



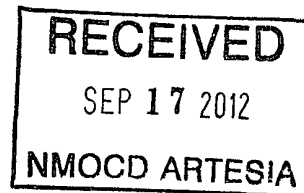
**PHOENIX**  
TECHNOLOGY SERVICES

August 30, 2012

Oil Conservation Division  
State of New Mexico  
811 S. First St.  
Artesia, New Mexico 88210

Dear District 2 - Artesia

Re: Chesapeake Operating Inc.  
PLU Big Sinks 14-24-30 USA 1H  
Eddy Co., NM  
API #30-015-40395  
Job No. 1210691



Enclosed please find the Survey Data Certification, and the original Plat and one copy of the Survey Report performed on the above referenced Well by Phoenix Technology Services, Inc. (P-5 No. 606018). Other information required by your office is as follows:

| Name & Title of Surveyor | Drainhole Number | Surveyed Depths |        | Dates Performed |          | Type of Survey |
|--------------------------|------------------|-----------------|--------|-----------------|----------|----------------|
|                          |                  | From            | To     | Start           | End      |                |
| Spencer Brown            | 1H               | 201             | 14,094 | 08/02/12        | 08/20/12 | MWD            |

A certified plat on which the bottom hole location is oriented both to the surface location and to the lease lines (or unit lines in case of pooling) is attached to the survey report. If any other information is required, please contact the undersigned at the letterhead address and phone number.

Best Regards,

Amy Pope  
Operations Administrator

Certified mail receipt number: 7011 1670 0000 9227 7232

DISTRICT I  
1625 N. French Dr., Hobbs, NM 88240  
Phone (575) 393-6161 Fax: (575) 393-0720

DISTRICT II  
811 S. First St., Artesia, NM 88210  
Phone (575) 748-1283 Fax: (575) 748-9720

DISTRICT III  
1000 Rio Brazos Rd., Aztec, NM 87410  
Phone (505) 334-6178 Fax: (505) 334-6170

DISTRICT IV  
1220 S. St. Francis Dr., Santa Fe, NM 87505  
Phone (505) 476-3460 Fax: (505) 476-3462

State of New Mexico  
Energy, Minerals and Natural Resources Department

# OIL CONSERVATION DIVISION

1220 South St. Francis Dr.  
Santa Fe, New Mexico 87505

RECEIVED

SEP 17 2012

Form C-102  
Revised August 1, 2011

NMOC ARTESIA

Submit one copy to appropriate  
District Office

## WELL LOCATION AND ACREAGE DEDICATION PLAT

☐ AMENDED REPORT

|               |                                             |                    |
|---------------|---------------------------------------------|--------------------|
| API Number    | Pool Code                                   | Pool Name          |
| Property Code | Property Name<br>PLU BIG SINKS 14 24 30 USA | Well Number<br>1H  |
| GRID No.      | Operator Name<br>CHESAPEAKE OPERATING CO.   | Elevation<br>3423' |

### Surface Location

| UL or lot No. | Section | Township | Range | Lot Idn | Feet from the | North/South line | Feet from the | East/West line | County |
|---------------|---------|----------|-------|---------|---------------|------------------|---------------|----------------|--------|
| O             | 14      | 24 S     | 30 E  |         | 50            | SOUTH            | 2360          | EAST           | EDDY   |

### Bottom Hole Location If Different From Surface

| UL or lot No. | Section | Township | Range | Lot Idn | Feet from the | North/South line | Feet from the | East/West line | County |
|---------------|---------|----------|-------|---------|---------------|------------------|---------------|----------------|--------|
| B             | 14      | 24 S     | 30 E  |         | 100           | NORTH            | 1980          | EAST           | EDDY   |

|                           |                 |                    |           |
|---------------------------|-----------------|--------------------|-----------|
| Dedicated Acres<br>162.14 | Joint or Infill | Consolidation Code | Order No. |
|---------------------------|-----------------|--------------------|-----------|

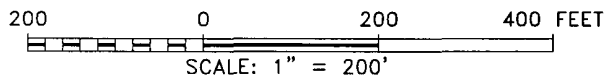
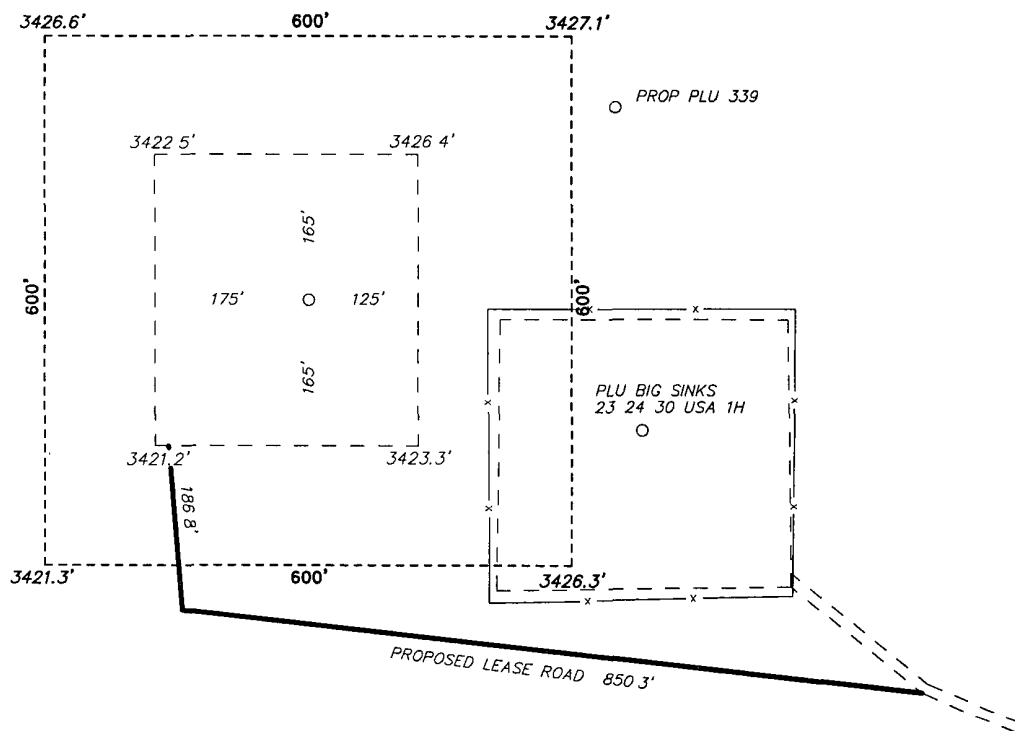
NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED  
OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

|                                                                                                                                                                                                                                                                         |                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>PROPOSED BOTTOM HOLE LOCATION</b><br/>Lat - N 32.224862382°<br/>Long - W 103.849318642°<br/>NMSPCE - N 445875.855<br/>E 691009.723<br/>(NAD-83)<br/>Lat - N 32.224739210°<br/>Long - W 103.848833370°<br/>NMSPCE - N 445816.928<br/>E 649825.701<br/>(NAD-27)</p> | <p><b>RECEIVED</b><br/>SEP 17 2012<br/>NMOC ARTESIA</p> | <p><b>OPERATOR CERTIFICATION</b><br/>I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.</p> <p>Signature _____ Date _____</p> <p>Printed Name _____</p> <p>Email Address _____</p> |
| <p><b>SURFACE LOCATION</b><br/>Lat - N 32.210763906°<br/>Long - W 103.850598546°<br/>NMSPCE - N 440745.243<br/>E 690636.972<br/>(NAD-83)<br/>Lat - N 32.210640597°<br/>Long - W 103.850113855°<br/>NMSPCE - N 440686.429<br/>E 649452.783<br/>(NAD-27)</p>              |                                                         | <p><b>SURVEYOR CERTIFICATION</b><br/>I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.</p> <p>Date Surveyed <u>MAY 15, 2012</u></p> <p>Signature &amp; Seal of Professional Surveyor <u>GARY L. JONES</u></p> <p>Certificate No. <u>7977</u></p> <p>Basin Surveys <u>26748</u></p>                                                                                                                                                                                          |

SECTION 14, TOWNSHIP 24 SOUTH, RANGE 30 EAST, N.M.P.M.,  
EDDY COUNTY, NEW MEXICO.

CHESAPEAKE OPERATING CO.  
PLU BIG SINKS 14 24 30 USA #1H  
ELEV. - 3423'

Lat - N 32.210763906°  
Long - W 103.850598546°  
NMSPCE- N 440745.243  
E 690636.972  
(NAD-83)  
Lat - N 32.210640597°  
Long - W 103.850113855°  
NMSPCE- N 440686.429  
E 649452.783  
(NAD-27)



Directions to Location:

FROM THE JUNCTION OF 128 AND TWIN WELLS, GO  
SOUTH WINDING SOUTHEAST FOR 7.7 MILES TO  
LEASE ROAD, ON LEASE ROAD GO 0.6 MILES  
WESTERLY WINDING SOUTH THENCE BACK WEST TO  
TO WELL PAD AND PROPOSED LOCATION.

**BASIN SURVEYS** P.O. BOX 1786 - HOBBS, NEW MEXICO

W.O. Number 26748

Drawn By: J. SMALL

Date: 05-17-2012

Disk. JMS 26748

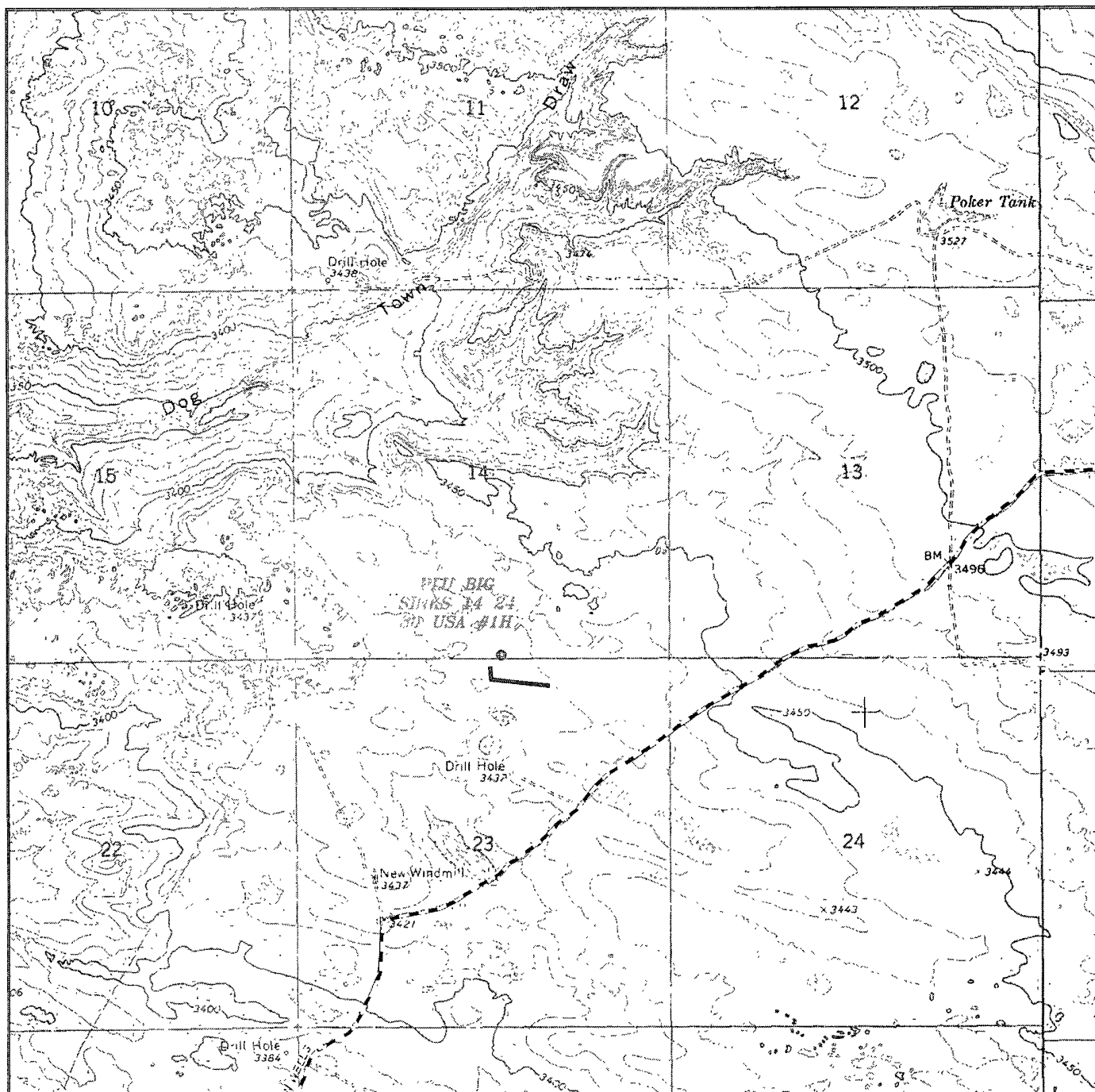
**CHESAPEAKE OPERATING CO.**

REF: PLU BIG SINKS 14 24 30 USA #1H / WELL PAD TOPO

THE PLU BIG SINKS 14 24 30 USA #1H LOCATED 50'  
FROM THE SOUTH LINE AND 2360' FROM THE EAST LINE OF  
SECTION 14, TOWNSHIP 24 SOUTH, RANGE 30 EAST,  
N.M.P.M., EDDY COUNTY, NEW MEXICO.

Survey Date. 05-15-2012

Sheet 1 of 1 Sheets



PTU BIG SINKS 14 24 30 USA #1H  
 Located 50' FSL and 2360' FEL  
 Section 14, Township 24 South, Range 30 East,  
 N.M.P.M., Eddy County, New Mexico.



focused on your needs  
 in the oilfield

P.O. Box 1786  
 1720 N. West County Rd.  
 Hobbs, New Mexico 88241  
 (505) 323-7316 - Office  
 (505) 392-7606 - Fax  
 basic-surveys.com

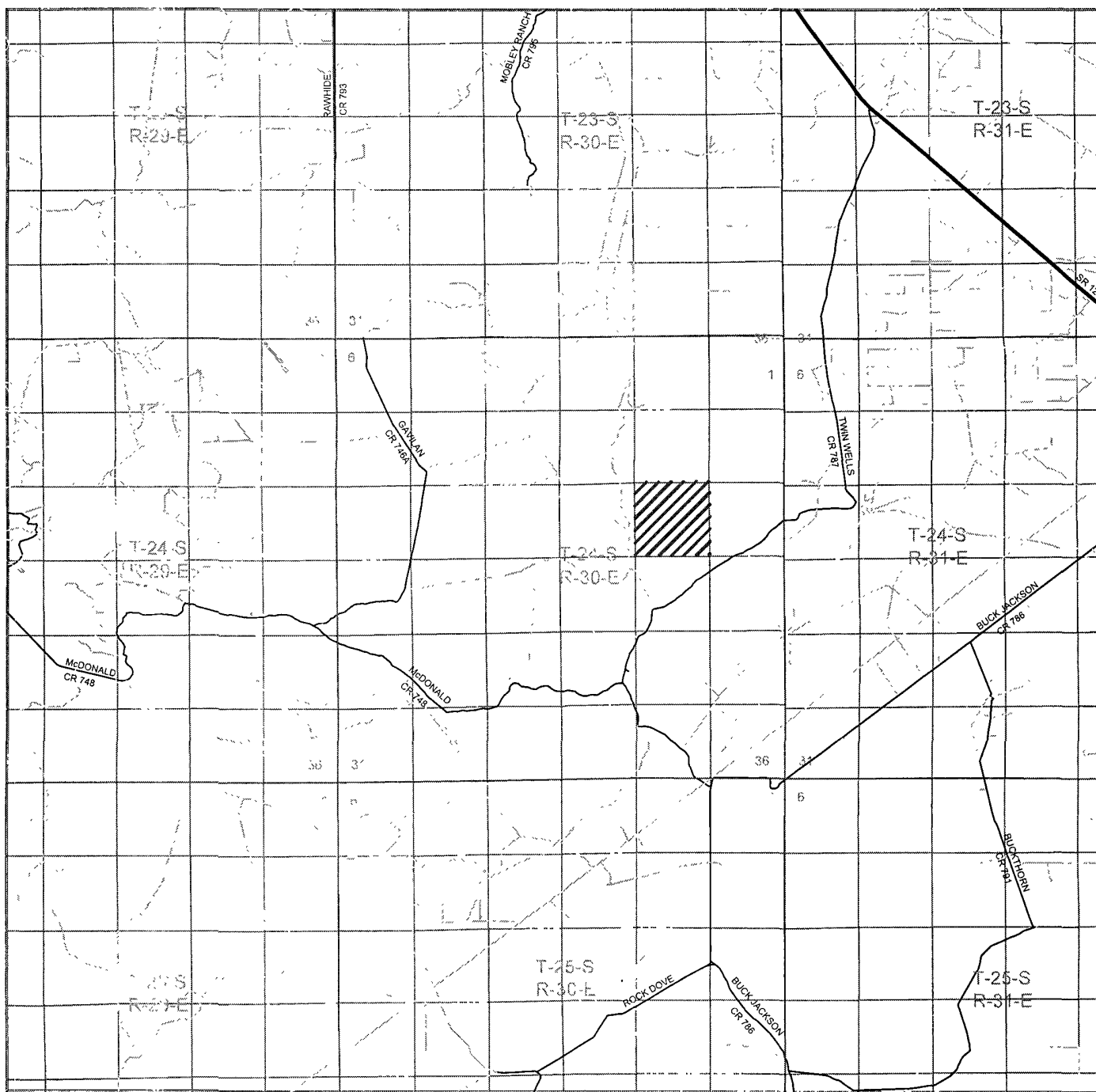
W.O. Number: JMS 26748

Survey Date: 05-15-2012

Scale: 1" = 2000'

Date: 05-17-2012

**CHESAPEAKE  
 OPERATING CO.**



PCU BIG SINKS 14 24 30 USA #111  
 Located 50' FSL and 2360' FEL.  
 Section 14, Township 24 South, Range 30 East,  
 N.M.P.M., Eddy County, New Mexico.



focused on excellence  
 in the oilfield

P.O. Box 1766  
 1120 N. West County Rd.  
 Hobbs, New Mexico 88241  
 (505) 393-7316 - Office  
 (505) 392-2206 - Fax  
 businsurveys.com

W.D. Number: JMS 26742

Survey Date: 05-15-2012

Scale 1" = 2 Miles

Date: 05-17-2012

CHESAPEAKE  
 OPERATING CO.



## **Chesapeake Operating Inc.**

Eddy County, New Mexico (NAD 1983)

PLU Big Sinks 14-24-30 USA 1H

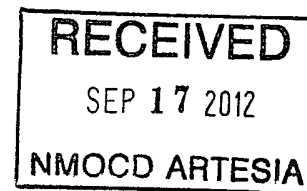
Job # 1210691

Rig: Latshaw 14

Survey: Phoenix MWD Surveys

## **Chesapeake Energy, Survey Report**

21 August, 2012





# Chesapeake Energy, Survey Report



Company: Chesapeake Operating Inc  
Project: Eddy County New Mexico (NAD 1983)  
Site: PLU Big Sinks 14-24-30 USA 1H  
Well: Job # 1210691  
Wellbore: Rig Latshaw 14  
Design: Rig Latshaw 14

Local Co-ordinate Reference: Well Job # 1210691  
TVD Reference: WELL @ 3445.00usft (Latshaw 14)  
MD Reference: WELL @ 3445.00usft (Latshaw 14)  
North Reference: Grid  
Survey Calculation Method: Minimum Curvature  
Database: Compass5000

Project: Eddy County, New Mexico (NAD 1983)

Map System: US State Plane 1983  
Geo Datum: North American Datum 1983  
Map Zone: New Mexico Eastern Zone

System Datum: Mean Sea Level

Site: PLU Big Sinks 14-24-30 USA 1H

|                       |           |              |                 |                   |                   |
|-----------------------|-----------|--------------|-----------------|-------------------|-------------------|
| Site Position:        | Map       | Northing:    | 440,745.00 usft | Latitude:         | 32° 12' 38.7477 N |
| From:                 |           | Easting:     | 690,637.00 usft | Longitude:        | 103° 51' 2.1545 W |
| Position Uncertainty: | 0 00 usft | Slot Radius: | 13-3/16 "       | Grid Convergence: | 0 26 °            |

Well: Job # 1210691

|                      |       |           |                     |                 |               |                   |
|----------------------|-------|-----------|---------------------|-----------------|---------------|-------------------|
| Well Position        | +N/-S | 0 00 usft | Northing:           | 440,745 00 usft | Latitude:     | 32° 12' 38 7477 N |
|                      | +E/-W | 0 00 usft | Easting:            | 690,637.00 usft | Longitude:    | 103° 51' 2.1545 W |
| Position Uncertainty |       | 0.00 usft | Wellhead Elevation: | 22.00 usft      | Ground Level: | 3,423.00 usft     |

Wellbore: Rig Latshaw 14

| Magnetics | Model Name  | Sample Date | Declination<br>(°) | Dip Angle<br>(°) | Field Strength<br>(nT) |
|-----------|-------------|-------------|--------------------|------------------|------------------------|
|           | IGRF2010_14 | 07/24/12    | 7.58               | 60 10            | 48,467                 |

Design: Rig Latshaw 14

## Audit Notes:

Version: 1.0 Phase: ACTUAL Tie On Depth: 0 00

| Vertical Section: | Depth From (TVD)<br>(usft) | +N/-S<br>(usft) | +E/-W<br>(usft) | Direction<br>(°) |
|-------------------|----------------------------|-----------------|-----------------|------------------|
|                   | 0.00                       | 0.00            | 0.00            | 4.16             |

Survey Program Date: 08/21/12

| From<br>(usft) | To<br>(usft) | Survey (Wellbore)                    | Tool Name | Description    |
|----------------|--------------|--------------------------------------|-----------|----------------|
| 201.00         | 14,145.00    | Phoenix MWD Surveys (Rig Latshaw 14) | MWD       | MWD - Standard |



# Chesapeake Energy, Survey Report



Company: Chesapeake Operating Inc  
Project: Eddy County New Mexico (NAD 1983)  
Site: PLU Big Sinks 14-24-30 USA 1H  
Well: Job # 1210691  
Wellbore: Rig Latshaw 14  
Design: Rig Latshaw 14

Local Co-ordinate Reference:  
TVD Reference:  
MD Reference:  
North Reference:  
Survey Calculation Method:  
Database:

Well Job # 1210691  
WELL @ 3445 00usft (Latshaw 14)  
WELL @ 3445 00usft (Latshaw 14)  
Grd  
Minimum Curvature  
Compass5000

| Survey                              |            |                      |                 |               |               |               |                  |                     |                    |                   |  |
|-------------------------------------|------------|----------------------|-----------------|---------------|---------------|---------------|------------------|---------------------|--------------------|-------------------|--|
| MD<br>(usft)                        | Inc<br>(°) | Azi (azimuth)<br>(°) | TVDSS<br>(usft) | TVD<br>(usft) | N/S<br>(usft) | E/W<br>(usft) | V. Sec<br>(usft) | DLeg<br>(%/100usft) | Northing<br>(usft) | Easting<br>(usft) |  |
| 0.00                                | 0.00       | 0.00                 | 3 445 00        | 0 00          | 0 00          | 0.00          | 0 00             | 0.00                | 440,745 00         | 690,637 00        |  |
| 201.00                              | 0.80       | 312.80               | 3 244 01        | 200.99        | 0.95          | -1.03         | 0.88             | 0.40                | 440,745.95         | 690,635.97        |  |
| First Phoenix MWD Surveys @ 201' MD |            |                      |                 |               |               |               |                  |                     |                    |                   |  |
| 297.00                              | 1.10       | 312.50               | 3,148.02        | 296.98        | 2.03          | -2.20         | 1.87             | 0.31                | 440,747.03         | 690,634.80        |  |
| 388.00                              | 1.20       | 314.30               | 3,057.04        | 387.96        | 3.29          | -3.53         | 3.02             | 0.12                | 440,748.29         | 690,633.47        |  |
| 481.00                              | 1.00       | 330.80               | 2 964 06        | 480.94        | 4.68          | -4.62         | 4.33             | 0.40                | 440,749.68         | 690 632 38        |  |
| 555.00                              | 0.70       | 319.90               | 2 890 06        | 554.94        | 5.58          | -5.23         | 5.19             | 0.46                | 440,750.58         | 690,631.77        |  |
| 764.00                              | 0.60       | 275.90               | 2,681.08        | 763.92        | 6.67          | -7.14         | 6.14             | 0.24                | 440,751.67         | 690,629.86        |  |
| 859.00                              | 0.40       | 277.30               | 2 586 08        | 858.92        | 6.77          | -7.96         | 6.17             | 0.21                | 440,751.77         | 690 629.04        |  |
| 954.00                              | 0.20       | 244.90               | 2,491.08        | 953.92        | 6.74          | -8.44         | 6.11             | 0.27                | 440,751.74         | 690,628.56        |  |
| 1,049.00                            | 0.20       | 256.50               | 2,396.08        | 1,048.92      | 6.63          | -8.75         | 5.98             | 0.04                | 440,751.63         | 690,628.25        |  |
| 1,144.00                            | 0.30       | 269.90               | 2,301.08        | 1 143.92      | 6.59          | -9.16         | 5.91             | 0.12                | 440,751.59         | 690,627.84        |  |
| 1,240.00                            | 0.40       | 245.30               | 2 205.08        | 1,239.92      | 6.45          | -9.72         | 5.73             | 0.19                | 440,751.45         | 690,627.28        |  |
| 1 335.00                            | 0.40       | 258.30               | 2,110.09        | 1,334.91      | 6.24          | -10.34        | 5.48             | 0.10                | 440,751.24         | 690,626.66        |  |
| 1,430.00                            | 0.40       | 239.70               | 2,015.09        | 1,429.91      | 6.01          | -10.95        | 5.20             | 0.14                | 440,751.01         | 690,626.05        |  |
| 1 525.00                            | 0.50       | 252.10               | 1,920.09        | 1 524.91      | 5.72          | -11.63        | 4.86             | 0.15                | 440,750.72         | 690,625.37        |  |
| 1 620.00                            | 0.60       | 293.40               | 1,825.10        | 1 619.90      | 5.79          | -12.49        | 4.86             | 0.42                | 440,750.79         | 690,624.51        |  |
| 1,715.00                            | 1.50       | 338.30               | 1,730.11        | 1,714.89      | 7.14          | -13.40        | 6.15             | 1.22                | 440,752.14         | 690,623.60        |  |
| 1 810.00                            | 1.80       | 341.40               | 1,635.15        | 1,809.85      | 9.71          | -14.34        | 8.64             | 0.33                | 440,754.71         | 690,622.66        |  |
| 1,905.00                            | 2.00       | 339.70               | 1,540.20        | 1,904.80      | 12.68         | -15.39        | 11.53            | 0.22                | 440,757.68         | 690,621.61        |  |
| 2,001.00                            | 2.10       | 332.00               | 1,444.26        | 2,000.74      | 15.80         | -16.80        | 14.54            | 0.30                | 440,760.80         | 690,620.20        |  |
| 2,096.00                            | 2.00       | 325.30               | 1,349.32        | 2 095.68      | 18.70         | -18.56        | 17.31            | 0.27                | 440,763.70         | 690,618.44        |  |
| 2,191.00                            | 2.00       | 313.50               | 1,254.38        | 2,190.62      | 21.20         | -20.70        | 19.65            | 0.43                | 440,766.20         | 690,616.30        |  |
| 2,286.00                            | 2.10       | 308.30               | 1,159.44        | 2,285.56      | 23.42         | -23.27        | 21.67            | 0.22                | 440,768.42         | 690,613.73        |  |
| 2 381.00                            | 1.60       | 308.30               | 1,064.49        | 2,380.51      | 25.33         | -25.68        | 23.40            | 0.53                | 440,770.33         | 690,611.32        |  |
| 2,476.00                            | 1.40       | 309.60               | 969.53          | 2,475.47      | 26.89         | -27.61        | 24.81            | 0.21                | 440,771.89         | 690,609.39        |  |
| 2,571.00                            | 1.50       | 311.10               | 874.56          | 2,570.44      | 28.44         | -29.44        | 26.23            | 0.11                | 440,773.44         | 690,607.56        |  |



# Chesapeake Energy, Survey Report



Company: Chesapeake Operating Inc.  
Project: Eddy County, New Mexico (NAD 1983)  
Site: PLU Big Sinks 14-24-30 USA 1H  
Well: Job # 1210691  
Wellbore: Rig Latshaw 14  
Design: Rig Latshaw 14

Local Co-ordinate Reference: Well Job # 1210691  
TVD Reference: WELL @ 3445.00usft (Latshaw 14)  
MD Reference: WELL @ 3445.00usft (Latshaw 14)  
North Reference: Grid  
Survey Calculation Method: Minimum Curvature  
Database: Compass5000

## Survey

| MD<br>(usft) | Inc<br>(°) | Azi (azimuth)<br>(°) | TVDSS<br>(usft) | TVD<br>(usft) | N/S<br>(usft) | E/W<br>(usft) | V. Sec<br>(usft) | DLeg<br>(°/100usft) | Northing<br>(usft) | Easting<br>(usft) |
|--------------|------------|----------------------|-----------------|---------------|---------------|---------------|------------------|---------------------|--------------------|-------------------|
| 2,667.00     | 1.40       | 309.20               | 778.59          | 2,666.41      | 30.01         | -31.30        | 27.66            | 0.12                | 440,775.01         | 690,605.70        |
| 2,762.00     | 1.30       | 324.30               | 683.61          | 2,761.39      | 31.62         | -32.83        | 29.16            | 0.39                | 440,776.62         | 690,604.17        |
| 2,857.00     | 1.40       | 331.40               | 588.64          | 2,856.36      | 33.51         | -34.01        | 30.96            | 0.20                | 440,778.51         | 690,602.99        |
| 2,952.00     | 1.70       | 342.80               | 493.67          | 2,951.33      | 35.88         | -34.98        | 33.25            | 0.45                | 440,780.88         | 690,602.02        |
| 3,047.00     | 2.10       | 348.00               | 398.73          | 3,046.27      | 38.93         | -35.76        | 36.23            | 0.46                | 440,783.93         | 690,601.24        |
| 3,142.00     | 2.20       | 345.90               | 303.79          | 3,141.21      | 42.40         | -36.57        | 39.63            | 0.13                | 440,787.40         | 690,600.43        |
| 3,237.00     | 2.20       | 6.60                 | 208.86          | 3,236.14      | 45.98         | -36.80        | 43.19            | 0.83                | 440,790.98         | 690,600.20        |
| 3,333.00     | 2.30       | 37.50                | 112.93          | 3,332.07      | 49.34         | -35.42        | 46.64            | 1.25                | 440,794.34         | 690,601.58        |
| 3,428.00     | 2.10       | 49.40                | 18.00           | 3,427.00      | 51.98         | -32.94        | 49.46            | 0.52                | 440,796.98         | 690,604.06        |
| 3,523.00     | 1.90       | 53.80                | -76.94          | 3,521.94      | 54.05         | -30.34        | 51.70            | 0.27                | 440,799.05         | 690,606.66        |
| 3,618.00     | 1.80       | 81.60                | -171.89         | 3,616.89      | 55.19         | -27.60        | 53.05            | 0.94                | 440,800.19         | 690,609.40        |
| 3,713.00     | 2.20       | 100.50               | -266.84         | 3,711.84      | 55.08         | -24.33        | 53.17            | 0.81                | 440,800.08         | 690,612.67        |
| 3,808.00     | 2.30       | 109.30               | -361.76         | 3,806.76      | 54.12         | -20.74        | 52.47            | 0.38                | 440,799.12         | 690,616.26        |
| 3,901.00     | 2.20       | 107.80               | -454.69         | 3,899.69      | 52.95         | -17.28        | 51.56            | 0.12                | 440,797.95         | 690,619.72        |
| 4,023.00     | 1.90       | 104.40               | -576.61         | 4,021.61      | 51.74         | -13.09        | 50.65            | 0.27                | 440,796.74         | 690,623.91        |
| 4,118.00     | 1.60       | 104.80               | -671.57         | 4,116.57      | 51.00         | -10.28        | 50.12            | 0.32                | 440,796.00         | 690,626.72        |
| 4,213.00     | 1.30       | 90.50                | -766.54         | 4,211.54      | 50.66         | -7.92         | 49.95            | 0.49                | 440,795.66         | 690,629.08        |
| 4,308.00     | 1.10       | 83.30                | -861.52         | 4,306.52      | 50.75         | -5.94         | 50.19            | 0.26                | 440,795.75         | 690,631.06        |
| 4,403.00     | 0.90       | 85.50                | -956.50         | 4,401.50      | 50.92         | -4.29         | 50.47            | 0.21                | 440,795.92         | 690,632.71        |
| 4,498.00     | 0.90       | 74.90                | -1,051.49       | 4,496.49      | 51.17         | -2.82         | 50.83            | 0.18                | 440,796.17         | 690,634.18        |
| 4,594.00     | 0.90       | 70.80                | -1,147.48       | 4,592.48      | 51.62         | -1.38         | 51.38            | 0.07                | 440,796.62         | 690,635.62        |
| 4,689.00     | 1.00       | 75.10                | -1,242.47       | 4,687.47      | 52.07         | 0.12          | 51.95            | 0.13                | 440,797.07         | 690,637.12        |
| 4,784.00     | 0.80       | 69.50                | -1,337.46       | 4,782.46      | 52.52         | 1.55          | 52.49            | 0.23                | 440,797.52         | 690,638.55        |
| 4,879.00     | 0.70       | 68.50                | -1,432.45       | 4,877.45      | 52.96         | 2.71          | 53.02            | 0.11                | 440,797.96         | 690,639.71        |
| 4,974.00     | 0.80       | 69.80                | -1,527.44       | 4,972.44      | 53.41         | 3.87          | 53.55            | 0.11                | 440,798.41         | 690,640.87        |
| 5,069.00     | 0.70       | 74.40                | -1,622.43       | 5,067.43      | 53.79         | 5.05          | 54.02            | 0.12                | 440,798.79         | 690,642.05        |
| 5,165.00     | 0.70       | 62.10                | -1,718.42       | 5,163.42      | 54.22         | 6.13          | 54.53            | 0.16                | 440,799.22         | 690,643.13        |



# Chesapeake Energy, Survey Report



Company: Chesapeake Operating Inc  
Project: Eddy County, New Mexico (NAD 1983)  
Site: PLU Big Sinks 14-24-30 USA 1H  
Well: Job # 1210691  
Wellbore: Rig Latshaw 14  
Design: Rig Latshaw 14

Local Co-ordinate Reference: Well Job # 1210691  
TVD Reference: WELL @ 3445.00usft (Latshaw 14)  
MD Reference: WELL @ 3445.00usft (Latshaw 14)  
North Reference: Grid  
Survey Calculation Method: Minimum Curvature  
Database: Compass5000

| MD<br>(usft) | Inc<br>(°) | Azi (azimuth)<br>(°) | TVDSS<br>(usft) | TVD<br>(usft) | N/S<br>(usft) | E/W<br>(usft) | V. Sec<br>(usft) | DLeg<br>(°/100usft) | Northing<br>(usft) | Easting<br>(usft) |
|--------------|------------|----------------------|-----------------|---------------|---------------|---------------|------------------|---------------------|--------------------|-------------------|
| 5,259.00     | 0.80       | 60.80                | -1,812.42       | 5,257.42      | 54.81         | 7.21          | 55.19            | 0.11                | 440,799.81         | 690,644.21        |
| 5,354.00     | 0.70       | 61.80                | -1,907.41       | 5,352.41      | 55.41         | 8.30          | 55.87            | 0.11                | 440,800.41         | 690,645.30        |
| 5,450.00     | 0.60       | 59.00                | -2,003.40       | 5,448.40      | 55.95         | 9.25          | 56.47            | 0.11                | 440,800.95         | 690,646.25        |
| 5,545.00     | 0.40       | 61.10                | -2,098.40       | 5,543.40      | 56.36         | 9.97          | 56.94            | 0.21                | 440,801.36         | 690,646.97        |
| 5,640.00     | 0.40       | 74.10                | -2,193.40       | 5,638.40      | 56.61         | 10.58         | 57.23            | 0.10                | 440,801.61         | 690,647.58        |
| 5,735.00     | 0.30       | 44.20                | -2,288.39       | 5,733.39      | 56.88         | 11.07         | 57.54            | 0.22                | 440,801.88         | 690,648.07        |
| 5,830.00     | 0.30       | 55.20                | -2,383.39       | 5,828.39      | 57.20         | 11.45         | 57.88            | 0.06                | 440,802.20         | 690,648.45        |
| 5,925.00     | 0.20       | 72.80                | -2,478.39       | 5,923.39      | 57.39         | 11.81         | 58.10            | 0.13                | 440,802.39         | 690,648.81        |
| 6,020.00     | 0.30       | 68.70                | -2,573.39       | 6,018.39      | 57.53         | 12.20         | 58.27            | 0.11                | 440,802.53         | 690,649.20        |
| 6,116.00     | 0.10       | 144.70               | -2,669.39       | 6,114.39      | 57.56         | 12.48         | 58.31            | 0.30                | 440,802.56         | 690,649.48        |
| 6,211.00     | 0.20       | 162.00               | -2,764.39       | 6,209.39      | 57.33         | 12.58         | 58.09            | 0.11                | 440,802.33         | 690,649.58        |
| 6,306.00     | 0.50       | 162.60               | -2,859.39       | 6,304.39      | 56.78         | 12.76         | 57.55            | 0.32                | 440,801.78         | 690,649.76        |
| 6,401.00     | 0.60       | 174.80               | -2,954.38       | 6,399.38      | 55.89         | 12.93         | 56.68            | 0.16                | 440,800.89         | 690,649.93        |
| 6,496.00     | 0.60       | 181.30               | -3,049.38       | 6,494.38      | 54.89         | 12.96         | 55.69            | 0.07                | 440,799.89         | 690,649.96        |
| 6,591.00     | 0.60       | 191.60               | -3,144.37       | 6,589.37      | 53.91         | 12.85         | 54.70            | 0.11                | 440,798.91         | 690,649.85        |
| 6,686.00     | 0.60       | 193.40               | -3,239.37       | 6,684.37      | 52.94         | 12.63         | 53.72            | 0.02                | 440,797.94         | 690,649.63        |
| 6,781.00     | 0.60       | 195.80               | -3,334.36       | 6,779.36      | 51.98         | 12.38         | 52.74            | 0.03                | 440,796.98         | 690,649.38        |
| 6,877.00     | 0.70       | 189.60               | -3,430.36       | 6,875.36      | 50.91         | 12.15         | 51.66            | 0.13                | 440,795.91         | 690,649.15        |
| 6,972.00     | 0.70       | 185.60               | -3,525.35       | 6,970.35      | 49.76         | 11.99         | 50.50            | 0.05                | 440,794.76         | 690,648.99        |
| 7,067.00     | 0.90       | 175.70               | -3,620.34       | 7,065.34      | 48.44         | 11.99         | 49.19            | 0.26                | 440,793.44         | 690,648.99        |
| 7,161.00     | 1.10       | 176.00               | -3,714.33       | 7,159.33      | 46.81         | 12.11         | 47.56            | 0.21                | 440,791.81         | 690,649.11        |
| 7,257.00     | 1.20       | 180.10               | -3,810.31       | 7,255.31      | 44.88         | 12.17         | 45.65            | 0.13                | 440,789.88         | 690,649.17        |
| 7,352.00     | 1.10       | 182.30               | -3,905.29       | 7,350.29      | 42.98         | 12.14         | 43.74            | 0.12                | 440,787.98         | 690,649.14        |
| 7,447.00     | 1.30       | 177.50               | -4,000.27       | 7,445.27      | 40.99         | 12.15         | 41.76            | 0.24                | 440,785.99         | 690,649.15        |
| 7,542.00     | 1.50       | 174.80               | -4,095.24       | 7,540.24      | 38.67         | 12.31         | 39.46            | 0.22                | 440,783.67         | 690,649.31        |
| 7,637.00     | 1.50       | 179.40               | -4,190.21       | 7,635.21      | 36.19         | 12.43         | 37.00            | 0.13                | 440,781.19         | 690,649.43        |
| 7,732.00     | 1.70       | 185.10               | -4,285.17       | 7,730.17      | 33.55         | 12.32         | 34.35            | 0.27                | 440,778.55         | 690,649.32        |



# Chesapeake Energy, Survey Report



Company: Chesapeake Operating Inc  
Project: Eddy County New Mexico (NAD 1983)  
Site: PLU Big Sinks 14-24-30 USA-1H  
Well: Job # 1210691  
Wellbore: Rig Latshaw 14  
Design: Rig Latshaw 14

Local Co-ordinate Reference: Well Job # 1210691  
TVD Reference: WELL @ 3445.00usft (Latshaw 14)  
MD Reference: WELL @ 3445.00usft (Latshaw 14)  
North Reference: Grid  
Survey Calculation Method: Minimum Curvature  
Database: Compass5000

| Survey       |            |                      |                 |               |               |               |                  |                     |                    |                   |  |
|--------------|------------|----------------------|-----------------|---------------|---------------|---------------|------------------|---------------------|--------------------|-------------------|--|
| MD<br>(usft) | Inc<br>(°) | Azi (azimuth)<br>(°) | TVDSS<br>(usft) | TVD<br>(usft) | N/S<br>(usft) | E/W<br>(usft) | V. Sec<br>(usft) | DLeg<br>(°/100usft) | Northing<br>(usft) | Easting<br>(usft) |  |
| 7,828.00     | 1.80       | 185.10               | -4,381.12       | 7,826.12      | 30.63         | 12.06         | 31.42            | 0.10                | 440,775.63         | 690,649.06        |  |
| 7,923.00     | 1.40       | 179.60               | -4,476.09       | 7,921.09      | 27.98         | 11.93         | 28.77            | 0.45                | 440,772.98         | 690,648.93        |  |
| 8,018.00     | 1.70       | 192.80               | -4,571.05       | 8,016.05      | 25.44         | 11.63         | 26.22            | 0.49                | 440,770.44         | 690,648.63        |  |
| 8,113.00     | 1.70       | 227.60               | -4,666.01       | 8,111.01      | 23.12         | 10.28         | 23.80            | 1.07                | 440,768.12         | 690,647.28        |  |
| 8,208.00     | 2.00       | 235.20               | -4,760.96       | 8,205.96      | 21.22         | 7.88          | 21.74            | 0.41                | 440,766.22         | 690,644.88        |  |
| 8,303.00     | 2.20       | 229.90               | -4,855.90       | 8,300.90      | 19.10         | 5.12          | 19.42            | 0.29                | 440,764.10         | 690,642.12        |  |
| 8,398.00     | 2.50       | 230.10               | -4,950.82       | 8,395.82      | 16.60         | 2.14          | 16.71            | 0.32                | 440,761.60         | 690,639.14        |  |
| 8,493.00     | 2.50       | 221.50               | -5,045.73       | 8,490.73      | 13.72         | -0.83         | 13.62            | 0.39                | 440,758.72         | 690,636.17        |  |
| 8,588.00     | 2.30       | 210.90               | -5,140.65       | 8,585.65      | 10.53         | -3.18         | 10.27            | 0.51                | 440,755.53         | 690,633.82        |  |
| 8,651.00     | 2.50       | 228.70               | -5,203.59       | 8,648.59      | 8.54          | -4.86         | 8.16             | 1.22                | 440,753.54         | 690,632.14        |  |
| 8,696.00     | 2.80       | 236.90               | -5,248.54       | 8,693.54      | 7.29          | -6.52         | 6.80             | 1.07                | 440,752.29         | 690,630.48        |  |
| 8,728.00     | 3.20       | 296.80               | -5,280.51       | 8,725.51      | 7.27          | -7.97         | 6.67             | 9.42                | 440,752.27         | 690,629.03        |  |
| 8,759.00     | 5.50       | 330.20               | -5,311.42       | 8,756.42      | 8.95          | -9.48         | 8.24             | 10.74               | 440,753.95         | 690,627.52        |  |
| 8,791.00     | 8.40       | 339.50               | -5,343.18       | 8,788.18      | 12.47         | -11.06        | 11.63            | 9.69                | 440,757.47         | 690,625.94        |  |
| 8,823.00     | 11.60      | 343.40               | -5,374.69       | 8,819.69      | 17.74         | -12.80        | 16.77            | 10.22               | 440,762.74         | 690,624.20        |  |
| 8,855.00     | 15.00      | 342.90               | -5,405.83       | 8,850.83      | 24.78         | -14.94        | 23.64            | 10.63               | 440,769.78         | 690,622.06        |  |
| 8,886.00     | 18.50      | 348.00               | -5,435.51       | 8,880.51      | 33.43         | -17.14        | 32.10            | 12.24               | 440,778.43         | 690,619.86        |  |
| 8,918.00     | 22.40      | 353.90               | -5,465.49       | 8,910.49      | 44.47         | -18.85        | 42.98            | 13.77               | 440,789.47         | 690,618.15        |  |
| 8,950.00     | 26.30      | 358.10               | -5,494.64       | 8,939.64      | 57.62         | -19.73        | 56.04            | 13.33               | 440,802.62         | 690,617.27        |  |
| 8,981.00     | 29.50      | 2.60                 | -5,522.04       | 8,967.04      | 72.11         | -19.61        | 70.50            | 12.35               | 440,817.11         | 690,617.39        |  |
| 9,013.00     | 33.60      | 5.90                 | -5,549.30       | 8,994.30      | 88.80         | -18.34        | 87.24            | 13.90               | 440,833.80         | 690,618.66        |  |
| 9,045.00     | 37.70      | 6.40                 | -5,575.30       | 9,020.30      | 107.34        | -16.34        | 105.87           | 12.84               | 440,852.34         | 690,620.66        |  |
| 9,077.00     | 41.70      | 6.00                 | -5,599.92       | 9,044.92      | 127.66        | -14.14        | 126.30           | 12.53               | 440,872.66         | 690,622.86        |  |
| 9,108.00     | 45.40      | 7.60                 | -5,622.38       | 9,067.38      | 148.86        | -11.60        | 147.63           | 12.45               | 440,893.86         | 690,625.40        |  |
| 9,140.00     | 48.70      | 9.40                 | -5,644.18       | 9,089.18      | 172.02        | -8.13         | 170.98           | 11.10               | 440,917.02         | 690,628.87        |  |
| 9,172.00     | 51.60      | 11.00                | -5,664.69       | 9,109.69      | 196.19        | -3.77         | 195.40           | 9.84                | 440,941.19         | 690,633.23        |  |
| 9,203.00     | 55.70      | 11.10                | -5,683.06       | 9,128.06      | 220.69        | 1.02          | 220.18           | 13.23               | 440,965.69         | 690,638.02        |  |



# Chesapeake Energy, Survey Report



Company: Chesapeake Operating Inc  
Project: Eddy County, New Mexico (NAD 1983)  
Site: PLU Big Sinks 14-24-30 USA 1H  
Well: Job #1210691  
Wellbore: Rig Latshaw 14  
Design: Rig Latshaw 14

Local Co-ordinate Reference:  
TVD Reference:  
MD Reference:  
North Reference:  
Survey Calculation Method:  
Database:  
Well Job # 1210691  
WELL @ 3445.00usft (Latshaw 14)  
WELL @ 3445.00usft (Latshaw 14)  
Grid  
Minimum Curvature  
Compass5000

| Survey       |            |                      |                 |               |               |               |                  |                     |                    |                   |  |
|--------------|------------|----------------------|-----------------|---------------|---------------|---------------|------------------|---------------------|--------------------|-------------------|--|
| MD<br>(usft) | Inc<br>(°) | Azi (azimuth)<br>(°) | TVDSS<br>(usft) | TVD<br>(usft) | N/S<br>(usft) | E/W<br>(usft) | V. Sec<br>(usft) | DLeg<br>(°/100usft) | Northing<br>(usft) | Easting<br>(usft) |  |
| 9,235.00     | 59.60      | 9.30                 | -5,700.18       | 9,145.18      | 247.29        | 5.79          | 247.06           | 13.08               | 440,992.29         | 690,642.79        |  |
| 9,267.00     | 62.70      | 5.80                 | -5,715.62       | 9,160.62      | 275.07        | 9.46          | 275.03           | 13.62               | 441,020.07         | 690,646.46        |  |
| 9,298.00     | 65.60      | 3.90                 | -5,729.14       | 9,174.14      | 302.86        | 11.81         | 302.92           | 10.86               | 441,047.86         | 690,648.81        |  |
| 9,330.00     | 68.60      | 2.80                 | -5,741.59       | 9,186.59      | 332.29        | 13.53         | 332.39           | 9.90                | 441,077.29         | 690,650.53        |  |
| 9,362.00     | 72.40      | 3.30                 | -5,752.27       | 9,197.27      | 362.40        | 15.14         | 362.55           | 11.97               | 441,107.40         | 690,652.14        |  |
| 9,394.00     | 76.40      | 4.80                 | -5,760.87       | 9,205.87      | 393.14        | 17.32         | 393.36           | 13.29               | 441,138.14         | 690,654.32        |  |
| 9,425.00     | 80.40      | 6.40                 | -5,767.10       | 9,212.10      | 423.35        | 20.28         | 423.71           | 13.86               | 441,168.35         | 690,657.28        |  |
| 9,457.00     | 84.20      | 7.00                 | -5,771.39       | 9,216.39      | 454.84        | 23.98         | 455.38           | 12.02               | 441,199.84         | 690,660.98        |  |
| 9,489.00     | 88.20      | 6.80                 | -5,773.51       | 9,218.51      | 486.54        | 27.82         | 487.27           | 12.52               | 441,231.54         | 690,664.82        |  |
| 9,553.00     | 89.70      | 6.60                 | -5,774.68       | 9,219.68      | 550.09        | 35.28         | 551.20           | 2.36                | 441,295.09         | 690,672.28        |  |
| 9,648.00     | 90.00      | 6.10                 | -5,774.93       | 9,219.93      | 644.50        | 45.79         | 646.13           | 0.61                | 441,389.50         | 690,682.79        |  |
| 9,743.00     | 88.70      | 5.70                 | -5,776.01       | 9,221.01      | 738.99        | 55.56         | 741.07           | 1.43                | 441,483.99         | 690,692.56        |  |
| 9,838.00     | 89.90      | 4.90                 | -5,777.17       | 9,222.17      | 833.57        | 64.33         | 836.05           | 1.52                | 441,578.57         | 690,701.33        |  |
| 9,933.00     | 90.30      | 4.30                 | -5,777.01       | 9,222.01      | 928.27        | 71.95         | 931.04           | 0.76                | 441,673.27         | 690,708.95        |  |
| 10,028.00    | 89.90      | 4.10                 | -5,776.84       | 9,221.84      | 1,023.01      | 78.91         | 1,026.04         | 0.47                | 441,768.01         | 690,715.91        |  |
| 10,123.00    | 90.10      | 4.00                 | -5,776.84       | 9,221.84      | 1,117.78      | 85.62         | 1,121.04         | 0.24                | 441,862.78         | 690,722.62        |  |
| 10,218.00    | 90.20      | 4.50                 | -5,776.59       | 9,221.59      | 1,212.51      | 92.66         | 1,216.04         | 0.54                | 441,957.51         | 690,729.66        |  |
| 10,313.00    | 89.50      | 4.40                 | -5,776.84       | 9,221.84      | 1,307.23      | 100.03        | 1,311.04         | 0.74                | 442,052.23         | 690,737.03        |  |
| 10,408.00    | 88.70      | 3.80                 | -5,778.33       | 9,223.33      | 1,401.97      | 106.82        | 1,406.03         | 1.05                | 442,146.97         | 690,743.82        |  |
| 10,503.00    | 90.20      | 3.50                 | -5,779.24       | 9,224.24      | 1,496.77      | 112.87        | 1,501.01         | 1.61                | 442,241.77         | 690,749.87        |  |
| 10,599.00    | 89.70      | 3.90                 | -5,779.33       | 9,224.33      | 1,592.57      | 119.06        | 1,597.01         | 0.67                | 442,337.57         | 690,756.06        |  |
| 10,693.00    | 88.60      | 3.80                 | -5,780.72       | 9,225.72      | 1,686.35      | 125.37        | 1,691.00         | 1.18                | 442,431.35         | 690,762.37        |  |
| 10,789.00    | 89.90      | 4.40                 | -5,781.98       | 9,226.98      | 1,782.09      | 132.24        | 1,786.99         | 1.49                | 442,527.09         | 690,769.24        |  |
| 10,884.00    | 89.90      | 4.80                 | -5,782.14       | 9,227.14      | 1,876.78      | 139.85        | 1,881.98         | 0.42                | 442,621.78         | 690,776.85        |  |
| 10,979.00    | 88.30      | 4.50                 | -5,783.64       | 9,228.64      | 1,971.46      | 147.55        | 1,976.97         | 1.71                | 442,716.46         | 690,784.55        |  |
| 11,074.00    | 90.30      | 4.20                 | -5,784.80       | 9,229.80      | 2,066.17      | 154.76        | 2,071.95         | 2.13                | 442,811.17         | 690,791.76        |  |
| 11,169.00    | 88.70      | 4.50                 | -5,785.63       | 9,230.63      | 2,160.89      | 161.96        | 2,166.95         | 1.71                | 442,905.89         | 690,798.96        |  |



# Chesapeake Energy, Survey Report



Company: Chesapeake Operating Inc  
Project: Eddy County New Mexico (NAD 1983)  
Site: PLU Big Sinks 14-24-30 USA 1H  
Well: Job # 1210691  
Wellbore: Rig Latshaw 14  
Design: Rig Latshaw 14

Local Co-ordinate Reference: Well Job # 1210691  
TVD Reference: WELL @ 3445.00usft (Latshaw 14)  
MD Reference: WELL @ 3445.00usft (Latshaw 14)  
North Reference: Grid  
Survey Calculation Method: Minimum Curvature  
Database: Compass5000

| Survey       |            |                      |                 |               |               |               |                  |                     |                    |                   |  |
|--------------|------------|----------------------|-----------------|---------------|---------------|---------------|------------------|---------------------|--------------------|-------------------|--|
| MD<br>(usft) | Inc<br>(°) | Azi (azimuth)<br>(°) | TVDSS<br>(usft) | TVD<br>(usft) | N/S<br>(usft) | E/W<br>(usft) | V. Sec<br>(usft) | DLeg<br>(°/100usft) | Northing<br>(usft) | Easting<br>(usft) |  |
| 11,264.00    | 89.80      | 3.70                 | -5,786.87       | 9,231.87      | 2,255.64      | 168.76        | 2,261.93         | 1.43                | 443,000.64         | 690,805.76        |  |
| 11,359.00    | 90.60      | 4.10                 | -5,786.54       | 9,231.54      | 2,350.41      | 175.22        | 2,356.93         | 0.94                | 443,095.41         | 690,812.22        |  |
| 11,454.00    | 93.10      | 3.20                 | -5,783.47       | 9,228.47      | 2,445.16      | 181.26        | 2,451.87         | 2.80                | 443,190.16         | 690,818.26        |  |
| 11,550.00    | 93.10      | 2.70                 | -5,778.28       | 9,223.28      | 2,540.90      | 186.20        | 2,547.71         | 0.52                | 443,285.90         | 690,823.20        |  |
| 11,645.00    | 92.70      | 2.70                 | -5,773.47       | 9,218.47      | 2,635.67      | 190.66        | 2,642.56         | 0.42                | 443,380.67         | 690,827.66        |  |
| 11,740.00    | 93.30      | 3.20                 | -5,768.50       | 9,213.50      | 2,730.41      | 195.55        | 2,737.40         | 0.82                | 443,475.41         | 690,832.55        |  |
| 11,835.00    | 91.80      | 3.30                 | -5,764.28       | 9,209.28      | 2,825.16      | 200.93        | 2,832.29         | 1.58                | 443,570.16         | 690,837.93        |  |
| 11,930.00    | 92.70      | 4.80                 | -5,760.55       | 9,205.55      | 2,919.85      | 207.63        | 2,927.22         | 1.84                | 443,664.85         | 690,844.63        |  |
| 12,025.00    | 93.10      | 5.30                 | -5,755.74       | 9,200.74      | 3,014.36      | 215.98        | 3,022.08         | 0.67                | 443,759.36         | 690,852.98        |  |
| 12,120.00    | 94.00      | 6.40                 | -5,749.86       | 9,194.86      | 3,108.68      | 225.65        | 3,116.86         | 1.49                | 443,853.68         | 690,862.65        |  |
| 12,215.00    | 90.90      | 4.90                 | -5,745.80       | 9,190.80      | 3,203.12      | 234.99        | 3,211.72         | 3.62                | 443,948.12         | 690,871.99        |  |
| 12,310.00    | 90.20      | 4.90                 | -5,744.88       | 9,189.88      | 3,297.77      | 243.10        | 3,306.71         | 0.74                | 444,042.77         | 690,880.10        |  |
| 12,405.00    | 89.60      | 5.10                 | -5,745.05       | 9,190.05      | 3,392.40      | 251.38        | 3,401.70         | 0.67                | 444,137.40         | 690,888.38        |  |
| 12,500.00    | 90.30      | 5.20                 | -5,745.13       | 9,190.13      | 3,487.02      | 259.91        | 3,496.69         | 0.74                | 444,232.02         | 690,896.91        |  |
| 12,595.00    | 91.30      | 5.60                 | -5,743.81       | 9,188.81      | 3,581.59      | 268.85        | 3,591.65         | 1.13                | 444,326.59         | 690,905.85        |  |
| 12,691.00    | 91.90      | 5.70                 | -5,741.13       | 9,186.13      | 3,677.08      | 278.30        | 3,687.58         | 0.63                | 444,422.08         | 690,915.30        |  |
| 12,786.00    | 91.90      | 6.00                 | -5,737.98       | 9,182.98      | 3,771.54      | 287.97        | 3,782.49         | 0.32                | 444,516.54         | 690,924.97        |  |
| 12,881.00    | 91.30      | 5.10                 | -5,735.32       | 9,180.32      | 3,866.05      | 297.16        | 3,877.42         | 1.14                | 444,611.05         | 690,934.16        |  |
| 12,976.00    | 91.30      | 5.00                 | -5,733.17       | 9,178.17      | 3,960.66      | 305.52        | 3,972.39         | 0.11                | 444,705.66         | 690,942.52        |  |
| 13,071.00    | 90.70      | 4.60                 | -5,731.51       | 9,176.51      | 4,055.31      | 313.47        | 4,067.37         | 0.76                | 444,800.31         | 690,950.47        |  |
| 13,166.00    | 89.60      | 4.20                 | -5,731.26       | 9,176.26      | 4,150.03      | 320.75        | 4,162.36         | 1.23                | 444,895.03         | 690,957.75        |  |
| 13,261.00    | 88.90      | 3.50                 | -5,732.50       | 9,177.50      | 4,244.81      | 327.13        | 4,257.35         | 1.04                | 444,989.81         | 690,964.13        |  |
| 13,356.00    | 88.70      | 3.90                 | -5,734.49       | 9,179.49      | 4,339.59      | 333.26        | 4,352.33         | 0.47                | 445,084.59         | 690,970.26        |  |
| 13,451.00    | 89.50      | 3.50                 | -5,735.99       | 9,180.99      | 4,434.38      | 339.39        | 4,447.31         | 0.94                | 445,179.38         | 690,976.39        |  |
| 13,546.00    | 90.80      | 3.70                 | -5,735.74       | 9,180.74      | 4,529.19      | 345.36        | 4,542.31         | 1.38                | 445,274.19         | 690,982.36        |  |
| 13,641.00    | 91.40      | 3.80                 | -5,733.91       | 9,178.91      | 4,623.96      | 351.57        | 4,637.29         | 0.64                | 445,368.96         | 690,988.57        |  |
| 13,736.00    | 91.20      | 3.70                 | -5,731.76       | 9,176.76      | 4,718.74      | 357.78        | 4,732.26         | 0.24                | 445,463.74         | 690,994.78        |  |



# Chesapeake Energy, Survey Report



Company: Chesapeake Operating Inc  
Project: Eddy County, New Mexico (NAD 1983)  
Site: PLU Big Sinks 14-24-30 USA 1H  
Well: Job # 1210691  
Wellbore: Rig Latshaw 14  
Design: Rig Latshaw 14

Local Co-ordinate Reference:  
TVD Reference:  
MD Reference:  
North Reference:  
Survey Calculation Method:  
Database:  
Well Job # 1210691  
WELL @ 3445.00usft (Latshaw 14)  
WELL @ 3445.00usft (Latshaw 14)  
Grid  
Minimum Curvature  
Compass5000

## Survey

| MD<br>(usft)                         | Inc<br>(°) | Azi (azimuth)<br>(°) | TVDSS<br>(usft) | TVD<br>(usft) | N/S<br>(usft) | E/W<br>(usft) | V. Sec<br>(usft) | DLeg<br>("/100usft) | Northing<br>(usft) | Easting<br>(usft) |
|--------------------------------------|------------|----------------------|-----------------|---------------|---------------|---------------|------------------|---------------------|--------------------|-------------------|
| 13,832.00                            | 90.80      | 3.80                 | -5,730.08       | 9,175.08      | 4,814.52      | 364.06        | 4,828.24         | 0.43                | 445,559.52         | 691,001.06        |
| 13,927.00                            | 90.40      | 4.10                 | -5,729.09       | 9,174.09      | 4,909.29      | 370.60        | 4,923.24         | 0.53                | 445,654.29         | 691,007.60        |
| 14,022.00                            | 89.40      | 3.80                 | -5,729.25       | 9,174.25      | 5,004.06      | 377.15        | 5,018.23         | 1.10                | 445,749.06         | 691,014.15        |
| 14,094.00                            | 89.00      | 2.70                 | -5,730.26       | 9,175.26      | 5,075.93      | 381.23        | 5,090.22         | 1.63                | 445,820.93         | 691,018.23        |
| Last Phoenix MWD Surveys @ 14094' MD |            |                      |                 |               |               |               |                  |                     |                    |                   |
| 14,145.00                            | 89.00      | 2.70                 | -5,731.15       | 9,176.15      | 5,126.87      | 383.63        | 5,141.19         | 0.00                | 445,871.87         | 691,020.63        |
| Projection to TD @ 14145' MD         |            |                      |                 |               |               |               |                  |                     |                    |                   |

## Survey Annotations

| Measured<br>Depth<br>(usft) | Vertical<br>Depth<br>(usft) | Local Coordinates |                | Comment                              |
|-----------------------------|-----------------------------|-------------------|----------------|--------------------------------------|
|                             |                             | +N-S<br>(usft)    | +E-W<br>(usft) |                                      |
| 201.00                      | 200.99                      | 0.95              | -1.03          | First Phoenix MWD Surveys @ 201' MD  |
| 14,094.00                   | 9,175.26                    | 5,075.93          | 381.23         | Last Phoenix MWD Surveys @ 14094' MD |
| 14,145.00                   | 9,176.15                    | 5,126.87          | 383.63         | Projection to TD @ 14145' MD         |

Checked By \_\_\_\_\_ Approved By \_\_\_\_\_ Date: \_\_\_\_\_