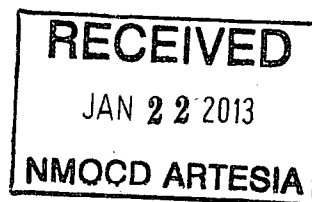




PHOENIX
TECHNOLOGY SERVICES

December 27, 2012



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

Dear District 2 - Artesia

Re: Chesapeake Operating Inc.
Phantom Banks 25 25 30
Eddy Co., NM
API #30-015-40756
Job No. 1211116

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	
Greg Yerino	1H	209	14109	11/29/12	12/19/12	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,

Kelly Jo Walter

Kelly Jo Walter
Operations Administrator

Certified mail receipt number: 7011 1570 0001 4364 9162

Phoenix Technology Services SURVEY DATA CERTIFICATION



PHOENIX
TECHNOLOGY SERVICES

PHOENIX JOB NUMBER 1211116

OPERATOR Chesapeake Operating

WELL NAME Phantom Banks 25 25 30

COUNTY & STATE Eddy Co. NM

API WELL NUMBER 3001540756

PROPOSED DIRECTION 356.76

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
29-Nov-12	209 ft	0.3	264.0

SURVEY INSTRUMENT TYPE
Phoenix MWD

LAST SURVEY DATE	LAST SURVEY DEPTH	INCLIN	AZIMUTH
19-Dec-12	14,109 ft	87.6	355.7

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
19-Dec-12	14,160 ft	87.6	355.7

Greg Yerino

PRINT YOUR NAME ABOVE

Greg Yerino
SIGN YOUR NAME ABOVE

MAGNETIC DECLINATION OR TOTAL GRID

TOTAL CORRECTION USED	7.52
DECLINATION OR GRID	GRID

12/19/2012

TODAY'S DATE

MWD SUPERVISOR 1

Greg Yerino

DIRECTIONAL DRILLER 1

Keith Scheppler

MWD SUPERVISOR 2

Andrew Link

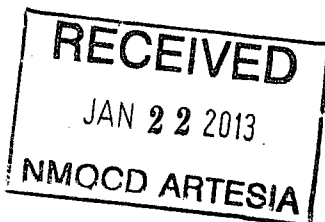
DIRECTIONAL DRILLER 2

Justin Jackson

1805 Brittmore Road

Houston, Texas 77043

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



District I
 1625 E. French Dr., Bldg. 100, Santa Fe, NM 87505
 Phone: (505) 393-6161 Fax: (505) 393-6162
 District II
 811 S. Fifth St., Santa Fe, NM 87501
 Phone: (505) 748-1232 Fax: (505) 748-1233
 District III
 1030 Rio Blondo Rd., Aztec, NM 87410
 Phone: (505) 334-6178 Fax: (505) 334-6179
 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 & Natural Resources Department
OIL CONSERVATION DIVISION
 1220 South St. Francis Dr.
 Santa Fe, NM 87505

Form C-102
 Revised August 1, 2011
 Submit one copy to appropriate
 District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-015-40756	Pool Code	Pool Name WC; G-05 S25630010; BONE SPRING
Property Code	Property Name PLU PHANTOM BANKS 25 25 30 USA	Well Number 1H
OGRIID No. 147179	Operator Name CHESAPEAKE OPERATING, INC.	Elevation 3310

Surface Location

Upr. Sec. No.	Section	Township	Range	Lot Id#	Feet from the	North/South line	Feet from the	East/West line	County
N	25	25S	30E		150'	SOUTH	2280'	WEST	EDDY

Bottom Hole Location If Different From Surface

Upr. Sec. No.	Section	Township	Range	Lot Id#	Feet from the	North/South line	Feet from the	East/West line	County
C	25	25S	30E		100'	NORTH	1980'	WEST	EDDY

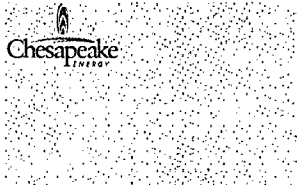
Deeded Area 160	Joint or Jt/H	Consolidation Code	Order No.
---------------------------	---------------	--------------------	-----------

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.

Project Area 162.64 ACRES 2280'	Producing Area N 03°14'31" W 3077.05' 100'	PROJECT BOTTOM HOLE LOCATION: X= 653,660 NAD 27 Y= 403,410 LAT. 32.103116 LONG. 103.835359 X= 655,055 NAD 83 Y= 403,468 LAT. 32.103241 LONG. 103.835337	OPERATOR CERTIFICATION I hereby certify that the formation and location of the well is as shown on the plat, and that the well is being drilled in accordance with the terms of the lease. Date: 05/13/2012 Signature: <i>Bryan Arant</i> Printed Name: Bryan Arant Email Address: bryan.arant@chh.com
		PLU PHANTOM BANKS 25 25 30 USANO HWELL X= 654,167 NAD 27 Y= 398,342 LAT. 32.094179 LONG. 103.835503 X= 655,352 NAD 83 Y= 398,399 LAT. 32.094303 LONG. 103.835395 ELEVATION 3300 NAD 83	SURVEYOR CERTIFICATION I hereby certify that the well location and acreage shown on this plat was plotted from field notes and is true and correct to the best of my knowledge. Date of Survey: 12/12/11 Signature: <i>[Signature]</i> Professional Surveyor Certificate Number: 15078

FIRST PROJECTED PERFORATIONS
 330' FSL & 2280' FWL

EXHIBIT A1



Chesapeake Operating Inc.

Eddy County, New Mexico (NAD 1983)

PLU Phantom Banks 25 25 30 USA 1H

Job# 1211116

Rig: Trinidad 110

Survey: PH Phoenix MWD Surveys

Chesapeake Operating Inc.

27 December, 2012





Phoenix Technology Services

Chesapeake Operating Inc.



Company:	Chesapeake Operating Inc.	Local Co-ordinate Reference:	Well Job# 1211116
Project:	Eddy County, New Mexico (NAD 1983)	TVD Reference:	WELL @ 3357.00usft (Trinidad 110)
Site:	PLU Phantom Banks 25 25 30 USA 1H	MD Reference:	WELL @ 3357.00usft (Trinidad 110)
Well:	Job# 1211116	North Reference:	Grid
Wellbore:	Rig: Trinidad 110	Survey Calculation Method:	Minimum Curvature
Design:	Rig: Trinidad 110 Surveys	Database:	GCR DB v5000

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		

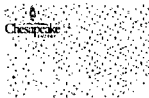
Site:	PLU Phantom Banks 25 25 30 USA 1H		
Site Position:		Northing:	398,399.00 usft
From:	Map	Easting:	695,352.00 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 5' 39.4871 N
		Longitude:	103° 50' 9.5506 W
		Grid Convergence:	0.26 °

Well		Job# 1211116				
Well Position	+N/-S	0.00 usft	Northing:	398,399.00 usft	Latitude:	32° 5' 39.4871 N
	+E/-W	0.00 usft	Easting:	695,352.00 usft	Longitude:	103° 50' 9.5506 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	17.00 usft	Ground Level:	3,340.00 usft

Wellbore	Rig: Trinidad 110				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010_14	11/20/12	7.52	59.99	48,366

Design					Rig: Trinidad 110 Surveys						
Audit Notes:											
Version:		1.0		Phase:		ACTUAL		Tie On Depth:		0.00	
Vertical Section:		Depth From (TVD)		+N/-S		+E/-W		Direction			
		(usft)		(usft)		(usft)		(°)			
		0.00		0.00		0.00		356.76			

Survey Program	Date	12/27/12		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
209.00	14,160.00	PH Phoenix MWD Surveys (Rig: Trinidad 1	MWD	MWD - Standard



Phoenix Technology Services
Chesapeake Operating Inc.



Company:	Chesapeake Operating Inc.	Local Co-ordinate Reference:	Well Job# 1211116
Project:	Eddy County, New Mexico (NAD 1983)	TVD Reference:	WELL @ 3357.00usft (Trinidad 110)
Site:	PLU Phantom Banks 25 25 30 USA 1H	MD Reference:	WELL @ 3357.00usft (Trinidad 110)
Well:	Job# 1211116	North Reference:	Grid
Wellbore:	Rig Trinidad 110	Survey Calculation Method:	Minimum Curvature
Design:	Rig Trinidad 110 Surveys	Database:	GCR DB v5000

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	-3,357.00	0.00	0.00	0.00	0.00	0.00	398,399.00	695,352.00	
209.00	0.30	264.00	-3,148.00	209.00	-0.06	-0.54	-0.03	0.14	398,398.94	695,351.46	
First Phoenix MWD Survey											
391.00	0.50	268.90	-2,966.01	390.99	-0.12	-1.81	-0.02	0.11	398,398.88	695,350.19	
581.00	0.70	257.80	-2,776.02	580.98	-0.38	-3.78	-0.17	0.12	398,398.62	695,348.22	
772.00	1.70	141.30	-2,585.04	771.96	-2.84	-3.14	-2.66	1.10	398,396.16	695,348.86	
962.00	2.00	126.90	-2,395.14	961.86	-7.03	1.27	-7.09	0.29	398,391.97	695,353.27	
1,153.00	1.40	144.40	-2,204.23	1,152.77	-10.93	5.29	-11.21	0.41	398,388.07	695,357.29	
1,210.00	1.20	155.10	-2,147.24	1,209.76	-12.04	5.95	-12.35	0.55	398,386.96	695,357.95	
1,374.00	1.50	175.70	-1,983.28	1,373.72	-15.74	6.83	-16.10	0.35	398,383.26	695,358.83	
1,565.00	1.90	180.50	-1,792.37	1,564.63	-21.39	6.99	-21.76	0.22	398,377.61	695,358.99	
1,755.00	2.20	179.20	-1,602.49	1,754.51	-28.19	7.02	-28.54	0.16	398,370.81	695,359.02	
1,945.00	2.70	175.10	-1,412.67	1,944.33	-36.30	7.45	-36.66	0.28	398,362.70	695,359.45	
2,135.00	2.90	172.70	-1,222.89	2,134.11	-45.52	8.44	-45.93	0.12	398,353.48	695,360.44	
2,326.00	3.00	173.40	-1,032.15	2,324.85	-55.28	9.63	-55.74	0.06	398,343.72	695,361.63	
2,516.00	2.60	174.60	-842.37	2,514.63	-64.51	10.61	-65.01	0.21	398,334.49	695,362.61	
2,707.00	2.20	186.30	-651.54	2,705.46	-72.47	10.61	-72.95	0.33	398,326.53	695,362.61	
2,898.00	1.90	199.70	-460.66	2,896.34	-79.09	9.14	-79.48	0.30	398,319.91	695,361.14	
3,088.00	1.50	199.40	-270.74	3,086.26	-84.40	7.26	-84.68	0.21	398,314.60	695,359.26	
3,278.00	1.10	198.20	-80.79	3,276.21	-88.48	5.86	-88.67	0.21	398,310.52	695,357.86	
3,468.00	1.30	172.00	109.17	3,466.17	-92.35	5.59	-92.52	0.30	398,306.65	695,357.59	
3,659.00	1.50	158.60	300.11	3,657.11	-96.82	6.80	-97.05	0.20	398,302.18	695,358.80	
3,849.00	2.40	159.90	490.00	3,847.00	-102.87	9.08	-103.22	0.47	398,296.13	695,361.08	
3,948.00	0.70	326.00	588.97	3,945.97	-104.32	9.45	-104.68	3.12	398,294.68	695,361.45	
4,111.00	1.10	334.70	751.95	4,108.95	-102.08	8.23	-102.38	0.26	398,296.92	695,360.23	
4,302.00	1.20	334.30	942.92	4,299.92	-98.62	6.58	-98.83	0.05	398,300.38	695,358.58	
4,493.00	0.90	334.10	1,133.88	4,490.88	-95.47	5.05	-95.60	0.16	398,303.53	695,357.05	



Phoenix Technology Services
Chesapeake Operating Inc.



Company:	Chesapeake Operating Inc.	Local Co-ordinate Reference:	Well Job# 1211116
Project:	Eddy County, New Mexico (NAD 1983)	TVD Reference:	WELL @ 3357.00usft (Trinidad 110)
Site:	PLU: Phantom Banks 25'25.30 USA 1H	MD Reference:	WELL @ 3357.00usft (Trinidad 110)
Well:	Job# 1211116	North Reference:	Grid
Wellbore:	Rig: Trinidad 110	Survey Calculation Method:	Minimum Curvature
Design:	Rig: Trinidad 110 Surveys	Database:	GCR DB v5000

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)	
4,684.00	0.40	347.30	1,324.87	4,681.87	-93.47	4.25	-93.56	0.27	398,305.53	695,356.25	
4,874.00	0.40	346.60	1,514.87	4,871.87	-92.17	3.95	-92.25	0.00	398,306.83	695,355.95	
5,065.00	0.30	22.60	1,705.86	5,062.86	-91.06	3.99	-91.14	0.12	398,307.94	695,355.99	
5,256.00	0.30	25.70	1,896.86	5,253.86	-90.15	4.40	-90.26	0.01	398,308.85	695,356.40	
5,446.00	0.30	294.50	2,086.86	5,443.86	-89.50	4.16	-89.59	0.23	398,309.50	695,356.16	
5,636.00	0.20	148.70	2,276.86	5,633.86	-89.57	3.88	-89.65	0.25	398,309.43	695,355.88	
5,826.00	0.30	227.50	2,466.86	5,823.86	-90.19	3.69	-90.26	0.17	398,308.81	695,355.69	
6,016.00	0.40	195.20	2,656.85	6,013.85	-91.17	3.15	-91.20	0.11	398,307.83	695,355.15	
6,207.00	0.60	201.90	2,847.84	6,204.84	-92.74	2.60	-92.74	0.11	398,306.26	695,354.60	
6,392.00	1.00	245.80	3,032.83	6,389.83	-94.30	0.77	-94.19	0.38	398,304.70	695,352.77	
6,573.00	1.50	247.30	3,213.78	6,570.78	-95.86	-2.86	-95.55	0.28	398,303.14	695,349.14	
6,753.00	0.10	153.90	3,393.76	6,750.76	-96.91	-4.96	-96.48	0.84	398,302.09	695,347.04	
6,934.00	0.40	102.30	3,574.76	6,931.76	-97.19	-4.28	-96.79	0.19	398,301.81	695,347.72	
7,114.00	0.50	130.30	3,754.76	7,111.76	-97.83	-3.06	-97.50	0.13	398,301.17	695,348.94	
7,295.00	0.40	160.50	3,935.75	7,292.75	-98.94	-2.25	-98.65	0.14	398,300.06	695,349.75	
7,476.00	1.10	39.30	4,116.74	7,473.74	-98.19	-0.94	-97.98	0.75	398,300.81	695,351.06	
7,658.00	0.80	72.40	4,298.72	7,655.72	-96.45	1.38	-96.38	0.34	398,302.55	695,353.38	
7,838.00	0.60	133.70	4,478.71	7,835.71	-96.72	3.26	-96.75	0.41	398,302.28	695,355.26	
8,019.00	0.70	218.40	4,659.70	8,016.70	-98.25	3.25	-98.27	0.49	398,300.75	695,355.25	
8,199.00	0.80	285.40	4,839.69	8,196.69	-98.77	1.36	-98.69	0.46	398,300.23	695,353.36	
8,379.00	0.90	292.90	5,019.67	8,376.67	-97.89	-1.15	-97.67	0.08	398,301.11	695,350.85	
8,560.00	2.00	241.90	5,200.61	8,557.61	-98.82	-5.25	-98.37	0.88	398,300.18	695,346.75	
8,689.00	2.90	301.30	5,329.51	8,686.51	-98.19	-10.02	-97.47	1.98	398,300.81	695,341.98	
8,734.00	7.00	322.10	5,374.34	8,731.34	-95.43	-12.68	-94.56	9.80	398,303.57	695,339.32	
8,779.00	10.00	325.80	5,418.84	8,775.84	-90.04	-16.56	-88.96	6.77	398,308.96	695,335.44	
8,824.00	14.30	324.60	5,462.82	8,819.82	-82.27	-21.98	-80.90	9.57	398,316.73	695,330.02	
8,870.00	17.20	332.70	5,507.09	8,864.09	-71.59	-28.39	-69.87	7.90	398,327.41	695,323.61	

Phoenix Technology Services

Chesapeake Operating Inc.



Company:	Chesapeake Operating Inc.	Local Co-ordinate Reference:	Well Job# 1211116
Project:	Eddy County New Mexico (NAD 1983)	TVD Reference:	WELL @ 3357.00usft (Trinidad 110)
Site:	PLU Phantom Banks 25'25'30" USA 1H	MD Reference:	WELL @ 3357.00usft (Trinidad 110)
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Wellbore:	Rig: Trinidad 110	Survey Calculation Method:	Minimum Curvature
Design:	Rig: Trinidad 110 Surveys	Database:	GCR DB v5000

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)	
8,915.00	21.30	342.90	5,549.58	8,906.58	-57.86	-33.85	-55.85	11.75	398,341.14	695,318.15	
8,960.00	27.20	352.70	5,590.61	8,947.61	-39.82	-37.57	-37.64	15.83	398,359.18	695,314.43	
9,005.00	32.00	359.70	5,629.73	8,986.73	-17.68	-38.94	-15.45	13.13	398,381.32	695,313.06	
9,050.00	34.70	359.50	5,667.32	9,024.32	7.06	-39.11	9.26	6.00	398,406.06	695,312.89	
9,096.00	39.10	357.90	5,704.10	9,061.10	34.66	-39.76	36.85	9.79	398,433.66	695,312.24	
9,141.00	44.20	357.70	5,737.71	9,094.71	64.53	-40.91	66.74	11.34	398,463.53	695,311.09	
9,186.00	47.60	357.40	5,769.02	9,126.02	96.82	-42.29	99.05	7.57	398,495.82	695,309.71	
9,231.00	50.60	355.00	5,798.49	9,155.49	130.74	-44.56	133.05	7.79	398,529.74	695,307.44	
9,277.00	54.50	356.70	5,826.45	9,183.45	167.16	-47.19	169.56	8.97	398,566.16	695,304.81	
9,322.00	60.60	359.10	5,850.59	9,207.59	205.09	-48.55	207.50	14.28	398,604.09	695,303.45	
9,367.00	65.60	359.90	5,870.94	9,227.94	245.20	-48.90	247.57	11.22	398,644.20	695,303.10	
9,412.00	68.90	359.40	5,888.34	9,245.34	286.69	-49.15	289.01	7.40	398,685.69	695,302.85	
9,457.00	74.50	358.60	5,902.47	9,259.47	329.39	-49.90	331.69	12.56	398,728.39	695,302.10	
9,503.00	81.00	357.40	5,912.22	9,269.22	374.29	-51.48	376.61	14.36	398,773.29	695,300.52	
9,548.00	87.60	356.40	5,916.69	9,273.69	418.98	-53.90	421.36	14.83	398,817.98	695,298.10	
9,639.00	89.30	355.80	5,919.15	9,276.15	509.73	-60.09	512.32	1.98	398,908.73	695,291.91	
9,729.00	90.90	357.50	5,918.99	9,275.99	599.57	-65.35	602.31	2.59	398,998.57	695,286.65	
9,819.00	91.30	357.10	5,917.27	9,274.27	689.46	-69.58	692.29	0.63	399,088.46	695,282.42	
9,909.00	92.20	359.10	5,914.52	9,271.52	779.36	-72.57	782.22	2.44	399,178.36	695,279.43	
10,000.00	91.00	359.50	5,911.98	9,268.98	870.32	-73.68	873.09	1.39	399,269.32	695,278.32	
10,090.00	91.10	359.70	5,910.33	9,267.33	960.30	-74.31	962.96	0.25	399,359.30	695,277.69	
10,180.00	91.10	359.40	5,908.60	9,265.60	1,050.28	-75.01	1,052.84	0.33	399,449.28	695,276.99	
10,270.00	90.30	357.90	5,907.50	9,264.50	1,140.24	-77.13	1,142.78	1.89	399,539.24	695,274.87	
10,361.00	88.90	356.70	5,908.13	9,265.13	1,231.14	-81.42	1,233.77	2.03	399,630.14	695,270.58	
10,451.00	89.00	356.60	5,909.78	9,266.78	1,320.97	-86.68	1,323.76	0.16	399,719.97	695,265.32	
10,541.00	89.00	357.20	5,911.35	9,268.35	1,410.82	-91.54	1,413.74	0.67	399,809.82	695,260.46	
10,631.00	88.70	357.50	5,913.16	9,270.16	1,500.71	-95.70	1,503.72	0.47	399,899.71	695,256.30	



Phoenix Technology Services
Chesapeake Operating Inc.



Company:	Chesapeake Operating Inc.	Local Co-ordinate Reference:	Well Job#: 1211116
Project:	Eddy County, New Mexico (NAD 1983)	TVD Reference:	WELL @ 3357.00usft (Trinidad 110)
Site:	PLU/Phantom Banks 25 25 30 USA 1H	MD Reference:	WELL @ 3357.00usft (Trinidad 110)
Well:	Job# 1211116	North Reference:	Grid
Wellbore:	Rig: Trinidad 110	Survey Calculation Method:	Minimum Curvature
Design:	Rig: Trinidad 110 Surveys	Database:	GCR DB v5000

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)	
10,722.00	88.00	357.40	5,915.78	9,272.78	1,591.58	-99.75	1,594.67	0.78	399,990.58	695,252.25	
10,812.00	88.80	355.80	5,918.29	9,275.29	1,681.38	-105.09	1,684.63	1.99	400,080.38	695,246.91	
10,902.00	90.00	359.30	5,919.24	9,276.24	1,771.28	-108.93	1,774.60	4.11	400,170.28	695,243.07	
10,992.00	90.40	359.00	5,918.92	9,275.92	1,861.27	-110.27	1,864.53	0.56	400,260.27	695,241.73	
11,083.00	89.80	358.60	5,918.76	9,275.76	1,952.25	-112.17	1,955.47	0.79	400,351.25	695,239.83	
11,173.00	90.30	358.70	5,918.69	9,275.69	2,042.22	-114.29	2,045.42	0.57	400,441.22	695,237.71	
11,264.00	88.20	357.90	5,919.88	9,276.88	2,133.17	-116.99	2,136.37	2.47	400,532.17	695,235.01	
11,354.00	90.00	358.50	5,921.29	9,278.29	2,223.11	-119.82	2,226.33	2.11	400,622.11	695,232.18	
11,445.00	91.20	358.90	5,920.34	9,277.34	2,314.08	-121.88	2,317.27	1.39	400,713.08	695,230.12	
11,535.00	91.20	359.10	5,918.45	9,275.45	2,404.05	-123.45	2,407.18	0.22	400,803.05	695,228.55	
11,625.00	90.90	359.00	5,916.80	9,273.80	2,494.02	-124.95	2,497.09	0.35	400,893.02	695,227.05	
11,716.00	91.30	358.90	5,915.06	9,272.06	2,584.99	-126.61	2,588.01	0.45	400,983.99	695,225.39	
11,807.00	90.70	358.60	5,913.47	9,270.47	2,675.95	-128.60	2,678.94	0.74	401,074.95	695,223.40	
11,897.00	89.70	357.90	5,913.15	9,270.15	2,765.91	-131.35	2,768.91	1.36	401,164.91	695,220.65	
11,988.00	88.70	357.90	5,914.42	9,271.42	2,856.83	-134.68	2,859.88	1.10	401,255.83	695,217.32	
12,078.00	88.20	356.20	5,916.86	9,273.86	2,946.68	-139.31	2,949.84	1.97	401,345.68	695,212.69	
12,168.00	89.60	355.00	5,918.59	9,275.59	3,036.39	-146.21	3,039.80	2.05	401,435.39	695,205.79	
12,258.00	88.80	354.90	5,919.84	9,276.84	3,126.03	-154.14	3,129.75	0.90	401,525.03	695,197.86	
12,349.00	90.40	355.70	5,920.48	9,277.48	3,216.72	-161.59	3,220.71	1.97	401,615.72	695,190.41	
12,439.00	91.10	357.30	5,919.30	9,276.30	3,306.54	-167.09	3,310.70	1.94	401,705.54	695,184.91	
12,529.00	91.20	357.80	5,917.49	9,274.49	3,396.44	-170.93	3,400.67	0.57	401,795.44	695,181.07	
12,619.00	90.50	356.40	5,916.16	9,273.16	3,486.31	-175.49	3,490.66	1.74	401,885.31	695,176.51	
12,709.00	90.50	356.40	5,915.37	9,272.37	3,576.13	-181.14	3,580.65	0.00	401,975.13	695,170.86	
12,799.00	92.10	357.10	5,913.33	9,270.33	3,665.96	-186.24	3,670.63	1.94	402,064.96	695,165.76	
12,890.00	92.70	357.60	5,909.52	9,266.52	3,756.78	-190.44	3,761.54	0.86	402,155.78	695,161.56	
12,980.00	93.00	358.40	5,905.05	9,262.05	3,846.62	-193.58	3,851.41	0.95	402,245.62	695,158.42	
13,071.00	90.30	358.20	5,902.43	9,259.43	3,937.53	-196.28	3,942.33	2.98	402,336.53	695,155.72	



Phoenix Technology Services
Chesapeake Operating Inc.



Company:	Chesapeake Operating Inc.	Local Co-ordinate Reference:	Well Job# 1211116
Project:	Eddy County, New Mexico (NAD 1983)	TVD Reference:	WELL @ 3357.00usft (Trinidad 110)
Site:	PLU Phantom Banks 25.25 30 USA 1H	MD Reference:	WELL @ 3357.00usft (Trinidad 110)
Well:	Job# 1211116	North Reference:	Grid
Wellbore:	Rig: Trinidad 110	Survey Calculation Method:	Minimum Curvature
Design:	Rig: Trinidad 110 Surveys	Database:	GCR DB v5000

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)	
13,161.00	89.40	357.90	5,902.66	9,259.66	4,027.48	-199.34	4,032.31	1.05	402,426.48	695,152.66	
13,252.00	88.60	358.00	5,904.25	9,261.25	4,118.40	-202.59	4,123.27	0.89	402,517.40	695,149.41	
13,342.00	88.70	357.90	5,906.37	9,263.37	4,208.32	-205.81	4,213.23	0.16	402,607.32	695,146.19	
13,432.00	88.30	357.60	5,908.73	9,265.73	4,298.22	-209.34	4,303.18	0.56	402,697.22	695,142.66	
13,523.00	88.10	357.50	5,911.58	9,268.58	4,389.09	-213.23	4,394.13	0.25	402,788.09	695,138.77	
13,613.00	88.40	357.60	5,914.33	9,271.33	4,478.97	-217.08	4,484.08	0.35	402,877.97	695,134.92	
13,704.00	88.00	357.40	5,917.19	9,274.19	4,569.84	-221.05	4,575.03	0.49	402,968.84	695,130.95	
13,794.00	87.10	357.30	5,921.04	9,278.04	4,659.66	-225.20	4,664.94	1.01	403,058.66	695,126.80	
13,885.00	86.90	356.50	5,925.80	9,282.80	4,750.40	-230.12	4,755.81	0.91	403,149.40	695,121.88	
13,975.00	87.50	355.80	5,930.20	9,287.20	4,840.09	-236.15	4,845.70	1.02	403,239.09	695,115.85	
14,065.00	88.30	356.00	5,933.50	9,290.50	4,929.80	-242.58	4,935.63	0.92	403,328.80	695,109.42	
14,109.00	87.60	355.70	5,935.07	9,292.07	4,973.65	-245.76	4,979.59	1.73	403,372.65	695,106.24	
Last Phoenix MWD Survey											
14,160.00	87.60	355.70	5,937.21	9,294.21	5,024.47	-249.59	5,030.54	0.00	403,423.47	695,102.41	
Projection to TD											

Survey Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
209.00	209.00	-0.06	-0.54	First Phoenix MWD Survey
14,109.00	9,292.07	4,973.65	-245.76	Last Phoenix MWD Survey
14,160.00	9,294.21	5,024.47	-249.59	Projection to TD

Checked By: _____

Approved By: _____

Date: _____