



**Pumping  
Service Report**

**9198043**

|  |  |                            |                                 |                       |
|--|--|----------------------------|---------------------------------|-----------------------|
| Client Name<br>Whiting Petroleum Corp. | Well Name<br>Horsetail 02D-0204          | Rig<br>Pioneer Drilling 54 | Job Date<br>October 10,2014     | Call Sheet<br>1048510 |
| Client Representative<br>Dave          | Surface Well Location<br>Sec 2:T10N:R57W | Down Hole Well Location    | Job Type<br>Intermediate Casing |                       |

**Well Profile**

|  |          |
|--|----------|
| Well Type:                                     | Oil      |
| Maximum Treating Pressure (psi):               | ---      |
| Predicted Bottom Hole Static Temperature (°F): | --- @ -- |
| Bottom Hole Circulating Temperature (°F):      | --- @ -- |
| Bottom Hole Logged Temperature (°F):           | --- @ -- |

| Open Hole | Size (in) | Excess (%) | TMD From (ft) | TMD To (ft) | TVD From (ft) | TVD To (ft) |
|-----------|-----------|------------|---------------|-------------|---------------|-------------|
|           | 8.750     | 30.000     | --            | --          | --            | --          |

| Casing | Size<br>(in) | Weight<br>(lb/ft) | Grade | Collapse Pressure<br>(psi) | Internal Yield Pressure<br>(psi) | Capacity<br>(bbl) | I.D.<br>(in) | O.D.<br>(in) | Depth From<br>(ft) | Depth To<br>(ft) |
|--------|--------------|-------------------|-------|----------------------------|----------------------------------|-------------------|--------------|--------------|--------------------|------------------|
|        | 7.000        | 29.000            | P-110 | 8,510.0                    | 9,520.0                          | 221.52            | 6.184        | 7.656        | 0.0                | 5,963.2          |

**Products**

**Stage 1**

From Depth (ft): 0  
To Depth (ft): 6008  
Acids/Blends/Fluids :  
Lead 1: 460 Sacks of 1:2:6 POZ G Gel, Density = 12.5 lb/gal, Volume Pumped = 154.8 (bbl)  
Water Temperature(°F) = 55 , Bulk Temperature(°F) = 60 , Slurry Temperature(°F) = 78  
+ 0.2 % of CFR (Preblend),  
+ 0.5 % of CFL-4 (Preblend),  
+ 0.15 % of LTR (Preblend),  
+ 0.25 lb/sack of Polyflake (Preblend)  
Tail: 195 Sacks of 1:1:0 Poz G Gel, Density = 13.5 lb/gal, Volume Pumped = 52.8 (bbl)  
Water Temperature(°F) = 55 , Bulk Temperature(°F) = 65 , Slurry Temperature(°F) = 78  
+ 8 % of Fume (Preblend),  
+ 2 % of Gel (Preblend),  
+ 0.1 % of CFR-5 (Preblend),  
+ 0.7 % of CFL-3 (Preblend),  
+ 0.3 % of LTR (Preblend)

**Fluid & Cement Data**

|                         |                |                   |                   |                  |                    |
|-------------------------|----------------|-------------------|-------------------|------------------|--------------------|
| Expected Cement Top: -- |                |                   |                   |                  |                    |
| <b>Wellbore Fluid</b>   |                |                   |                   |                  |                    |
| Fluid Type              | Viscosity (cP) | Density (lbs/gal) | Yield Point (psi) | Temperature (°F) | Recorded@          |
| Water                   | --             | 8.400             | --                | --               | Jul 14, 2014 20:27 |
| Water Based Mud         | --             | --                | --                | --               | Oct 09, 2014 19:06 |



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## Attachment & Tools

### Down Hole Tools

| Tool Type    | Depth (ft) | Supplier    |
|--------------|------------|-------------|
| Guide Shoe   | --         | Third Party |
| Float Collar | --         | Third Party |

### Tubular Plugs

| Tubular Plug Type | Size (in) | Supplier |
|-------------------|-----------|----------|
| Rubber Top        | 7.000     | Client   |

## Units & Personnel

### Units

| Truck Unit No. | Main Type | Sub Type        | Tractor Unit No. | Main Type | Sub Type         | Time On Location | Time Off Location |
|----------------|-----------|-----------------|------------------|-----------|------------------|------------------|-------------------|
| 449087         | TRAILER   | Utility Trailer | 201025           | PICKUP    | 1 Ton            | 10/10/2014 23:30 | 10/11/2014 08:45  |
| 445052         | TRAILER   | SCM Twin        | 745052           | TRACTOR   | Tandem - Tractor | 10/10/2014 23:30 | 10/11/2014 08:45  |
| 446173         | TRAILER   | Bulker          | 746173           | TRACTOR   | Tandem - Tractor | 10/10/2014 23:30 | 10/11/2014 08:45  |
| 446084         | TRAILER   | Bulker          | 746084           | TRACTOR   | Tandem - Tractor | 10/10/2014 23:30 | 10/11/2014 08:45  |
| 201273         | PICKUP    | 3/4 Ton         |                  |           |                  | 10/10/2014 23:30 | 10/11/2014 08:45  |

### Crew and Bonuses

| Employee          | Start Shift      | End Shift        | Second Start Shift | Second End Shift |
|-------------------|------------------|------------------|--------------------|------------------|
| Contreras, Bennie | 10/10/2014 23:30 | 10/11/2014 00:33 |                    |                  |
| Doran, Benjamin   | 10/10/2014 23:30 | 10/11/2014 00:33 |                    |                  |
| Pigg, Martin      | 10/10/2014 23:30 | 10/11/2014 00:33 |                    |                  |
| Bark, Eric        | 10/10/2014 23:30 | 10/11/2014 00:33 |                    |                  |
| Paui, Vladislav   | 10/10/2014 23:30 | 10/11/2014 00:33 |                    |                  |

## Treatment Reports & Remarks

### Treatment Report

| Event # | Event Time        | Event Description  | Fluid Type | Rate<br>(bbl/min) | Tubular Pressure<br>(psi) | Annular Pressure<br>(psi) | Stage Volume<br>(bbl) | Total Volume<br>(bbl) |
|---------|-------------------|--|------------|-------------------|---------------------------|---------------------------|-----------------------|-----------------------|
| 1       | Oct 10,2014 23:30 | Arrive On Location   | ---        | --                | --                        | --                        | --                    | 0.00                  |
|         |                   | Remarks: Arrive.   |            |                   |                           |                           |                       |                       |
| 2       | Oct 11,2014 02:00 | Tailgate Meeting   | ---        | --                | --                        | --                        | --                    | 0.00                  |
|         |                   | Remarks: Talked about spotting trucks and rigging in.  |            |                   |                           |                           |                       |                       |
| 3       | Oct 11,2014 02:30 | Rig In   | ---        | --                | --                        | --                        | --                    | 0.00                  |
|         |                   | Remarks: Rigg in hoses and iron.   |            |                   |                           |                           |                       |                       |
| 4       | Oct 11,2014 03:20 | STEACS Briefing  | ---        | --                | --                        | --                        | --                    | 0.00                  |
|         |                   | Remarks: Muster, 911 caller, nearest med., amb. and driver, Location safety equipt., Job briefing. |            |                   |                           |                           |                       |                       |
| 5       | Oct 11,2014 04:10 | Sign-off on Safety   | ---        | --                | --                        | --                        | --                    | 0.00                  |
|         |                   | Remarks: Sign all JSAs.  |            |                   |                           |                           |                       |                       |
| 6       | Oct 11,2014 04:20 | Pressure Test  | Water      | --                | 3,000.0                   | --                        | --                    | 0.00                  |
|         |                   | Remarks: Pressure test to 3000 psi.  |            |                   |                           |                           |                       |                       |
| 7       | Oct 11,2014 04:22 | Pump   | Water      | 5.00              | 150.0                     | --                        | 10.00                 | 0.00                  |
|         |                   | Remarks: Pump 10 BBLs of fresh water.  |            |                   |                           |                           |                       |                       |



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9198043

## Treatment Report

| Event # | Event Time         | Event Description  | Fluid Type         | Rate<br>(bbl/min) | Tubular Pressure<br>(psi) | Annular Pressure<br>(psi) | Stage Volume<br>(bbl) | Total Volume<br>(bbl) |
|---------|--------------------|--|--------------------|-------------------|---------------------------|---------------------------|-----------------------|-----------------------|
| 8       | Oct 11, 2014 04:24 | Pump Preflush  | Water              | 5.00              | 200.0                     | --                        | 20.00                 | 0.00                  |
|         |                    | Remarks: Pump 20 BBLs of Visweep.                              |                    |                   |                           |                           |                       |                       |
| 9       | Oct 11, 2014 04:28 | Mix Cement   | 1:2:6 POZ<br>G Gel | 3.00              | 400.0                     | --                        | 154.80                | 0.00                  |
|         |                    | Remarks: Mix and pump 154.8 BBLs of lead cement @ 12.5 lb/gal. |                    |                   |                           |                           |                       |                       |
| 10      | Oct 11, 2014 05:00 | Mix Cement   | 1:1:0 Poz<br>G Gel | 2.00              | 20.0                      | --                        | 52.80                 | 0.00                  |
|         |                    | Remarks: Mix and pump 52.8 BBLs of cement @ 13.5 lb/gal.       |                    |                   |                           |                           |                       |                       |
| 11      | Oct 11, 2014 05:36 | Stop   | ---                | --                | --                        | --                        | --                    | 0.00                  |
|         |                    | Remarks: Stop to drop plug.                                    |                    |                   |                           |                           |                       |                       |
| 12      | Oct 11, 2014 05:37 | Drop Plug  | ---                | --                | --                        | --                        | --                    | 0.00                  |
|         |                    | Remarks: Drop plug.  |                    |                   |                           |                           |                       |                       |
| 13      | Oct 11, 2014 05:40 | Displace Fluid   | Water<br>Based Mud | 5.00              | 1,100.0                   | --                        | 221.00                | 0.00                  |
|         |                    | Remarks: Displace 221 BBLs of mud to bump plug..               |                    |                   |                           |                           |                       |                       |
| 14      | Oct 11, 2014 06:28 | Bump Plug  | Water<br>Based Mud | --                | 1,700.0                   | --                        | 221.00                | 0.00                  |
|         |                    | Remarks: Bumped plug at 221 BBLs with pressure at 1700.        |                    |                   |                           |                           |                       |                       |
| 15      | Oct 11, 2014 06:30 | Check Float  | ---                | --                | --                        | --                        | --                    | 0.00                  |
|         |                    | Remarks: Checked float and got back 1.5 BBLs of water.         |                    |                   |                           |                           |                       |                       |
| 16      | Oct 11, 2014 06:32 | Pressure Test  | Water              | --                | 1,600.0                   | --                        | --                    | 0.00                  |
|         |                    | Remarks: Pressure test casing to 1600 psi for 15 minutes.      |                    |                   |                           |                           |                       |                       |
| 17      | Oct 11, 2014 06:50 | Stop   | ---                | --                | --                        | --                        | --                    | 0.00                  |
|         |                    | Remarks: Stop and rig off well for wash up.                    |                    |                   |                           |                           |                       |                       |
| 18      | Oct 11, 2014 07:00 | Wash   | Water              | 2.00              | 170.0                     | --                        | 20.00                 | 0.00                  |
|         |                    | Remarks: Wash mix system and runbacks on triplexes.            |                    |                   |                           |                           |                       |                       |
| 19      | Oct 11, 2014 08:00 | Rig Out  | ---                | --                | --                        | --                        | --                    | 0.00                  |
|         |                    | Remarks: Rig down iron and hoses.                              |                    |                   |                           |                           |                       |                       |
| 20      | Oct 11, 2014 08:30 | Job Complete   | ---                | --                | --                        | --                        | --                    | 0.00                  |
|         |                    | Remarks: Job complete.   |                    |                   |                           |                           |                       |                       |
| 21      | Oct 11, 2014 08:31 | Pre-Departure Meeting  | ---                | --                | --                        | --                        | --                    | 0.00                  |
|         |                    | Remarks: Journey management.                                   |                    |                   |                           |                           |                       |                       |
| 22      | Oct 11, 2014 08:45 | Leave Location   | ---                | --                | --                        | --                        | --                    | 0.00                  |
|         |                    | Remarks: Leave.  |                    |                   |                           |                           |                       |                       |

Did Float Hold: Yes  
Fluid Returns : Yes  
Type : Cement  
Volume (bbl) : 60  
Temperature (°F) : 90  
FDAS Functioning Correctly : Yes  
Was the Program Followed As Per Design? : Yes



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**Treatment Reports & Remarks**

**Material Transfer Sheet Number**

Material Transfer Sheet Number

9663

9664

9668

9662