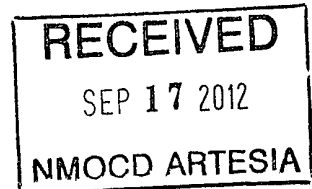




PHOENIX
TECHNOLOGY SERVICES

September 10, 2012

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



Dear District 2 - Artesia

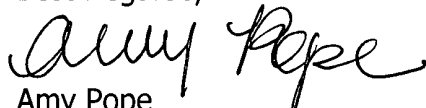
Re: Chesapeake Operating Inc.
PLU Big Sinks 35-24-30 USA 1H
Eddy Co., NM
API #30-015-40155
Job No. 1210396

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	
David Hayden	1H	209	13,539	08/13/12	09/01/12	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 1570 0001 4364 9254

Phoenix Technology Services SURVEY DATA CERTIFICATION



PHOENIX JOB NUMBER	1210396	OPERATOR	Chesapeake Operating Inc.
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WELL NAME	PLU Big Sinks 35-24-30 USA 1H	COUNTY & STATE	Eddy / New Mexico
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API WELL NUMBER	30-015-40155	PROPOSED DIRECTION	179.17
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TIE-IN DATA	MEASURED DEPTH	VERTICAL DEPTH	INCLIN	AZIMUTH	N-S COORD	E-W COORD	DATA SOURCE
	ft	.00 ft	.0 ft	.0 ft	.00 ft	.00 ft	Surface

FIRST SURVEY DATE	FIRST SURVEY DEPTH	INCLIN	AZIMUTH
13-Aug-12	209 ft	0.4	272.6

SURVEY INSTRUMENT TYPE
Phoenix MWD

LAST SURVEY DATE	LAST SURVEY DEPTH	INCLIN	AZIMUTH
01-Sep-12	13,539 ft	86.4	177.2

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
01-Sep-12	13,597 ft	86.4	177.2

David Hayden

PRINT YOUR NAME ABOVE

SIGN YOUR NAME ABOVE

MAGNETIC DECLINATION OR TOTAL GRID

TOTAL CORRECTION USED	7.35
DECLINATION OR GRID	GRID

09/01/12

TODAY'S DATE

MWD SUPERVISOR 1

David Hayden

DIRECTIONAL DRILLER 1

Glen McVay

MWD SUPERVISOR 2

JC Caraway

DIRECTIONAL DRILLER 2

Justin Jackson

1805 Brittmore Road

Houston, Texas 77043

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

DISTRICT I
1625 N. French Dr., Hobbs, NM 88240
Phone (575) 393-5161 Fax: (575) 393-0720
DISTRICT II
811 S. First St., Artesia, NM 88210
Phone (575) 746-1283 Fax: (575) 746-0720

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

NMOC D ARTESIA

Form C-102

Revised August 1, 2011

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 PLU BIG SINKS 35 24 30 USA	Well Number 1H
OGRID No.	Operator Name CHESAPEAKE OPERATING CO.	Elevation 3346'

Surface Location

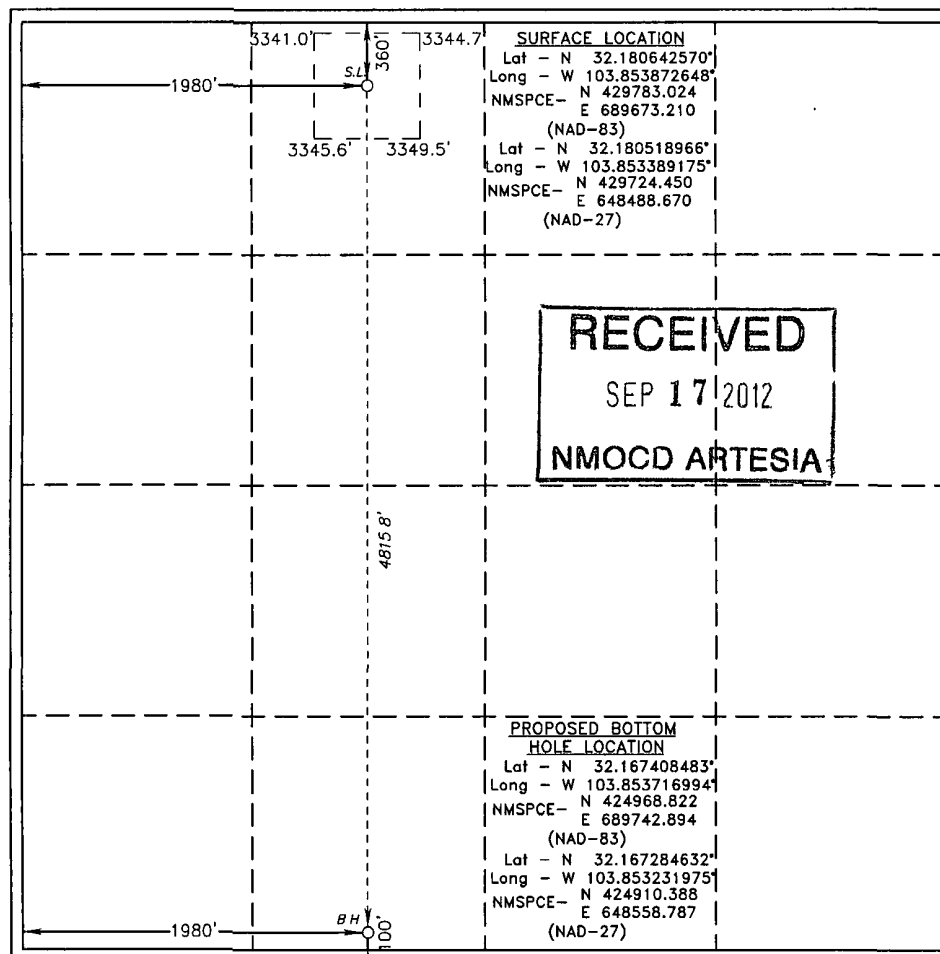
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
C	35	24 S	30 E		360	NORTH	1980	WEST	EDDY

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
N	35	24 S	30 E		100	SOUTH	1980	WEST	EDDY

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
161.45			

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

	SURFACE LOCATION Lat - N 32.180642570° Long - W 103.853872648° NMSPC- N 429783.024 E 689673.210 (NAD-83) Lat - N 32.180518966° Long - W 103.853389175° NMSPC- N 429724.450 E 648488.670 (NAD-27) PROPOSED BOTTOM HOLE LOCATION Lat - N 32.167408483° Long - W 103.853716994° NMSPC- N 424968.822 E 689742.894 (NAD-83) Lat - N 32.167284632° Long - W 103.853231975° NMSPC- N 424910.388 E 648558.787 (NAD-27)	OPERATOR CERTIFICATION 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. Signature _____ Date _____ Printed Name _____ Email Address _____ SURVEYOR CERTIFICATION 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. Date Surveyed _____ Signature & Seal of Professional Surveyor _____ Certificate No. Gary L. Jones 7977 BASIN SURVEYS 26749
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Chesapeake Operating Inc.

Eddy County, New Mexico (NAD27)

PLU Big Sinks 35 24 30 USA 1H

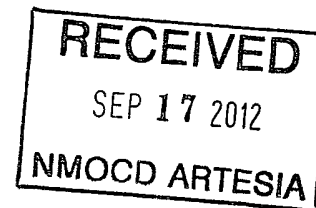
Job # 1210396

Rig: Trinidad 110

Survey: Phoenix MWD Surveys

Chesapeake Energy, Survey Report

02 September, 2012





Chesapeake Energy, Survey Report



Company: Chesapeake Operating Inc.
Project: Eddy County, New Mexico (NAD27)
Site: PLU Big Sinks 35 24 30 USA 1H
Well: Job # 1210396
Wellbore: Rig Trinidad 110
Design: Rig Trinidad 110

Local Co-ordinate Reference: Well Job # 1210396
TVD Reference: WELL @ 3363.00usft (Trinidad 110)
MD Reference: WELL @ 3363.00usft (Trinidad 110)
North Reference: Grid#
Survey Calculation Method: Minimum Curvature
Database: Compass5000

Project: Eddy County, New Mexico (NAD27)

Map System: US State Plane 1927 (Exact solution)
Geo Datum: NAD 1927 (NADCON CONUS)
Map Zone: New Mexico East 3001

System Datum: Mean Sea Level

Site: PLU Big Sinks 35 24 30 USA 1H

Site Position:		Northing:	429,934.40 usft	Latitude:	32° 10' 51.9461 N
From:	Map	Easting:	648,485.67 usft	Longitude:	103° 51' 12.2251 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.26 °

Well: Job # 1210396

Well Position	+N-S	0.00 usft	Northing:	429,724.45 usft	Latitude:	32° 10' 49.8683 N
	+E-W	0.00 usft	Easting:	648,488.67 usft	Longitude:	103° 51' 12.2011 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	3,346.00 usft

Wellbore: Rig Trinidad 110

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010_14	05/04/12	7.60	60.08	48,471

Design: Rig Trinidad 110

Audit Notes:

Version: 1.0 Phase: ACTUAL Tie On Depth: 0.00

Vertical Section:	Depth From (TVD) (usft)	+N-S (usft)	+E-W (usft)	Direction (°)
	0.00	0.00	0.00	179.17

Survey Program: Date 09/02/12

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
209.00	13,597.00	Phoenix MWD Surveys (Rig Trinidad 110)	MWD	MWD - Standard



Chesapeake Energy, Survey Report



Company: Chesapeake Operating Inc.
Project: Eddy County, New Mexico (NAD27)
Site: PLU Big Sinks 35 24 30 USA 1H
Well: Job # 1210396
Wellbore: Rig Trinidad 110
Design: Rig, Trinidad 110

Local Co-ordinate Reference:
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MD Reference: WELL @ 3363.00usft (Trinidad 110)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Compass5000

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVDSS (usft)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
0.00	0.00	0.00	3,363.00	0.00	0.00	0.00	0.00	0.00	429,724.45	648,488.67
209.00	0.40	272.60	3,154.00	209.00	0.03	-0.73	-0.04	0.19	429,724.48	648,487.94
First Phoenix MWD Surveys @ 209' MD										
302.00	0.60	275.30	3,061.01	301.99	0.09	-1.54	-0.12	0.22	429,724.54	648,487.13
393.00	0.60	285.90	2,970.01	392.99	0.27	-2.47	-0.30	0.12	429,724.72	648,486.20
488.00	0.50	291.50	2,875.01	487.99	0.56	-3.33	-0.60	0.12	429,725.01	648,485.34
584.00	0.60	296.40	2,779.02	583.98	0.93	-4.17	-0.99	0.12	429,725.38	648,484.50
679.00	0.60	300.10	2,684.02	678.98	1.40	-5.05	-1.48	0.04	429,725.85	648,483.62
774.00	0.70	297.90	2,589.03	773.97	1.92	-5.99	-2.01	0.11	429,726.37	648,482.68
870.00	0.80	284.50	2,493.04	869.96	2.37	-7.16	-2.47	0.21	429,726.82	648,481.51
965.00	1.00	293.60	2,398.05	964.95	2.86	-8.56	-2.99	0.26	429,727.31	648,480.11
1,060.00	1.00	305.50	2,303.06	1,059.94	3.68	-10.00	-3.82	0.22	429,728.13	648,478.67
1,156.00	1.10	301.60	2,207.08	1,155.92	4.65	-11.46	-4.81	0.13	429,729.10	648,477.21
1,251.00	1.50	276.60	2,112.10	1,250.90	5.27	-13.48	-5.46	0.72	429,729.72	648,475.19
1,347.00	3.40	253.70	2,016.19	1,346.81	4.61	-17.46	-4.87	2.19	429,729.06	648,471.21
1,400.00	3.90	252.20	1,963.30	1,399.70	3.62	-20.68	-3.92	0.96	429,728.07	648,467.99
1,633.00	5.70	267.70	1,731.12	1,631.88	0.73	-39.79	-1.31	0.95	429,725.18	648,448.88
1,728.00	6.80	288.60	1,636.67	1,726.33	2.34	-49.84	-3.06	2.64	429,726.79	648,438.83
1,824.00	4.50	299.40	1,541.14	1,821.86	6.00	-58.50	-6.85	2.63	429,730.45	648,430.17
1,919.00	2.80	306.20	1,446.34	1,916.66	9.20	-63.62	-10.12	1.84	429,733.65	648,425.05
2,015.00	2.20	297.90	1,350.43	2,012.57	11.45	-67.14	-12.42	0.73	429,735.90	648,421.53
2,110.00	2.40	301.00	1,255.51	2,107.49	13.33	-70.46	-14.35	0.25	429,737.78	648,418.21
2,205.00	2.90	293.50	1,160.61	2,202.39	15.31	-74.37	-16.38	0.64	429,739.76	648,414.30
2,301.00	1.70	279.10	1,064.69	2,298.31	16.50	-78.00	-17.63	1.38	429,740.95	648,410.67
2,396.00	1.20	226.60	969.71	2,393.29	16.04	-80.12	-17.20	1.43	429,740.49	648,408.55
2,492.00	1.00	234.80	873.73	2,489.27	14.87	-81.53	-16.05	0.26	429,739.32	648,407.14
2,587.00	1.10	253.50	778.75	2,584.25	14.13	-83.08	-15.33	0.37	429,738.58	648,405.59



Chesapeake Energy, Survey Report



Company: Chesapeake Operating Inc.
Project: Eddy County, New Mexico (NAD27)
Site: PLU Big Sinks 35 24 30 USA 1H
Well: Job # 1210396
Wellbore: Rig Trinidad 110
Design: Rig Trinidad 110

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North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Compass5000

Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVDSS (usft)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)	
2,683.00	1.20	246.10	682.77	2,680.23	13.46	-84.89	-14.69	0.19	429,737.91	648,403.78	
2,779.00	1.20	247.90	586.79	2,776.21	12.68	-86.74	-13.93	0.04	429,737.13	648,401.93	
2,875.00	0.90	263.50	490.80	2,872.20	12.21	-88.42	-13.49	0.43	429,736.66	648,400.25	
2,970.00	1.00	270.70	395.82	2,967.18	12.14	-89.99	-13.44	0.16	429,736.59	648,398.68	
3,066.00	1.20	276.20	299.83	3,063.17	12.26	-91.82	-13.59	0.24	429,736.71	648,396.85	
3,162.00	1.40	279.70	203.86	3,159.14	12.56	-93.98	-13.92	0.22	429,737.01	648,394.69	
3,258.00	1.10	274.00	107.88	3,255.12	12.83	-96.06	-14.22	0.34	429,737.28	648,392.61	
3,354.00	0.90	272.50	11.90	3,351.10	12.92	-97.73	-14.34	0.21	429,737.37	648,390.94	
3,449.00	0.40	261.80	-83.10	3,446.10	12.91	-98.80	-14.34	0.54	429,737.36	648,389.87	
3,544.00	0.60	227.50	-178.09	3,541.09	12.52	-99.50	-13.96	0.37	429,736.97	648,389.17	
3,639.00	0.70	219.70	-273.09	3,636.09	11.74	-100.23	-13.19	0.14	429,736.19	648,388.44	
3,735.00	1.20	180.50	-369.07	3,732.07	10.29	-100.62	-11.74	0.83	429,734.74	648,388.05	
3,805.00	1.40	184.20	-439.06	3,802.06	8.70	-100.69	-10.16	0.31	429,733.15	648,387.98	
3,929.00	1.10	184.30	-563.03	3,926.03	6.00	-100.89	-7.46	0.24	429,730.45	648,387.78	
4,024.00	1.10	185.60	-658.01	4,021.01	4.19	-101.04	-5.65	0.03	429,728.64	648,387.63	
4,120.00	1.10	183.00	-753.99	4,116.99	2.35	-101.18	-3.81	0.05	429,726.80	648,387.49	
4,216.00	1.10	185.40	-849.97	4,212.97	0.51	-101.32	-1.98	0.05	429,724.96	648,387.35	
4,311.00	1.10	186.00	-944.96	4,307.96	-1.30	-101.50	-0.17	0.01	429,723.15	648,387.17	
4,407.00	1.00	185.60	-1,040.94	4,403.94	-3.05	-101.68	1.58	0.10	429,721.40	648,386.99	
4,503.00	1.00	181.30	-1,136.93	4,499.93	-4.73	-101.78	3.25	0.08	429,719.72	648,386.89	
4,598.00	1.10	180.90	-1,231.91	4,594.91	-6.47	-101.81	4.99	0.11	429,717.98	648,386.86	
4,694.00	1.20	169.10	-1,327.89	4,690.89	-8.37	-101.63	6.90	0.27	429,716.08	648,387.04	
4,790.00	1.30	167.80	-1,423.87	4,786.87	-10.43	-101.21	8.96	0.11	429,714.02	648,387.46	
4,886.00	1.20	168.30	-1,519.84	4,882.84	-12.47	-100.78	11.01	0.10	429,711.98	648,387.89	
4,981.00	1.30	173.30	-1,614.82	4,977.82	-14.52	-100.45	13.06	0.16	429,709.93	648,388.22	
5,077.00	1.10	169.30	-1,710.80	5,073.80	-16.51	-100.15	15.05	0.23	429,707.94	648,388.52	
5,172.00	1.10	171.00	-1,805.78	5,168.78	-18.30	-99.84	16.85	0.03	429,706.15	648,388.83	



Chesapeake Energy, Survey Report

Chesapeake

Company: Chesapeake Operating Inc.
Project: Eddy County, New Mexico (NAD27)
Site: PLU Big Sinks 35 24.30 USA 1H
Well: Job # 1210396
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5,268.00	1.10	178.30	-1,901.77	5,264.77	-20.13	-99.67	18.69	0.15	429,704.32	648,389.00		
5,363.00	1.10	178.30	-1,996.75	5,359.75	-21.96	-99.62	20.51	0.00	429,702.49	648,389.05		
5,458.00	1.00	179.90	-2,091.73	5,454.73	-23.70	-99.59	22.25	0.11	429,700.75	648,389.08		
5,554.00	1.10	179.70	-2,187.72	5,550.72	-25.46	-99.58	24.01	0.10	429,698.99	648,389.09		
5,649.00	1.00	177.30	-2,282.70	5,645.70	-27.20	-99.54	25.75	0.11	429,697.25	648,389.13		
5,745.00	1.10	176.70	-2,378.68	5,741.68	-28.95	-99.45	27.51	0.10	429,695.50	648,389.22		
5,840.00	1.10	173.60	-2,473.67	5,836.67	-30.77	-99.29	29.33	0.06	429,693.68	648,389.38		
5,935.00	1.20	173.20	-2,568.65	5,931.65	-32.66	-99.07	31.23	0.11	429,691.79	648,389.60		
6,030.00	1.30	169.80	-2,663.62	6,026.62	-34.71	-98.76	33.28	0.13	429,689.74	648,389.91		
6,126.00	1.30	177.50	-2,759.60	6,122.60	-36.87	-98.52	35.44	0.18	429,687.58	648,390.15		
6,220.00	1.40	177.80	-2,853.57	6,216.57	-39.08	-98.43	37.65	0.11	429,685.37	648,390.24		
6,316.00	1.40	176.40	-2,949.55	6,312.55	-41.43	-98.31	40.00	0.04	429,683.02	648,390.36		
6,406.00	1.20	184.50	-3,039.52	6,402.52	-43.46	-98.32	42.03	0.30	429,680.99	648,390.35		
6,496.00	1.10	200.50	-3,129.50	6,492.50	-45.21	-98.70	43.78	0.37	429,679.24	648,389.97		
6,587.00	1.10	203.50	-3,220.49	6,583.49	-46.83	-99.35	45.39	0.06	429,677.62	648,389.32		
6,677.00	1.10	198.20	-3,310.47	6,673.47	-48.44	-99.96	46.99	0.11	429,676.01	648,388.71		
6,767.00	1.10	194.60	-3,400.45	6,763.45	-50.10	-100.45	48.64	0.08	429,674.35	648,388.22		
6,857.00	1.20	202.80	-3,490.44	6,853.44	-51.81	-101.03	50.34	0.21	429,672.64	648,387.64		
6,948.00	1.20	203.70	-3,581.42	6,944.42	-53.56	-101.79	52.08	0.02	429,670.89	648,386.88		
7,038.00	1.20	202.60	-3,671.40	7,034.40	-55.29	-102.53	53.80	0.03	429,669.16	648,386.14		
7,128.00	1.40	198.90	-3,761.37	7,124.37	-57.20	-103.25	55.70	0.24	429,667.25	648,385.42		
7,218.00	1.30	191.10	-3,851.35	7,214.35	-59.24	-103.80	57.73	0.23	429,665.21	648,384.87		
7,309.00	1.30	191.30	-3,942.33	7,305.33	-61.27	-104.20	59.75	0.00	429,663.18	648,384.47		
7,399.00	1.30	188.10	-4,032.30	7,395.30	-63.28	-104.54	61.76	0.08	429,661.17	648,384.13		
7,490.00	1.40	185.90	-4,123.28	7,486.28	-65.41	-104.80	63.88	0.12	429,659.04	648,383.87		
7,580.00	1.40	184.30	-4,213.25	7,576.25	-67.60	-105.00	66.07	0.04	429,656.85	648,383.67		
7,671.00	1.40	179.50	-4,304.22	7,667.22	-69.82	-105.07	68.29	0.13	429,654.63	648,383.60		



Chesapeake Energy, Survey Report

Chesapeake

Company: Chesapeake Operating, Inc
Project: Eddy County, New Mexico (NAD27)
Site: PLU Big Sinks 35 24 30 USA 1H
Well: Job # 1210396
Wellbore: Rig Trinidad 110
Design: Rig Trinidad 110

Local Co-ordinate Reference: Well Job # 1210396
TVD Reference: WELL @ 3363.00usft (Trinidad 110)
MD Reference: WELL @ 3363.00usft (Trinidad 110)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Compass5000

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVDSS (usft)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
7,761.00	1.20	181.70	-4,394.20	7,757.20	-71.86	-105.09	70.33	0.23	429,652.59	648,383.58
7,852.00	1.10	181.50	-4,485.18	7,848.18	-73.68	-105.14	72.15	0.11	429,650.77	648,383.53
7,942.00	1.10	188.70	-4,575.16	7,938.16	-75.40	-105.30	73.87	0.15	429,649.05	648,383.37
8,032.00	1.00	171.60	-4,665.15	8,028.15	-77.03	-105.31	75.50	0.36	429,647.42	648,383.36
8,123.00	0.80	139.30	-4,756.14	8,119.14	-78.30	-104.78	76.77	0.59	429,646.15	648,383.89
8,213.00	0.70	158.90	-4,846.13	8,209.13	-79.29	-104.17	77.77	0.30	429,645.16	648,384.50
8,303.00	0.50	198.80	-4,936.13	8,299.13	-80.17	-104.10	78.66	0.50	429,644.28	648,384.57
8,394.00	0.60	225.10	-5,027.12	8,390.12	-80.89	-104.57	79.36	0.30	429,643.56	648,384.10
8,484.00	0.80	249.00	-5,117.12	8,480.12	-81.44	-105.49	79.91	0.39	429,643.01	648,383.18
8,575.00	0.70	241.00	-5,208.11	8,571.11	-81.94	-106.57	80.39	0.16	429,642.51	648,382.10
8,703.00	9.10	174.00	-5,335.55	8,698.55	-92.41	-106.19	90.86	6.91	429,632.04	648,382.48
8,748.00	14.20	165.80	-5,379.61	8,742.61	-101.30	-104.46	99.78	11.89	429,623.15	648,384.21
8,793.00	20.70	160.50	-5,422.52	8,785.52	-114.17	-100.45	112.70	14.86	429,610.28	648,388.22
8,838.00	28.40	160.70	-5,463.42	8,826.42	-131.79	-94.25	130.41	17.11	429,592.66	648,394.42
8,884.00	34.60	161.30	-5,502.63	8,865.63	-154.51	-86.44	153.24	13.50	429,569.94	648,402.23
8,929.00	38.60	163.70	-5,538.75	8,901.75	-180.09	-78.40	178.94	9.44	429,544.36	648,410.27
8,974.00	43.40	167.20	-5,572.70	8,935.70	-208.66	-71.03	207.61	11.82	429,515.79	648,417.64
9,019.00	46.20	167.00	-5,604.63	8,967.63	-239.57	-63.95	238.62	6.23	429,484.88	648,424.72
9,064.00	46.10	167.50	-5,635.81	8,998.81	-271.22	-56.79	270.37	0.83	429,453.23	648,431.88
9,109.00	50.40	168.30	-5,665.76	9,028.76	-304.04	-49.76	303.29	9.65	429,420.41	648,438.91
9,154.00	57.30	170.90	-5,692.30	9,055.30	-339.76	-43.24	339.10	16.03	429,384.69	648,445.43
9,199.00	63.20	172.60	-5,714.62	9,077.62	-378.41	-37.66	377.82	13.51	429,346.04	648,451.01
9,245.00	70.30	176.90	-5,732.77	9,095.77	-420.46	-33.83	419.92	17.66	429,303.99	648,454.84
9,290.00	77.50	177.10	-5,745.24	9,108.24	-463.61	-31.57	463.10	16.01	429,260.84	648,457.10
9,335.00	83.40	177.30	-5,752.70	9,115.70	-507.91	-29.41	507.43	13.12	429,216.54	648,459.26
9,380.00	85.00	176.80	-5,757.25	9,120.25	-552.62	-27.10	552.17	3.72	429,171.83	648,461.57
9,425.00	87.20	176.80	-5,760.31	9,123.31	-597.44	-24.60	597.02	4.89	429,127.01	648,464.07



Chesapeake Energy, Survey Report

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Well: Job # 1210396
Wellbore: Rig: Trinidad 110
Design: Rig: Trinidad 110

Local Co-ordinate Reference: Well Job # 1210396
TVD Reference: WELL @ 3363.00usft (Trinidad 110)
MD Reference: WELL @ 3363.00usft (Trinidad 110)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Compass5000

Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVDSS (usft)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)	
9,470.00	85.90	176.30	-5,763.02	9,126.02	-642.28	-21.89	641.89	3.09	429,082.17	648,466.78	
9,560.00	88.60	176.50	-5,767.34	9,130.34	-731.99	-16.25	731.68	3.01	428,992.46	648,472.42	
9,651.00	87.10	176.20	-5,770.75	9,133.75	-822.74	-10.46	822.50	1.68	428,901.71	648,478.21	
9,742.00	87.90	176.10	-5,774.72	9,137.72	-913.44	-4.36	913.28	0.89	428,811.01	648,484.31	
9,832.00	92.50	176.30	-5,774.41	9,137.41	-1,003.22	1.61	1,003.14	5.12	428,721.23	648,490.28	
9,923.00	93.60	175.90	-5,769.57	9,132.57	-1,093.88	7.79	1,093.88	1.29	428,630.57	648,496.46	
10,013.00	92.90	175.60	-5,764.46	9,127.46	-1,183.49	14.45	1,183.57	0.85	428,540.96	648,503.12	
10,104.00	92.20	175.20	-5,760.41	9,123.41	-1,274.10	21.74	1,274.29	0.89	428,450.35	648,510.41	
10,194.00	92.50	177.90	-5,756.72	9,119.72	-1,363.86	27.15	1,364.11	3.02	428,360.59	648,515.82	
10,285.00	93.00	179.40	-5,752.36	9,115.36	-1,454.72	29.29	1,455.00	1.74	428,269.73	648,517.96	
10,375.00	90.90	180.30	-5,749.29	9,112.29	-1,544.67	29.52	1,544.93	2.54	428,179.78	648,518.19	
10,466.00	91.10	179.60	-5,747.71	9,110.71	-1,635.65	29.60	1,635.91	0.80	428,088.80	648,518.27	
10,556.00	88.80	181.00	-5,747.78	9,110.78	-1,725.64	29.13	1,725.88	2.99	427,998.81	648,517.80	
10,647.00	90.50	181.40	-5,748.34	9,111.34	-1,816.62	27.23	1,816.82	1.92	427,907.83	648,515.90	
10,737.00	86.90	182.20	-5,750.38	9,113.38	-1,906.53	24.40	1,906.69	4.10	427,817.92	648,513.07	
10,828.00	85.60	182.20	-5,756.33	9,119.33	-1,997.27	20.92	1,997.36	1.43	427,727.18	648,509.59	
10,918.00	85.30	181.40	-5,763.47	9,126.47	-2,086.94	18.10	2,086.98	0.95	427,637.51	648,506.77	
11,009.00	87.00	178.70	-5,769.58	9,132.58	-2,177.72	18.02	2,177.76	3.50	427,546.73	648,506.69	
11,099.00	88.20	178.50	-5,773.35	9,136.35	-2,267.62	20.22	2,267.67	1.35	427,456.83	648,508.89	
11,189.00	91.80	178.60	-5,773.35	9,136.35	-2,357.57	22.49	2,357.65	4.00	427,366.88	648,511.16	
11,280.00	91.70	178.10	-5,770.57	9,133.57	-2,448.49	25.11	2,448.60	0.56	427,275.96	648,513.78	
11,370.00	91.50	178.10	-5,768.06	9,131.06	-2,538.41	28.10	2,538.55	0.22	427,186.04	648,516.77	
11,461.00	90.50	177.90	-5,766.47	9,129.47	-2,629.34	31.27	2,629.51	1.12	427,095.11	648,519.94	
11,551.00	89.90	177.30	-5,766.16	9,129.16	-2,719.26	35.04	2,719.48	0.94	427,005.19	648,523.71	
11,642.00	89.50	177.20	-5,766.64	9,129.64	-2,810.15	39.41	2,810.43	0.45	426,914.30	648,528.08	
11,732.00	91.80	178.00	-5,765.61	9,128.61	-2,900.06	43.17	2,900.38	2.71	426,824.39	648,531.84	
11,823.00	91.10	178.00	-5,763.31	9,126.31	-2,990.97	46.35	2,991.33	0.77	426,733.48	648,535.02	



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Survey Calculation Method: Minimum Curvature
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Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVDSS (usft)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
11,913.00	90.10	178.30	-5,762.37	9,125.37	-3,080.92	49.25	3,081.31	1.16	426,643.53	648,537.92
12,004.00	91.90	178.80	-5,760.78	9,123.78	-3,171.87	51.56	3,172.29	2.05	426,552.58	648,540.23
12,095.00	92.60	178.00	-5,757.21	9,120.21	-3,262.77	54.10	3,263.21	1.17	426,461.68	648,542.77
12,185.00	92.80	177.50	-5,752.97	9,115.97	-3,352.60	57.63	3,353.08	0.60	426,371.85	648,546.30
12,275.00	92.40	179.10	-5,748.89	9,111.89	-3,442.46	60.29	3,442.97	1.83	426,281.99	648,548.96
12,365.00	92.20	179.50	-5,745.27	9,108.27	-3,532.38	61.39	3,532.90	0.50	426,192.07	648,550.06
12,455.00	91.60	179.50	-5,742.29	9,105.29	-3,622.33	62.18	3,622.85	0.67	426,102.12	648,550.85
12,546.00	90.90	180.00	-5,740.31	9,103.31	-3,713.31	62.57	3,713.82	0.95	426,011.14	648,551.24
12,636.00	89.50	179.50	-5,739.99	9,102.99	-3,803.30	62.97	3,803.81	1.65	425,921.15	648,551.64
12,726.00	88.50	179.00	-5,741.56	9,104.56	-3,893.28	64.14	3,893.80	1.24	425,831.17	648,552.81
12,816.00	88.80	179.00	-5,743.68	9,106.68	-3,983.24	65.71	3,983.77	0.33	425,741.21	648,554.38
12,906.00	87.80	178.90	-5,746.35	9,109.35	-4,073.18	67.36	4,073.73	1.12	425,651.27	648,556.03
12,997.00	89.40	179.80	-5,748.58	9,111.58	-4,164.15	68.39	4,164.70	2.02	425,560.30	648,557.06
13,087.00	89.60	179.70	-5,749.36	9,112.36	-4,254.14	68.79	4,254.69	0.25	425,470.31	648,557.46
13,178.00	88.90	179.50	-5,750.55	9,113.55	-4,345.13	69.42	4,345.68	0.80	425,379.32	648,558.09
13,268.00	87.60	179.10	-5,753.30	9,116.30	-4,435.08	70.52	4,435.64	1.51	425,289.37	648,559.19
13,358.00	88.80	178.50	-5,756.13	9,119.13	-4,525.02	72.40	4,525.59	1.49	425,199.43	648,561.07
13,448.00	88.90	178.10	-5,757.93	9,120.93	-4,614.96	75.07	4,615.56	0.46	425,109.49	648,563.74
13,539.00	86.40	177.20	-5,761.66	9,124.66	-4,705.80	78.80	4,706.44	2.92	425,018.65	648,567.47
Last Phoenix MWD Surveys @ 13539' MD										
13,597.00	86.40	177.20	-5,765.31	9,128.31	-4,763.61	81.63	4,764.30	0.00	424,960.84	648,570.30

Projection to TD @ 13597' MD



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Well: Job # 1210396
Wellbore: Rig Trinidad 110
Design: Rig Trinidad 110

Local Co-ordinate Reference: Well Job # 1210396
TVD Reference: WELL @ 3363.00usft (Trinidad-110)
MD Reference: WELL @ 3363.00usft (Trinidad 110)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Compass5000

Survey Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
209.00	209.00	0.03	-0.73	First Phoenix MWD Surveys @ 209' MD
13,539.00	9,124.66	-4,705.80	78.80	Last Phoenix MWD Surveys @ 13539' MD
13,597.00	9,128.31	-4,763.61	81.63	Projection to TD @ 13597' MD

Checked By: _____ Approved By: _____ Date: _____