



15-40580

Chesapeake Operating Inc.

Eddy County, New Mexico (NAD 1983)

PLU Ross Ranch 21-25-30 USA 1H

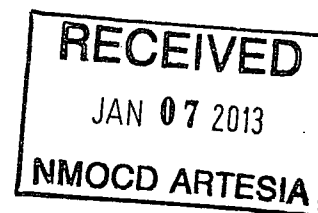
Job # 1210938

Rig: Trinidad 110

Survey: Phoenix MWD Surveys

Chesapeake Energy, Survey Report

18 October, 2012





Chesapeake Energy, Survey Report



Company:	Chesapeake Operating Inc.	Local Co-ordinate Reference:	Well Job # 1210938
Project:	Eddy County, New Mexico (NAD 1983)	TVD Reference:	WELL @ 3258.00usft (Trinidad 110)
Site:	PLU Ross Ranch 21-25-30 USA 1H	MD Reference:	WELL @ 3258.00usft (Trinidad 110)
Well:	Job # 1210938	North Reference:	Grid
Wellbore:	Rig: Trinidad 110	Survey Calculation Method:	Minimum Curvature
Design:	Rig: Trinidad 110	Database:	Compass5000

Project	Eddy County, New Mexico (NAD 1983)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	PLU Ross Ranch 21-25-30 USA 1H		
Site Position:		Northing:	408,630.00 usft
From:	Map	Easting:	677,503.00 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 7' 21.5001 N
		Longitude:	103° 53' 36.5579 W
		Grid Convergence:	0.23 °

Well		Job # 1210938				
Well Position	+N/-S	0.00 usft	Northing:	408,630.00 usft	Latitude:	32° 7' 21.5001 N
	+E/-W	0.00 usft	Easting:	677,503.00 usft	Longitude:	103° 53' 36.5579 W
Position Uncertainty	0.00 usft	Wellhead Elevation:	17.00 usft	Ground Level:	3,241.00 usft	

Wellbore	Rig: Trinidad 110				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010_14	09/26/12	7.57	60.01	48,393

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	179.81

Survey Program	Date	10/18/12		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
174.00	13,090.00	Phoenix MWD Surveys (Rig: Trinidad 110)	MWD	MWD - Standard



Chesapeake Energy, Survey Report

Phoenix

Company:	Chesapeake Operating Inc.	Local Co-ordinate Reference:	Well Job # 1210938
Project:	Eddy County, New Mexico (NAD:1983)	TVD Reference:	WELL @ 3258.00usft (Trinidad 110)
Site:	PLU Ross Ranch 21-25-30 USA 1H	MD Reference:	WELL @ 3258.00usft (Trinidad 110)
Well:	Job # 1210938	North Reference:	Grid
Wellbore:	Rig: Trinidad 110	Survey Calculation Method:	Minimum Curvature
Design:	Rig: Trinidad 110	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	3,258.00	0.00	0.00	0.00	0.00	0.00	408,630.00	677,503.00	
174.00	0.60	223.30	3,084.00	174.00	-0.66	-0.62	0.66	0.34	408,629.34	677,502.38	
First Phoenix MWD Surveys @ 174' MD											
358.00	1.20	223.70	2,900.03	357.97	-2.76	-2.62	2.75	0.33	408,627.24	677,500.38	
546.00	0.70	236.70	2,712.05	545.95	-4.81	-4.94	4.79	0.29	408,625.19	677,498.06	
672.00	1.00	282.30	2,586.07	671.93	-5.00	-6.65	4.98	0.57	408,625.00	677,496.35	
841.00	1.30	281.30	2,417.10	840.90	-4.31	-9.97	4.28	0.18	408,625.69	677,493.03	
1,054.00	0.50	299.70	2,204.13	1,053.87	-3.38	-13.15	3.33	0.39	408,626.62	677,489.85	
1,244.00	0.30	292.80	2,014.13	1,243.87	-2.77	-14.33	2.72	0.11	408,627.23	677,488.67	
1,435.00	0.20	283.60	1,823.13	1,434.87	-2.50	-15.12	2.45	0.06	408,627.50	677,487.88	
1,625.00	0.10	119.00	1,633.13	1,624.87	-2.50	-15.29	2.45	0.16	408,627.50	677,487.71	
1,815.00	0.20	187.40	1,443.13	1,814.87	-2.91	-15.19	2.86	0.10	408,627.09	677,487.81	
2,005.00	0.40	200.80	1,253.14	2,004.86	-3.86	-15.47	3.81	0.11	408,626.14	677,487.53	
2,196.00	0.50	187.90	1,062.14	2,195.86	-5.31	-15.82	5.26	0.07	408,624.69	677,487.18	
2,386.00	0.80	168.80	872.16	2,385.84	-7.43	-15.68	7.38	0.19	408,622.57	677,487.32	
2,577.00	0.70	177.00	681.17	2,576.83	-9.90	-15.36	9.85	0.08	408,620.10	677,487.64	
2,767.00	0.20	220.80	491.18	2,766.82	-11.31	-15.51	11.26	0.30	408,618.69	677,487.49	
2,957.00	0.00	130.90	301.18	2,956.82	-11.57	-15.73	11.51	0.11	408,618.43	677,487.27	
3,148.00	1.00	104.40	110.19	3,147.81	-11.98	-14.11	11.93	0.52	408,618.02	677,488.89	
3,338.00	1.70	121.70	-79.76	3,337.76	-13.87	-10.11	13.84	0.42	408,616.13	677,492.89	
3,528.00	2.90	125.30	-269.60	3,527.60	-18.13	-3.79	18.12	0.64	408,611.87	677,499.21	
3,632.00	2.80	128.70	-373.47	3,631.47	-21.24	0.34	21.24	0.19	408,608.76	677,503.34	
3,825.00	2.10	133.00	-566.30	3,824.30	-26.60	6.60	26.62	0.37	408,603.40	677,509.60	
4,015.00	1.70	127.20	-756.19	4,014.19	-30.68	11.40	30.72	0.23	408,599.32	677,514.40	
4,205.00	1.70	129.40	-946.11	4,204.11	-34.17	15.82	34.22	0.03	408,595.83	677,518.82	
4,396.00	1.60	133.00	-1,137.03	4,395.03	-37.79	19.96	37.85	0.08	408,592.21	677,522.96	
4,586.00	1.70	132.70	-1,326.95	4,584.95	-41.51	23.97	41.59	0.05	408,588.49	677,526.97	



Chesapeake Energy, Survey Report



Company:	Chesapeake Operating Inc.	Local Co-ordinate Reference:	Well Job # 1210938
Project:	Eddy County, New Mexico (NAD 1983)	TVD Reference:	WELL @ 3258.00usft (Trinidad 110)
Site:	PLU: Ross Ranch 21-25-30 USA 1H	MD Reference:	WELL @ 3258.00usft (Trinidad 110)
Well:	Job # 1210938	North Reference:	Grid
Wellbore:	Rig: Trinidad 110	Survey Calculation Method:	Minimum Curvature
Design:	Rig: Trinidad 110	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)	
4,777.00	1.30	130.00	-1,517.88	4,775.88	-44.82	27.71	44.91	0.21	408,585.18	677,530.71	
4,967.00	1.30	138.80	-1,707.84	4,965.84	-47.83	30.78	47.93	0.10	408,582.17	677,533.78	
5,157.00	1.10	135.80	-1,897.79	5,155.79	-50.76	33.47	50.87	0.11	408,579.24	677,536.47	
5,347.00	1.00	140.00	-2,087.76	5,345.76	-53.34	35.81	53.45	0.07	408,576.66	677,538.81	
5,538.00	1.10	152.30	-2,278.73	5,536.73	-56.24	37.73	56.36	0.13	408,573.76	677,540.73	
5,728.00	1.20	170.50	-2,468.69	5,726.69	-59.81	38.91	59.94	0.20	408,570.19	677,541.91	
5,918.00	1.70	162.60	-2,658.63	5,916.63	-64.46	40.08	64.60	0.28	408,565.54	677,543.08	
6,109.00	1.20	161.30	-2,849.57	6,107.57	-69.06	41.57	69.20	0.26	408,560.94	677,544.57	
6,299.00	1.40	181.00	-3,039.52	6,297.52	-73.27	42.17	73.41	0.26	408,556.73	677,545.17	
6,479.00	1.50	184.40	-3,219.46	6,477.46	-77.81	41.95	77.95	0.07	408,552.19	677,544.95	
6,660.00	1.50	181.40	-3,400.40	6,658.40	-82.54	41.71	82.68	0.04	408,547.46	677,544.71	
6,841.00	1.40	172.30	-3,581.34	6,839.34	-87.10	41.95	87.24	0.14	408,542.90	677,544.95	
7,021.00	1.80	175.20	-3,761.27	7,019.27	-92.10	42.48	92.24	0.23	408,537.90	677,545.48	
7,202.00	1.80	179.80	-3,942.18	7,200.18	-97.78	42.73	97.92	0.08	408,532.22	677,545.73	
7,382.00	2.00	178.90	-4,122.09	7,380.09	-103.74	42.80	103.88	0.11	408,526.26	677,545.80	
7,562.00	1.90	194.00	-4,301.98	7,559.98	-109.78	42.13	109.92	0.29	408,520.22	677,545.13	
7,661.00	2.10	196.40	-4,400.92	7,658.92	-113.11	41.22	113.25	0.22	408,516.89	677,544.22	
7,691.00	1.80	194.80	-4,430.90	7,688.90	-114.09	40.95	114.23	1.02	408,515.91	677,543.95	
7,736.00	3.50	211.70	-4,475.86	7,733.86	-115.95	40.05	116.08	4.12	408,514.05	677,543.05	
7,781.00	8.00	197.40	-4,520.62	7,778.62	-120.11	38.39	120.23	10.42	408,509.89	677,541.39	
7,826.00	11.90	185.50	-4,564.94	7,822.94	-127.72	37.01	127.84	9.75	408,502.28	677,540.01	
7,872.00	15.20	180.90	-4,609.65	7,867.65	-138.47	36.46	138.59	7.54	408,491.53	677,539.46	
7,917.00	17.20	179.40	-4,652.86	7,910.86	-151.02	36.43	151.14	4.54	408,478.98	677,539.43	
7,962.00	21.20	181.00	-4,695.35	7,953.35	-165.82	36.36	165.94	8.96	408,464.18	677,539.36	
8,007.00	24.40	183.40	-4,736.83	7,994.83	-183.24	35.67	183.35	7.40	408,446.76	677,538.67	
8,053.00	27.70	185.10	-4,778.15	8,036.15	-203.38	34.15	203.49	7.35	408,426.62	677,537.15	
8,098.00	31.80	182.00	-4,817.22	8,075.22	-225.65	32.81	225.76	9.73	408,404.35	677,535.81	



Chesapeake Energy, Survey Report

CHESAPEAKE

Company:	Chesapeake Operating Inc.	Local Co-ordinate Reference:	Well Job # 1210938
Project:	Eddy County New Mexico (NAD 1983)	TVD Reference:	WELL @ 3258.00usft (Trinidad 110)
Site:	PLU Ross Ranch 21-25-30 USA 1H	MD Reference:	WELL @ 3258.00usft (Trinidad 110)
Well:	Job # 1210938	North Reference:	Grid
Wellbore:	Rig Trinidad 110	Survey Calculation Method:	Minimum Curvature
Design:	Rig Trinidad 110	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)	
8,143.00	35.90	179.60	-4,854.58	8,112.58	-250.71	32.49	250.81	9.58	408,379.29	677,535.49	
8,189.00	38.40	178.50	-4,891.25	8,149.25	-278.48	32.96	278.59	5.62	408,351.52	677,535.96	
8,234.00	40.70	180.60	-4,925.94	8,183.94	-307.13	33.17	307.24	5.91	408,322.87	677,536.17	
8,279.00	42.80	178.70	-4,959.51	8,217.51	-337.09	33.36	337.20	5.45	408,292.91	677,536.36	
8,324.00	45.10	176.80	-4,991.91	8,249.91	-368.29	34.60	368.40	5.89	408,261.71	677,537.60	
8,370.00	50.20	180.00	-5,022.89	8,280.89	-402.25	35.51	402.37	12.22	408,227.75	677,538.51	
8,400.00	55.60	182.80	-5,040.99	8,298.99	-426.16	34.90	426.27	19.48	408,203.84	677,537.90	
8,430.00	60.80	183.10	-5,056.79	8,314.79	-451.61	33.59	451.72	17.35	408,178.39	677,536.59	
8,460.00	65.70	183.40	-5,070.29	8,328.29	-478.35	32.07	478.46	16.36	408,151.65	677,535.07	
8,490.00	72.30	183.20	-5,081.03	8,339.03	-506.30	30.46	506.40	22.01	408,123.70	677,533.46	
8,505.00	75.80	183.00	-5,085.15	8,343.15	-520.70	29.68	520.79	23.37	408,109.30	677,532.68	
8,520.00	78.90	182.80	-5,088.44	8,346.44	-535.31	28.94	535.40	20.71	408,094.69	677,531.94	
8,530.00	81.10	182.80	-5,090.18	8,348.18	-545.15	28.46	545.24	22.00	408,084.85	677,531.46	
8,551.00	84.90	182.60	-5,092.73	8,350.73	-565.96	27.48	566.05	18.12	408,064.04	677,530.48	
8,641.00	91.30	182.30	-5,095.72	8,353.72	-655.79	23.63	655.86	7.12	407,974.21	677,526.63	
8,732.00	90.80	182.10	-5,094.05	8,352.05	-746.70	20.14	746.77	0.59	407,883.30	677,523.14	
8,822.00	93.00	182.30	-5,091.07	8,349.07	-836.58	16.69	836.63	2.45	407,793.42	677,519.69	
8,913.00	93.00	182.10	-5,086.30	8,344.30	-927.39	13.20	927.43	0.22	407,702.61	677,516.20	
9,003.00	93.00	182.00	-5,081.59	8,339.59	-1,017.21	9.98	1,017.24	0.11	407,612.79	677,512.98	
9,093.00	93.80	182.40	-5,076.25	8,334.25	-1,106.98	6.54	1,107.00	0.99	407,523.02	677,509.54	
9,184.00	93.50	181.90	-5,070.46	8,328.46	-1,197.73	3.13	1,197.74	0.64	407,432.27	677,506.13	
9,274.00	94.00	181.30	-5,064.58	8,322.58	-1,287.51	0.62	1,287.50	0.87	407,342.49	677,503.62	
9,365.00	95.60	181.20	-5,056.96	8,314.96	-1,378.16	-1.36	1,378.15	1.76	407,251.84	677,501.64	
9,455.00	95.30	180.20	-5,048.41	8,306.41	-1,467.75	-2.45	1,467.73	1.16	407,162.25	677,500.55	
9,545.00	92.90	179.00	-5,041.98	8,299.98	-1,557.51	-1.82	1,557.49	2.98	407,072.49	677,501.18	
9,635.00	92.40	177.90	-5,037.82	8,295.82	-1,647.38	0.61	1,647.37	1.34	406,982.62	677,503.61	
9,726.00	91.30	178.60	-5,034.88	8,292.88	-1,738.28	3.39	1,738.29	1.43	406,891.72	677,506.39	

Company:	Chesapeake Operating Inc.	Local Co-ordinate Reference:	Well Job #:1210938
Project:	Eddy County, New Mexico (NAD 1983)	TVD Reference:	WELL @ 3258.00usft (Trinidad 110)
Site:	PLU Ross Ranch 21-25-30 USA 1H	MD Reference:	WELL @ 3258.00usft (Trinidad 110)
Well:	Job # 1210938	North Reference:	Grid
Wellbore:	Rig: Trinidad 110	Survey Calculation Method:	Minimum Curvature
Design:	Rig: Trinidad 110	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)	
9,816.00	92.30	179.00	-5,032.05	8,290.05	-1,828.22	5.27	1,828.23	1.20	406,801.78	677,508.27	
9,906.00	90.00	178.50	-5,030.25	8,288.25	-1,918.17	7.23	1,918.19	2.62	406,711.83	677,510.23	
9,996.00	89.10	178.20	-5,030.95	8,288.95	-2,008.13	9.82	2,008.15	1.05	406,621.87	677,512.82	
10,087.00	88.90	177.40	-5,032.54	8,290.54	-2,099.05	13.32	2,099.08	0.91	406,530.95	677,516.32	
10,177.00	87.80	177.20	-5,035.13	8,293.13	-2,188.91	17.56	2,188.96	1.24	406,441.09	677,520.56	
10,267.00	88.80	179.70	-5,037.80	8,295.80	-2,278.83	19.99	2,278.88	2.99	406,351.17	677,522.99	
10,358.00	89.70	181.50	-5,038.99	8,296.99	-2,369.81	19.03	2,369.86	2.21	406,260.19	677,522.03	
10,449.00	94.20	182.00	-5,035.90	8,293.90	-2,460.69	16.26	2,460.73	4.98	406,169.31	677,519.26	
10,539.00	95.20	180.00	-5,028.52	8,286.52	-2,550.37	14.69	2,550.41	2.48	406,079.63	677,517.69	
10,630.00	94.50	179.70	-5,020.83	8,278.83	-2,641.05	14.93	2,641.08	0.84	405,988.95	677,517.93	
10,720.00	94.30	179.90	-5,013.92	8,271.92	-2,730.78	15.24	2,730.81	0.31	405,899.22	677,518.24	
10,811.00	91.90	179.00	-5,009.00	8,267.00	-2,821.63	16.12	2,821.67	2.82	405,808.37	677,519.12	
10,901.00	90.10	178.70	-5,007.43	8,265.43	-2,911.60	17.92	2,911.64	2.03	405,718.40	677,520.92	
10,992.00	88.90	178.40	-5,008.23	8,266.23	-3,002.56	20.22	3,002.61	1.36	405,627.44	677,523.22	
11,082.00	88.60	177.60	-5,010.19	8,268.19	-3,092.49	23.36	3,092.55	0.95	405,537.51	677,526.36	
11,173.00	89.70	176.90	-5,011.54	8,269.54	-3,183.37	27.73	3,183.45	1.43	405,446.63	677,530.73	
11,263.00	89.30	178.50	-5,012.33	8,270.33	-3,273.29	31.34	3,273.38	1.83	405,356.71	677,534.34	
11,353.00	89.40	178.40	-5,013.35	8,271.35	-3,363.25	33.78	3,363.35	0.16	405,266.75	677,536.78	
11,444.00	87.20	179.20	-5,016.05	8,274.05	-3,454.19	35.68	3,454.29	2.57	405,175.81	677,538.68	
11,534.00	88.00	179.00	-5,019.82	8,277.82	-3,544.10	37.09	3,544.20	0.92	405,085.90	677,540.09	
11,624.00	87.20	177.80	-5,023.58	8,281.58	-3,633.98	39.60	3,634.09	1.60	404,996.02	677,542.60	
11,714.00	87.90	177.70	-5,027.43	8,285.43	-3,723.83	43.13	3,723.95	0.79	404,906.17	677,546.13	
11,805.00	88.40	179.90	-5,030.37	8,288.37	-3,814.75	45.04	3,814.88	2.48	404,815.25	677,548.04	
11,895.00	88.00	179.70	-5,033.20	8,291.20	-3,904.71	45.35	3,904.84	0.50	404,725.29	677,548.35	
11,985.00	86.50	181.70	-5,037.51	8,295.51	-3,994.59	44.26	3,994.72	2.78	404,635.41	677,547.26	
12,075.00	85.50	181.00	-5,043.79	8,301.79	-4,084.35	42.14	4,084.46	1.36	404,545.65	677,545.14	
12,166.00	85.90	181.20	-5,050.62	8,308.62	-4,175.07	40.40	4,175.18	0.49	404,454.93	677,543.40	



Chesapeake Energy, Survey Report

Company:	Chesapeake Operating Inc.	Local Co-ordinate Reference:	Well Job # 1210938
Project:	Eddy County, New Mexico (NAD 1983)	TVD Reference:	WELL @ 3258.00usft (Trinidad 110)
Site:	PLU, Ross Ranch 21-25-30 USA 1H	MD Reference:	WELL @ 3258.00usft (Trinidad 110)
Well:	Job # 1210938	North Reference:	Grid
Wellbore:	Rig: Trinidad 110	Survey Calculation Method:	Minimum Curvature
Design:	Rig: Trinidad 110	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)	
12,256.00	88.00	179.70	-5,055.40	8,313.40	-4,264.93	39.69	4,265.04	2.87	404,365.07	677,542.69	
12,346.00	91.90	180.90	-5,055.48	8,313.48	-4,354.91	39.22	4,355.02	4.53	404,275.09	677,542.22	
12,437.00	91.90	181.50	-5,052.47	8,310.47	-4,445.84	37.32	4,445.94	0.66	404,184.16	677,540.32	
12,527.00	91.50	180.80	-5,049.80	8,307.80	-4,535.79	35.51	4,535.88	0.90	404,094.21	677,538.51	
12,618.00	92.20	180.90	-5,046.86	8,304.86	-4,626.73	34.16	4,626.81	0.78	404,003.27	677,537.16	
12,708.00	89.50	180.80	-5,045.52	8,303.52	-4,716.70	32.83	4,716.78	3.00	403,913.30	677,535.83	
12,799.00	88.70	180.80	-5,046.95	8,304.95	-4,807.68	31.56	4,807.76	0.88	403,822.32	677,534.56	
12,889.00	90.70	185.20	-5,047.42	8,305.42	-4,897.53	26.85	4,897.59	5.37	403,732.47	677,529.85	
12,980.00	90.80	185.80	-5,046.23	8,304.23	-4,988.10	18.13	4,988.13	0.67	403,641.90	677,521.13	
13,040.00	90.30	186.20	-5,045.66	8,303.66	-5,047.77	11.86	5,047.78	1.07	403,582.23	677,514.86	
Last Phoenix MWD Surveys @ 13040' MD											
13,090.00	90.30	186.20	-5,045.40	8,303.40	-5,097.47	6.46	5,097.47	0.00	403,532.53	677,509.46	
Projection to TD @ 13090' MD											

Survey Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
174.00	174.00	-0.66	-0.62	First Phoenix MWD Surveys @ 174' MD	
13,040.00	8,303.66	-5,047.77	11.86	Last Phoenix MWD Surveys @ 13040' MD	
13,090.00	8,303.40	-5,097.47	6.46	Projection to TD @ 13090' MD	

Checked By: _____	Approved By: _____	Date: _____
-------------------	--------------------	-------------