

## Step Rate Test



### Cardinal Surveys Company

September 10, 2003

Chesapeake Operating, Inc.  
WTU 941  
West Teas Field  
Lea County, New Mexico

|                                   |
|-----------------------------------|
| Intercept: 1617 BPD,<br>1385 PSIA |
|-----------------------------------|

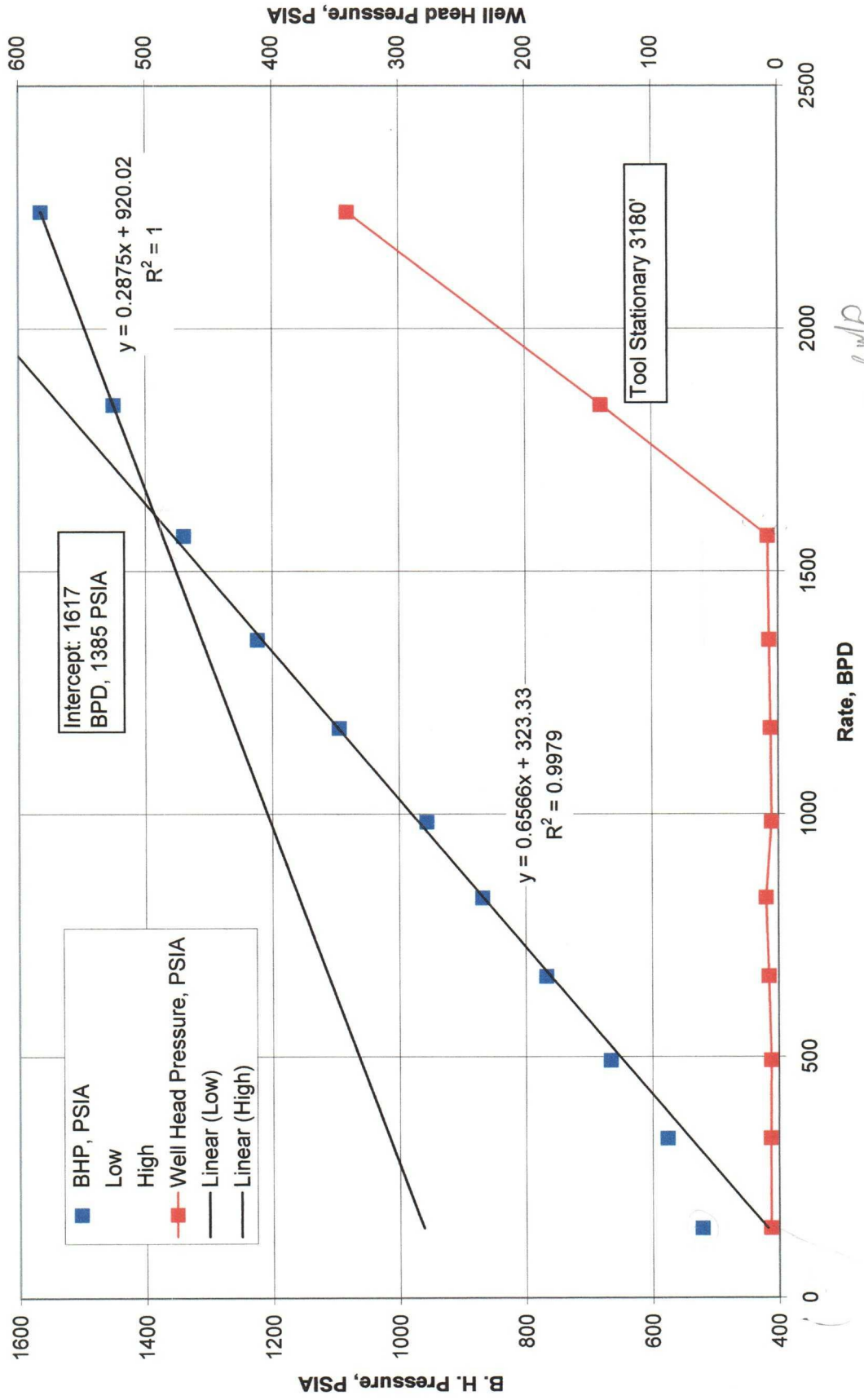
330' FNL & 990' FWL  
SEC. 9, T20S, R33E  
API No. 30-025-322170

Downhole PSI Tool Ser. No. 71235  
Surface PSI Gauge Ser. No. 10110

8:15 AM Arr. Loc.  
9:48 AM G.I.H.  
10:15 AM Shut In Temperature Pass  
10:37 AM Start Pump Truck  
10:38 AM 144.5 BPD  
11:26 AM 330.6 BPD  
12:14 PM 492.4 BPD  
1:02 PM 665.7 BPD  
1:51 PM 827.2 BPD  
2:43 PM 983.6 BPD  
3:38 PM 1177.3 BPD  
4:25 PM 1358.9 BPD  
5:18 PM 1572.6 BPD  
6:07 PM 1843.3 BPD  
6:54 PM 2239.8 BPD  
7:53 PM COH  
8:44 PM Rig down  
9:35 PM Leave Location



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1480 BWP

# Step Rate Test

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WTU 941  
West Teas Field  
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|    | S Time   | E Time   | D Time | Last Rate | Step  | Last BHP | Last Surf | Cum   | Delta | Avg       |    |
|----|----------|----------|--------|-----------|-------|----------|-----------|-------|-------|-----------|----|
|    |          |          | Min    | BPD       | BPD   | PSIA     | PSIA      | BBL   | BBL   | BPD       |    |
| 1  | 10:38 AM | 11:23 AM | 45     | 144.5     | 186.1 | 521      | 6.32      | 4.68  | 4.68  | 149.76    | 1  |
| 2  | 11:26 AM | 12:11 PM | 45     | 330.6     | 161.8 | 576      | 6.35      | 15.43 | 10.75 | 322.5     | 2  |
| 3  | 12:14 PM | 12:59 PM | 45     | 492.4     | 173.3 | 666      | 5.94      | 31.7  | 16.27 | 488.1     | 3  |
| 4  | 1:02 PM  | 1:47 PM  | 45     | 665.7     | 161.5 | 767      | 7.57      | 54.77 | 23.07 | 692.1     | 4  |
| 5  | 1:51 PM  | 2:36 PM  | 45     | 827.2     | 156.4 | 868      | 9.67      | 82.25 | 27.48 | 807.57551 | 5  |
| 6  | 2:43 PM  | 3:28 PM  | 45     | 983.6     | 193.7 | 956      | 5.43      | 118.2 | 35.95 | 995.53846 | 6  |
| 7  | 3:38 PM  | 4:23 PM  | 45     | 1177.3    | 181.6 | 1094     | 5.98      | 163.5 | 45.3  | 1186.0364 | 7  |
| 8  | 4:25 PM  | 5:10 PM  | 45     | 1358.9    | 213.7 | 1223     | 6.96      | 209.9 | 46.4  | 1421.617  | 8  |
| 9  | 5:18 PM  | 6:03 PM  | 45     | 1572.6    | 270.7 | 1339     | 8.01      | 264   | 54.1  | 1469.8868 | 9  |
| 10 | 6:07 PM  | 6:52 PM  | 45     | 1843.3    | 396.5 | 1450     | 139.88    | 325.8 | 61.8  | 1816.1633 | 10 |
| 11 | 6:54 PM  | 7:39 PM  | 45     | 2239.8    |       | 1564     | 340.3     | 399.8 | 74    | 2267.234  | 11 |
| 12 |          |          |        |           |       |          |           |       |       |           |    |

int point:  
0.6566 323.33  
0.2875 920.02  
1616.608 BPD  
1384.7948 PSIA

Chesapeake Operating, Inc., WTU 941  
Step Rate Test Raw Data 9-10-2003

