

30-015-39365



**Weatherford<sup>TM</sup>**

HOBBS OCD

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**Drilling Services**

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**Proposal**

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**devon**

EMERALD PWU 20 #3H

EDDY COUNTY, NM

WELL FILE: **PLAN 1**

AUGUST 22, 2011

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**Emerald PWU 20 #3H**  
**Eddy Co, NM**

**SECTION DETAILS**

| Sec | MD       | Inc   | Azi   | TVD     | +N/-S | +E/-W   | DLeg  | TFace | VSec    | Target |
|-----|----------|-------|-------|---------|-------|---------|-------|-------|---------|--------|
| 1   | 0.00     | 0.00  | 90.10 | 0.00    | 0.00  | 0.00    | 0.00  | 0.00  | 0.00    |        |
| 2   | 7262.09  | 0.00  | 90.10 | 7262.09 | 0.00  | 0.00    | 0.00  | 0.00  | 0.00    |        |
| 3   | 8154.35  | 89.23 | 90.10 | 7835.00 | -1.03 | 565.21  | 10.00 | 90.10 | 565.21  |        |
| 4   | 12223.82 | 89.23 | 90.10 | 7890.00 | -8.47 | 4634.31 | 0.00  | 0.00  | 4634.32 | Pbhl   |

**WELL DETAILS**

| Name   | +N/-S | +E/-W | Northing  | Easting   | Latitude      | Longitude      | Slot |
|--------|-------|-------|-----------|-----------|---------------|----------------|------|
| 20 #3H | 0.00  | 0.00  | 598464.30 | 611763.81 | 32°38'42.053N | 104°06'16.311W | N/A  |

**TARGET DETAILS**

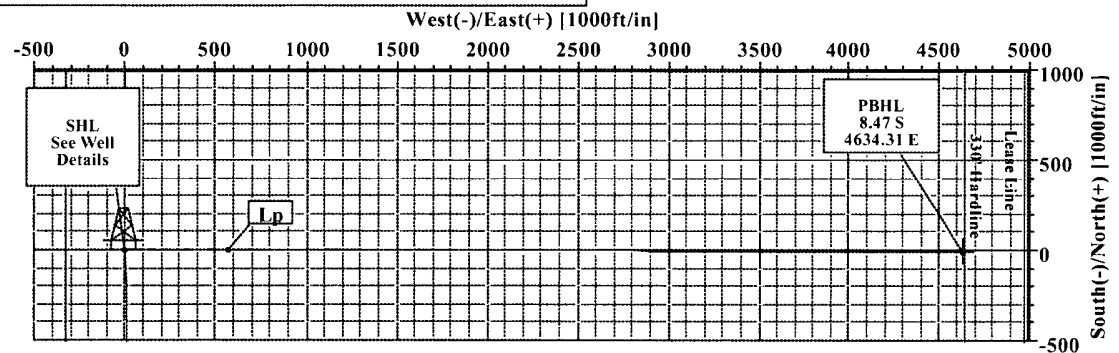
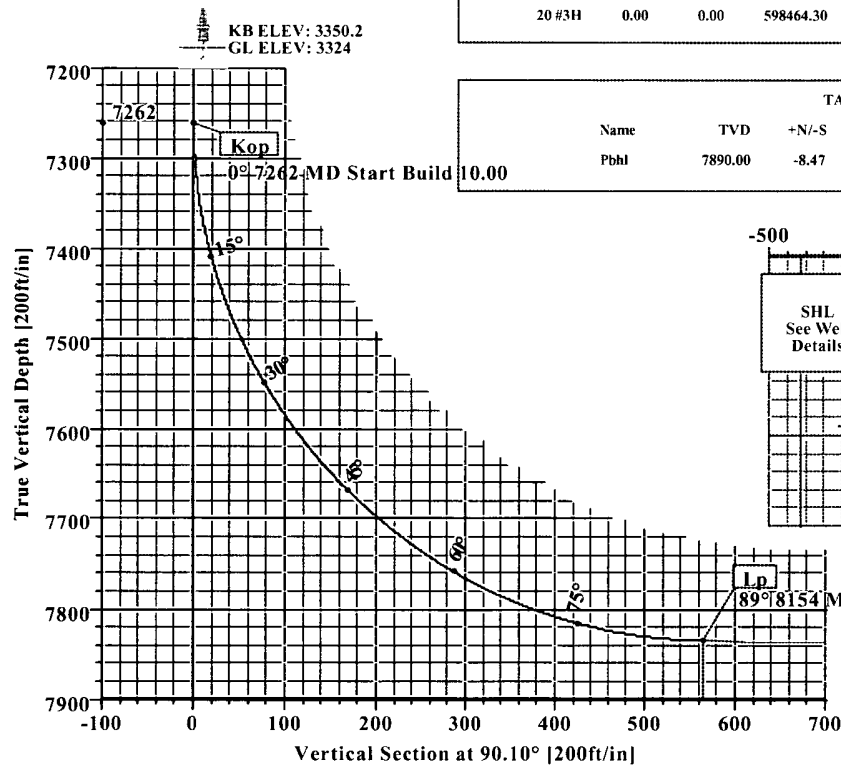
| Name | TVD     | +N/-S | +E/-W   | Northing  | Easting   | Shape |
|------|---------|-------|---------|-----------|-----------|-------|
| Pbhl | 7890.00 | -8.47 | 4634.31 | 598455.83 | 616398.12 | Point |

**FIELD DETAILS**

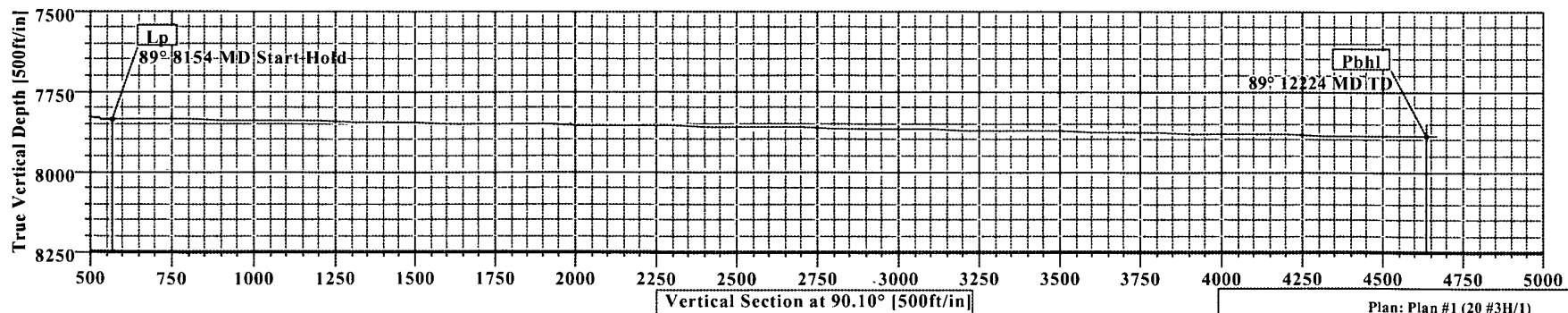
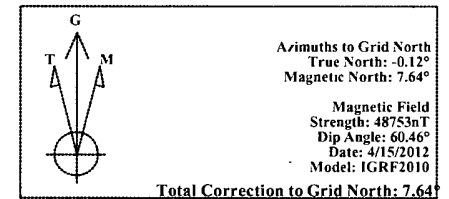
Eddy Co., NM (NAD 83)  
Geodetic System: US State Plane Coordinate System 1983  
Ellipsoid: GRS 1980  
Zone: New Mexico, Eastern Zone  
Magnetic Model: IGRF2010  
System Datum: Mean Sea Level  
Local North: Grid North

**SITE DETAILS**

Emerald PWU 20 #3H  
Site Centre Northing: 598464.30  
Easting: 611763.81  
Ground Level: 3324.00  
Positional Uncertainty: 0.00  
Convergence: 0.12



**LEGEND**  
= 1  
Plan #1



Plan: Plan #1 (20 #3H/1)

Created By: Russell W. Joyner

Date: 8/22/2011



# Weatherford International Ltd.

## WFT Plan Report - X & Y's



|                                     |  |                                                            |                       |                |
|-------------------------------------|--|------------------------------------------------------------|-----------------------|----------------|
| <b>Company:</b> Devon Energy        |  | <b>Date:</b> 8/22/2011                                     | <b>Time:</b> 09:32 31 | <b>Page:</b> 1 |
| <b>Field:</b> Eddy Co , NM (NAD 83) |  | <b>Co-ordinate(NE) Reference:</b> Well 20 #3H, Grid North  |                       |                |
| <b>Site:</b> Emerald PWU 20 #3H     |  | <b>Vertical (TVD) Reference:</b> SITE 3350.2               |                       |                |
| <b>Well:</b> 20 #3H                 |  | <b>Section (VS) Reference:</b> Well (0 00N,0 00E,90.10Azi) |                       |                |
| <b>Wellpath:</b> 1                  |  | <b>Survey Calculation Method:</b> Minimum Curvature        | <b>Db:</b> Sybase     |                |

|                       |                                 |
|-----------------------|---------------------------------|
| <b>Plan:</b> Plan #1  | <b>Date Composed:</b> 8/18/2011 |
| <b>Principal:</b> Yes | <b>Version:</b> 1               |
|                       | <b>Tied-to:</b> From Surface    |

|                                                          |                                           |
|----------------------------------------------------------|-------------------------------------------|
| <b>Field:</b> Eddy Co , NM (NAD 83)                      |                                           |
| <b>Map System:</b> US State Plane Coordinate System 1983 | <b>Map Zone:</b> New Mexico, Eastern Zone |
| <b>Geo Datum:</b> GRS 1980                               | <b>Coordinate System:</b> Well Centre     |
| <b>Sys Datum:</b> Mean Sea Level                         | <b>Geomagnetic Model:</b> IGRF2010        |

|                                      |                                   |
|--------------------------------------|-----------------------------------|
| <b>Site:</b> Emerald PWU 20 #3H      |                                   |
| <b>Site Position:</b>                | <b>Northing:</b> 598464 30 ft     |
| <b>From:</b> Map                     | <b>Easting:</b> 611763 81 ft      |
| <b>Position Uncertainty:</b> 0.00 ft | <b>Latitude:</b> 32 38 42.053 N   |
| <b>Ground Level:</b> 3324 00 ft      | <b>Longitude:</b> 104 6 16.311 W  |
|                                      | <b>North Reference:</b> Grid      |
|                                      | <b>Grid Convergence:</b> 0 12 deg |

|                                      |                                  |
|--------------------------------------|----------------------------------|
| <b>Well:</b> 20 #3H                  | <b>Slot Name:</b>                |
| <b>Well Position:</b> +N/-S 0 00 ft  | <b>Latitude:</b> 32 38 42.053 N  |
| +E/-W 0.00 ft                        | <b>Longitude:</b> 104 6 16.311 W |
| <b>Position Uncertainty:</b> 0.00 ft |                                  |

|                                           |                                           |
|-------------------------------------------|-------------------------------------------|
| <b>Wellpath:</b> 1                        | <b>Drilled From:</b> Surface              |
| <b>Current Datum:</b> SITE                | <b>Tie-on Depth:</b> 0.00 ft              |
| <b>Magnetic Data:</b> 4/15/2012           | <b>Above System Datum:</b> Mean Sea Level |
| <b>Field Strength:</b> 48753 nT           | <b>Declination:</b> 7 76 deg              |
| <b>Vertical Section:</b> Depth From (TVD) | <b>Mag Dip Angle:</b> 60.46 deg           |
| ft                                        | <b>+E/-W</b>                              |
|                                           | <b>Direction</b>                          |
|                                           | <b>deg</b>                                |
| 0.00                                      | 0.00                                      |
| 0.00                                      | 90 10                                     |

|                                 |                    |                    |                  |                    |                    |                         |                           |                          |                   |               |
|---------------------------------|--------------------|--------------------|------------------|--------------------|--------------------|-------------------------|---------------------------|--------------------------|-------------------|---------------|
| <b>Plan Section Information</b> |                    |                    |                  |                    |                    |                         |                           |                          |                   |               |
| <b>MD</b><br>ft                 | <b>Incl</b><br>deg | <b>Azim</b><br>deg | <b>TVD</b><br>ft | <b>+N/-S</b><br>ft | <b>+E/-W</b><br>ft | <b>DLS</b><br>deg/100ft | <b>Build</b><br>deg/100ft | <b>Turn</b><br>deg/100ft | <b>TFO</b><br>deg | <b>Target</b> |
| 0 00                            | 0 00               | 90.10              | 0 00             | 0 00               | 0 00               | 0 00                    | 0.00                      | 0 00                     | 0 00              |               |
| 7262 09                         | 0.00               | 90 10              | 7262 09          | 0 00               | 0 00               | 0.00                    | 0.00                      | 0 00                     | 0 00              |               |
| 8154 35                         | 89 23              | 90 10              | 7835 00          | -1 03              | 565.21             | 10 00                   | 10 00                     | 0.00                     | 90.10             |               |
| 12223 82                        | 89 23              | 90 10              | 7890 00          | -8 47              | 4634 31            | 0.00                    | 0 00                      | 0 00                     | 0.00              | Pbhl          |

|                 |                    |                    |                  |                  |                  |                 |                         |                   |                   |                |
|-----------------|--------------------|--------------------|------------------|------------------|------------------|-----------------|-------------------------|-------------------|-------------------|----------------|
| <b>Survey</b>   |                    |                    |                  |                  |                  |                 |                         |                   |                   |                |
| <b>MD</b><br>ft | <b>Incl</b><br>deg | <b>Azim</b><br>deg | <b>TVD</b><br>ft | <b>N/S</b><br>ft | <b>E/W</b><br>ft | <b>VS</b><br>ft | <b>DLS</b><br>deg/100ft | <b>MapN</b><br>ft | <b>MapE</b><br>ft | <b>Comment</b> |
| 7200 00         | 0.00               | 90.10              | 7200.00          | 0 00             | 0 00             | 0.00            | 0 00                    | 598464 30         | 611763 81         |                |
| 7262.09         | 0 00               | 90 10              | 7262.09          | 0 00             | 0 00             | 0 00            | 0.00                    | 598464 30         | 611763 81         | Kop            |
| 7300 00         | 3 79               | 90.10              | 7299 97          | 0 00             | 1 25             | 1.25            | 10.00                   | 598464 30         | 611765 06         |                |
| 7400 00         | 13 79              | 90 10              | 7398.67          | -0 03            | 16 52            | 16.52           | 10 00                   | 598464.27         | 611780 33         |                |
| 7500 00         | 23 79              | 90.10              | 7493 22          | -0 09            | 48 69            | 48 69           | 10 00                   | 598464 21         | 611812 50         |                |
| 7600 00         | 33 79              | 90 10              | 7580 75          | -0 18            | 96 79            | 96 79           | 10.00                   | 598464 12         | 611860 60         |                |
| 7700 00         | 43.79              | 90 10              | 7658 59          | -0 29            | 159 36           | 159 36          | 10.00                   | 598464.01         | 611923 17         |                |
| 7800 00         | 53 79              | 90 10              | 7724 39          | -0 43            | 234.49           | 234.49          | 10.00                   | 598463 87         | 611998.30         |                |
| 7900 00         | 63.79              | 90 10              | 7776 14          | -0 58            | 319 91           | 319.91          | 10 00                   | 598463 72         | 612083 72         |                |
| 8000 00         | 73 79              | 90 10              | 7812 27          | -0 75            | 413 02           | 413 02          | 10.00                   | 598463 55         | 612176 83         |                |
| 8100 00         | 83.79              | 90 10              | 7831 69          | -0 93            | 510 99           | 510.99          | 10 00                   | 598463 37         | 612274 80         |                |
| 8154 35         | 89 23              | 90 10              | 7835 00          | -1 03            | 565 21           | 565 21          | 10 00                   | 598463 27         | 612329 02         | Lp             |
| 8200 00         | 89 23              | 90.10              | 7835 61          | -1 12            | 610 86           | 610 86          | 0 00                    | 598463.18         | 612374 67         |                |
| 8300 00         | 89 23              | 90 10              | 7836 96          | -1 30            | 710 85           | 710.85          | 0 00                    | 598463.00         | 612474 66         |                |
| 8400 00         | 89.23              | 90.10              | 7838 32          | -1 48            | 810.84           | 810 85          | 0.00                    | 598462 82         | 612574.65         |                |
| 8500 00         | 89 23              | 90 10              | 7839 67          | -1 66            | 910 83           | 910.84          | 0 00                    | 598462.64         | 612674.64         |                |
| 8600 00         | 89 23              | 90.10              | 7841.02          | -1 85            | 1010 83          | 1010.83         | 0 00                    | 598462.45         | 612774 64         |                |



# Weatherford International Ltd.

## WFT Plan Report - X & Y's



Company: Devon Energy  
Field: Eddy Co., NM (NAD 83)  
Site: Emerald PWU 20 #3H  
Well: 20 #3H  
Wellpath: 1

Date: 8/22/2011  
Co-ordinate(NE) Reference:  
Vertical (TVD) Reference:  
Section (VS) Reference:  
Survey Calculation Method:

Time: 09 32 31  
Well: 20 #3H, Grid North  
SITE 3350.2  
Well (0 00N,0 00E,90.10Az)  
Minimum Curvature

Page: 2  
Db: Sybase

### Survey

| MD<br>ft | Incl<br>deg | Azim<br>deg | TVD<br>ft | N/S<br>ft | E/W<br>ft | VS<br>ft | DLS<br>deg/100ft | MapN<br>ft | MapE<br>ft | Comment |
|----------|-------------|-------------|-----------|-----------|-----------|----------|------------------|------------|------------|---------|
| 8700.00  | 89 23       | 90 10       | 7842.37   | -2.03     | 1110.82   | 1110.82  | 0.00             | 598462.27  | 612874.63  |         |
| 8800.00  | 89 23       | 90 10       | 7843.72   | -2.21     | 1210.81   | 1210.81  | 0.00             | 598462.09  | 612974.62  |         |
| 8900.00  | 89 23       | 90 10       | 7845.07   | -2.40     | 1310.80   | 1310.80  | 0.00             | 598461.90  | 613074.61  |         |
| 9000.00  | 89 23       | 90 10       | 7846.43   | -2.58     | 1410.79   | 1410.79  | 0.00             | 598461.72  | 613174.60  |         |
| 9100.00  | 89 23       | 90 10       | 7847.78   | -2.76     | 1510.78   | 1510.78  | 0.00             | 598461.54  | 613274.59  |         |
| 9200.00  | 89 23       | 90 10       | 7849.13   | -2.94     | 1610.77   | 1610.77  | 0.00             | 598461.36  | 613374.58  |         |
| 9300.00  | 89 23       | 90 10       | 7850.48   | -3.13     | 1710.76   | 1710.76  | 0.00             | 598461.17  | 613474.57  |         |
| 9400.00  | 89 23       | 90 10       | 7851.83   | -3.31     | 1810.75   | 1810.75  | 0.00             | 598460.99  | 613574.56  |         |
| 9500.00  | 89 23       | 90 10       | 7853.18   | -3.49     | 1910.74   | 1910.75  | 0.00             | 598460.81  | 613674.55  |         |
| 9600.00  | 89 23       | 90 10       | 7854.54   | -3.67     | 2010.73   | 2010.74  | 0.00             | 598460.63  | 613774.54  |         |
| 9700.00  | 89 23       | 90 10       | 7855.89   | -3.86     | 2110.72   | 2110.73  | 0.00             | 598460.44  | 613874.53  |         |
| 9800.00  | 89 23       | 90 10       | 7857.24   | -4.04     | 2210.71   | 2210.72  | 0.00             | 598460.26  | 613974.52  |         |
| 9900.00  | 89 23       | 90 10       | 7858.59   | -4.22     | 2310.70   | 2310.71  | 0.00             | 598460.08  | 614074.51  |         |
| 10000.00 | 89 23       | 90 10       | 7859.94   | -4.41     | 2410.70   | 2410.70  | 0.00             | 598459.89  | 614174.51  |         |
| 10100.00 | 89 23       | 90 10       | 7861.29   | -4.59     | 2510.69   | 2510.69  | 0.00             | 598459.71  | 614274.50  |         |
| 10200.00 | 89 23       | 90 10       | 7862.65   | -4.77     | 2610.68   | 2610.68  | 0.00             | 598459.53  | 614374.49  |         |
| 10300.00 | 89 23       | 90 10       | 7864.00   | -4.95     | 2710.67   | 2710.67  | 0.00             | 598459.35  | 614474.48  |         |
| 10400.00 | 89 23       | 90 10       | 7865.35   | -5.14     | 2810.66   | 2810.66  | 0.00             | 598459.16  | 614574.47  |         |
| 10500.00 | 89 23       | 90 10       | 7866.70   | -5.32     | 2910.65   | 2910.65  | 0.00             | 598458.98  | 614674.46  |         |
| 10600.00 | 89 23       | 90 10       | 7868.05   | -5.50     | 3010.64   | 3010.64  | 0.00             | 598458.80  | 614774.45  |         |
| 10700.00 | 89 23       | 90 10       | 7869.40   | -5.69     | 3110.63   | 3110.64  | 0.00             | 598458.61  | 614874.44  |         |
| 10800.00 | 89 23       | 90 10       | 7870.76   | -5.87     | 3210.62   | 3210.63  | 0.00             | 598458.43  | 614974.43  |         |
| 10900.00 | 89 23       | 90 10       | 7872.11   | -6.05     | 3310.61   | 3310.62  | 0.00             | 598458.25  | 615074.42  |         |
| 11000.00 | 89 23       | 90 10       | 7873.46   | -6.23     | 3410.60   | 3410.61  | 0.00             | 598458.07  | 615174.41  |         |
| 11100.00 | 89 23       | 90 10       | 7874.81   | -6.42     | 3510.59   | 3510.60  | 0.00             | 598457.88  | 615274.40  |         |
| 11200.00 | 89 23       | 90 10       | 7876.16   | -6.60     | 3610.58   | 3610.59  | 0.00             | 598457.70  | 615374.39  |         |
| 11300.00 | 89 23       | 90 10       | 7877.51   | -6.78     | 3710.57   | 3710.58  | 0.00             | 598457.52  | 615474.38  |         |
| 11400.00 | 89 23       | 90 10       | 7878.86   | -6.96     | 3810.57   | 3810.57  | 0.00             | 598457.34  | 615574.38  |         |
| 11500.00 | 89 23       | 90 10       | 7880.22   | -7.15     | 3910.56   | 3910.56  | 0.00             | 598457.15  | 615674.37  |         |
| 11600.00 | 89 23       | 90 10       | 7881.57   | -7.33     | 4010.55   | 4010.55  | 0.00             | 598456.97  | 615774.36  |         |
| 11700.00 | 89 23       | 90 10       | 7882.92   | -7.51     | 4110.54   | 4110.54  | 0.00             | 598456.79  | 615874.35  |         |
| 11800.00 | 89 23       | 90 10       | 7884.27   | -7.70     | 4210.53   | 4210.53  | 0.00             | 598456.60  | 615974.34  |         |
| 11900.00 | 89 23       | 90 10       | 7885.62   | -7.88     | 4310.52   | 4310.53  | 0.00             | 598456.42  | 616074.33  |         |
| 12000.00 | 89 23       | 90 10       | 7886.97   | -8.06     | 4410.51   | 4410.52  | 0.00             | 598456.24  | 616174.32  |         |
| 12100.00 | 89 23       | 90 10       | 7888.33   | -8.24     | 4510.50   | 4510.51  | 0.00             | 598456.06  | 616274.31  |         |
| 12200.00 | 89 23       | 90 10       | 7889.68   | -8.43     | 4610.49   | 4610.50  | 0.00             | 598455.87  | 616374.30  |         |
| 12223.82 | 89 23       | 90 10       | 7890.00   | -8.47     | 4634.31   | 4634.32  | 0.00             | 598455.83  | 616398.12  | Pbhl    |

### Targets

| Name | Description<br>Dip. | Dir. | TVD<br>ft | +N/-S<br>ft | +E/-W<br>ft | Map<br>Northing<br>ft | Map<br>Easting<br>ft | <--- Latitude ---><br>Deg Min Sec | <--- Longitude ---><br>Deg Min Sec |
|------|---------------------|------|-----------|-------------|-------------|-----------------------|----------------------|-----------------------------------|------------------------------------|
| Pbhl |                     |      | 7890.00   | -8.47       | 4634.31     | 598455.83             | 616398.12            | 32 38 41 867 N                    | 104 5 22 109 W                     |

### Casing Points

| MD | TVD | Diameter | Hole Size | Name |
|----|-----|----------|-----------|------|
|    |     |          |           |      |



# Weatherford International Ltd.

## WFT Plan Report - X & Y's



Weatherford

|           |                       |                            |                             |       |          |       |            |
|-----------|-----------------------|----------------------------|-----------------------------|-------|----------|-------|------------|
| Company:  | Devon Energy          | Date:                      | 8/22/2011                   | Time: | 09.32 31 | Page: | 3          |
| Field:    | Eddy Co , NM (NAD 83) | Co-ordinate(NE) Reference: | Well. 20 #3H, Grid North    |       |          |       |            |
| Site:     | Emerald PWU 20 #3H    | Vertical (TVD) Reference:  | SITE 3350.2                 |       |          |       |            |
| Well:     | 20 #3H                | Section (VS) Reference:    | Well (0 00N,0.00E,90.10Azi) |       |          |       |            |
| Wellpath: | 1                     | Survey Calculation Method: | Minimum Curvature           |       |          |       | Db: Sybase |

### Annotation

| MD<br>ft | TVD<br>ft |      |
|----------|-----------|------|
| 7262.09  | 7262.09   | Kop  |
| 8154.35  | 7835.00   | Lp   |
| 12223.82 | 7890.00   | Pbhl |

### Formations

| MD | TVD | Formations | Lithology | Dip Angle | Dip Direction |
|----|-----|------------|-----------|-----------|---------------|
|    |     |            |           |           |               |

**Weatherford®****Weatherford Drilling Services**

GeoDec v5.03

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Report Date: August 22, 2011  
Job Number: \_\_\_\_\_  
Customer: Devon Energy  
Well Name: Emerald PWU 20 #3H  
API Number: \_\_\_\_\_  
Rig Name: \_\_\_\_\_  
Location: Eddy Co., NM (NAD 83)  
Block: \_\_\_\_\_  
Engineer: KRN

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|                                              |                                             |
|----------------------------------------------|---------------------------------------------|
| US State Plane 1983                          | Geodetic Latitude / Longitude               |
| System: New Mexico Eastern Zone              | System: Latitude / Longitude                |
| Projection: Transverse Mercator/Gauss Kruger | Projection: Geodetic Latitude and Longitude |
| Datum: North American Datum 1983             | Datum: North American Datum 1983            |
| Ellipsoid: GRS 1980                          | Ellipsoid: GRS 1980                         |
| North/South 598464.300 USFT                  | Latitude 32.6450179 DEG                     |
| East/West 611763.810 USFT                    | Longitude -104.1045269 DEG                  |
| Grid Convergence: .12°                       |                                             |
| Total Correction: +7.64°                     |                                             |

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|                         |              |                       |
|-------------------------|--------------|-----------------------|
| Geodetic Location WGS84 | Elevation =  | 0.0 Meters            |
| Latitude =              | 32.64502° N  | 32° 38 min 42.065 sec |
| Longitude =             | 104.10453° W | 104° 6 min 16.297 sec |

---

|                        |              |                              |
|------------------------|--------------|------------------------------|
| Magnetic Declination = | 7.76°        | [True North Offset]          |
| Local Gravity =        | .9988 g      | Checksum = 6685              |
| Local Field Strength = | 48749 nT     | Magnetic Vector X = 23812 nT |
| Magnetic Dip =         | 60.46°       | Magnetic Vector Y = 3246 nT  |
| Magnetic Model =       | IGRF-2010g11 | Magnetic Vector Z = 42414 nT |
| Spud Date =            | Apr 15, 2012 | Magnetic Vector H = 24032 nT |

---

Signed: \_\_\_\_\_

Date: \_\_\_\_\_