

OCT 30 2014

30-025-41546

RECEIVED

**PHOENIX ENERGY SERVICES INC.  
SURVEY DATA CERTIFICATION**



PHOENIX JOB NUMBER 1410651

OPERATOR Chevron *Midcontinent*

WELL NAME Red Hills 1-25-33 #1H

COUNTY & STATE Lea County NM

|                 |              |
|-----------------|--------------|
| API WELL NUMBER | 30-025-41546 |
|-----------------|--------------|

|                    |       |
|--------------------|-------|
| PROPOSED DIRECTION | 359.7 |
|--------------------|-------|

| TIE-IN DATA |           |        |         |        |        |        |
|-------------|-----------|--------|---------|--------|--------|--------|
| MEASURED    | VERTICAL  |        |         | N-S    | E-W    | DATA   |
| DEPTH       | DEPTH     | INCLIN | AZIMUTH | COORD  | COORD  | SOURCE |
| 1,211 ft    | -10.41 ft | 0.77   | 235.02  | 10.49S | 14.54W | GYRO   |

| FIRST SURVEY DATE | FIRST SURVEY DEPTH | INCLIN | AZIMUTH |
|-------------------|--------------------|--------|---------|
| 22-Feb-14         | 1,383 ft           | 0.53   | 266.07  |

|                        |
|------------------------|
| SURVEY INSTRUMENT TYPE |
| APS / QDT              |

| LAST SURVEY DATE | LAST SURVEY DEPTH | INCLIN | AZIMUTH |
|------------------|-------------------|--------|---------|
| 10-May-14        | 13,981 ft         | 92.15  | 358.08  |

TO THE BEST OF MY KNOWLEDGE I CERTIFY THIS SURVEY DATA TO BE TRUE AND CORRECT.

| PROJECTED TD SURVEY DATE | PROJECTED TD SURVEY DEPTH | INCLIN | AZIMUTH |
|--------------------------|---------------------------|--------|---------|
| 10-May-14                | 13,942 ft                 | 92.15  | 358.08  |

\_\_\_\_\_  
Zak Dawson

PRINT YOUR NAME ABOVE

SIGN YOUR NAME ABOVE

\_\_\_\_\_  
10-May

TODAY'S DATE

MAGNETIC DECLINATION OR TOTAL GRID

|                       |      |
|-----------------------|------|
| TOTAL CORRECTION USED | 6.79 |
| DECLINATION OR GRID   | GRID |

MWD SUPERVISOR 1 Zak Dawson

DIRECTIONAL DRILLER 1

Keith Schepler

MWD SUPERVISOR 2 Brian Pina

DIRECTIONAL DRILLER 2

Craig Cannon

1805 Brittmore Road

Houston, Texas 77043

(713)3370609 (Voice), (713)337-0599 (Fax)

MAR 24 2015



**PHOENIX**  
TECHNOLOGY SERVICES

*Survey Calculation Sheet*

Company Chevron  
 Well Red Hills 1-25-33 #1H  
 Field Lea County NM  
 Rig Ensign 153  
 Phoenix Rep. Zak Dawson

Correction \_\_\_\_\_  
 Target TVD 9496  
 Target Az. 359.7  
 Tgt. Coord. \_\_\_\_\_

**QDT**  
**CLT**

| Date     | No. | DEPTH   | INC. | AZM    | C.L. | T.V.D.  | V.S.   | N/S     | E/W     | DLS  | B./D. | BHA |
|----------|-----|---------|------|--------|------|---------|--------|---------|---------|------|-------|-----|
| Tie - In | 0   | 0       | 0.00 | 0.00   | 0    | 0.00    | 0.00   | 0.00 N  | 0.00 E  | 0.00 |       |     |
| GYRO     | 1   | 41.00   | 0.28 | 258.89 | 41   | 41.00   | -0.02  | 0.02 S  | 0.10 W  | 0.68 | 0.68  |     |
| GYRO     | 2   | 131.00  | 0.82 | 234.18 | 90   | 131.00  | -0.43  | 0.44 S  | 0.84 W  | 0.64 | 0.60  |     |
| GYRO     | 3   | 221.00  | 0.82 | 234.18 | 90   | 220.99  | -1.18  | 1.19 S  | 1.88 W  | 0.00 | 0.00  |     |
| GYRO     | 4   | 311.00  | 0.86 | 224.76 | 90   | 310.98  | -2.03  | 2.05 S  | 2.88 W  | 0.16 | 0.04  |     |
| GYRO     | 5   | 401.00  | 0.76 | 226.99 | 90   | 400.97  | -2.92  | 2.94 S  | 3.79 W  | 0.12 | -0.11 |     |
| GYRO     | 6   | 491.00  | 0.82 | 235.26 | 90   | 490.96  | -3.68  | 3.71 S  | 4.76 W  | 0.14 | 0.07  |     |
| GYRO     | 7   | 581.00  | 0.87 | 239.39 | 90   | 580.95  | -4.39  | 4.42 S  | 5.87 W  | 0.09 | 0.06  |     |
| GYRO     | 8   | 671.00  | 1.05 | 243.45 | 90   | 670.94  | -5.10  | 5.14 S  | 7.20 W  | 0.21 | 0.20  |     |
| GYRO     | 9   | 761.00  | 1.06 | 244.26 | 90   | 760.92  | -5.83  | 5.87 S  | 8.69 W  | 0.02 | 0.01  |     |
| GYRO     | 10  | 851.00  | 1.00 | 241.59 | 90   | 850.91  | -6.55  | 6.61 S  | 10.13 W | 0.09 | -0.07 |     |
| GYRO     | 11  | 941.00  | 1.10 | 229.20 | 90   | 940.89  | -7.48  | 7.54 S  | 11.47 W | 0.27 | 0.11  |     |
| GYRO     | 12  | 1031.00 | 0.94 | 220.85 | 90   | 1030.88 | -8.60  | 8.67 S  | 12.61 W | 0.24 | -0.18 |     |
| GYRO     | 13  | 1121.00 | 0.84 | 226.07 | 90   | 1120.87 | -9.61  | 9.68 S  | 13.57 W | 0.14 | -0.11 |     |
| GYRO     | 14  | 1211.00 | 0.77 | 235.02 | 90   | 1210.86 | -10.41 | 10.49 S | 14.54 W | 0.16 | -0.08 |     |
| 22-Apr   | 15  | 1383    | 0.53 | 266.07 | 172  | 1382.85 | -11.12 | 11.21 S | 16.28 W | 0.24 | -0.14 | 1   |
|          | 16  | 1562    | 0.63 | 247.65 | 179  | 1561.84 | -11.54 | 11.64 S | 18.01 W | 0.12 | 0.06  |     |
|          | 17  | 1741    | 0.73 | 261.59 | 179  | 1740.83 | -12.07 | 12.18 S | 20.05 W | 0.11 | 0.06  |     |
|          | 18  | 1919    | 0.68 | 263.26 | 178  | 1918.81 | -12.35 | 12.47 S | 22.22 W | 0.03 | -0.03 |     |
|          | 19  | 2098    | 0.73 | 270.26 | 179  | 2097.80 | -12.46 | 12.59 S | 24.42 W | 0.06 | 0.03  |     |
|          | 20  | 2278    | 1.01 | 265.82 | 180  | 2277.78 | -12.55 | 12.70 S | 27.15 W | 0.16 | 0.16  |     |
| 23-Apr   | 21  | 2457    | 0.90 | 259.64 | 179  | 2456.75 | -12.91 | 13.06 S | 30.10 W | 0.08 | -0.06 |     |
|          | 22  | 2635    | 1.22 | 274.62 | 178  | 2634.72 | -12.99 | 13.16 S | 33.37 W | 0.24 | 0.18  |     |
|          | 23  | 2814    | 1.43 | 272.22 | 179  | 2813.67 | -12.73 | 12.92 S | 37.50 W | 0.12 | 0.12  |     |
|          | 24  | 2993    | 0.90 | 252.84 | 179  | 2992.64 | -13.04 | 13.25 S | 41.07 W | 0.36 | -0.30 |     |
|          | 25  | 3172    | 1.34 | 172.89 | 179  | 3171.61 | -15.52 | 15.74 S | 42.16 W | 0.83 | 0.25  |     |
|          | 26  | 3351    | 2.04 | 84.87  | 179  | 3350.56 | -17.33 | 17.54 S | 38.73 W | 1.34 | 0.39  |     |
|          | 27  | 3530    | 1.07 | 25.13  | 179  | 3529.50 | -15.55 | 15.74 S | 34.84 W | 0.98 | -0.54 |     |
|          | 28  | 3709    | 1.28 | 334.73 | 179  | 3708.47 | -12.23 | 12.42 S | 34.99 W | 0.57 | 0.12  |     |
|          | 29  | 3888    | 1.35 | 334.68 | 179  | 3887.42 | -8.51  | 8.70 S  | 36.74 W | 0.04 | 0.04  |     |
| 24-Apr   | 30  | 4067    | 1.41 | 333.37 | 179  | 4066.37 | -4.63  | 4.83 S  | 38.63 W | 0.04 | 0.03  |     |
|          | 31  | 4246    | 1.66 | 333.62 | 179  | 4245.30 | -0.32  | 0.54 S  | 40.77 W | 0.14 | 0.14  |     |
|          | 32  | 4425    | 1.15 | 88.20  | 179  | 4424.27 | 2.05   | 1.84 N  | 40.13 W | 1.33 | -0.28 |     |

|        |    |      |      |        |     |         |        |         |         |      |       |   |
|--------|----|------|------|--------|-----|---------|--------|---------|---------|------|-------|---|
|        | 33 | 4605 | 2.30 | 81.26  | 180 | 4604.19 | 2.63   | 2.45 N  | 34.75 W | 0.65 | 0.64  |   |
|        | 34 | 4784 | 1.85 | 31.88  | 179 | 4783.08 | 5.60   | 5.45 N  | 29.67 W | 0.99 | -0.25 |   |
|        | 35 | 4978 | 1.87 | 18.71  | 194 | 4976.98 | 11.25  | 11.11 N | 27.01 W | 0.22 | 0.01  |   |
| 26-Apr | 36 | 5147 | 0.34 | 10.05  | 169 | 5145.95 | 14.35  | 14.21 N | 26.03 W | 0.91 | -0.91 | 2 |
| 27-Apr | 37 | 5326 | 0.33 | 324.67 | 179 | 5324.94 | 15.29  | 15.15 N | 26.24 W | 0.14 | -0.01 |   |
|        | 38 | 5506 | 0.31 | 317.52 | 180 | 5504.94 | 16.08  | 15.94 N | 26.87 W | 0.02 | -0.01 |   |
|        | 39 | 5684 | 0.33 | 312.60 | 178 | 5682.94 | 16.78  | 16.64 N | 27.57 W | 0.02 | 0.01  |   |
|        | 40 | 5863 | 0.40 | 325.43 | 179 | 5861.93 | 17.65  | 17.50 N | 28.30 W | 0.06 | 0.04  |   |
|        | 41 | 6042 | 0.36 | 305.25 | 179 | 6040.93 | 18.49  | 18.34 N | 29.12 W | 0.08 | -0.02 |   |
|        | 42 | 6221 | 0.42 | 296.94 | 179 | 6219.93 | 19.12  | 18.96 N | 30.16 W | 0.05 | 0.03  |   |
|        | 43 | 6400 | 0.36 | 311.12 | 179 | 6219.93 | 0.00   | 18.96 N | 30.59 W | 0.00 | -0.03 |   |
|        | 44 | 6579 | 0.53 | 287.18 | 179 | 6577.92 | 20.41  | 20.24 N | 32.38 W | 0.14 | 0.09  |   |
|        | 45 | 6758 | 0.43 | 282.38 | 179 | 6756.91 | 20.81  | 20.63 N | 33.83 W | 0.06 | -0.06 |   |
|        | 46 | 6937 | 0.81 | 172.45 | 179 | 6935.90 | 19.70  | 19.52 N | 34.32 W | 0.58 | 0.21  |   |
|        | 47 | 7117 | 1.26 | 171.89 | 180 | 7115.87 | 16.48  | 16.30 N | 33.88 W | 0.25 | 0.25  |   |
|        | 48 | 7295 | 2.12 | 139.18 | 178 | 7293.80 | 12.04  | 11.87 N | 31.45 W | 0.71 | 0.48  |   |
|        | 49 | 7474 | 2.24 | 137.56 | 179 | 7472.67 | 6.93   | 6.79 N  | 26.92 W | 0.08 | 0.07  |   |
|        | 50 | 7653 | 2.55 | 141.97 | 179 | 7651.51 | 1.18   | 1.07 N  | 22.11 W | 0.20 | 0.17  |   |
|        | 51 | 7832 | 1.74 | 135.88 | 179 | 7830.39 | -3.93  | 4.02 S  | 17.76 W | 0.47 | -0.45 |   |
| 28-Apr | 52 | 8011 | 0.19 | 258.73 | 179 | 8009.36 | -5.94  | 6.03 S  | 16.16 W | 1.03 | -0.87 |   |
|        | 53 | 8190 | 0.46 | 178.97 | 179 | 8188.36 | -6.72  | 6.81 S  | 16.44 W | 0.26 | 0.15  |   |
|        | 54 | 8368 | 0.34 | 159.40 | 178 | 8366.35 | -7.93  | 8.01 S  | 16.24 W | 0.10 | -0.07 |   |
|        | 55 | 8547 | 0.39 | 166.04 | 179 | 8545.35 | -9.02  | 9.10 S  | 15.91 W | 0.04 | 0.03  |   |
|        | 56 | 8726 | 0.48 | 145.45 | 179 | 8724.34 | -10.23 | 10.31 S | 15.34 W | 0.10 | 0.05  |   |
|        | 57 | 8905 | 0.64 | 137.24 | 179 | 8903.34 | -11.59 | 11.66 S | 14.23 W | 0.10 | 0.09  |   |
|        | 58 | 9084 | 0.56 | 142.13 | 179 | 9082.33 | -13.02 | 13.09 S | 13.02 W | 0.05 | -0.04 |   |
|        | 59 | 9263 | 0.09 | 156.56 | 179 | 9261.32 | -13.84 | 13.91 S | 12.42 W | 0.26 | -0.26 |   |
| 29-Apr | 60 | 9442 | 0.47 | 246.65 | 179 | 9440.32 | -14.26 | 14.33 S | 13.04 W | 0.27 | 0.21  |   |
|        | 61 | 9621 | 0.87 | 245.04 | 179 | 9619.31 | -15.11 | 15.19 S | 14.95 W | 0.22 | 0.22  |   |
|        | 62 | 9710 | 1.20 | 246.95 | 89  | 9708.29 | -15.76 | 15.84 S | 16.42 W | 0.37 | 0.37  |   |
| PTB    | 63 | 9767 | 1.20 | 246.95 | 57  | 9765.28 | -16.22 | 16.31 S | 17.52 W | 0.00 | 0.00  |   |
|        | 64 |      |      |        | 0   | 0.00    | 0.00   | 0.00 N  | 0.00 E  | 0.00 | 0.00  |   |
|        | 65 |      |      |        | 0   | 0.00    | 0.00   | 0.00 N  | 0.00 E  | 0.00 | 0.00  |   |
|        | 66 |      |      |        | 0   | 0.00    | 0.00   | 0.00 N  | 0.00 E  | 0.00 | 0.00  |   |
|        | 67 |      |      |        | 0   | 0.00    | 0.00   | 0.00 N  | 0.00 E  | 0.00 | 0.00  |   |
|        | 68 |      |      |        | 0   | 0.00    | 0.00   | 0.00 N  | 0.00 E  | 0.00 | 0.00  |   |
|        | 69 |      |      |        | 0   | 0.00    | 0.00   | 0.00 N  | 0.00 E  | 0.00 | 0.00  |   |
|        | 70 |      |      |        | 0   | 0.00    | 0.00   | 0.00 N  | 0.00 E  | 0.00 | 0.00  |   |



**PHOENIX**  
TECHNOLOGY SERVICES

*Survey Calculation Sheet*

Company Chevron

Well Red Hills 1-25-33 #1H

Field Lea County NM

Rig Ensign 153

Phoenix Rep. Zak Dawson

Correction \_\_\_\_\_

Target TVD 9496

Target Az. 359.7

Tgt. Coord. \_\_\_\_\_

QDT

CLT

| Date     | No. | DEPTH | INC. | AZM    | C.L. | T.V.D.  | V.S.   | N/S     | E/W     | DLS  | B./D. | BHA |
|----------|-----|-------|------|--------|------|---------|--------|---------|---------|------|-------|-----|
| Tie - In | 0   | 0     | 0.00 | 0.00   | 0    | 0.00    | 0.00   | 0.00 N  | 0.00 E  | 0.00 |       |     |
| GYRO     | 1   | 41    | 0.28 | 258.89 | 41   | 41.00   | -0.02  | 0.02 S  | 0.10 W  | 0.68 | 0.68  |     |
| GYRO     | 2   | 131   | 0.82 | 234.18 | 90   | 131.00  | -0.43  | 0.44 S  | 0.84 W  | 0.64 | 0.60  |     |
| GYRO     | 3   | 221   | 0.82 | 234.18 | 90   | 220.99  | -1.18  | 1.19 S  | 1.88 W  | 0.00 | 0.00  |     |
| GYRO     | 4   | 311   | 0.86 | 224.76 | 90   | 310.98  | -2.03  | 2.05 S  | 2.88 W  | 0.16 | 0.04  |     |
| GYRO     | 5   | 401   | 0.76 | 226.99 | 90   | 400.97  | -2.92  | 2.94 S  | 3.79 W  | 0.12 | -0.11 |     |
| GYRO     | 6   | 491   | 0.82 | 235.26 | 90   | 490.96  | -3.68  | 3.71 S  | 4.76 W  | 0.14 | 0.07  |     |
| GYRO     | 7   | 581   | 0.87 | 239.39 | 90   | 580.95  | -4.39  | 4.42 S  | 5.87 W  | 0.09 | 0.06  |     |
| GYRO     | 8   | 671   | 1.05 | 243.45 | 90   | 670.94  | -5.10  | 5.14 S  | 7.20 W  | 0.21 | 0.20  |     |
| GYRO     | 9   | 761   | 1.06 | 244.26 | 90   | 760.92  | -5.83  | 5.87 S  | 8.69 W  | 0.02 | 0.01  |     |
| GYRO     | 10  | 851   | 1.00 | 241.59 | 90   | 850.91  | -6.55  | 6.61 S  | 10.13 W | 0.09 | -0.07 |     |
| GYRO     | 11  | 941   | 1.10 | 229.20 | 90   | 940.89  | -7.48  | 7.54 S  | 11.47 W | 0.27 | 0.11  |     |
| GYRO     | 12  | 1031  | 0.94 | 220.85 | 90   | 1030.88 | -8.60  | 8.67 S  | 12.61 W | 0.24 | -0.18 |     |
| GYRO     | 13  | 1121  | 0.84 | 226.07 | 90   | 1120.87 | -9.61  | 9.68 S  | 13.57 W | 0.14 | -0.11 |     |
| GYRO     | 14  | 1211  | 0.77 | 235.02 | 90   | 1210.86 | -10.41 | 10.49 S | 14.54 W | 0.16 | -0.08 |     |
| 22-Apr   | 15  | 1383  | 0.53 | 266.07 | 172  | 1382.85 | -11.12 | 11.21 S | 16.28 W | 0.24 | -0.14 | 1   |
|          | 16  | 1562  | 0.63 | 247.65 | 179  | 1561.84 | -11.54 | 11.64 S | 18.01 W | 0.12 | 0.06  |     |
|          | 17  | 1741  | 0.73 | 261.59 | 179  | 1740.83 | -12.07 | 12.18 S | 20.05 W | 0.11 | 0.06  |     |
|          | 18  | 1919  | 0.68 | 263.26 | 178  | 1918.81 | -12.35 | 12.47 S | 22.22 W | 0.03 | -0.03 |     |
|          | 19  | 2098  | 0.73 | 270.26 | 179  | 2097.80 | -12.46 | 12.59 S | 24.42 W | 0.06 | 0.03  |     |
|          | 20  | 2278  | 1.01 | 265.82 | 180  | 2277.78 | -12.55 | 12.70 S | 27.15 W | 0.16 | 0.16  |     |
| 23-Apr   | 21  | 2457  | 0.90 | 259.64 | 179  | 2456.75 | -12.91 | 13.06 S | 30.10 W | 0.08 | -0.06 |     |
|          | 22  | 2635  | 1.22 | 274.62 | 178  | 2634.72 | -12.99 | 13.16 S | 33.37 W | 0.24 | 0.18  |     |
|          | 23  | 2814  | 1.43 | 272.22 | 179  | 2813.67 | -12.73 | 12.92 S | 37.50 W | 0.12 | 0.12  |     |
|          | 24  | 2993  | 0.90 | 252.84 | 179  | 2992.64 | -13.04 | 13.25 S | 41.07 W | 0.36 | -0.30 |     |
|          | 25  | 3172  | 1.34 | 172.89 | 179  | 3171.61 | -15.52 | 15.74 S | 42.16 W | 0.83 | 0.25  |     |
|          | 26  | 3351  | 2.04 | 84.87  | 179  | 3350.56 | -17.33 | 17.54 S | 38.73 W | 1.34 | 0.39  |     |
|          | 27  | 3530  | 1.07 | 25.13  | 179  | 3529.50 | -15.55 | 15.74 S | 34.84 W | 0.98 | -0.54 |     |
|          | 28  | 3709  | 1.28 | 334.73 | 179  | 3708.47 | -12.23 | 12.42 S | 34.99 W | 0.57 | 0.12  |     |
|          | 29  | 3888  | 1.35 | 334.68 | 179  | 3887.42 | -8.51  | 8.70 S  | 36.74 W | 0.04 | 0.04  |     |
| 24-Apr   | 30  | 4067  | 1.41 | 333.37 | 179  | 4066.37 | -4.63  | 4.83 S  | 38.63 W | 0.04 | 0.03  |     |
|          | 31  | 4246  | 1.66 | 333.62 | 179  | 4245.30 | -0.32  | 0.54 S  | 40.77 W | 0.14 | 0.14  |     |
|          | 32  | 4425  | 1.15 | 88.20  | 179  | 4424.27 | 2.05   | 1.84 N  | 40.13 W | 1.33 | -0.28 |     |

|        |    |       |       |        |     |         |        |          |         |       |       |   |
|--------|----|-------|-------|--------|-----|---------|--------|----------|---------|-------|-------|---|
|        | 33 | 4605  | 2.30  | 81.26  | 180 | 4604.19 | 2.63   | 2.45 N   | 34.75 W | 0.65  | 0.64  |   |
|        | 34 | 4784  | 1.85  | 31.88  | 179 | 4783.08 | 5.60   | 5.45 N   | 29.67 W | 0.99  | -0.25 |   |
|        | 35 | 4978  | 1.87  | 18.71  | 194 | 4976.98 | 11.25  | 11.11 N  | 27.01 W | 0.22  | 0.01  |   |
| 26-Apr | 36 | 5147  | 0.34  | 10.05  | 169 | 5145.95 | 14.35  | 14.21 N  | 26.03 W | 0.91  | -0.91 | 2 |
| 27-Apr | 37 | 5326  | 0.33  | 324.67 | 179 | 5324.94 | 15.29  | 15.15 N  | 26.24 W | 0.14  | -0.01 |   |
|        | 38 | 5506  | 0.31  | 317.52 | 180 | 5504.94 | 16.08  | 15.94 N  | 26.87 W | 0.02  | -0.01 |   |
|        | 39 | 5684  | 0.33  | 312.60 | 178 | 5682.94 | 16.78  | 16.64 N  | 27.57 W | 0.02  | 0.01  |   |
|        | 40 | 5863  | 0.40  | 325.43 | 179 | 5861.93 | 17.65  | 17.50 N  | 28.30 W | 0.06  | 0.04  |   |
|        | 41 | 6042  | 0.36  | 305.25 | 179 | 6040.93 | 18.49  | 18.34 N  | 29.12 W | 0.08  | -0.02 |   |
|        | 42 | 6221  | 0.42  | 296.94 | 179 | 6219.93 | 19.12  | 18.96 N  | 30.16 W | 0.05  | 0.03  |   |
|        | 43 | 6400  | 0.36  | 311.12 | 179 | 6398.92 | 19.79  | 19.63 N  | 31.17 W | 0.06  | -0.03 |   |
|        | 44 | 6579  | 0.53  | 287.18 | 179 | 6577.92 | 20.41  | 20.24 N  | 32.38 W | 0.14  | 0.09  |   |
|        | 45 | 6758  | 0.43  | 282.38 | 179 | 6756.91 | 20.81  | 20.63 N  | 33.83 W | 0.06  | -0.06 |   |
|        | 46 | 6937  | 0.81  | 172.45 | 179 | 6935.90 | 19.70  | 19.52 N  | 34.32 W | 0.58  | 0.21  |   |
|        | 47 | 7117  | 1.26  | 171.89 | 180 | 7115.87 | 16.48  | 16.30 N  | 33.88 W | 0.25  | 0.25  |   |
|        | 48 | 7295  | 2.12  | 139.18 | 178 | 7293.80 | 12.04  | 11.87 N  | 31.45 W | 0.71  | 0.48  |   |
|        | 49 | 7474  | 2.24  | 137.56 | 179 | 7472.67 | 6.93   | 6.79 N   | 26.92 W | 0.08  | 0.07  |   |
|        | 50 | 7653  | 2.55  | 141.97 | 179 | 7651.51 | 1.18   | 1.07 N   | 22.11 W | 0.20  | 0.17  |   |
|        | 51 | 7832  | 1.74  | 135.88 | 179 | 7830.39 | -3.93  | 4.02 S   | 17.76 W | 0.47  | -0.45 |   |
| 28-Apr | 52 | 8011  | 0.19  | 258.73 | 179 | 8009.36 | -5.94  | 6.03 S   | 16.16 W | 1.03  | -0.87 |   |
|        | 53 | 8190  | 0.46  | 178.97 | 179 | 8188.36 | -6.72  | 6.81 S   | 16.44 W | 0.26  | 0.15  |   |
|        | 54 | 8368  | 0.34  | 159.40 | 178 | 8366.35 | -7.93  | 8.01 S   | 16.24 W | 0.10  | -0.07 |   |
|        | 55 | 8547  | 0.39  | 166.04 | 179 | 8545.35 | -9.02  | 9.10 S   | 15.91 W | 0.04  | 0.03  |   |
|        | 56 | 8726  | 0.48  | 145.45 | 179 | 8724.34 | -10.23 | 10.31 S  | 15.34 W | 0.10  | 0.05  |   |
|        | 57 | 8905  | 0.64  | 137.24 | 179 | 8903.34 | -11.59 | 11.66 S  | 14.23 W | 0.10  | 0.09  |   |
| 2-May  | 58 | 8942  | 0.74  | 129.77 | 37  | 8940.33 | -11.89 | 11.97 S  | 13.91 W | 0.36  | 0.27  | 3 |
|        | 59 | 8986  | 0.70  | 124.50 | 44  | 8984.33 | -12.23 | 12.30 S  | 13.47 W | 0.18  | -0.09 |   |
|        | 60 | 9076  | 7.00  | 355.09 | 90  | 9074.12 | -7.07  | 7.14 S   | 13.48 W | 8.29  | 7.00  |   |
|        | 61 | 9120  | 11.70 | 349.11 | 44  | 9117.52 | -0.01  | 0.09 S   | 14.56 W | 10.89 | 10.68 |   |
|        | 62 | 9165  | 16.79 | 345.20 | 45  | 9161.12 | 10.78  | 10.69 N  | 17.08 W | 11.51 | 11.31 |   |
|        | 63 | 9210  | 22.26 | 343.39 | 45  | 9203.52 | 25.26  | 25.15 N  | 21.18 W | 12.23 | 12.16 |   |
|        | 64 | 9255  | 27.14 | 344.51 | 45  | 9244.39 | 43.36  | 43.22 N  | 26.36 W | 10.89 | 10.84 |   |
|        | 65 | 9299  | 32.21 | 346.67 | 44  | 9282.61 | 64.48  | 64.31 N  | 31.74 W | 11.77 | 11.52 |   |
| 3-May  | 66 | 9344  | 36.80 | 349.03 | 45  | 9319.69 | 89.42  | 89.23 N  | 37.07 W | 10.62 | 10.20 |   |
|        | 67 | 9389  | 41.43 | 350.09 | 45  | 9354.59 | 117.36 | 117.14 N | 42.20 W | 10.40 | 10.29 |   |
|        | 68 | 9434  | 45.60 | 349.65 | 45  | 9387.22 | 147.89 | 147.64 N | 47.65 W | 9.29  | 9.27  |   |
|        | 69 | 9478  | 50.46 | 349.00 | 44  | 9416.63 | 180.05 | 179.77 N | 53.72 W | 11.10 | 11.05 |   |
|        | 70 | 9523  | 56.01 | 349.49 | 45  | 9443.56 | 215.49 | 215.18 N | 60.43 W | 12.36 | 12.33 |   |
| 4-May  | 71 | 9568  | 62.06 | 351.21 | 45  | 9466.70 | 253.55 | 253.20 N | 66.88 W | 13.84 | 13.44 |   |
|        | 72 | 9613  | 68.52 | 353.34 | 45  | 9485.50 | 294.06 | 293.69 N | 72.35 W | 14.98 | 14.36 |   |
|        | 73 | 9658  | 74.11 | 357.13 | 45  | 9499.92 | 336.54 | 336.14 N | 75.86 W | 14.76 | 12.42 |   |
|        | 74 | 9702  | 80.17 | 0.32   | 44  | 9509.71 | 379.40 | 379.00 N | 76.80 W | 15.48 | 13.77 |   |
|        | 75 | 9722  | 83.41 | 0.97   | 20  | 9512.57 | 399.19 | 398.80 N | 76.58 W | 16.52 | 16.20 |   |
| 5-May  | 76 | 9789  | 89.97 | 1.12   | 67  | 9516.43 | 466.02 | 465.64 N | 75.36 W | 9.79  | 9.79  | 5 |
|        | 77 | 9879  | 91.68 | 2.03   | 90  | 9515.14 | 555.96 | 555.59 N | 72.88 W | 2.15  | 1.90  |   |
|        | 78 | 9969  | 93.36 | 2.52   | 90  | 9511.18 | 645.78 | 645.43 N | 69.32 W | 1.94  | 1.87  |   |
|        | 79 | 10058 | 92.07 | 2.90   | 89  | 9506.96 | 734.56 | 734.23 N | 65.11 W | 1.51  | -1.45 |   |

|        |     |       |       |        |    |         |         |           |         |      |       |  |
|--------|-----|-------|-------|--------|----|---------|---------|-----------|---------|------|-------|--|
|        | 80  | 10148 | 90.87 | 3.32   | 90 | 9504.65 | 824.37  | 824.06 N  | 60.23 W | 1.41 | -1.33 |  |
|        | 81  | 10237 | 88.07 | 1.90   | 89 | 9505.48 | 913.24  | 912.95 N  | 56.18 W | 3.53 | -3.15 |  |
|        | 82  | 10327 | 88.24 | 2.13   | 90 | 9508.38 | 1003.12 | 1002.85 N | 53.02 W | 0.32 | 0.19  |  |
|        | 83  | 10416 | 87.65 | 0.81   | 89 | 9511.57 | 1092.01 | 1091.76 N | 50.73 W | 1.62 | -0.66 |  |
|        | 84  | 10506 | 90.48 | 2.88   | 90 | 9513.04 | 1181.93 | 1181.69 N | 47.84 W | 3.90 | 3.14  |  |
|        | 85  | 10595 | 90.73 | 2.54   | 89 | 9512.10 | 1270.80 | 1270.59 N | 43.63 W | 0.47 | 0.28  |  |
|        | 86  | 10685 | 90.59 | 1.39   | 90 | 9511.06 | 1360.72 | 1360.53 N | 40.54 W | 1.29 | -0.16 |  |
|        | 87  | 10775 | 90.56 | 0.61   | 90 | 9510.16 | 1450.69 | 1450.51 N | 38.97 W | 0.87 | -0.03 |  |
|        | 88  | 10864 | 91.43 | 0.52   | 89 | 9508.61 | 1539.67 | 1539.49 N | 38.10 W | 0.98 | 0.98  |  |
| 6-May  | 89  | 10954 | 92.38 | 0.62   | 90 | 9505.62 | 1629.61 | 1629.43 N | 37.20 W | 1.06 | 1.06  |  |
|        | 90  | 11043 | 92.10 | 1.10   | 89 | 9502.14 | 1718.52 | 1718.35 N | 35.87 W | 0.62 | -0.31 |  |
|        | 91  | 11133 | 90.28 | 0.62   | 90 | 9500.27 | 1808.48 | 1808.32 N | 34.52 W | 2.09 | -2.02 |  |
|        | 92  | 11222 | 90.64 | 0.73   | 89 | 9499.56 | 1897.46 | 1897.31 N | 33.47 W | 0.42 | 0.40  |  |
|        | 93  | 11311 | 90.87 | 359.71 | 89 | 9498.38 | 1986.45 | 1986.30 N | 33.13 W | 1.17 | 0.26  |  |
|        | 94  | 11401 | 91.82 | 359.51 | 90 | 9496.27 | 2076.42 | 2076.27 N | 33.74 W | 1.08 | 1.06  |  |
|        | 95  | 11490 | 91.99 | 358.03 | 89 | 9493.31 | 2165.36 | 2165.20 N | 35.65 W | 1.67 | 0.19  |  |
|        | 96  | 11580 | 90.78 | 358.22 | 90 | 9491.14 | 2255.30 | 2255.13 N | 38.59 W | 1.36 | -1.34 |  |
|        | 97  | 11669 | 90.14 | 357.14 | 89 | 9490.42 | 2344.24 | 2344.05 N | 42.19 W | 1.41 | -0.72 |  |
|        | 98  | 11759 | 89.83 | 357.67 | 90 | 9490.45 | 2434.16 | 2433.96 N | 46.27 W | 0.68 | -0.34 |  |
|        | 99  | 11849 | 88.49 | 357.17 | 90 | 9491.77 | 2524.08 | 2523.85 N | 50.32 W | 1.59 | -1.49 |  |
|        | 100 | 11938 | 88.52 | 358.35 | 89 | 9494.09 | 2613.00 | 2612.75 N | 53.80 W | 1.33 | 0.03  |  |
|        | 101 | 12027 | 89.3  | 359.72 | 89 | 9495.78 | 2701.97 | 2701.72 N | 55.30 W | 1.77 | 0.88  |  |
|        | 102 | 12117 | 90.5  | 1.38   | 90 | 9495.94 | 2791.96 | 2791.71 N | 54.43 W | 2.28 | 1.33  |  |
| 7-May  | 103 | 12206 | 89.9  | 1.98   | 89 | 9495.66 | 2880.90 | 2880.67 N | 51.82 W | 0.99 | -0.72 |  |
|        | 104 | 12296 | 90.4  | 2.10   | 90 | 9495.44 | 2970.83 | 2970.61 N | 48.62 W | 0.64 | 0.62  |  |
|        | 105 | 12386 | 91.2  | 1.78   | 90 | 9494.21 | 3060.75 | 3060.55 N | 45.57 W | 0.89 | 0.81  |  |
|        | 106 | 12475 | 90.8  | 1.83   | 89 | 9492.72 | 3149.68 | 3149.50 N | 42.77 W | 0.44 | -0.44 |  |
|        | 107 | 12565 | 90.8  | 1.94   | 90 | 9491.51 | 3239.60 | 3239.44 N | 39.81 W | 0.12 | 0.02  |  |
|        | 108 | 12651 | 90.70 | 2.10   | 86 | 9490.40 | 3325.53 | 3325.38 N | 36.78 W | 0.21 | -0.09 |  |
| 10-May | 109 | 12745 | 91.20 | 1.92   | 94 | 9488.84 | 3419.44 | 3419.31 N | 33.48 W | 0.57 | 0.53  |  |
|        | 110 | 12835 | 91.40 | 1.00   | 90 | 9486.80 | 3509.37 | 3509.26 N | 31.19 W | 1.05 | 0.22  |  |
|        | 111 | 12924 | 89.69 | 1.69   | 89 | 9485.96 | 3598.33 | 3598.22 N | 29.10 W | 2.07 | -1.92 |  |
|        | 112 | 13013 | 89.33 | 0.54   | 89 | 9486.72 | 3687.29 | 3687.20 N | 27.37 W | 1.35 | -0.40 |  |
|        | 113 | 13103 | 89.66 | 359.78 | 90 | 9487.51 | 3777.29 | 3777.20 N | 27.12 W | 0.92 | 0.37  |  |
|        | 114 | 13192 | 90.17 | 359.13 | 89 | 9487.64 | 3866.28 | 3866.19 N | 27.96 W | 0.93 | 0.57  |  |
|        | 115 | 13282 | 90.45 | 358.46 | 90 | 9487.15 | 3956.27 | 3956.17 N | 29.86 W | 0.81 | 0.31  |  |
|        | 116 | 13371 | 90.64 | 358.23 | 89 | 9486.31 | 4045.24 | 4045.13 N | 32.43 W | 0.34 | 0.21  |  |
|        | 117 | 13461 | 91.62 | 357.96 | 90 | 9484.53 | 4135.19 | 4135.06 N | 35.42 W | 1.13 | 1.09  |  |
|        | 118 | 13550 | 89.27 | 358.22 | 89 | 9483.84 | 4224.14 | 4224.00 N | 38.38 W | 2.66 | -2.64 |  |
|        | 119 | 13639 | 89.19 | 357.56 | 89 | 9485.04 | 4313.09 | 4312.93 N | 41.66 W | 0.75 | -0.09 |  |
|        | 120 | 13729 | 91.03 | 357.98 | 90 | 9484.87 | 4403.04 | 4402.86 N | 45.16 W | 2.10 | 2.04  |  |
|        | 121 | 13818 | 91.96 | 358.25 | 89 | 9482.54 | 4491.97 | 4491.78 N | 48.09 W | 1.09 | 1.04  |  |
|        | 122 | 13891 | 92.15 | 358.08 | 73 | 9479.93 | 4564.90 | 4564.70 N | 50.42 W | 0.35 | 0.26  |  |
| TD     | 123 | 13942 | 92.15 | 358.08 | 51 | 9478.01 | 4615.84 | 4615.63 N | 52.13 W | 0.00 | 0.00  |  |
|        | 124 |       |       |        | 0  | 0.00    | 0.00    | 0.00 N    | 0.00 E  | 0.00 | 0.00  |  |
|        | 125 |       |       |        | 0  | 0.00    | 0.00    | 0.00 N    | 0.00 E  | 0.00 | 0.00  |  |



**PHOENIX**  
TECHNOLOGY SERVICES

Job Number: 1410651  
Company: Chevron  
Lease/Well: Red Hills 2-25-33  
Location: 1H  
Rig Name: Ensign 153  
RKB:   
G.L. or M.S.L.:

State/Country: New Mexico  
Declination:   
Grid:   
File name: C:\WINSERVE\1410651.SVY  
Date/Time: 10-May-14 / 20:07  
Curve Name: Red Hills 2-25-33 #1H - Surveys

**Phoenix Technology Services**

WINSERVE SURVEY CALCULATIONS  
*Minimum Curvature Method*  
*Vertical Section Plane 359.70*  
*Vertical Section Referenced to Wellhead*  
*Rectangular Coordinates Referenced to Wellhead*

| Measured Depth<br>FT | Incl Angle<br>Deg | Drift Direction<br>Deg | True Vertical<br>Depth | N-S<br>FT | E-W<br>FT | Vertical Section<br>FT | Dogleg Severity<br>Deg/100 | BUILD RATE<br>Deg/100 | WALK RATE<br>Deg/100 |
|----------------------|-------------------|------------------------|------------------------|-----------|-----------|------------------------|----------------------------|-----------------------|----------------------|
| .00                  | .00               | .00                    | .00                    | .00       | .00       | .00                    | .00                        | .00                   | .00                  |
| 41.00                | .28               | 258.89                 | 41.00                  | -.02      | -.10      | -.02                   | .68                        | .68                   | -246.61              |
| 131.00               | .82               | 234.18                 | 131.00                 | -.44      | -.84      | -.43                   | .64                        | .60                   | -27.46               |
| 221.00               | .82               | 234.18                 | 220.99                 | -1.19     | -1.88     | -1.18                  | .00                        | .00                   | .00                  |
| 311.00               | .86               | 224.76                 | 310.98                 | -2.05     | -2.88     | -2.03                  | .16                        | .04                   | -10.47               |
| 401.00               | .76               | 226.99                 | 400.97                 | -2.94     | -3.79     | -2.92                  | .12                        | -.11                  | 2.48                 |
| 491.00               | .82               | 235.26                 | 490.96                 | -3.71     | -4.76     | -3.68                  | .14                        | .07                   | 9.19                 |
| 581.00               | .87               | 239.39                 | 580.95                 | -4.42     | -5.87     | -4.39                  | .09                        | .06                   | 4.59                 |
| 671.00               | 1.05              | 243.45                 | 670.94                 | -5.14     | -7.20     | -5.10                  | .21                        | .20                   | 4.51                 |
| 761.00               | 1.06              | 244.26                 | 760.92                 | -5.87     | -8.69     | -5.83                  | .02                        | .01                   | .90                  |
| 851.00               | 1.00              | 241.59                 | 850.91                 | -6.61     | -10.13    | -6.55                  | .09                        | -.07                  | -2.97                |
| 941.00               | 1.10              | 229.20                 | 940.89                 | -7.54     | -11.47    | -7.48                  | .27                        | .11                   | -13.77               |
| 1031.00              | .94               | 220.85                 | 1030.88                | -8.67     | -12.61    | -8.60                  | .24                        | -.18                  | -9.28                |
| 1121.00              | .84               | 226.07                 | 1120.87                | -9.68     | -13.57    | -9.61                  | .14                        | -.11                  | 5.80                 |
| 1211.00              | .77               | 235.02                 | 1210.86                | -10.49    | -14.54    | -10.41                 | .16                        | -.08                  | 9.94                 |
| 1383.00              | .53               | 266.07                 | 1382.85                | -11.21    | -16.28    | -11.12                 | .24                        | -.14                  | 18.05                |
| 1562.00              | .63               | 247.65                 | 1561.84                | -11.64    | -18.01    | -11.54                 | .12                        | .06                   | -10.29               |
| 1741.00              | .73               | 261.59                 | 1740.83                | -12.18    | -20.05    | -12.07                 | .11                        | .06                   | 7.79                 |
| 1919.00              | .68               | 263.26                 | 1918.81                | -12.47    | -22.22    | -12.35                 | .03                        | -.03                  | .94                  |
| 2098.00              | .73               | 270.26                 | 2097.80                | -12.59    | -24.42    | -12.46                 | .06                        | .03                   | 3.91                 |
| 2278.00              | 1.01              | 265.82                 | 2277.78                | -12.70    | -27.15    | -12.55                 | .16                        | .16                   | -2.47                |
| 2457.00              | .90               | 259.64                 | 2456.75                | -13.06    | -30.10    | -12.90                 | .08                        | -.06                  | -3.45                |
| 2635.00              | 1.22              | 274.62                 | 2634.72                | -13.16    | -33.37    | -12.99                 | .24                        | .18                   | 8.42                 |
| 2814.00              | 1.43              | 272.22                 | 2813.67                | -12.92    | -37.50    | -12.72                 | .12                        | .12                   | -1.34                |
| 2993.00              | .90               | 252.84                 | 2992.64                | -13.25    | -41.07    | -13.03                 | .36                        | -.30                  | -10.83               |

| Measured<br>Depth<br>FT | Incl<br>Angle<br>Deg | Drift<br>Direction<br>Deg | True<br>Vertical<br>Depth | N-S<br>FT | E-W<br>FT | Vertical<br>Section<br>FT | Dogleg<br>Severity<br>Deg/100 | BUILD<br>RATE<br>Deg/100 | WALK<br>RATE<br>Deg/100 |
|-------------------------|----------------------|---------------------------|---------------------------|-----------|-----------|---------------------------|-------------------------------|--------------------------|-------------------------|
| 3172.00                 | 1.34                 | 172.89                    | 3171.61                   | -15.74    | -42.16    | -15.52                    | .83                           | .25                      | -44.66                  |
| 3351.00                 | 2.04                 | 84.87                     | 3350.56                   | -17.54    | -38.73    | -17.33                    | 1.34                          | .39                      | -49.17                  |
| 3530.00                 | 1.07                 | 25.13                     | 3529.50                   | -15.74    | -34.84    | -15.55                    | .98                           | -.54                     | -33.37                  |
| 3709.00                 | 1.28                 | 334.73                    | 3708.47                   | -12.42    | -34.99    | -12.23                    | .57                           | .12                      | -28.16                  |
| 3888.00                 | 1.35                 | 334.68                    | 3887.42                   | -8.70     | -36.74    | -8.51                     | .04                           | .04                      | -.03                    |
| 4067.00                 | 1.41                 | 333.37                    | 4066.37                   | -4.83     | -38.63    | -4.62                     | .04                           | .03                      | -.73                    |
| 4246.00                 | 1.66                 | 333.62                    | 4245.30                   | -.54      | -40.77    | -.32                      | .14                           | .14                      | .14                     |
| 4425.00                 | 1.15                 | 88.20                     | 4424.27                   | 1.84      | -40.13    | 2.06                      | 1.33                          | -.28                     | 64.01                   |
| 4605.00                 | 2.30                 | 81.26                     | 4604.19                   | 2.45      | -34.75    | 2.63                      | .65                           | .64                      | -3.86                   |
| 4784.00                 | 1.85                 | 31.88                     | 4783.08                   | 5.45      | -29.67    | 5.61                      | .99                           | -.25                     | -27.59                  |
| 4978.00                 | 1.87                 | 18.71                     | 4976.98                   | 11.11     | -27.00    | 11.25                     | .22                           | .01                      | -6.79                   |
| 5147.00                 | .34                  | 10.05                     | 5145.95                   | 14.21     | -26.03    | 14.35                     | .91                           | -.91                     | -5.12                   |
| 5326.00                 | .33                  | 324.67                    | 5324.94                   | 15.15     | -26.24    | 15.29                     | .14                           | -.01                     | -25.35                  |
| 5506.00                 | .31                  | 317.52                    | 5504.94                   | 15.94     | -26.87    | 16.08                     | .02                           | -.01                     | -3.97                   |
| 5684.00                 | .33                  | 312.60                    | 5682.94                   | 16.64     | -27.57    | 16.78                     | .02                           | .01                      | -2.76                   |
| 5863.00                 | .40                  | 325.43                    | 5861.93                   | 17.50     | -28.30    | 17.65                     | .06                           | .04                      | 7.17                    |
| 6042.00                 | .36                  | 305.25                    | 6040.93                   | 18.34     | -29.12    | 18.50                     | .08                           | -.02                     | -11.27                  |
| 6221.00                 | .42                  | 296.94                    | 6219.93                   | 18.96     | -30.16    | 19.12                     | .05                           | .03                      | -4.64                   |
| 6400.00                 | .36                  | 311.12                    | 6398.92                   | 19.63     | -31.17    | 19.80                     | .06                           | -.03                     | 7.92                    |
| 6579.00                 | .53                  | 287.18                    | 6577.92                   | 20.24     | -32.38    | 20.42                     | .14                           | .09                      | -13.37                  |
| 6758.00                 | .43                  | 282.38                    | 6756.91                   | 20.63     | -33.83    | 20.81                     | .06                           | -.06                     | -2.68                   |
| 6937.00                 | .81                  | 172.45                    | 6935.90                   | 19.52     | -34.32    | 19.70                     | .58                           | .21                      | -61.41                  |
| 7117.00                 | 1.26                 | 171.89                    | 7115.87                   | 16.30     | -33.87    | 16.48                     | .25                           | .25                      | -.31                    |
| 7295.00                 | 2.12                 | 139.18                    | 7293.80                   | 11.87     | -31.45    | 12.04                     | .71                           | .48                      | -18.38                  |
| 7474.00                 | 2.24                 | 137.56                    | 7472.67                   | 6.79      | -26.92    | 6.93                      | .08                           | .07                      | -.91                    |
| 7653.00                 | 2.55                 | 141.97                    | 7651.51                   | 1.07      | -22.11    | 1.18                      | .20                           | .17                      | 2.46                    |
| 7832.00                 | 1.74                 | 135.88                    | 7830.39                   | -4.02     | -17.76    | -3.93                     | .47                           | -.45                     | -3.40                   |
| 8011.00                 | .19                  | 258.73                    | 8009.36                   | -6.03     | -16.16    | -5.94                     | 1.03                          | -.87                     | 68.63                   |
| 8190.00                 | .46                  | 178.97                    | 8188.36                   | -6.81     | -16.44    | -6.72                     | .26                           | .15                      | -44.56                  |
| 8368.00                 | .34                  | 159.40                    | 8366.35                   | -8.01     | -16.24    | -7.93                     | .10                           | -.07                     | -10.99                  |
| 8547.00                 | .39                  | 166.04                    | 8545.35                   | -9.10     | -15.91    | -9.02                     | .04                           | .03                      | 3.71                    |
| 8726.00                 | .48                  | 145.45                    | 8724.34                   | -10.31    | -15.33    | -10.23                    | .10                           | .05                      | -11.50                  |
| 8905.00                 | .64                  | 137.24                    | 8903.34                   | -11.66    | -14.23    | -11.59                    | .10                           | .09                      | -4.59                   |
| 8942.00                 | .74                  | 129.77                    | 8940.33                   | -11.97    | -13.91    | -11.89                    | .36                           | .27                      | -20.19                  |
| 8986.00                 | .70                  | 124.50                    | 8984.33                   | -12.30    | -13.47    | -12.23                    | .18                           | -.09                     | -11.98                  |
| 9076.00                 | 7.00                 | 355.09                    | 9074.12                   | -7.14     | -13.48    | -7.07                     | 8.29                          | 7.00                     | -143.79                 |
| 9120.00                 | 11.70                | 349.11                    | 9117.52                   | -.09      | -14.56    | -.01                      | 10.89                         | 10.68                    | -13.59                  |
| 9165.00                 | 16.79                | 345.20                    | 9161.12                   | 10.69     | -17.08    | 10.78                     | 11.51                         | 11.31                    | -8.69                   |
| 9210.00                 | 22.26                | 343.39                    | 9203.52                   | 25.15     | -21.18    | 25.26                     | 12.23                         | 12.16                    | -4.02                   |
| 9255.00                 | 27.14                | 344.51                    | 9244.39                   | 43.22     | -26.36    | 43.36                     | 10.89                         | 10.84                    | 2.49                    |
| 9299.00                 | 32.21                | 346.67                    | 9282.61                   | 64.31     | -31.75    | 64.48                     | 11.77                         | 11.52                    | 4.91                    |
| 9344.00                 | 36.80                | 349.03                    | 9319.69                   | 89.23     | -37.08    | 89.43                     | 10.62                         | 10.20                    | 5.24                    |
| 9389.00                 | 41.43                | 350.09                    | 9354.59                   | 117.14    | -42.21    | 117.37                    | 10.40                         | 10.29                    | 2.36                    |
| 9434.00                 | 45.60                | 349.65                    | 9387.22                   | 147.64    | -47.66    | 147.89                    | 9.29                          | 9.27                     | -.98                    |
| 9478.00                 | 50.46                | 349.00                    | 9416.63                   | 179.77    | -53.73    | 180.06                    | 11.10                         | 11.05                    | -1.48                   |



| Measured<br>Depth<br>FT | Incl<br>Angle<br>Deg | Drift<br>Direction<br>Deg | True<br>Vertical<br>Depth | N-S<br>FT | E-W<br>FT | Vertical<br>Section<br>FT | Dogleg<br>Severity<br>Deg/100 | BUILD<br>RATE<br>Deg/100 | WALK<br>RATE<br>Deg/100 |
|-------------------------|----------------------|---------------------------|---------------------------|-----------|-----------|---------------------------|-------------------------------|--------------------------|-------------------------|
| 9523.00                 | 56.01                | 349.49                    | 9443.56                   | 215.18    | -60.45    | 215.50                    | 12.36                         | 12.33                    | 1.09                    |
| 9568.00                 | 62.06                | 351.21                    | 9466.70                   | 253.20    | -66.89    | 253.55                    | 13.84                         | 13.44                    | 3.82                    |
| 9613.00                 | 68.52                | 353.34                    | 9485.50                   | 293.69    | -72.37    | 294.07                    | 14.98                         | 14.36                    | 4.73                    |
| 9658.00                 | 74.11                | 357.13                    | 9499.92                   | 336.14    | -75.88    | 336.54                    | 14.76                         | 12.42                    | 8.42                    |
| 9702.00                 | 80.17                | .32                       | 9509.71                   | 379.00    | -76.82    | 379.41                    | 15.48                         | 13.77                    | 7.25                    |
| 9722.00                 | 83.41                | .97                       | 9512.57                   | 398.80    | -76.60    | 399.20                    | 16.52                         | 16.20                    | 3.25                    |
| 9789.00                 | 89.97                | 1.12                      | 9516.43                   | 465.64    | -75.38    | 466.03                    | 9.79                          | 9.79                     | .22                     |
| 9879.00                 | 91.68                | 2.03                      | 9515.14                   | 555.59    | -72.91    | 555.97                    | 2.15                          | 1.90                     | 1.01                    |
| 9969.00                 | 93.36                | 2.52                      | 9511.18                   | 645.43    | -69.34    | 645.79                    | 1.94                          | 1.87                     | .54                     |
| 10058.00                | 92.07                | 2.90                      | 9506.96                   | 734.23    | -65.13    | 734.56                    | 1.51                          | -1.45                    | .43                     |
| 10148.00                | 90.87                | 3.32                      | 9504.65                   | 824.06    | -60.25    | 824.37                    | 1.41                          | -1.33                    | .47                     |
| 10237.00                | 88.07                | 1.90                      | 9505.48                   | 912.95    | -56.20    | 913.24                    | 3.53                          | -3.15                    | -1.60                   |
| 10327.00                | 88.24                | 2.13                      | 9508.38                   | 1002.85   | -53.04    | 1003.12                   | .32                           | .19                      | .26                     |
| 10416.00                | 87.65                | .81                       | 9511.57                   | 1091.76   | -50.76    | 1092.02                   | 1.62                          | -.66                     | -1.48                   |
| 10506.00                | 90.48                | 2.88                      | 9513.04                   | 1181.69   | -47.86    | 1181.93                   | 3.90                          | 3.14                     | 2.30                    |
| 10595.00                | 90.73                | 2.54                      | 9512.10                   | 1270.59   | -43.65    | 1270.80                   | .47                           | .28                      | -.38                    |
| 10685.00                | 90.59                | 1.39                      | 9511.06                   | 1360.53   | -40.56    | 1360.72                   | 1.29                          | -.16                     | -1.28                   |
| 10775.00                | 90.56                | .61                       | 9510.16                   | 1450.51   | -38.99    | 1450.69                   | .87                           | -.03                     | -.87                    |
| 10864.00                | 91.43                | .52                       | 9508.61                   | 1539.49   | -38.12    | 1539.67                   | .98                           | .98                      | -.10                    |
| 10954.00                | 92.38                | .62                       | 9505.62                   | 1629.43   | -37.22    | 1629.61                   | 1.06                          | 1.06                     | .11                     |
| 11043.00                | 92.10                | 1.10                      | 9502.14                   | 1718.35   | -35.89    | 1718.52                   | .62                           | -.31                     | .54                     |
| 11133.00                | 90.28                | .62                       | 9500.27                   | 1808.32   | -34.54    | 1808.48                   | 2.09                          | -2.02                    | -.53                    |
| 11222.00                | 90.64                | .73                       | 9499.56                   | 1897.31   | -33.49    | 1897.46                   | .42                           | .40                      | .12                     |
| 11311.00                | 90.87                | 359.71                    | 9498.38                   | 1986.30   | -33.15    | 1986.45                   | 1.17                          | .26                      | -1.15                   |
| 11401.00                | 91.82                | 359.51                    | 9496.27                   | 2076.27   | -33.76    | 2076.42                   | 1.08                          | 1.06                     | -.22                    |
| 11490.00                | 91.99                | 358.03                    | 9493.31                   | 2165.20   | -35.67    | 2165.36                   | 1.67                          | .19                      | -1.66                   |
| 11580.00                | 90.78                | 358.22                    | 9491.14                   | 2255.13   | -38.61    | 2255.30                   | 1.36                          | -1.34                    | .21                     |
| 11669.00                | 90.14                | 357.14                    | 9490.42                   | 2344.05   | -42.21    | 2344.24                   | 1.41                          | -.72                     | -1.21                   |
| 11759.00                | 89.83                | 357.67                    | 9490.45                   | 2433.96   | -46.29    | 2434.17                   | .68                           | -.34                     | .59                     |
| 11849.00                | 88.49                | 357.17                    | 9491.77                   | 2523.85   | -50.34    | 2524.08                   | 1.59                          | -1.49                    | -.56                    |
| 11938.00                | 88.52                | 358.35                    | 9494.09                   | 2612.75   | -53.82    | 2613.00                   | 1.33                          | .03                      | 1.33                    |
| 12027.00                | 89.30                | 359.72                    | 9495.78                   | 2701.72   | -55.32    | 2701.98                   | 1.77                          | .88                      | 1.54                    |
| 12117.00                | 90.50                | 1.38                      | 9495.94                   | 2791.71   | -54.45    | 2791.96                   | 2.28                          | 1.33                     | 1.84                    |
| 12206.00                | 89.86                | 1.98                      | 9495.66                   | 2880.67   | -51.84    | 2880.91                   | .99                           | -.72                     | .67                     |
| 12296.00                | 90.42                | 2.10                      | 9495.44                   | 2970.61   | -48.64    | 2970.83                   | .64                           | .62                      | .13                     |
| 12386.00                | 91.15                | 1.78                      | 9494.21                   | 3060.55   | -45.59    | 3060.75                   | .89                           | .81                      | -.36                    |
| 12475.00                | 90.76                | 1.83                      | 9492.72                   | 3149.50   | -42.79    | 3149.68                   | .44                           | -.44                     | .06                     |
| 12565.00                | 90.78                | 1.94                      | 9491.51                   | 3239.44   | -39.83    | 3239.61                   | .12                           | .02                      | .12                     |
| 12651.00                | 90.70                | 2.10                      | 9490.40                   | 3325.38   | -36.80    | 3325.53                   | .21                           | -.09                     | .19                     |
| 12745.00                | 91.20                | 1.92                      | 9488.84                   | 3419.31   | -33.50    | 3419.44                   | .57                           | .53                      | -.19                    |
| 12835.00                | 91.40                | 1.00                      | 9486.80                   | 3509.26   | -31.21    | 3509.37                   | 1.05                          | .22                      | -1.02                   |
| 12924.00                | 89.69                | 1.69                      | 9485.96                   | 3598.22   | -29.12    | 3598.33                   | 2.07                          | -1.92                    | .78                     |
| 13013.00                | 89.33                | .54                       | 9486.72                   | 3687.20   | -27.39    | 3687.29                   | 1.35                          | -.40                     | -1.29                   |
| 13103.00                | 89.66                | 359.78                    | 9487.51                   | 3777.20   | -27.14    | 3777.29                   | .92                           | .37                      | -.84                    |
| 13192.00                | 90.17                | 359.13                    | 9487.64                   | 3866.19   | -27.98    | 3866.29                   | .93                           | .57                      | -.73                    |

| Measured<br>Depth<br>FT | Incl<br>Angle<br>Deg | Drift<br>Direction<br>Deg | True<br>Vertical<br>Depth | N-S<br>FT | E-W<br>FT | Vertical<br>Section<br>FT | Dogleg<br>Severity<br>Deg/100 | BUILD<br>RATE<br>Deg/100 | WALK<br>RATE<br>Deg/100 |
|-------------------------|----------------------|---------------------------|---------------------------|-----------|-----------|---------------------------|-------------------------------|--------------------------|-------------------------|
| 13282.00                | 90.45                | 358.46                    | 9487.15                   | 3956.17   | -29.88    | 3956.27                   | .81                           | .31                      | -.74                    |
| 13371.00                | 90.64                | 358.23                    | 9486.31                   | 4045.13   | -32.45    | 4045.24                   | .34                           | .21                      | -.26                    |
| 13461.00                | 91.62                | 357.96                    | 9484.53                   | 4135.06   | -35.44    | 4135.19                   | 1.13                          | 1.09                     | -.30                    |
| 13550.00                | 89.27                | 358.22                    | 9483.84                   | 4224.00   | -38.40    | 4224.15                   | 2.66                          | -2.64                    | .29                     |
| 13639.00                | 89.19                | 357.56                    | 9485.04                   | 4312.93   | -41.68    | 4313.09                   | .75                           | -.09                     | -.74                    |
| 13729.00                | 91.03                | 357.98                    | 9484.87                   | 4402.86   | -45.18    | 4403.04                   | 2.10                          | 2.04                     | .47                     |
| 13818.00                | 91.96                | 358.25                    | 9482.54                   | 4491.78   | -48.11    | 4491.97                   | 1.09                          | 1.04                     | .30                     |
| 13891.00                | 92.15                | 358.08                    | 9479.93                   | 4564.70   | -50.44    | 4564.90                   | .35                           | .26                      | -.23                    |
| <b>ptb</b>              |                      |                           |                           |           |           |                           |                               |                          |                         |
| 13941.00                | 92.15                | 358.08                    | 9478.05                   | 4614.63   | -52.12    | 4614.84                   | .00                           | .00                      | .00                     |