # | HES Emp Name | Exp Hrs | Emp # | HES Emp Name | Exp Hrs | Emp # |
|-------------------|---------|--------|---------------------|---------|--------|----------------------|---------|--------|
| BOETTIGER, MARK | 0.0 | 500519 | FLYNN, SHAD Michael | 0.0 | 476484 | HINKLE, BRADLEY Dean | 0.0 | 512123 |
| LAVALLEY, LARRY P | 0.0 | 419296 | | | | | | |

Equipment

| HES Unit # | Distance-1 way | HES Unit # | Distance-1 way | HES Unit # | Distance-1 way | HES Unit # | Distance-1 way |
|------------|----------------|------------|----------------|------------|----------------|------------|----------------|
| 10679720C | 26 mile | 10724567C | 26 mile | 11398319 | 26 mile | 11488570C | 26 mile |
| 11518549 | 26 mile | 11562544C | 26 mile | | | | |

Job Hours

| Date | On Location Hours | Operating Hours | Date | On Location Hours | Operating Hours | Date | On Location Hours | Operating Hours |
|------|-------------------|-----------------|------|-------------------|-----------------|------|-------------------|-----------------|
| | | | | | | | | |

| | | | | | | | | |
|-------|--|--|--|--|--|--|--|--|
| TOTAL | Total is the sum of each column separately | | | | | | | |
|-------|--|--|--|--|--|--|--|--|

Job

Job Times

| Formation Name | | | | | Date | Time | Time Zone |
|------------------------|----------|-------------------|----------|--|---------------|-----------------|-----------|
| Formation Depth (MD) | Top | | Bottom | | Called Out | 25 - Apr - 2012 | 21:00 MST |
| Form Type | BHST | | | | On Location | 26 - Apr - 2012 | 00:30 MST |
| Job depth MD | 7650. ft | Job Depth TVD | 7539. ft | | Job Started | 26 - Apr - 2012 | 02:00 MST |
| Water Depth | | Wk Ht Above Floor | 6. ft | | Job Completed | 26 - Apr - 2012 | 03:15 MST |
| Perforation Depth (MD) | From | | To | | Departed Loc | 26 - Apr - 2012 | 04:00 MST |

Well Data

| Description | New / Used | Max pressure psig | Size in | ID in | Weight lbm/ft | Thread | Grade | Top MD ft | Bottom MD ft | Top TVD ft | Bottom TVD ft |
|-------------------|------------|-------------------|---------|-------|---------------|--------|-------|-----------|--------------|------------|---------------|
| Open Hole | | | | 7.875 | | | | 700. | 7539. | | |
| Production Casing | Unknown | | 4.5 | 4. | 11.6 | | | . | 7513. | | |
| Surface Casing | Unknown | | 8.625 | 8.097 | 24. | | J-55 | . | 700. | | |

Sales/Rental/3rd Party (HES)

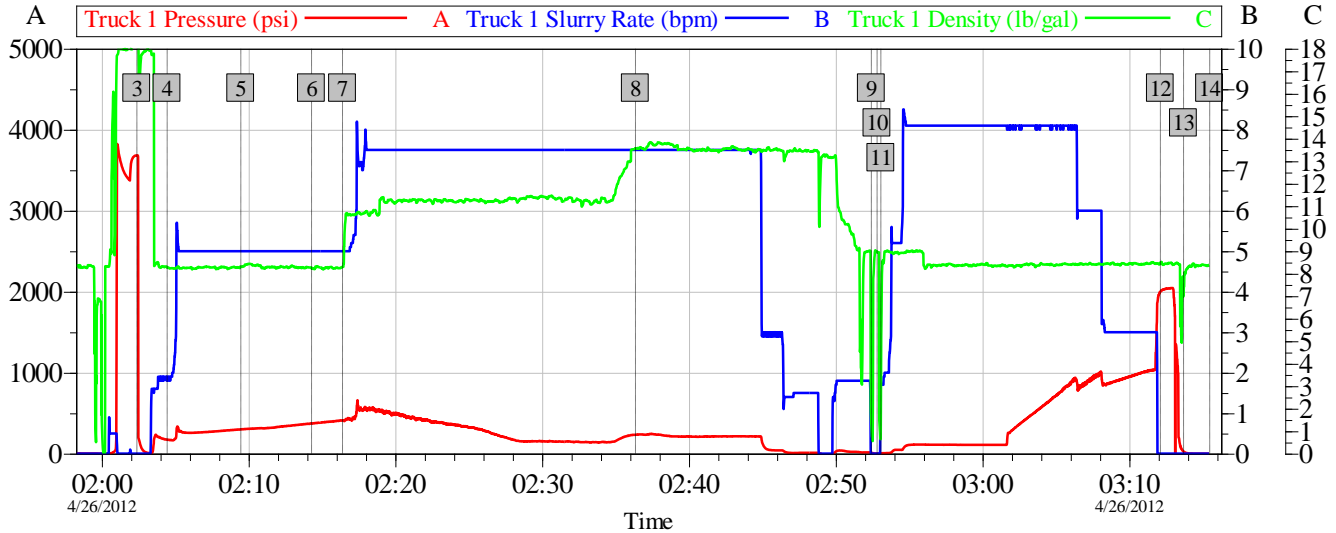
| Description | Qty | Qty uom | Depth | Supplier |
|--------------------------------------|-----|---------|-------|----------|
| SHOE,FLT,4-1/2 8RD,2-3/4 SSII | 1 | EA | | |
| CENTRALIZER ASSY - API - 4-1/2 CSG X | 30 | EA | | |
| CLAMP - LIMIT - 4-1/2 - HINGED - | 1 | EA | | |
| KIT,HALL WELD-A | 1 | EA | | |
| Description | Qty | Qty uom | Depth | Supplier |

| CLR,FLT,4-1/2 LG 8RD 9.5-13.5,2-3/4 SSII | | | | | | | | | | 1 | EA | | | | |
|--|--------------------|---------------------------------|------|------------------|-------------|---------|------------------------|-----------------------------------|------------------|----------------|------------------------|---------------------|--------|----|--|
| Tools and Accessories | | | | | | | | | | | | | | | |
| Type | Size | Qty | Make | Depth | Type | Size | Qty | Make | Depth | Type | Size | Qty | Make | | |
| Guide Shoe | | | | | Packer | | | | | Top Plug | | | | | |
| Float Shoe | | | | | Bridge Plug | | | | | Bottom Plug | | | | | |
| Float Collar | | | | | Retainer | | | | | SSR plug set | | | | | |
| Insert Float | | | | | | | | | | Plug Container | | | | | |
| Stage Tool | | | | | | | | | | Centralizers | | | | | |
| Miscellaneous Materials | | | | | | | | | | | | | | | |
| Gelling Agt | | | Conc | | Surfactant | | | Conc | | Acid Type | | Qty | Conc % | | |
| Treatment Fld | | | Conc | | Inhibitor | | | Conc | | Sand Type | | Size | Qty | | |
| Fluid Data | | | | | | | | | | | | | | | |
| Stage/Plug #: 1 | | | | | | | | | | | | | | | |
| Fluid # | Stage Type | Fluid Name | | | Qty | Qty uom | Mixing Density lbm/gal | Yield ft ³ /sk | Mix Fluid Gal/sk | Rate bbl/min | Total Mix Fluid Gal/sk | | | | |
| 1 | Fresh Water Spacer | | | | 20.00 | bbl | 8.33 | .0 | 42.0 | 5.0 | | | | | |
| 2 | MUD FLUSH III | MUD FLUSH III - SBM (528788) | | | 24.00 | bbl | 8.4 | .0 | 42.0 | 5.0 | | | | | |
| 3 | Fresh Water Spacer | | | | 10.00 | bbl | 8.33 | .0 | 42.0 | 5.0 | | | | | |
| 4 | ExtendaCem 11.3# | EXTENDACEM (TM) SYSTEM (452981) | | | 300.0 | sacks | 11.3 | 2.46 | 14.17 | 8.0 | 14.17 | | | | |
| 14.17 Gal | | FRESH WATER | | | | | | | | | | | | | |
| 5 | FracCem B2 13.5# | FRACCEM (TM) SYSTEM (452963) | | | 200.0 | sacks | 13.5 | 1.73 | 8.24 | 8.0 | 8.24 | | | | |
| 8.24 Gal | | FRESH WATER | | | | | | | | | | | | | |
| 6 | ClayWeb III | | | | 116.00 | Gal | 8.33 | .0 | 42.0 | 8.0 | | | | | |
| 2.5 gal/Mgal | | CLA-WEB - TOTE (101985045) | | | | | | | | | | | | | |
| Calculated Values | | | | Pressures | | | | Volumes | | | | | | | |
| Displacement | | | | Shut In: Instant | | | | Lost Returns | | | | Cement Slurry | | | |
| Top Of Cement | | | | 5 Min | | | | Cement Returns | | | | Actual Displacement | | | |
| Frac Gradient | | | | 15 Min | | | | Spacers | | | | Load and Breakdown | | | |
| Rates | | | | | | | | | | | | | | | |
| Circulating | | | | Mixing | | | | Displacement | | | | Avg. Job | | | |
| Cement Left In Pipe | | Amount | | 14 ft | | Reason | | Shoe Joint | | | | | | | |
| Frac Ring # 1 @ | | ID | | Frac ring # 2 @ | | ID | | Frac Ring # 3 @ | | ID | | Frac Ring # 4 @ | | ID | |
| The Information Stated Herein Is Correct | | | | | | | | Customer Representative Signature | | | | | | | |

HALLIBURTON

Data Acquisition

APOLLO OPERATING EL MINCH 24-4 RD-D 4.5 INCH PRODUCTION



| Global Event Log | | | | | | | | | | | |
|------------------|-------------------|----------|--------|-------|-------|--------------|------------------|----------|-------|-------|--------|
| Intersection | | | T1P | T1SR | T1D | Intersection | | | T1P | T1SR | T1D |
| 1 | Starting Job | 01:36:32 | -2.000 | 0.000 | 0.020 | 2 | Start Job | 01:53:52 | 1.000 | 0.000 | -0.040 |
| 3 | Test Lines | 02:02:23 | 3682 | 0.000 | 18.05 | 4 | Pump Spacer 1 | 02:04:27 | 171.1 | 1.900 | 8.267 |
| 5 | Pump Spacer 2 | 02:09:28 | 300.1 | 5.000 | 8.320 | 6 | Pump Spacer 1 | 02:14:18 | 372.4 | 5.000 | 8.271 |
| 7 | Pump Lead Cement | 02:16:24 | 410.0 | 5.000 | 8.301 | 8 | Pump Tail Cement | 02:36:21 | 232.7 | 7.500 | 13.57 |
| 9 | Clean Lines | 02:52:26 | 11.31 | 0.000 | 1.252 | 10 | Drop Top Plug | 02:52:49 | 0.973 | 0.000 | 8.989 |
| 11 | Pump Displacement | 02:53:05 | 1.689 | 1.731 | 2.235 | 12 | Bump Plug | 03:12:07 | 2002 | 0.000 | 8.499 |
| 13 | End Job | 03:13:42 | 24.24 | 0.000 | 7.084 | 14 | Ending Job | 03:15:28 | 1.000 | 0.000 | 8.390 |

| | | |
|---------------------------------------|--------------------------------|------------------------|
| Customer: APOLLO OPERATING | Job Date: 26-Apr-2012 | Sales Order #: 9468350 |
| Well Description: 4.5 INCH PRODUCTION | THANKS LARRY LAVALLEY AND CREW | |

OptiCem v6.4.10
26-Apr-12 03:17