



PHOENIX
TECHNOLOGY SERVICES

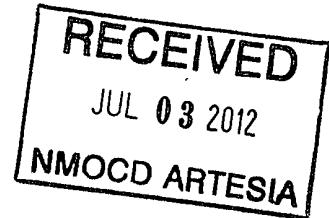
June 13, 2012

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 19-24-31 USA 1H
Eddy Co., NM
API #30-015-40261
Job No. 1210421

30-015-40261



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	
Will Harper	1H	211	14,178	05/17/12	06/07/12	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 9940

**Phoenix Technology Services
SURVEY DATA CERTIFICATION**



PHOENIX JOB NUMBER 1210421

OPERATOR Chesapeake Energy

WELL NAME PLU Big Sinks 19-24-31 USA 1Y

COUNTY & STATE

Eddy Co, NM

API WELL NUMBER 30-015-40261

PROPOSED DIRECTION 179.76

TIE-IN DATA						
MEASURED	VERTICAL			N-S	E-W	DATA
DEPTH	DEPTH	INCLIN	AZIMUTH	COORD	COORD	SOURCE
.00 ft	.0 ft	.0 ft	.0 ft	.00 ft	.00 ft	Surface

FIRST SURVEY DATE	FIRST SURVEY DEPTH	INCLIN	AZIMUTH
17-May-12	211 ft	0.4	88.3

SURVEY INSTRUMENT TYPE
Phoenix MWD

LAST SURVEY DATE	LAST SURVEY DEPTH	INCLIN	AZIMUTH
7-Jun-12	14,176 ft	87.3	178.1

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
7-Jun-12	14,240 ft	87.3	178.1

Will Harper

PRINT YOUR NAME ABOVE

Will Harper

SIGN YOUR NAME ABOVE

MAGNETIC DECLINATION OR TOTAL GRID

TOTAL CORRECTION USED	7.31
DECLINATION OR GRID	GRID

6-7-12

TODAY'S DATE

MWD SUPERVISOR 1

Will Harper

DIRECTIONAL DRILLER 1

Casey Hendrix

MWD SUPERVISOR 2

Paul Perhons

DIRECTIONAL DRILLER 2

Dustin Barnett

1805 Brittmore Road Houston, Texas 77043 (713)3370609 (Voice), (713)337-0599 (Fax)



PHOENIX
TECHNOLOGY SERVICES

Chesapeake Operating Inc.

Eddy County, New Mexico (NAD 1983)

PLU Big Sinks 19 24 31 USA 1H

Job # 1210421

Rig: Cactus 120

Survey: Phoenix MWD Surveys

Chesapeake Energy, Survey Report

08 June, 2012





Chesapeake Energy, Survey Report



Company:	Chesapeake Operating Inc.	Local Co-ordinate Reference:	Well Job # 1210421
Project:	Eddy County, New Mexico (NAD 1983)	TVD Reference:	WELL @ 3518.00usft (Cactus 120)
Site:	PLU Big Sinks 19 24 31 USA 1H	MD Reference:	WELL @ 3518.00usft (Cactus 120)
Well:	Job # 1210421	North Reference:	Grid
Wellbore:	Rig Cactus 120	Survey Calculation Method:	Minimum Curvature
Design:	Rig Cactus 120	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 Big Sinks 19 24 31 USA 1H					
Site Position:		Northing: 440,396.68 usft		Latitude: 32° 12' 34.8563 N	
From:	Map	Easting: 700,325.02 usft		Longitude: 103° 49' 9.4091 W	
Position Uncertainty: 0.00 usft		Slot Radius: 13-3/16 "		Grid Convergence: 0 27 °	

Well:		Job # 1210421				
Well Position	+N-S	0.00 usft	Northing:	440,396.68 usft	Latitude:	32° 12' 34.8563 N
	+E-W	0.00 usft	Easting:	700,325.02 usft	Longitude:	103° 49' 9.4091 W
Position Uncertainty		0 00 usft	Wellhead Elevation:	23.00 usft	Ground Level:	3,495.00 usft

Wellbore	Rig: Cactus 120
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010_14	05/10/12	7.59	60.11	48,489

Design		Rig: Cactus 120			
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 76	

Survey Program	Date			
	06/08/12			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
211.00	14,240.00	Phoenix MWD Surveys (Rig. Cactus 120)	MWD	MWD - Standard



Chesapeake Energy, Survey Report



Company: Chesapeake Operating Inc.
Project: Eddy County, New Mexico (NAD 1983)
Site: PLU Big Sinks 19 24 31 USA 1H
Well: Job # 1210421
Wellbore: Rig Cactus 120
Design: Rig Cactus 120

Local Co-ordinate Reference:
TVD Reference:
MD Reference:
North Reference:
Survey Calculation Method:
Database:
Well Job # 1210421
WELL @ 3518.00usft (Cactus 120)
WELL @ 3518 00usft (Cactus 120)
Grid
Minimum Curvature
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	3,518.00	0.00	0.00	0.00	0.00	0.00	440,396.68	700,325.02	
211.00	0.40	88.30	3,307.00	211.00	0.02	0.74	-0.02	0.19	440,396.70	700,325.76	
First Phoenix MWD Surveys @ 211' MD											
393.00	0.80	359.40	3,125.01	392.99	1.31	1.36	-1.31	0.49	440,397.99	700,326.38	
518.00	1.00	339.80	3,000.02	517.98	3.21	0.97	-3.20	0.29	440,399.89	700,325.99	
626.00	1.00	346.90	2,892.04	625.96	5.01	0.43	-5.01	0.11	440,401.69	700,325.45	
798.00	0.90	2.80	2,720.06	797.94	7.82	0.16	-7.82	0.16	440,404.50	700,325.18	
989.00	0.90	343.00	2,529.09	988.91	10.75	-0.21	-10.75	0.16	440,407.44	700,324.81	
1,180.00	1.10	353.90	2,338.12	1,179.88	14.01	-0.84	-14.01	0.14	440,410.69	700,324.18	
1,372.00	1.10	348.10	2,146.15	1,371.85	17.65	-1.42	-17.65	0.06	440,414.33	700,323.61	
1,563.00	0.80	347.30	1,955.18	1,562.82	20.74	-2.09	-20.75	0.16	440,417.42	700,322.93	
1,754.00	0.40	354.30	1,764.19	1,753.81	22.71	-2.45	-22.72	0.21	440,419.39	700,322.57	
1,946.00	0.20	344.70	1,572.19	1,945.81	23.70	-2.60	-23.71	0.11	440,420.38	700,322.42	
2,137.00	0.40	179.30	1,381.19	2,136.81	23.35	-2.68	-23.36	0.31	440,420.03	700,322.34	
2,328.00	0.20	323.50	1,190.19	2,327.81	22.95	-2.87	-22.96	0.30	440,419.64	700,322.15	
2,518.00	0.20	238.90	1,000.19	2,517.81	23.05	-3.35	-23.06	0.14	440,419.73	700,321.67	
2,709.00	0.40	102.60	809.20	2,708.80	22.73	-2.99	-22.74	0.29	440,419.41	700,322.03	
2,900.00	0.60	81.00	618.20	2,899.80	22.74	-1.35	-22.75	0.14	440,419.42	700,323.67	
3,091.00	1.40	99.70	427.23	3,090.77	22.50	1.94	-22.50	0.45	440,419.19	700,326.96	
3,282.00	1.60	94.90	236.30	3,281.70	21.88	6.90	-21.85	0.12	440,418.57	700,331.92	
3,473.00	1.70	95.60	45.38	3,472.62	21.38	12.37	-21.33	0.05	440,418.06	700,337.39	
3,664.00	2.20	107.20	-145.51	3,663.51	20.02	18.69	-19.94	0.33	440,416.70	700,343.71	
3,855.00	1.90	107.20	-336.39	3,854.39	18.00	25.22	-17.89	0.16	440,414.68	700,350.24	
4,047.00	2.20	125.70	-528.27	4,046.27	14.91	31.25	-14.78	0.38	440,411.59	700,356.27	
4,095.00	2.30	128.50	-576.23	4,094.23	13.77	32.76	-13.63	0.31	440,410.45	700,357.78	
4,230.00	1.60	133.80	-711.15	4,229.15	10.78	36.24	-10.63	0.53	440,407.46	700,361.26	
4,422.00	1.60	110.50	-903.08	4,421.08	7.98	40.68	-7.81	0.34	440,404.67	700,365.70	

Company:	Chesapeake Operating Inc.	Local Co-ordinate Reference:	Well Job # 1210421
Project:	Eddy County, New Mexico (NAD 1983)	TVD Reference:	WELL @ 3518.00usft (Cactus 120)
Site:	PLU Big Sinks-19 24 31-USA 1H	MD Reference:	WELL @ 3518.00usft (Cactus 120)
Well:	Job # 1210421	North Reference:	Grid
Wellbore:	Rig Cactus 120	Survey Calculation Method:	Minimum Curvature
Design:	Rig Cactus 120	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)	
4,612.00	1.40	106.80	-1,093.01	4,611.01	6.38	45.39	-6.19	0.12	440,403.07	700,370.41	
4,803.00	1.50	121.90	-1,283.95	4,801.95	4.39	49.74	-4.18	0.21	440,401.07	700,374.77	
4,995.00	1.20	110.90	-1,475.90	4,993.90	2.34	53.76	-2.12	0.21	440,399.03	700,378.78	
5,186.00	1.60	120.40	-1,666.84	5,184.84	0.28	57.92	-0.04	0.24	440,396.96	700,382.95	
5,378.00	1.60	118.30	-1,858.77	5,376.77	-2.35	62.60	2.61	0.03	440,394.34	700,387.62	
5,569.00	1.60	117.90	-2,049.69	5,567.69	-4.86	67.30	5.14	0.01	440,391.82	700,392.32	
5,759.00	1.30	104.60	-2,239.63	5,757.63	-6.64	71.73	6.94	0.24	440,390.04	700,396.75	
5,951.00	1.80	98.80	-2,431.56	5,949.56	-7.65	76.82	7.97	0.27	440,389.03	700,401.84	
6,141.00	1.50	115.90	-2,621.48	6,139.48	-9.20	82.00	9.54	0.30	440,387.49	700,407.03	
6,333.00	1.60	103.60	-2,813.41	6,331.41	-10.92	86.87	11.29	0.18	440,385.76	700,411.89	
6,524.00	1.10	126.00	-3,004.36	6,522.36	-12.63	90.95	13.01	0.38	440,384.05	700,415.97	
6,715.00	0.90	101.90	-3,195.33	6,713.33	-14.02	93.90	14.41	0.24	440,382.67	700,418.92	
6,906.00	2.40	64.40	-3,386.25	6,904.25	-12.60	98.97	13.01	0.93	440,384.09	700,423.99	
7,098.00	2.30	61.50	-3,578.09	7,096.09	-9.02	105.98	9.46	0.08	440,387.66	700,431.00	
7,290.00	2.30	74.60	-3,769.94	7,287.94	-6.16	113.08	6.63	0.27	440,390.52	700,438.10	
7,481.00	2.50	80.70	-3,960.77	7,478.77	-4.47	120.89	4.98	0.17	440,392.21	700,445.91	
7,673.00	2.40	74.10	-4,152.60	7,670.60	-2.69	128.89	3.23	0.16	440,393.99	700,453.91	
7,864.00	2.40	89.00	-4,343.43	7,861.43	-1.53	136.73	2.10	0.33	440,395.16	700,461.75	
8,055.00	2.90	71.90	-4,534.23	8,052.23	0.05	145.32	0.56	0.49	440,396.73	700,470.34	
8,247.00	1.70	79.10	-4,726.07	8,244.07	2.09	152.74	-1.45	0.64	440,398.78	700,477.76	
8,438.00	0.30	161.40	-4,917.04	8,435.04	2.16	155.68	-1.50	0.88	440,398.84	700,480.70	
8,629.00	0.50	67.20	-5,108.04	8,626.04	2.00	156.61	-1.35	0.31	440,398.69	700,481.63	
8,820.00	1.10	126.40	-5,299.02	8,817.02	1.24	158.85	-0.57	0.50	440,397.92	700,483.87	
8,894.00	0.70	133.10	-5,373.01	8,891.01	0.51	159.75	0.16	0.56	440,397.19	700,484.77	
8,926.00	3.80	181.50	-5,404.99	8,922.99	-0.69	159.87	1.35	10.55	440,396.00	700,484.89	
8,958.00	9.00	187.70	-5,436.78	8,954.78	-4.23	159.50	4.90	16.37	440,392.45	700,484.52	
8,990.00	13.70	191.20	-5,468.14	8,986.14	-10.43	158.43	11.09	14.84	440,386.25	700,483.45	

Company:	Chesapeake Operating Inc.	Local Co-ordinate Reference:	Well Job # 1210421
Project:	Eddy County, New Mexico (NAD 1983)	TVD Reference:	WELL @ 3518.00usft (Cactus 120)
Site:	PLU Big Sinks 19 24 31 USA 1H	MD Reference:	WELL @ 3518.00usft (Cactus 120)
Well:	Job # 1210421	North Reference:	Grid
Wellbore:	Rig Cactus 120	Survey Calculation Method:	Minimum Curvature
Design:	Rig Cactus 120	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)	
9,021.00	18.20	198.20	-5,497.94	9,015.94	-18.63	156.20	19.29	15.76	440,378.05	700,481.23	
9,053.00	23.20	203.80	-5,527.87	9,045.87	-29.16	152.10	29.79	16.79	440,367.53	700,477.12	
9,085.00	27.70	206.00	-5,556.76	9,074.76	-41.61	146.29	42.23	14.37	440,355.07	700,471.31	
9,117.00	32.00	204.80	-5,584.51	9,102.51	-56.00	139.47	56.59	13.57	440,340.68	700,464.49	
9,149.00	38.50	203.00	-5,610.63	9,128.63	-72.89	132.01	73.44	20.57	440,323.80	700,457.03	
9,180.00	43.30	204.30	-5,634.05	9,152.05	-91.47	123.86	91.99	15.72	440,305.21	700,448.89	
9,212.00	44.70	203.90	-5,657.07	9,175.07	-111.76	114.79	112.24	4.46	440,284.92	700,439.81	
9,244.00	46.40	204.10	-5,679.48	9,197.48	-132.63	105.50	133.07	5.33	440,264.06	700,430.52	
9,276.00	49.00	203.80	-5,701.01	9,219.01	-154.26	95.89	154.66	8.15	440,242.43	700,420.91	
9,307.00	51.80	203.10	-5,720.77	9,238.77	-176.17	86.39	176.53	9.20	440,220.51	700,411.41	
9,339.00	54.40	202.90	-5,739.98	9,257.98	-199.72	76.39	200.04	8.14	440,196.96	700,401.41	
9,371.00	56.30	201.80	-5,758.18	9,276.18	-224.07	66.39	224.34	6.58	440,172.61	700,391.41	
9,403.00	56.80	200.30	-5,775.82	9,293.82	-248.99	56.80	249.22	4.21	440,147.70	700,381.82	
9,435.00	57.40	199.60	-5,793.20	9,311.20	-274.24	47.63	274.44	2.62	440,122.44	700,372.65	
9,467.00	59.20	198.00	-5,810.01	9,328.01	-300.01	38.86	300.17	7.05	440,096.67	700,363.88	
9,499.00	60.40	197.00	-5,826.11	9,344.11	-326.39	30.55	326.51	4.62	440,070.29	700,355.57	
9,531.00	61.40	193.80	-5,841.67	9,359.67	-353.34	23.13	353.44	9.28	440,043.34	700,348.15	
9,563.00	63.20	192.40	-5,856.55	9,374.55	-380.94	16.71	381.00	6.83	440,015.75	700,341.73	
9,594.00	65.10	189.90	-5,870.07	9,388.07	-408.30	11.32	408.35	9.50	439,988.38	700,336.34	
9,626.00	66.20	186.70	-5,883.26	9,401.26	-437.15	7.11	437.17	9.74	439,959.54	700,332.14	
9,658.00	68.10	183.20	-5,895.69	9,413.69	-466.52	4.58	466.53	11.70	439,930.16	700,329.60	
9,690.00	69.40	181.00	-5,907.29	9,425.29	-496.32	3.49	496.33	7.59	439,900.36	700,328.51	
9,721.00	72.20	179.00	-5,917.49	9,435.49	-525.59	3.49	525.60	10.89	439,871.09	700,328.51	
9,753.00	75.60	179.50	-5,926.36	9,444.36	-556.33	3.89	556.34	10.73	439,840.35	700,328.91	
9,785.00	78.30	179.80	-5,933.58	9,451.58	-587.50	4.08	587.51	8.49	439,809.18	700,329.10	
9,817.00	81.60	178.40	-5,939.17	9,457.17	-619.00	4.58	619.01	11.18	439,777.68	700,329.60	
9,849.00	85.80	177.20	-5,942.68	9,460.68	-650.77	5.80	650.79	13.64	439,745.91	700,330.82	



Chesapeake Energy, Survey Report

Chesapeake

Company: Chesapeake Operating Inc.
Project: Eddy County, New Mexico (NAD 1983)
Site: PLU Big Sinks 19 24 31 USA 1H
Well: Job # 1210421
Wellbore: Rig Cactus 120
Design: Rig Cactus 120

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

Well Job # 1210421
WELL @ 3518.00usft (Cactus 120)
WELL @ 3518.00usft (Cactus 120)
Grd
Minimum Curvature
Compass5000

Survey										
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVDSS (usft)	TVD (usft)	N/S (usft)	EW (usft)	V. Sec (usft)	D Leg (°/100usft)	Northing (usft)	Easting (usft)
9,880.00	88.30	176.60	-5,944.27	9,462.27	-681.69	7.47	681.71	8.29	439,715.00	700,332.50
9,976.00	89.30	178.30	-5,946.28	9,464.28	-777.56	11.74	777.61	2.05	439,619.12	700,336.77
10,071.00	88.80	178.30	-5,947.86	9,465.86	-872.51	14.56	872.56	0.53	439,524.17	700,339.58
10,167.00	90.60	178.90	-5,948.36	9,466.36	-968.48	16.91	968.54	1.98	439,428.21	700,341.93
10,262.00	90.10	178.30	-5,947.78	9,465.78	-1,063.44	19.23	1,063.52	0.82	439,333.24	700,344.25
10,358.00	89.50	177.80	-5,948.12	9,466.12	-1,159.39	22.50	1,159.47	0.81	439,237.30	700,347.52
10,453.00	88.70	177.20	-5,949.61	9,467.61	-1,254.28	26.64	1,254.38	1.05	439,142.40	700,351.66
10,549.00	90.50	177.90	-5,950.28	9,468.28	-1,350.19	30.74	1,350.31	2.01	439,046.49	700,355.76
10,645.00	90.40	177.80	-5,949.53	9,467.53	-1,446.12	34.34	1,446.25	0.15	438,950.56	700,359.36
10,740.00	90.00	177.70	-5,949.19	9,467.19	-1,541.04	38.07	1,541.19	0.43	438,855.64	700,363.09
10,836.00	90.40	179.50	-5,948.86	9,466.86	-1,637.01	40.42	1,637.17	1.92	438,759.67	700,365.44
10,931.00	90.30	180.60	-5,948.28	9,466.28	-1,732.01	40.34	1,732.16	1.16	438,664.67	700,365.36
11,027.00	90.60	181.10	-5,947.52	9,465.52	-1,827.99	38.91	1,828.14	0.61	438,568.69	700,363.93
11,122.00	88.40	181.00	-5,948.35	9,466.35	-1,922.97	37.17	1,923.11	2.32	438,473.71	700,362.19
11,218.00	86.70	181.00	-5,952.46	9,470.46	-2,018.86	35.50	2,018.99	1.77	438,377.82	700,360.52
11,313.00	83.90	181.30	-5,960.24	9,478.24	-2,113.51	33.60	2,113.64	2.96	438,283.17	700,358.62
11,408.00	83.90	179.10	-5,970.34	9,488.34	-2,207.97	33.27	2,208.09	2.30	438,188.71	700,358.29
11,504.00	86.90	179.10	-5,978.03	9,496.03	-2,303.64	34.77	2,303.76	3.12	438,093.04	700,359.79
11,599.00	87.80	179.00	-5,982.43	9,500.43	-2,398.52	36.34	2,398.65	0.95	437,998.16	700,361.37
11,695.00	88.30	178.40	-5,985.69	9,503.69	-2,494.44	38.52	2,494.58	0.81	437,902.24	700,363.54
11,790.00	90.30	178.40	-5,986.85	9,504.85	-2,589.39	41.17	2,589.54	2.11	437,807.29	700,366.19
11,886.00	87.80	177.60	-5,988.45	9,506.45	-2,685.31	44.52	2,685.48	2.73	437,711.37	700,369.54
11,981.00	88.70	179.30	-5,991.35	9,509.35	-2,780.23	47.09	2,780.40	2.02	437,616.45	700,372.11
12,077.00	90.70	179.20	-5,991.85	9,509.85	-2,876.21	48.35	2,876.39	2.09	437,520.47	700,373.37
12,173.00	90.10	179.80	-5,991.18	9,509.18	-2,972.21	49.18	2,972.39	0.88	437,424.47	700,374.21
12,268.00	89.60	180.50	-5,991.43	9,509.43	-3,067.21	48.94	3,067.38	0.91	437,329.48	700,373.96
12,364.00	90.50	179.90	-5,991.34	9,509.34	-3,163.20	48.60	3,163.38	1.13	437,233.48	700,373.62

Company: Chesapeake Operating Inc.
Project: Eddy County, New Mexico (NAD 1983)
Site: PLU Big-Sinks 19 24 31 USA 1H
Well: Job # 1210421
Wellbore: Rig Cactus 120
Design: Rig Cactus 120

Local Co-ordinate Reference: Well Job # 1210421
TVD Reference: WELL @ 3518 00usft (Cactus 120)
MD Reference: WELL @ 3518 00usft (Cactus 120)
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)
12,459.00	90.90	180.00	-5,990.18	9,508.18	-3,258.20	48.68	3,258.37	0.43	437,138.49	700,373.70
12,555.00	90.90	180.70	-5,988.68	9,506.68	-3,354.18	48.10	3,354.35	0.73	437,042.50	700,373.12
12,650.00	91.70	180.40	-5,986.52	9,504.52	-3,449.15	47.19	3,449.32	0.90	436,947.53	700,372.21
12,746.00	88.40	180.40	-5,986.44	9,504.44	-3,545.14	46.52	3,545.30	3.44	436,851.55	700,371.54
12,841.00	87.50	180.50	-5,989.84	9,507.84	-3,640.07	45.77	3,640.23	0.95	436,756.61	700,370.79
12,937.00	87.70	181.00	-5,993.86	9,511.86	-3,735.98	44.51	3,736.13	0.56	436,660.70	700,369.54
13,033.00	88.90	181.00	-5,996.70	9,514.70	-3,831.92	42.84	3,832.07	1.25	436,564.76	700,367.86
13,128.00	88.40	180.50	-5,998.94	9,516.94	-3,926.89	41.60	3,927.03	0.74	436,469.80	700,366.62
13,224.00	89.10	180.90	-6,001.04	9,519.04	-4,022.86	40.42	4,022.99	0.84	436,373.83	700,365.45
13,319.00	88.60	181.10	-6,002.94	9,520.94	-4,117.82	38.77	4,117.95	0.57	436,278.86	700,363.79
13,414.00	89.20	181.70	-6,004.77	9,522.77	-4,212.77	36.45	4,212.89	0.89	436,183.91	700,361.47
13,510.00	87.80	181.50	-6,007.28	9,525.28	-4,308.70	33.77	4,308.81	1.47	436,087.98	700,358.79
13,606.00	88.50	182.00	-6,010.38	9,528.38	-4,404.61	30.84	4,404.70	0.90	435,992.08	700,355.86
13,702.00	89.20	181.60	-6,012.30	9,530.30	-4,500.54	27.82	4,500.62	0.84	435,896.14	700,352.84
13,796.00	88.40	180.50	-6,014.27	9,532.27	-4,594.50	26.10	4,594.57	1.45	435,802.18	700,351.12
13,891.00	87.70	180.40	-6,017.51	9,535.51	-4,689.44	25.35	4,689.51	0.74	435,707.24	700,350.37
13,986.00	87.60	178.70	-6,021.40	9,539.40	-4,784.36	26.10	4,784.42	1.79	435,612.33	700,351.12
14,082.00	87.70	178.60	-6,025.34	9,543.34	-4,880.25	28.36	4,880.32	0.15	435,516.43	700,353.38
14,178.00	87.30	178.10	-6,029.53	9,547.53	-4,976.12	31.12	4,976.20	0.67	435,420.57	700,356.14
Last Phoenix MWD Surveys @ 14178' MD										
14,240.00	87.30	178.10	-6,032.45	9,550.45	-5,038.01	33.17	5,038.11	0.00	435,358.67	700,358.19
Projection to TD @ 14240' MD										



Chesapeake Energy, Survey Report



Company: Chesapeake Operating Inc
Project: Eddy County, New Mexico (NAD 1983)
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Well: Job # 1210421
Wellbore: Rig Cactus 120
Design: Rig Cactus 120

Local Co-ordinate Reference: Well Job # 1210421
TVD Reference: WELL @ 3518.00usft (Cactus 120)
MD Reference: WELL @ 3518.00usft (Cactus 120)
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)	
211.00	211.00	0.02	0.74	First Phoenix MWD Surveys @ 211' MD
14,178.00	9,547.53	-4,976.12	31.12	Last Phoenix MWD Surveys @ 14178' MD
14,240.00	9,550.45	-5,038.01	33.17	Projection to TD @ 14240' MD

Checked By: _____ Approved By _____ Date: _____



Chesapeake Operating Inc.

Project: Eddy County, New Mexico (NAD 1983)

Site: PLU Big Sinks 19 24 31 USA 1H

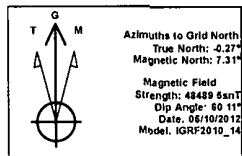
Well: Job # 1210421

Wellbore: Rig: Cactus 120

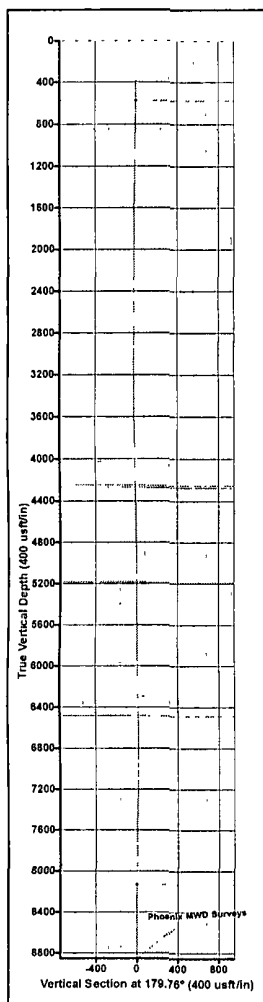
Plan: Plan# 4 06-02-2012

WELL DETAILS: Job # 1210421

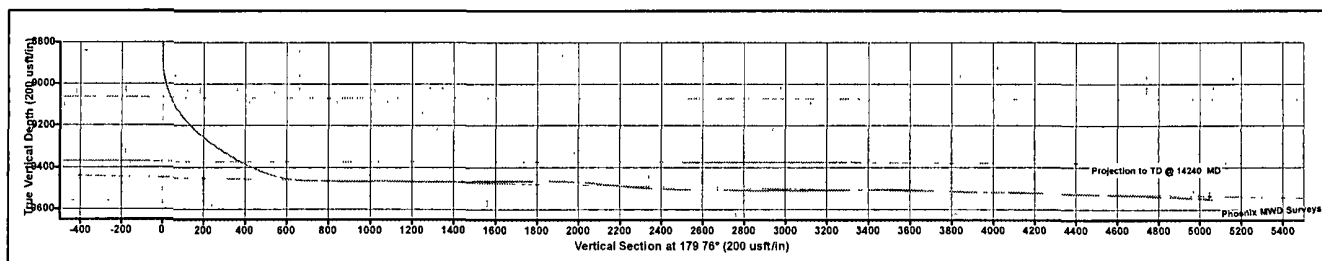
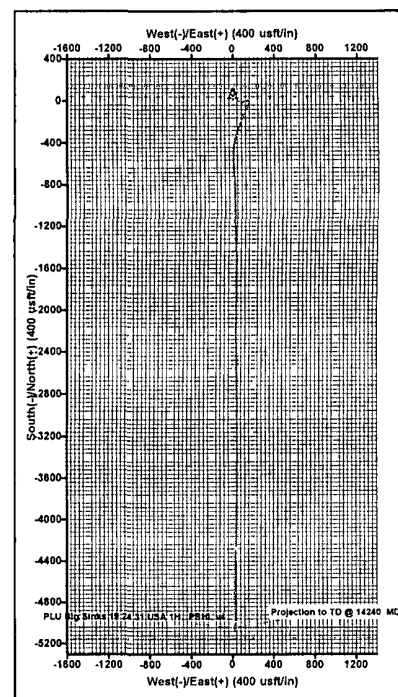
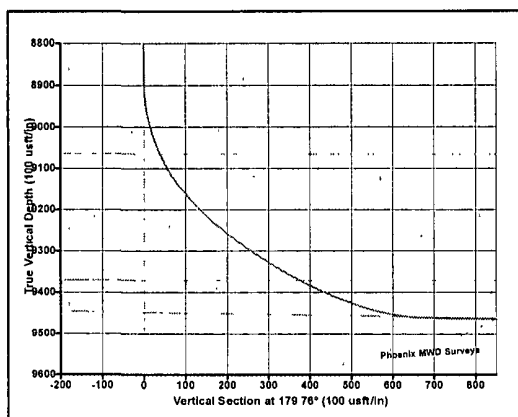
Ground Level: 3495.00
Northing 440396.68 Easting 700325.02 Latitude 32° 12' 34.8563 N Longitude 103° 49' 9.4091 W



SECTION DETAILS									
MD	Inc	Azi	TVD	+N-S	+E-W	Dleg	TFace	Vsect	
11886.00	87.80	177.60	9508.45	-2695.31	44.82	0.00	0.00	2888.48	
11939.00	88.02	178.16	9509.36	-2738.24	48.48	1.13	68.65	2738.41	
12165.99	91.60	180.75	9509.29	-2985.17	48.64	2.00	38.71	2955.38	PLU Big Sinks 19 24 31 USA 1H PBHL v4
12308.89	91.60	180.75	9505.36	-3105.11	48.67	0.00	0.00	3105.27	
12430.99	89.00	180.75	9504.82	-3230.08	44.92	2.00	180.00	3230.24	PLU Big Sinks 19 24 31 USA 1H PBHL v4
14247.75	89.00	180.75	9536.82	-6048.41	21.04	0.00	0.00	6048.46	PLU Big Sinks 19 24 31 USA 1H PBHL v4



ANNOTATIONS		
TVD	MD	Annotation
9508.45	11886.00	Tie On Survey @ 11886' MD
9508.38	11939.00	Projection to BitStart DLS 2.00 TFO 36.71
9509.29	12165.99	Start 150.00 hold at 12165.99 MD
9505.36	12305.99	Start Drop -2.00
9504.82	12430.99	Start 1816.76 hold at 12430.99 MD
9536.82	14247.75	TD at 14247.75



File:
Created By: Blanca LaCombe