

The Road to Excellence Starts with Safety

| | | | |
|---|-----------------------|-----------------------------------|----------------------------|
| Sold To #: 306454 | Ship To #: 3649000 | Quote #: | Sales Order #: 0902369138 |
| Customer: BLACK HILLS EXPLORATION & PROD-EBIZ | | Customer Rep: DAN FRIEND | |
| Well Name: HOMER DEEP UNIT | | Well #: 7-23BH | API/UWI #: 05-045-22810-00 |
| Field: SOUTH SHALE RIDGE | City (SAP): PARACHUTE | County/Parish: GARFIELD | State: COLORADO |
| Legal Description: NE SW-7-8S-98W-1851FSL-2420FWL | | | |
| Contractor: ENSIGN DRLG | | Rig/Platform Name/Num: ENSIGN 161 | |
| Job BOM: 392189 | | | |
| Well Type: HORIZONTAL GAS | | | |
| Sales Person: HALAMERICA/HAM2616 | | Srvc Supervisor: Eric Carter | |

Job

| | | | |
|------------------------|----------|----------|-------------------------|
| Formation Name | | | |
| Formation Depth (MD) | Top | 1005 FT. | Bottom 6580 FT. |
| Form Type | BHST | | |
| Job depth MD | 6573 FT. | | Job Depth TVD |
| Water Depth | | | Wk Ht Above Floor 4 FT. |
| 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 | | 10.75 | 10.05 | 40.5 | STC | J-55 | 0 | 1005 | | 0 |
| Casing | | 7.625 | 6.875 | 29.7 | 8 RD | HCP110 | 0 | 6573 | | 0 |
| Open Hole Section | | | 9.875 | | | | 1005 | 6580 | 0 | 0 |

Tools and Accessories

| Type | Size in | Qty | Make | Depth ft | Type | Size in | Qty | Make |
|--------------|---------|-----|------|----------|----------------|---------|-----|------|
| Guide Shoe | | | | | Top Plug | | | |
| Float Shoe | | | | | Bottom Plug | | | |
| Float Collar | | | | | SSR plug set | | | |
| Insert Float | | | | | Plug Container | 7.625 | 1 | HES |
| Stage Tool | 7.625 | 1 | | 3608 | 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 /sack | Mix Fluid Gal | Rate bbl/min | Total Mix Fluid Gal |
| 1 | Mud Flush III (Powder) | Mud Flush III | 30 | bbl | 8.4 | | | 4 | |
| 42 gal/bbl | | FRESH WATER | | | | | | | |

| Fluid # | Stage Type | Fluid Name | Qty | Qty UoM | Mixing Density lbm/gal | Yield ft ³ /sack | Mix Fluid Gal | Rate bbl/mi n | Total Mix Fluid Gal |
|---------|------------|------------------------|-----|---------|---------------------------|--------------------------------|------------------|---------------------|---------------------------|
| 2 | ExtendaCem | EXTENDACEM (TM) SYSTEM | 140 | sack | 12.5 | 1.69 | 8.72 | 6 | |

| Fluid # | Stage Type | Fluid Name | Qty | Qty UoM | Mixing Density lbm/gal | Yield ft ³ /sack | Mix Fluid Gal | Rate bbl/mi n | Total Mix Fluid Gal |
|---------|------------|----------------------|-----|---------|---------------------------|--------------------------------|------------------|---------------------|---------------------------|
| 3 | SwiftCem | SWIFTCEM (TM) SYSTEM | 415 | sack | 13.5 | 1.45 | 6.78 | 6 | |

| Fluid # | Stage Type | Fluid Name | Qty | Qty UoM | Mixing Density lbm/gal | Yield ft ³ /sack | Mix Fluid Gal | Rate bbl/mi n | Total Mix Fluid Gal |
|---------|--------------------|--------------------|-------|---------|---------------------------|--------------------------------|------------------|---------------------|---------------------------|
| 4 | Displacement Fluid | Displacement Fluid | 299.5 | bbl | 9.1 | | | 6 | |

| | | | | |
|---------------------|--------|----|--------|------------|
| Cement Left In Pipe | Amount | ft | Reason | Shoe Joint |
|---------------------|--------|----|--------|------------|

Stage/Plug #: 2

| Fluid # | Stage Type 2 | Fluid Name | Qty | Qty UoM | Mixing Density lbm/gal | Yield ft ³ /sack | Mix Fluid Gal | Rate bbl/mi n | Total Mix Fluid Gal |
|---------|------------------------|---------------|-----|---------|---------------------------|--------------------------------|------------------|---------------------|---------------------------|
| 1 | Mud Flush III (Powder) | Mud Flush III | 30 | bbl | 8.4 | | | 4 | |

42 gal/bbl

FRESH WATER

| Fluid # | Stage Type | Fluid Name | Qty | Qty UoM | Mixing Density lbm/gal | Yield ft ³ /sack | Mix Fluid Gal | Rate bbl/mi n | Total Mix Fluid Gal |
|---------|------------|--------------------|-----|---------|---------------------------|--------------------------------|------------------|---------------------|---------------------------|
| 2 | HalCem | HALCEM (TM) SYSTEM | 445 | sack | 12.5 | 1.83 | 9.5 | 7 | |

| Fluid # | Stage Type | Fluid Name | Qty | Qty UoM | Mixing Density lbm/gal | Yield ft ³ /sack | Mix Fluid Gal | Rate bbl/mi n | Total Mix Fluid Gal |
|---------|------------|--------------------|-----|---------|---------------------------|--------------------------------|------------------|---------------------|---------------------------|
| 3 | HalCem | HALCEM (TM) SYSTEM | 100 | sack | 13.5 | 1.55 | 7.47 | 5 | |

| Fluid # | Stage Type | Fluid Name | Qty | Qty UoM | Mixing Density lbm/gal | Yield ft ³ /sack | Mix Fluid Gal | Rate bbl/mi n | Total Mix Fluid Gal |
|---------|--------------------|--------------------|-------|---------|---------------------------|--------------------------------|------------------|---------------------|---------------------------|
| 4 | Displacement Fluid | Displacement Fluid | 165.6 | bbl | 9.1 | | | 5.5 | |

| | | | | |
|---------------------|--------|---------|--------|------------|
| Cement Left In Pipe | Amount | 47.4 ft | Reason | Shoe Joint |
|---------------------|--------|---------|--------|------------|

Comment

2.0 Real-Time Job Summary

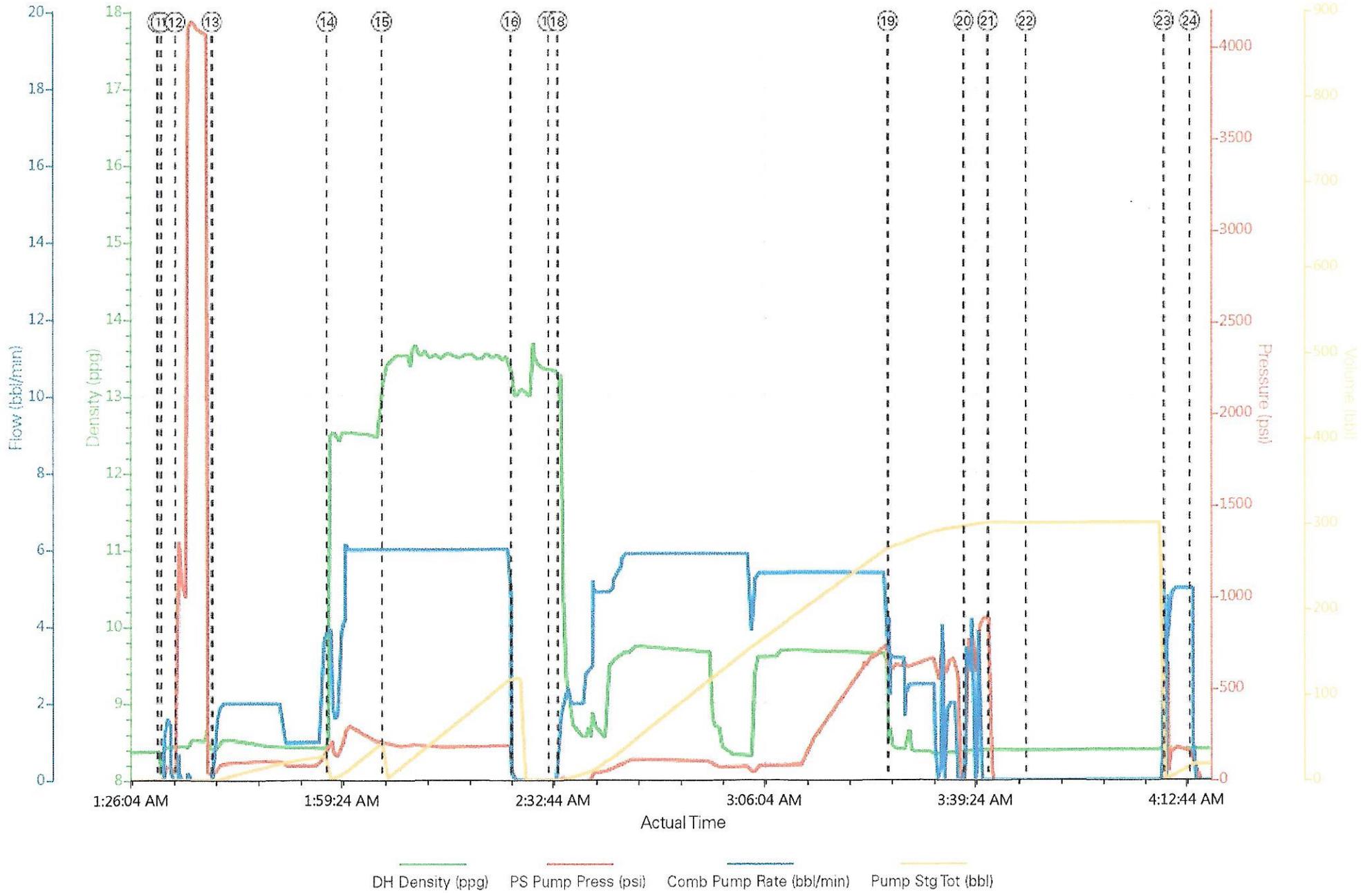
2.1 Job Event Log

| Type | Seq. No. | Activity | Graph Label | Date | Time | Source | DH Density <i>(ppg)</i> | PS Pump Press <i>(psi)</i> | Comb Pump Rate <i>(bbl/min)</i> | Pump Stg Tot <i>(bbl)</i> | Comments |
|-------|----------|---------------------------------------|---------------------------------------|----------|----------|--------|----------------------------|-------------------------------|------------------------------------|------------------------------|---|
| Event | 1 | Call Out | Call Out | 5/1/2015 | 13:30:00 | USER | | | | | |
| Event | 2 | Depart Yard Safety Meeting | Depart Yard Safety Meeting | 5/1/2015 | 17:20:00 | USER | | | | | ATTENDED BY ALL HES CREW |
| Event | 3 | Crew Leave Yard | Crew Leave Yard | 5/1/2015 | 17:30:00 | USER | | | | | |
| Event | 4 | Arrive At Loc | Arrive At Loc | 5/1/2015 | 19:00:00 | USER | | | | | RIG RUNNING CASING |
| Event | 5 | Assessment Of Location Safety Meeting | Assessment Of Location Safety Meeting | 5/1/2015 | 22:40 | USER | | | | | ATTENDED BY ALL HES CREW |
| Event | 6 | Other | Other | 5/1/2015 | 23:00 | USER | | | | | SPOT EQUIPMENT |
| Event | 7 | Pre-Rig Up Safety Meeting | Pre-Rig Up Safety Meeting | 5/1/2015 | 23:10 | USER | | | | | ATTENDED BY ALL HES CREW |
| Event | 8 | Rig-Up Equipment | Rig-Up Equipment | 5/1/2015 | 23:30 | USER | | | | | |
| Event | 9 | Pre-Job Safety Meeting | Pre-Job Safety Meeting | 5/2/2015 | 01:00 | USER | | | | | ATTENDED BY ALL HES CREW, RIG CREW AND COMPANY REP |
| Event | 10 | Other | Start Job | 5/2/2015 | 01:30:50 | USER | | | | | TP 6573', TD 6580', MW 9.1 PPG, CASING 7.625", 29.7#, HCP-110, SJ 47.4', HOLE 9.875", SURFACE CASING 10.75", 40.5# SET AT 1005', RIG CIRCULATED FOR 5 HR'S PRIOR TO JOB |
| Event | 11 | Other | Fill Lines | 5/2/2015 | 01:31:21 | USER | 8.34 | 85 | 2 | 2 | FRESH WATER |
| Event | 12 | Test Lines | Test Lines | 5/2/2015 | 01:33:37 | USER | | | | | PRESSURED UP TO 4150 PSI, PRESSURE HELD |
| Event | 13 | Pump Spacer | Pump Spacer | 5/2/2015 | 01:39:27 | USER | 8.4 | 180 | 4 | 30 | FRESH WATER WITH MUD |

| | | | | | | | | | | | FLUSH III |
|-------|----|---|---|----------|----------|-------|------|-----|---|-------|---|
| Event | 14 | Pump 1st Stage Lead Slurry | Pump 1st Stage Lead Slurry | 5/2/2015 | 01:57:31 | USER | 12.5 | 300 | 6 | 42.1 | 140 SKS EXTENDACEM MIXED AT 12.7 PPG, 1.69 YIELD, 8.72 GL/SK, 30 LB'S TUFFIBER ADDED ON THE FLY |
| Event | 15 | Pump 1st Stage Tail Slurry | Pump 1st Stage Tail Slurry | 5/2/2015 | 02:06:14 | USER | 13.5 | 210 | 6 | 107.2 | 415 SKS SWIFTCEM MIXED AT 13.5 PPG, 1.45 YIELD, 6.78 GL/SK |
| Event | 16 | Shutdown | Shutdown | 5/2/2015 | 02:26:39 | USER | | | | | |
| Event | 17 | Drop Plug | Drop Plug | 5/2/2015 | 02:32:32 | USER | | | | | DART LAUNCHED |
| Event | 18 | Pump Displacement | Pump Displacement | 5/2/2015 | 02:33:58 | USER | 9.1 | 740 | 6 | 279.5 | DISPLACED 120 BBLS MUD, 40 BBLS FRSH WATER, 139.5 BBLS MUD |
| Event | 19 | Slow Rate | Slow Rate | 5/2/2015 | 03:26:03 | USER | 9.1 | 760 | 3 | 890 | |
| Event | 20 | Bump Plug | Bump Plug | 5/2/2015 | 03:38:02 | USER | | 890 | | | PLUG LANDED |
| Event | 21 | Check Floats | Check Floats | 5/2/2015 | 03:41:51 | USER | | | | | FLOATS HELD, GOOD CIRCULATION THROUGHOUT JOB, PIPE NOT MOVED DURING JOB |
| Event | 22 | Drop Opening Device For Multiple Stage Cementer | Drop Opening Device For Multiple Stage Cementer | 5/2/2015 | 03:47:53 | USER | | | | | LAUNCHED MSC OPENING DEVICE |
| Event | 23 | Open Multiple Stage Cementer | Open Multiple Stage Cementer | 5/2/2015 | 04:09:36 | USER | | 640 | | | PRESSURED UP TO OPEN MSC, MSC OPENED, CIRCULATED WELL WITH 20 BBLS |
| | | Circle Well | Circle Well | 5/2/2015 | 04:10:00 | USER | 8.34 | 180 | 5 | 20 | HES CIRCULATED WELL |
| Event | 24 | Shutdown | Shutdown | 5/2/2015 | 04:13:42 | USER | | | | | HES TURNED OVER TO RIG TO CIRCULATE WELL, 37 BBLS CEMENT BACK TO SURFACE. |
| | | | | BEGIN | .SECOND | STAGE | | | | | |

| | | | | | | | | | | | |
|-------|----|--|--|----------|----------|------|------|-----|-----|-------|---|
| Event | 25 | Pump Spacer | Pump Spacer | 5/2/2015 | 09:20:12 | USER | 8.4 | 80 | 4 | 30 | MUD FLUSH III |
| Event | 26 | Pump 2nd Stage Lead Slurry | Pump 2nd Stage Lead Slurry | 5/2/2015 | 09:35:21 | USER | 12.5 | 240 | 7 | 145 | 445 SKS HALCEM MIXED AT 12.5 PPG, 1.83 YIELD, 9.5 GL/SK |
| Event | 27 | Pump 2nd Stage Tail Slurry | Pump 2nd Stage Tail Slurry | 5/2/2015 | 09:58:06 | USER | 13.5 | 120 | 5 | 27.6 | 100 SKS HALCEM MIXED AT 13.5 PPG, 1.55 YIELD, 7.47 GL/SK |
| Event | 28 | Shutdown | Shutdown | 5/2/2015 | 10:04:21 | USER | | | | | |
| Event | 29 | Drop Plug | Drop Plug | 5/2/2015 | 10:06:03 | USER | | | | | PLUG LAUNCHED |
| Event | 30 | Pump Displacement | Pump Displacement | 5/2/2015 | 10:07:56 | USER | 9.1 | 140 | 5.5 | 155.6 | MUD |
| Event | 31 | Slow Rate | Slow Rate | 5/2/2015 | 10:36:56 | USER | 9.1 | 140 | 4 | 10 | |
| Event | 32 | Bump Plug | Bump Plug | 5/2/2015 | 10:40:10 | USER | | | | 2620 | PLUG LANDED, MSC CLOSED |
| Event | 33 | Check Floats | Check Floats | 5/2/2015 | 10:43:10 | USER | | | | | FLOATS HELD |
| Event | 34 | End Job | End Job | 5/2/2015 | 10:43:53 | USER | | | | | CIRCULATION SLOWED AT 100 BBLS DISPLACEMENT PUMPED, PIPE NOT MOVED DURING JOB, 0 BBLS CEMENT TO SURFACE |
| Event | 36 | Post-Job Safety Meeting (Pre Rig-Down) | Post-Job Safety Meeting (Pre Rig-Down) | 5/2/2015 | 10:45 | USER | | | | | ATTENDED BY ALL HES CREW |
| Event | 37 | Rig-Down Equipment | Rig-Down Equipment | 5/2/2015 | 10:50 | USER | | | | | |
| Event | 38 | Depart Location Safety Meeting | Depart Location Safety Meeting | 5/2/2015 | 12:20 | USER | | | | | ATTENDED BY ALL HES CREW |
| Event | 39 | Crew Leave Location | Crew Leave Location | 5/2/2015 | 12:30 | USER | | | | | THANK YOU FOR USING HALLIBURTON CEMENT, ERIC CARTER AND CREW. |

BLACK HILLS - HOMMER DEEP UNIT 7-23BH - MULTI STAGE



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