



30-015-39508

Ryan Energy Directional Drilling Report

Field: Eddy Co, NM NAD 83
Site: PLU Big Sinks 14-25-30 USA 1H
Well: 14-25-30 USA 1H
Wellpath: ST1

Prepared For:

Chesapeake Operating, Inc.



Ryan Energy Technology

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Chesapeake Operating, Inc.
Field: Eddy Co, NM NAD 83
Site: PLU Big Sinks 14-25-30 USA 1H
Well: 14-25-30 USA 1H
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Azimuths to Grid North
 True North -0.25°
 Magnetic North 7.41°
 Magnetic Field
 Strength 48516nT
 Dip Angle 60.04°
 Date 10/18/2011
 Model IGRF2010

FIELD DETAILS

Eddy Co, NM NAD 83
 USA

Geodetic System: US State Plane Coordinate System 1983
 Ellipsoid: GRS 1980
 Zone: New Mexico, Eastern Zone
 Magnetic Model: IGRF2010
 System Datum: Mean Sea Level
 Local North: Gnd North

SITE DETAILS

PLU Big Sinks 14-25-30 USA 1H
 Eddy Co., NM

Site Centre Northing: 409176.43
 Easting: 689726.00
 Ground Level: 3369.00
 Positional Uncertainty: 0.00
 Convergence: 0.25

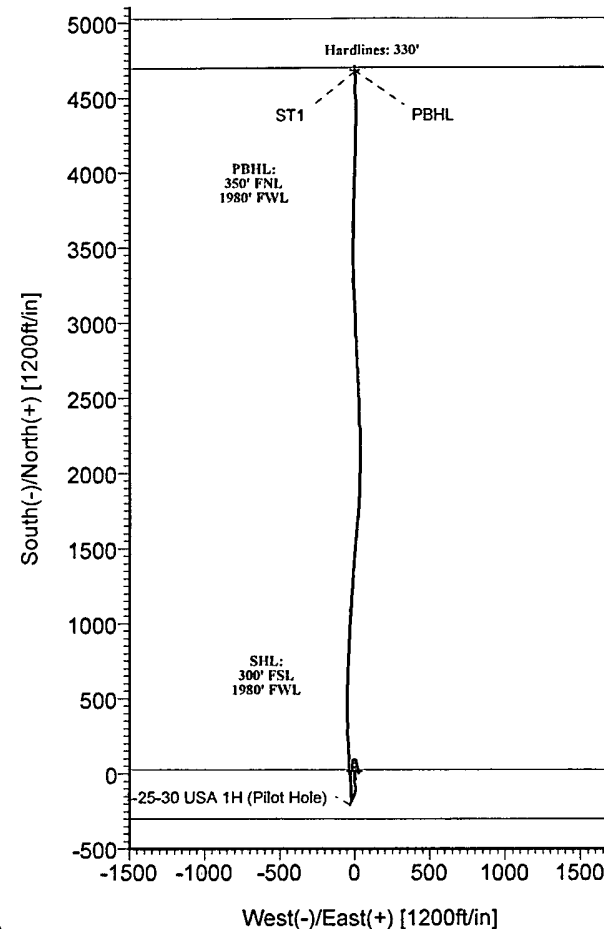
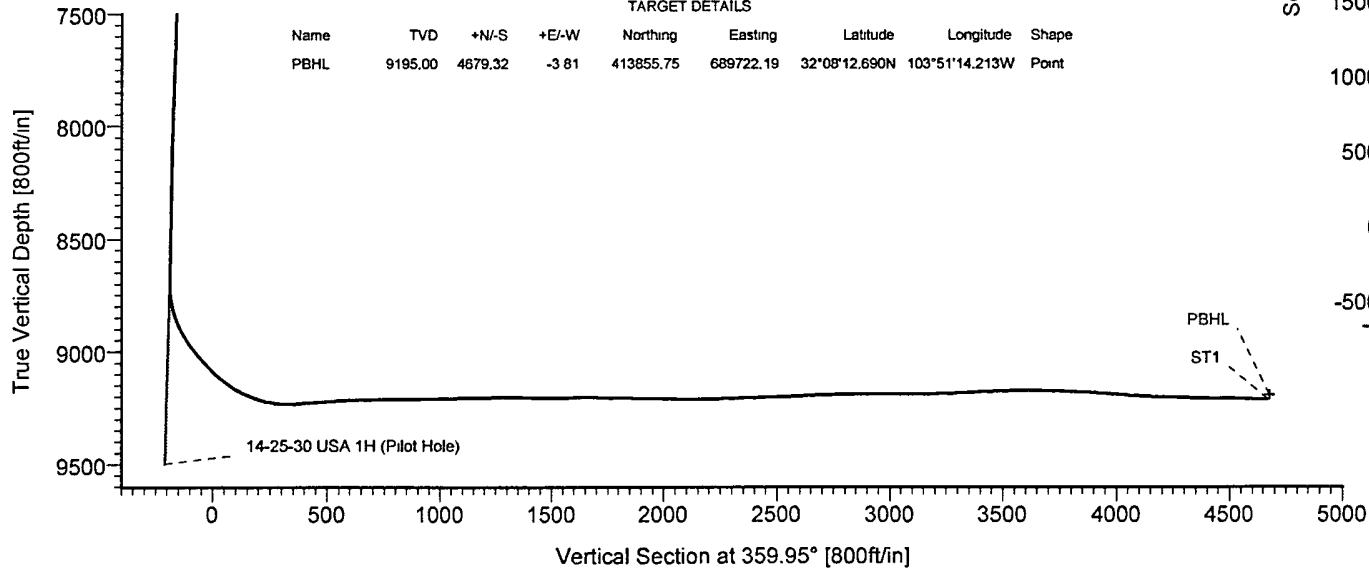
WELLPATH DETAILS

ST1

Rig Ref. Datum: SITE 3394.00R
 V.Section Angle: Origin +N/-S: 0.00 Origin +E/-W: 0.00 Starting From TVD: 0.00
 359.95°

TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
PBHL	9195.00	4679.32	-3.81	413855.75	689722.19	32°08'12.690N	103°51'14.213W	Point





Ryan Energy Technologies Survey Report



Company: Chesapeake Operating, Inc.		Date: 11/29/2011	Time: 16:27:45	Page: 1						
Field: Eddy Co, NM NAD 83		Co-ordinate(N/E) Reference: Site: PLU Big Sinks 14-25-30 USA 1H								
Site: PLU Big Sinks 14-25-30 USA 1H		Vertical (TVD) Reference: SITE 3394.0								
Well: 14-25-30 USA 1H		Section (VS) Reference: Well (0.00N,0.00E,0.00Azi)								
Wellpath: Pilot Hole		Survey Calculation Method: Minimum Curvature Db: Sybase								
Field: Eddy Co, NM NAD 83										
USA										
Map System: US State Plane Coordinate System 1983		Map Zone: New Mexico, Eastern Zone								
Geo Datum: GRS 1980		Coordinate System: Site Centre								
Sys Datum: Mean Sea Level		Geomagnetic Model: IGRF2010								
Site: PLU Big Sinks 14-25-30 USA 1H										
Eddy Co., NM										
Site Position:	Northing: 409176.43 ft	Latitude: 32 7 26.384 N								
From: Map	Easting: 689726.00 ft	Longitude: 103 51 14.411 W								
Position Uncertainty: 0.00 ft		North Reference: Grid								
Ground Level: 3369.00 ft		Grid Convergence: 0.25 deg								
Well: 14-25-30 USA 1H Slot Name:										
Well Position:	+N/-S 0.00 ft	Northing: 409176.43 ft	Latitude: 32 7 26.384 N							
	+E/-W 0.00 ft	Easting: 689726.00 ft	Longitude: 103 51 14.411 W							
Position Uncertainty: 0.00 ft										
Wellpath: Pilot Hole										
Current Datum: SITE	Height 3394.00 ft	Drilled From: Surface								
Magnetic Data: 10/18/2011		Tie-on Depth: 0.00 ft								
Field Strength: 48516 nT		Above System Datum: Mean Sea Level								
Vertical Section: Depth From (TVD)	+N/-S	Declination: 7.67 deg								
ft	ft	Mag Dip Angle: 60.04 deg								
		+E/-W	Direction							
		ft	deg							
0.00	0.00	0.00	0.00							
Survey Program for Definitive Wellpath										
Date: 11/7/2011	Validated: No	Version: 1								
Actual From To	Survey	Toolcode	Tool Name							
ft ft										
175.00 9453.00	Survey #1 (175.00-9453.00)	Ryan MWD	Ryan MWD							
9500.00 9500.00	Survey #2 (9500.00-9500.00)	Projection	Projection							
Survey										
MD	Incl	Azim	TVD	+N/-S	+E/-W	VS	DLS	Build	Turn	Tool/Comment
ft	deg	deg	ft	ft	ft	ft	deg/100ft	deg/100ft	deg/100ft	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	TIE LINE
175.00	0.90	28.20	174.99	1.21	0.65	1.21	0.51	0.51	0.00	Ryan MWD
295.00	1.20	14.30	294.97	3.26	1.41	3.26	0.33	0.25	-11.58	Ryan MWD
482.00	0.80	7.90	481.94	6.45	2.07	6.45	0.22	-0.21	-3.42	Ryan MWD
673.00	0.20	266.00	672.94	7.75	1.92	7.75	0.45	-0.31	-53.35	Ryan MWD
863.00	1.00	212.50	862.93	6.33	0.70	6.33	0.47	0.42	-28.16	Ryan MWD
1054.00	1.40	214.00	1053.88	2.99	-1.50	2.99	0.21	0.21	0.79	Ryan MWD
1244.00	1.70	192.00	1243.82	-1.70	-3.39	-1.70	0.35	0.16	-11.58	Ryan MWD
1292.00	1.80	180.80	1291.79	-3.15	-3.55	-3.15	0.74	0.21	-23.33	Ryan MWD
1436.00	1.90	159.10	1435.72	-7.64	-2.73	-7.64	0.49	0.07	-15.07	Ryan MWD
1627.00	1.60	169.70	1626.63	-13.22	-1.12	-13.22	0.23	-0.16	5.55	Ryan MWD
1817.00	1.50	170.40	1816.56	-18.28	-0.23	-18.28	0.05	-0.05	0.37	Ryan MWD
2007.00	1.50	186.80	2006.50	-23.20	-0.11	-23.20	0.23	0.00	8.63	Ryan MWD
2197.00	0.80	150.20	2196.46	-26.82	0.26	-26.82	0.52	-0.37	-19.26	Ryan MWD
2387.00	1.00	157.60	2386.44	-29.51	1.55	-29.51	0.12	0.11	3.89	Ryan MWD
2577.00	1.20	173.10	2576.40	-33.01	2.42	-33.01	0.19	0.11	8.16	Ryan MWD
2767.00	1.40	186.70	2766.35	-37.29	2.39	-37.29	0.19	0.11	7.16	Ryan MWD
2957.00	1.40	209.00	2956.30	-41.63	0.99	-41.63	0.28	0.00	11.74	Ryan MWD
3147.00	1.40	240.50	3146.24	-44.80	-2.16	-44.80	0.40	0.00	16.58	Ryan MWD
3337.00	1.00	192.60	3336.21	-47.56	-4.54	-47.56	0.55	-0.21	-25.21	Ryan MWD
3527.00	0.70	216.10	3526.19	-50.12	-5.58	-50.12	0.24	-0.16	12.37	Ryan MWD
3718.00	0.90	150.20	3717.17	-52.36	-5.53	-52.36	0.46	0.10	-34.50	Ryan MWD



Ryan Energy Technologies Survey Report



Company:	Chesapeake Operating, Inc.	Date:	11/29/2011	Time:	16:27:45	Page:	2
Field:	Eddy Co. NM NAD 83	Co-ordinate(NE) Reference:	Site: PLU Big Sinks 14-25-30 USA 1H				
Site:	PLU Big Sinks 14-25-30 USA 1H	Vertical (TVD) Reference:	SITE 3394.0				
Well:	14-25-30 USA 1H	Section (VS) Reference:	Well (0.00N, 0.00E, 0.00Azi)				
Wellpath:	Pilot Hole	Survey Calculation Method:	Minimum Curvature Db: Sybase				

Survey

MD ft	Incl deg	Azim deg	TVD ft	N-S ft	E-W ft	VS ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	Tool/Comment
3908.00	1.40	152.10	3907.13	-55.71	-3.70	-55.71	0.26	0.26	1.00	Ryan MWD
4018.00	1.40	165.40	4017.10	-58.20	-2.73	-58.20	0.29	0.00	12.09	Ryan MWD
4112.00	1.70	174.80	4111.07	-60.70	-2.31	-60.70	0.42	0.32	10.00	Ryan MWD
4302.00	2.00	167.20	4300.97	-66.74	-1.32	-66.74	0.20	0.16	-4.00	Ryan MWD
4492.00	1.80	166.80	4490.86	-72.88	0.09	-72.88	0.11	-0.11	-0.21	Ryan MWD
4683.00	1.80	163.90	4681.77	-78.68	1.61	-78.68	0.05	0.00	-1.52	Ryan MWD
4872.00	1.70	164.10	4870.68	-84.23	3.20	-84.23	0.05	-0.05	0.11	Ryan MWD
5062.00	1.60	172.60	5060.60	-89.57	4.31	-89.57	0.14	-0.05	4.47	Ryan MWD
5252.00	1.30	183.80	5250.54	-94.35	4.51	-94.35	0.22	-0.16	5.89	Ryan MWD
5443.00	1.30	182.30	5441.49	-98.68	4.28	-98.68	0.02	0.00	-0.79	Ryan MWD
5632.00	1.00	185.00	5630.45	-102.46	4.05	-102.46	0.16	-0.16	1.43	Ryan MWD
5822.00	1.30	188.60	5820.41	-106.24	3.58	-106.24	0.16	0.16	1.89	Ryan MWD
6012.00	1.50	189.80	6010.36	-110.82	2.84	-110.82	0.11	0.11	0.63	Ryan MWD
6202.00	-1.50	184.80	6200.29	-115.75	2.21	-115.75	0.07	0.00	-2.63	Ryan MWD
6393.00	1.90	187.90	6391.21	-121.38	1.56	-121.38	0.21	0.21	1.62	Ryan MWD
6583.00	2.00	194.60	6581.10	-127.71	0.29	-127.71	0.13	0.05	3.53	Ryan MWD
6774.00	1.90	204.50	6771.99	-133.82	-1.86	-133.82	0.18	-0.05	5.18	Ryan MWD
6964.00	2.20	198.80	6961.87	-140.13	-4.34	-140.13	0.19	0.16	-3.00	Ryan MWD
7155.00	2.20	200.20	7152.73	-147.04	-6.79	-147.04	0.03	0.00	-0.73	Ryan MWD
7345.00	2.20	203.20	7342.59	-153.82	-9.48	-153.82	0.06	0.00	1.58	Ryan MWD
7536.00	2.20	201.90	7533.45	-160.59	-12.29	-160.59	0.03	0.00	-0.68	Ryan MWD
7726.00	2.10	207.50	7723.31	-167.06	-15.26	-167.06	0.12	-0.05	2.95	Ryan MWD
7917.00	2.10	214.60	7914.18	-173.05	-18.87	-173.05	0.14	0.00	3.72	Ryan MWD
8107.00	1.20	218.60	8104.10	-177.47	-22.08	-177.47	0.48	-0.47	2.11	Ryan MWD
8298.00	0.90	197.10	8295.07	-180.46	-23.77	-180.46	0.26	-0.16	-11.26	Ryan MWD
8488.00	1.40	191.40	8485.03	-184.17	-24.67	-184.17	0.27	0.26	-3.00	Ryan MWD
8679.00	1.00	200.00	8675.99	-188.02	-25.70	-188.02	0.23	-0.21	4.50	Ryan MWD
8869.00	1.90	199.70	8865.93	-192.54	-27.33	-192.54	0.47	0.47	-0.16	Ryan MWD
9060.00	1.50	199.90	9056.84	-197.87	-29.25	-197.87	0.21	-0.21	0.10	Ryan MWD
9250.00	1.80	201.50	9246.76	-202.99	-31.19	-202.99	0.16	0.16	0.84	Ryan MWD
9453.00	1.00	152.10	9449.71	-207.52	-31.53	-207.52	0.68	-0.39	-24.33	Ryan MWD
9500.00	1.00	152.10	9496.70	-208.25	-31.14	-208.25	0.00	0.00	0.00	Projection



Ryan Energy Technologies COMPLETION REPORT



Company: Chesapeake Operating, Inc. Date: 11/29/2011 Time: 16:28:57 Page: 1
Field: Eddy Co, NM NAD:83 Co-ordinate(NE) Reference: Site: PLU Big Sinks 14-25-30 USA 1H
Site: PLU Big Sinks 14-25-30 USA 1H Vertical (TVD) Reference: SITE 3394.0
Well: 14-25-30 USA 1H Section (VS) Reference: Well (0.00N,0.00E,0.00Azi)
Wellpath: Pilot Hole Survey Calculation Method: Minimum Curvature Db: Sybase

Field: Eddy Co, NM NAD 83

USA

Map System: US State Plane Coordinate System 1983

Geo Datum: GRS 1980

Sys Datum: Mean Sea Level

Map Zone:

New Mexico, Eastern Zone

Coordinate System:

Site Centre

Geomagnetic Model:

IGRF2010

Site: PLU Big Sinks 14-25-30 USA 1H

Eddy Co., NM

Site Position:

Northing: 409176.43 ft

Latitude: 32 7 26.384 N

From: Map

Easting: 689726.00 ft

Longitude: 103 51 14.411 W

Position Uncertainty: 0.00 ft

North Reference: Grid

Ground Level: 3369.00 ft

Grid Convergence: 0.25 deg

Well: 14-25-30 USA 1H

Slot Name:

Well Position: +N/-S 0.00 ft

Northing: 409176.43 ft

Latitude: 32 7 26.384 N

+E/-W 0.00 ft

Easting: 689726.00 ft

Longitude: 103 51 14.411 W

Position Uncertainty: 0.00 ft

Wellpath: Pilot Hole

Drilled From:

Surface

Current Datum: SITE

Height 3394.00 ft

Tie-on Depth:

0.00 ft

Magnetic Data: 10/18/2011

Above System Datum:

Mean Sea Level

Field Strength: 48516 nT

Declination:

7.67 deg

Vertical Section: Depth From (TVD)

+N/-S

Mag Dip Angle:

60.04 deg

ft

ft

ft

Direction

0.00

0.00

0.00

0.00

Survey

MD ft	Incl deg	TVD ft	VS ft	Azim deg	N/S ft	E/W ft	Clsr Dist ft	Clsr Azi deg	DLS deg/100ft	Tool
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	TIE LINE
175.00	0.90	174.99	1.21	28.20	1.21	0.65	1.37	28.20	0.51	Ryan MWD
295.00	1.20	294.97	3.26	14.30	3.26	1.41	3.55	23.32	0.33	Ryan MWD
482.00	0.80	481.94	6.45	7.90	6.45	2.07	6.77	17.78	0.22	Ryan MWD
673.00	0.20	672.94	7.75	266.00	7.75	1.92	7.98	13.91	0.45	Ryan MWD
863.00	1.00	862.93	6.33	212.50	6.33	0.70	6.36	6.29	0.47	Ryan MWD
1054.00	1.40	1053.88	2.99	214.00	2.99	-1.50	3.34	333.28	0.21	Ryan MWD
1244.00	1.70	1243.82	-1.70	192.00	-1.70	-3.39	3.79	243.41	0.35	Ryan MWD
1292.00	1.80	1291.79	-3.15	180.80	-3.15	-3.55	4.74	228.42	0.74	Ryan MWD
1436.00	1.90	1435.72	-7.64	159.10	-7.64	-2.73	8.11	199.64	0.49	Ryan MWD
1627.00	1.60	1626.63	-13.22	169.70	-13.22	-1.12	13.27	184.84	0.23	Ryan MWD
1817.00	1.50	1816.56	-18.28	170.40	-18.28	-0.23	18.28	180.72	0.05	Ryan MWD
2007.00	1.50	2006.50	-23.20	186.80	-23.20	-0.11	23.20	180.27	0.23	Ryan MWD
2197.00	0.80	2196.46	-26.82	150.20	-26.82	0.26	26.82	179.46	0.52	Ryan MWD
2387.00	1.00	2386.44	-29.51	157.60	-29.51	1.55	29.55	177.00	0.12	Ryan MWD
2577.00	1.20	2576.40	-33.01	173.10	-33.01	2.42	33.10	175.81	0.19	Ryan MWD
2767.00	1.40	2766.35	-37.29	186.70	-37.29	2.39	37.37	176.34	0.19	Ryan MWD
2957.00	1.40	2956.30	-41.63	209.00	-41.63	0.99	41.64	178.64	0.28	Ryan MWD
3147.00	1.40	3146.24	-44.80	240.50	-44.80	-2.16	44.85	182.76	0.40	Ryan MWD
3337.00	1.00	3336.21	-47.56	192.60	-47.56	-4.54	47.78	185.45	0.55	Ryan MWD
3527.00	0.70	3526.19	-50.12	216.10	-50.12	-5.58	50.43	186.36	0.24	Ryan MWD
3718.00	0.90	3717.17	-52.36	150.20	-52.36	-5.53	52.65	186.02	0.46	Ryan MWD
3908.00	1.40	3907.13	-55.71	152.10	-55.71	-3.70	55.83	183.80	0.26	Ryan MWD
4018.00	1.40	4017.10	-58.20	165.40	-58.20	-2.73	58.26	182.69	0.29	Ryan MWD
4112.00	1.70	4111.07	-60.70	174.80	-60.70	-2.31	60.74	182.18	0.42	Ryan MWD
4302.00	2.00	4300.97	-66.74	167.20	-66.74	-1.32	66.75	181.14	0.20	Ryan MWD
4492.00	1.80	4490.86	-72.88	166.80	-72.88	0.09	72.88	179.93	0.11	Ryan MWD
4683.00	1.80	4681.77	-78.68	163.90	-78.68	1.61	78.69	178.83	0.05	Ryan MWD



Ryan Energy Technologies COMPLETION REPORT



Company: Chesapeake Operating, Inc. Date: 11/29/2011 Time: 16:28:57 Page: 2
Field: Eddy Co. NM NAD 83 Co-ordinate(NE) Reference: Site: PLU Big Sinks 14-25-30 USA 1H
Site: PLU Big Sinks 14-25-30 USA 1H Vertical (TVD) Reference: SITE 3394.0
Well: 14-25-30 USA 1H Section (VS) Reference: Well (0.00N,0.00E,0.00Azi)
Wellpath: Pilot Hole Survey Calculation Method: Minimum Curvature Db: Sybase

Survey

MD ft	Incl deg	TVD ft	VS ft	Azim deg	N/S ft	E/W ft	Clsr Dist. ft	Clsr Azi. deg	DLS deg/100ft	Tool
4872.00	1.70	4870.68	-84.23	164.10	-84.23	3.20	84.29	177.82	0.05	Ryan MWD
5062.00	1.60	5060.60	-89.57	172.60	-89.57	4.31	89.67	177.24	0.14	Ryan MWD
5252.00	1.30	5250.54	-94.35	183.80	-94.35	4.51	94.46	177.26	0.22	Ryan MWD
5443.00	1.30	5441.49	-98.68	182.30	-98.68	4.28	98.77	177.52	0.02	Ryan MWD
5632.00	1.00	5630.45	-102.46	185.00	-102.46	4.05	102.54	177.74	0.16	Ryan MWD
5822.00	1.30	5820.41	-106.24	188.60	-106.24	3.58	106.30	178.07	0.16	Ryan MWD
6012.00	1.50	6010.36	-110.82	189.80	-110.82	2.84	110.86	178.53	0.11	Ryan MWD
6202.00	1.50	6200.29	-115.75	184.80	-115.75	2.21	115.77	178.91	0.07	Ryan MWD
6393.00	1.90	6391.21	-121.38	187.90	-121.38	1.56	121.39	179.26	0.21	Ryan MWD
6583.00	2.00	6581.10	-127.71	194.60	-127.71	0.29	127.71	179.87	0.13	Ryan MWD
6774.00	1.90	6771.99	-133.82	204.50	-133.82	-1.86	133.83	180.80	0.18	Ryan MWD
6964.00	2.20	6961.87	-140.13	198.80	-140.13	-4.34	140.20	181.77	0.19	Ryan MWD
7155.00	2.20	7152.73	-147.04	200.20	-147.04	-6.79	147.20	182.64	0.03	Ryan MWD
7345.00	2.20	7342.59	-153.82	203.20	-153.82	-9.48	154.11	183.53	0.06	Ryan MWD
7536.00	2.20	7533.45	-160.59	201.90	-160.59	-12.29	161.06	184.38	0.03	Ryan MWD
7726.00	2.10	7723.31	-167.06	207.50	-167.06	-15.26	167.76	185.22	0.12	Ryan MWD
7917.00	2.10	7914.18	-173.05	214.60	-173.05	-18.87	174.07	186.22	0.14	Ryan MWD
8107.00	1.20	8104.10	-177.47	218.60	-177.47	-22.08	178.84	187.09	0.48	Ryan MWD
8298.00	0.90	8295.07	-180.46	197.10	-180.46	-23.77	182.02	187.50	0.26	Ryan MWD
8488.00	1.40	8485.03	-184.17	191.40	-184.17	-24.67	185.81	187.63	0.27	Ryan MWD
8679.00	1.00	8675.99	-188.02	200.00	-188.02	-25.70	189.77	187.78	0.23	Ryan MWD
8869.00	1.90	8865.93	-192.54	199.70	-192.54	-27.33	194.47	188.08	0.47	Ryan MWD
9060.00	1.50	9056.84	-197.87	199.90	-197.87	-29.25	200.02	188.41	0.21	Ryan MWD
9250.00	1.80	9246.76	-202.99	201.50	-202.99	-31.19	205.37	188.73	0.16	Ryan MWD
9453.00	1.00	9449.71	-207.52	152.10	-207.52	-31.53	209.90	188.64	0.68	Ryan MWD
9500.00	1.00	9496.70	-208.25	152.10	-208.25	-31.14	210.56	188.51	0.00	Projection



Ryan Energy Technologies Survey Report



Company: Chesapeake Operating, Inc. Date: 11/29/2011 Time: 16:29:53 Page: 1
Field: Eddy Co, NM NAD 83 Co-ordinate(NE) Reference: Site: PLU Big Sinks 14-25-30 USA 1H
Site: PLU Big Sinks 14-25-30 USA 1H Vertical (TVD) Reference: SITE 3394.0
Well: 14-25-30 USA 1H Section (VS) Reference: Well (0.00N,0.00E,359.95Azi)
Wellpath: ST1 Survey Calculation Method: Minimum Curvature Db: Sybase

Field: Eddy Co, NM NAD 83

USA

Map System: US State Plane Coordinate System 1983

Geo Datum: GRS 1980

Sys Datum: Mean Sea Level

Map Zone:

New Mexico, Eastern Zone

Coordinate System:

Site Centre

Geomagnetic Model:

IGRF2010

Site: PLU Big Sinks 14-25-30 USA 1H

Eddy Co., NM

Site Position:

Northing: 409176.43 ft

Latitude: 32 7 26.384 N

From: Map

Easting: 689726.00 ft

Longitude: 103 51 14.411 W

Position Uncertainty: 0.00 ft

North Reference: Grid

Ground Level: 3369.00 ft

Grid Convergence: 0.25 deg

Well: 14-25-30 USA 1H

Slot Name:

Well Position:

+N/-S 0.00 ft

Northing: 409176.43 ft

Latitude: 32 7 26.384 N

+E/-W 0.00 ft

Easting: 689726.00 ft

Longitude: 103 51 14.411 W

Position Uncertainty: 0.00 ft

Wellpath: ST1

Drilled From:

Surface

Current Datum: SITE

Height 3394.00 ft

Tie-on Depth:

0.00 ft

Magnetic Data: 10/18/2011

Above System Datum:

Mean Sea Level

Field Strength: 48516 nT

Declination:

7.67 deg

Vertical Section: Depth From (TVD)

+N/-S

+E/-W

Mag Dip Angle:

60.04 deg

ft

ft

ft

Direction

deg

0.00

0.00

0.00

359.95

Survey Program for Definitive Wellpath

Date: 11/29/2011

Validated: No

Version: 0

Actual From

To

Survey

Toolcode

Tool Name

ft

ft

175.00 13812.00 Survey #1 (175.00-13812.00)

Ryan MWD

Ryan MWD

13865.00 13865.00 Survey #636 (13865.00-13865.00)

Projection

Projection

Survey

MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	VS ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	Tool/Comment
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	TIE LINE
175.00	0.90	28.20	174.99	1.21	0.65	1.21	0.51	0.51	0.00	Ryan MWD
295.00	1.20	14.30	294.97	3.26	1.41	3.26	0.33	0.25	-11.58	Ryan MWD
482.00	0.80	7.90	481.94	6.45	2.07	6.45	0.22	-0.21	-3.42	Ryan MWD
673.00	0.20	266.00	672.94	7.75	1.92	7.75	0.45	-0.31	-53.35	Ryan MWD
863.00	1.00	212.50	862.93	6.33	0.70	6.33	0.47	0.42	-28.16	Ryan MWD
1054.00	1.40	214.00	1053.88	2.99	-1.50	2.99	0.21	0.21	0.79	Ryan MWD
1244.00	1.70	192.00	1243.82	-1.70	-3.39	-1.69	0.35	0.16	-11.58	Ryan MWD
1292.00	1.80	180.80	1291.79	-3.15	-3.55	-3.14	0.74	0.21	-23.33	Ryan MWD
1436.00	1.90	159.10	1435.72	-7.64	-2.73	-7.63	0.49	0.07	-15.07	Ryan MWD
1627.00	1.60	169.70	1626.63	-13.22	-1.12	-13.22	0.23	-0.16	5.55	Ryan MWD
1817.00	1.50	170.40	1816.56	-18.28	-0.23	-18.28	0.05	-0.05	0.37	Ryan MWD
2007.00	1.50	186.80	2006.50	-23.20	-0.11	-23.20	0.23	0.00	8.63	Ryan MWD
2197.00	0.80	150.20	2196.46	-26.82	0.26	-26.82	0.52	-0.37	-19.26	Ryan MWD
2387.00	1.00	157.60	2386.44	-29.51	1.55	-29.51	0.12	0.11	3.89	Ryan MWD
2577.00	1.20	173.10	2576.40	-33.01	2.42	-33.02	0.19	0.11	8.16	Ryan MWD
2767.00	1.40	186.70	2766.35	-37.29	2.39	-37.30	0.19	0.11	7.16	Ryan MWD
2957.00	1.40	209.00	2956.30	-41.63	0.99	-41.63	0.28	0.00	11.74	Ryan MWD
3147.00	1.40	240.50	3146.24	-44.80	-2.16	-44.80	0.40	0.00	16.58	Ryan MWD
3337.00	1.00	192.60	3336.21	-47.56	-4.54	-47.56	0.55	-0.21	-25.21	Ryan MWD
3527.00	0.70	216.10	3526.19	-50.12	-5.58	-50.11	0.24	-0.16	12.37	Ryan MWD
3718.00	0.90	150.20	3717.17	-52.36	-5.53	-52.36	0.46	0.10	-34.50	Ryan MWD



Ryan Energy Technologies Survey Report



Company: Chesapeake Operating, Inc. Date: 11/29/2011 Time: 16:29:53 Page: 2
Field: Eddy Co, NM NAD 83 Co-ordinate(NE) Reference: Site: PLU Big Sinks 14-25-30 USA 1H
Site: PLU Big Sinks 14-25-30 USA 1H Vertical (TVD) Reference: SITE 3394 0
Well: 14-25-30 USA 1H Section (VS) Reference: Well (0 00N 0 00E 359.95Azi)
Wellpath: ST1 Survey Calculation Method: Minimum Curvature Db: Sybase

Survey

MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	VS ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	Tool/Comment
3908.00	1.40	152.10	3907.13	-55.71	-3.70	-55.71	0.26	0.26	1.00	Ryan MWD
4018.00	1.40	165.40	4017.10	-58.20	-2.73	-58.20	0.29	0.00	12.09	Ryan MWD
4112.00	1.70	174.80	4111.07	-60.70	-2.31	-60.70	0.42	0.32	10.00	Ryan MWD
4302.00	2.00	167.20	4300.97	-66.74	-1.32	-66.74	0.20	0.16	-4.00	Ryan MWD
4492.00	1.80	166.80	4490.86	-72.88	0.09	-72.88	0.11	-0.11	-0.21	Ryan MWD
4683.00	1.80	163.90	4681.77	-78.68	1.61	-78.68	0.05	0.00	-1.52	Ryan MWD
4872.00	1.70	164.10	4870.68	-84.23	3.20	-84.23	0.05	-0.05	0.11	Ryan MWD
5062.00	1.60	172.60	5060.60	-89.57	4.31	-89.57	0.14	-0.05	4.47	Ryan MWD
5252.00	1.30	183.80	5250.54	-94.35	4.51	-94.35	0.22	-0.16	5.89	Ryan MWD
5443.00	1.30	182.30	5441.49	-98.68	4.28	-98.68	0.02	0.00	-0.79	Ryan MWD
5632.00	1.00	185.00	5630.45	-102.46	4.05	-102.46	0.16	-0.16	1.43	Ryan MWD
5822.00	1.30	188.60	5820.41	-106.24	3.58	-106.25	0.16	0.16	1.89	Ryan MWD
6012.00	1.50	189.80	6010.36	-110.82	2.84	-110.83	0.11	0.11	0.63	Ryan MWD
6202.00	1.50	184.80	6200.29	-115.75	2.21	-115.76	0.07	0.00	-2.63	Ryan MWD
6393.00	1.90	187.90	6391.21	-121.38	1.56	-121.38	0.21	0.21	1.62	Ryan MWD
6583.00	2.00	194.60	6581.10	-127.71	0.29	-127.71	0.13	0.05	3.53	Ryan MWD
6774.00	1.90	204.50	6771.99	-133.82	-1.86	-133.81	0.18	-0.05	5.18	Ryan MWD
6964.00	2.20	198.80	6961.87	-140.13	-4.34	-140.13	0.19	0.16	-3.00	Ryan MWD
7155.00	2.20	200.20	7152.73	-147.04	-6.79	-147.04	0.03	0.00	0.73	Ryan MWD
7345.00	2.20	203.20	7342.59	-153.82	-9.48	-153.81	0.06	0.00	1.58	Ryan MWD
7536.00	2.20	201.90	7533.45	-160.59	-12.29	-160.58	0.03	0.00	-0.68	Ryan MWD
7726.00	2.10	207.50	7723.31	-167.06	-15.26	-167.05	0.12	-0.05	2.95	Ryan MWD
7917.00	2.10	214.60	7914.18	-173.05	-18.87	-173.03	0.14	0.00	3.72	Ryan MWD
8107.00	1.20	218.60	8104.10	-177.47	-22.08	-177.45	0.48	-0.47	2.11	Ryan MWD
8298.00	0.90	197.10	8295.07	-180.46	-23.77	-180.44	0.26	-0.16	-11.26	Ryan MWD
8488.00	1.40	191.40	8485.03	-184.17	-24.67	-184.14	0.27	0.26	-3.00	Ryan MWD
8679.00	1.00	200.00	8675.99	-188.02	-25.70	-188.00	0.23	-0.21	4.50	Ryan MWD
8865.00	1.00	200.39	8861.99	-188.12	-25.74	-188.09	0.11	0.00	6.50	Ryan MWD
8704.00	1.00	201.60	8700.99	-188.43	-25.86	-188.40	0.11	0.00	6.37	Ryan MWD
8768.00	9.20	1.30	8764.74	-183.82	-25.95	-183.80	15.85	12.81	249.53	Ryan MWD
8799.00	10.50	9.70	8795.28	-178.56	-25.41	-178.53	6.24	4.19	27.10	Ryan MWD
8831.00	15.70	5.40	8826.44	-171.37	-24.51	-171.35	16.52	16.25	-13.44	Ryan MWD
8863.00	21.00	2.00	8856.80	-161.32	-23.91	-161.30	16.89	16.56	-10.62	Ryan MWD
8895.00	24.90	2.20	8886.26	-148.85	-23.45	-148.83	12.19	12.19	0.62	Ryan MWD
8927.00	28.00	0.90	8914.91	-134.61	-23.07	-134.59	9.85	9.69	-4.06	Ryan MWD
8958.00	31.60	358.70	8941.81	-119.21	-23.14	-119.18	12.13	11.61	-7.10	Ryan MWD
8990.00	35.40	357.10	8968.49	-101.56	-23.80	-101.54	12.19	11.87	-5.00	Ryan MWD
9022.00	38.10	356.50	8994.12	-82.45	-24.87	-82.42	8.51	8.44	-1.87	Ryan MWD
9054.00	39.30	354.70	9019.10	-62.50	-26.41	-62.48	5.14	3.75	-5.62	Ryan MWD
9085.00	41.80	354.80	9042.65	-42.43	-28.25	-42.41	8.07	8.06	0.32	Ryan MWD
9117.00	43.70	354.40	9066.15	-20.81	-30.30	-20.78	6.00	5.94	-1.25	Ryan MWD
9149.00	45.90	353.60	9088.85	1.61	-32.66	1.64	7.10	6.87	-2.50	Ryan MWD
9181.00	48.30	354.70	9110.64	24.93	-35.04	24.96	7.91	7.50	3.44	Ryan MWD
9213.00	51.70	356.10	9131.20	49.36	-37.00	49.39	11.14	10.62	4.37	Ryan MWD
9244.00	55.10	357.30	9149.68	74.20	-38.43	74.24	11.40	10.97	3.87	Ryan MWD
9276.00	59.10	357.00	9167.06	101.03	-39.77	101.07	12.52	12.50	-0.94	Ryan MWD
9308.00	63.90	356.50	9182.33	129.10	-41.36	129.14	15.06	15.00	-1.56	Ryan MWD
9340.00	67.40	357.30	9195.52	158.21	-42.94	158.25	11.17	10.94	2.50	Ryan MWD
9371.00	71.00	357.00	9206.52	187.15	-44.38	187.19	11.65	11.61	-0.97	Ryan MWD
9403.00	73.80	357.90	9216.20	217.62	-45.73	217.66	9.15	8.75	2.81	Ryan MWD
9435.00	78.60	358.00	9223.83	248.66	-46.84	248.70	15.00	15.00	0.31	Ryan MWD
9467.00	82.40	358.40	9229.11	280.20	-47.83	280.24	11.94	11.87	1.25	Ryan MWD
9499.00	88.30	358.30	9231.70	312.07	-48.75	312.11	18.44	18.44	-0.31	Ryan MWD



Ryan Energy Technologies Survey Report



Company: Chesapeake Operating, Inc. Date: 11/29/2011 Time: 16:29:53 Page: 3
Field: Eddy Co, NM NAD 83 Co-ordinate(NE) Reference: Site: PLU Big Sinks 14-25-30 USA 1H
Site: PLU Big Sinks 14-25-30 USA 1H Vertical (TVD) Reference: SITE 3394.0
Well: 14-25-30 USA 1H Section (VS) Reference: Well (0.00N,0.00E,359.95Azi)
Wellpath: ST1 Survey Calculation Method: Minimum Curvature Db: Sybase

Survey

MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	VS ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	Tool/Comment
9531.00	92.80	358.40	9231.40	344.05	-49.67	344.09	14.07	14.06	0.31	Ryan MWD
9562.00	94.50	359.10	9229.42	374.98	-50.35	375.02	5.93	5.48	2.26	Ryan MWD
9657.00	94.90	359.60	9221.64	469.65	-51.42	469.69	0.67	0.42	0.53	Ryan MWD
9752.00	92.80	1.50	9215.26	564.42	-50.51	564.46	2.98	-2.21	2.00	Ryan MWD
9848.00	90.90	2.40	9212.16	660.31	-47.25	660.35	2.19	-1.98	0.94	Ryan MWD
9943.00	90.60	2.00	9210.92	755.23	-43.60	755.27	0.53	-0.32	-0.42	Ryan MWD
10038.00	89.50	2.50	9210.84	850.16	-39.87	850.19	1.27	-1.16	0.53	Ryan MWD
10133.00	91.60	3.10	9209.92	945.03	-35.23	945.06	2.30	2.21	0.63	Ryan MWD
10228.00	91.80	3.30	9207.11	1039.84	-29.93	1039.87	0.30	0.21	0.21	Ryan MWD
10323.00	90.70	3.80	9205.03	1134.64	-24.05	1134.66	1.27	-1.16	0.53	Ryan MWD
10418.00	91.30	3.40	9203.37	1229.43	-18.08	1229.45	0.76	0.63	-0.42	Ryan MWD
10513.00	89.40	3.70	9202.79	1324.25	-12.20	1324.26	2.02	-2.00	0.32	Ryan MWD
10608.00	89.70	4.30	9203.54	1419.01	-5.58	1419.01	0.71	0.32	0.63	Ryan MWD
10703.00	90.00	4.70	9203.79	1513.72	1.88	1513.71	0.53	0.32	0.42	Ryan MWD
10797.00	90.70	4.60	9203.22	1607.41	9.50	1607.40	0.75	0.74	-0.11	Ryan MWD
10892.00	89.20	5.30	9203.30	1702.05	17.70	1702.03	1.74	-1.58	0.74	Ryan MWD
10987.00	88.90	2.70	9204.87	1796.79	24.32	1796.77	2.75	-0.32	-2.74	Ryan MWD
11082.00	89.20	1.40	9206.45	1891.72	27.72	1891.69	1.40	0.32	-1.37	Ryan MWD
11176.00	88.00	1.20	9208.75	1985.66	29.85	1985.64	1.29	-1.28	-0.21	Ryan MWD
11272.00	89.40	0.60	9210.92	2081.63	31.36	2081.60	1.59	1.46	-0.62	Ryan MWD
11367.00	91.20	0.20	9210.43	2176.62	32.02	2176.59	1.94	1.89	-0.42	Ryan MWD
11462.00	91.60	358.60	9208.10	2271.58	31.03	2271.55	1.74	0.42	-1.68	Ryan MWD
11557.00	92.20	357.70	9204.95	2366.48	27.96	2366.45	1.14	0.63	-0.95	Ryan MWD
11652.00	91.60	357.80	9201.80	2461.35	24.23	2461.33	0.64	-0.63	0.11	Ryan MWD
11747.00	92.30	357.70	9198.57	2556.22	20.51	2556.20	0.74	0.74	-0.11	Ryan MWD
11843.00	93.60	357.40	9193.63	2652.01	16.41	2651.99	1.39	1.35	-0.31	Ryan MWD
11938.00	90.70	357.90	9190.07	2746.85	12.52	2746.84	3.10	-3.05	0.53	Ryan MWD
12033.00	90.20	357.80	9189.32	2841.78	8.95	2841.77	0.54	-0.53	-0.11	Ryan MWD
12128.00	89.70	357.30	9189.40	2936.69	4.89	2936.69	0.74	-0.53	-0.53	Ryan MWD
12224.00	90.20	357.10	9189.49	3032.58	0.20	3032.57	0.56	0.52	-0.21	Ryan MWD
12319.00	90.80	357.80	9188.66	3127.48	-4.02	3127.48	0.97	0.63	0.74	Ryan MWD
12414.00	91.50	357.70	9186.75	3222.38	-7.75	3222.39	0.74	0.74	-0.11	Ryan MWD
12510.00	92.80	357.70	9183.15	3318.24	-11.60	3318.25	1.35	1.35	0.00	Ryan MWD
12605.00	92.60	359.00	9178.68	3413.09	-14.34	3413.10	1.38	-0.21	-1.37	Ryan MWD
12700.00	92.10	0.60	9174.78	3508.01	-14.67	3508.02	1.76	-0.53	1.68	Ryan MWD
12796.00	89.70	1.40	9173.27	3603.97	-12.99	3603.98	2.64	-2.50	0.83	Ryan MWD
12891.00	88.80	1.40	9174.52	3698.94	-10.67	3698.94	0.95	-0.95	0.00	Ryan MWD
12986.00	87.40	1.40	9177.67	3793.85	-8.35	3793.86	1.47	-1.47	0.00	Ryan MWD
13081.00	86.30	1.40	9182.89	3888.68	-6.03	3888.68	1.16	-1.16	0.00	Ryan MWD
13176.00	85.40	1.40	9189.76	3983.40	-3.72	3983.40	0.95	-0.95	0.00	Ryan MWD
13272.00	86.20	1.10	9196.79	4079.12	-1.63	4079.12	0.89	0.83	-0.31	Ryan MWD
13367.00	88.20	0.80	9201.43	4173.99	-0.06	4173.99	2.13	2.11	-0.32	Ryan MWD
13463.00	88.20	1.00	9204.45	4269.93	1.45	4269.93	0.21	0.00	0.21	Ryan MWD
13558.00	88.90	0.30	9206.85	4364.89	2.53	4364.89	1.04	0.74	-0.74	Ryan MWD
13653.00	88.90	359.50	9208.68	4459.87	2.36	4459.87	0.84	0.00	-0.84	Ryan MWD
13749.00	88.40	359.20	9210.94	4555.84	1.27	4555.84	0.61	-0.52	-0.31	Ryan MWD
13812.00	88.80	358.60	9212.48	4618.81	0.06	4618.81	1.14	0.63	-0.95	Ryan MWD
13865.00	88.80	358.60	9213.59	4671.78	-1.23	4671.78	0.00	0.00	0.00	Projection



Ryan Energy Technologies COMPLETION REPORT



Company: Chesapeake Operating, Inc. Date: 11/29/2011 Time: 16:30:39 Page: 1
Field: Eddy Co, NM, NAD 83 Co-ordinate(NE) Reference: Site: PLU Big Sinks 14-25-30 USA 1H
Site: PLU Big Sinks 14-25-30 USA 1H Vertical (TVD) Reference: SITE 3394 0
Well: 14-25-30 USA 1H Section (VS) Reference: Well (0.00N,0.00E,359.95Azi)
Wellpath: ST1 Survey Calculation Method: Minimum Curvature Db: Sybase

Field: Eddy Co, NM NAD 83

USA

Map System: US State Plane Coordinate System 1983

Geo Datum: GRS 1980

Sys Datum: Mean Sea Level

Map Zone:

New Mexico, Eastern Zone

Coordinate System:

Site Centre

Geomagnetic Model:

IGRF2010

Site: PLU Big Sinks 14-25-30 USA 1H

Eddy Co., NM

Site Position: Northing: 409176.43 ft Latitude: 32 7 26.384 N
From: Map Easting: 689726.00 ft Longitude: 103 51 14.411 W
Position Uncertainty: 0.00 ft North Reference: Grid
Ground Level: 3369.00 ft Grid Convergence: 0.25 deg

Well: 14-25-30 USA 1H

Slot Name:

Well Position: +N/-S 0.00 ft Northing: 409176.43 ft Latitude: 32 7 26.384 N
+E/-W 0.00 ft Easting: 689726.00 ft Longitude: 103 51 14.411 W
Position Uncertainty: 0.00 ft

Wellpath: ST1

Drilled From:

Surface

Current Datum: SITE

Height 3394.00 ft

Tie-on Depth:

0.00 ft

Magnetic Data: 10/18/2011

Above System Datum:

Mean Sea Level

Field Strength: 48516 nT

Declination:

7.67 deg

Vertical Section: Depth From (TVD)

+N/-S

Mag Dip Angle:

60.04 deg

ft

ft

+E/-W

Direction

0.00

0.00

ft

deg

0.00

0.00

0.00

359.95

Survey

MD	Incl	TVD	VS	Azim	N/S	E/W	Clsr Dist	Clsr Azi	DLS	Tool
ft	deg	ft	ft	deg	ft	ft	ft	deg	deg/100ft	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	TIE LINE
175.00	0.90	174.99	1.21	28.20	1.21	0.65	1.37	28.20	0.51	Ryan MWD
295.00	1.20	294.97	3.26	14.30	3.26	1.41	3.55	23.32	0.33	Ryan MWD
482.00	0.80	481.94	6.45	7.90	6.45	2.07	6.77	17.78	0.22	Ryan MWD
673.00	0.20	672.94	7.75	266.00	7.75	1.92	7.98	13.91	0.45	Ryan MWD
863.00	1.00	862.93	6.33	212.50	6.33	0.70	6.36	6.29	0.47	Ryan MWD
1054.00	1.40	1053.88	2.99	214.00	2.99	-1.50	3.34	333.28	0.21	Ryan MWD
1244.00	1.70	1243.82	-1.69	192.00	-1.70	-3.39	3.79	243.41	0.35	Ryan MWD
1292.00	1.80	1291.79	-3.14	180.80	-3.15	-3.55	4.74	228.42	0.74	Ryan MWD
1436.00	1.90	1435.72	-7.63	159.10	-7.64	-2.73	8.11	199.64	0.49	Ryan MWD
1627.00	1.60	1626.63	-13.22	169.70	-13.22	-1.12	13.27	184.84	0.23	Ryan MWD
1817.00	1.50	1816.56	-18.28	170.40	-18.28	-0.23	18.28	180.72	0.05	Ryan MWD
2007.00	1.50	2006.50	-23.20	186.80	-23.20	-0.11	23.20	180.27	0.23	Ryan MWD
2197.00	0.80	2196.46	-26.82	150.20	-26.82	0.26	26.82	179.46	0.52	Ryan MWD
2387.00	1.00	2386.44	-29.51	157.60	-29.51	1.55	29.55	177.00	0.12	Ryan MWD
2577.00	1.20	2576.40	-33.02	173.10	-33.01	2.42	33.10	175.81	0.19	Ryan MWD
2767.00	1.40	2766.35	-37.30	186.70	-37.29	2.39	37.37	176.34	0.19	Ryan MWD
2957.00	1.40	2956.30	-41.63	209.00	-41.63	0.99	41.64	178.64	0.28	Ryan MWD
3147.00	1.40	3146.24	-44.80	240.50	-44.80	-2.16	44.85	182.76	0.40	Ryan MWD
3337.00	1.00	3336.21	-47.56	192.60	-47.56	-4.54	47.78	185.45	0.55	Ryan MWD
3527.00	0.70	3526.19	-50.11	216.10	-50.12	-5.58	50.43	186.36	0.24	Ryan MWD
3718.00	0.90	3717.17	-52.36	150.20	-52.36	-5.53	52.65	186.02	0.46	Ryan MWD
3908.00	1.40	3907.13	-55.71	152.10	-55.71	-3.70	55.83	183.80	0.26	Ryan MWD
4018.00	1.40	4017.10	-58.20	165.40	-58.20	-2.73	58.26	182.69	0.29	Ryan MWD
4112.00	1.70	4111.07	-60.70	174.80	-60.70	-2.31	60.74	182.18	0.42	Ryan MWD
4302.00	2.00	4300.97	-66.74	167.20	-66.74	-1.32	66.75	181.14	0.20	Ryan MWD
4492.00	1.80	4490.86	-72.88	166.80	-72.88	0.09	72.88	179.93	0.11	Ryan MWD
4683.00	1.80	4681.77	-78.68	163.90	-78.68	1.61	78.69	178.83	0.05	Ryan MWD



Ryan Energy Technologies COMPLETION REPORT



Company: Chesapeake Operating, Inc. Date: 11/29/2011 Time: 16:30:39 Page: 2
Field: Eddy Co. NM NAD 83 Co-ordinate(NE) Reference: Site: PLU Big Sinks 14-25-30 USA 1H
Site: PLU Big Sinks 14-25-30 USA 1H Vertical (TVD) Reference: SITE 3394 0
Well: 14-25-30 USA 1H Section (VS) Reference: Well: (0.00N,0.00E,359.95Azi)
Wellpath: ST1 Survey Calculation Method: Minimum Curvature Db: Sybase

Survey

MD ft	Incl deg	TVD ft	VS ft	Azim deg	N/S ft	E/W ft	Clsr Dist. ft	Clsr Azi. deg	DLS deg/100ft	Tool
4872.00	1.70	4870.68	-84.23	164.10	-84.23	3.20	84.29	177.82	0.05	Ryan MWD
5062.00	1.60	5060.60	-89.57	172.60	-89.57	4.31	89.67	177.24	0.14	Ryan MWD
5252.00	1.30	5250.54	-94.35	183.80	-94.35	4.51	94.46	177.26	0.22	Ryan MWD
5443.00	1.30	5441.49	-98.68	182.30	-98.68	4.28	98.77	177.52	0.02	Ryan MWD
5632.00	1.00	5630.45	-102.46	185.00	-102.46	4.05	102.54	177.74	0.16	Ryan MWD
5822.00	1.30	5820.41	-106.25	188.60	-106.24	3.58	106.30	178.07	0.16	Ryan MWD
6012.00	1.50	6010.36	-110.83	189.80	-110.82	2.84	110.86	178.53	0.11	Ryan MWD
6202.00	1.50	6200.29	-115.76	184.80	-115.75	2.21	115.77	178.91	0.07	Ryan MWD
6393.00	1.90	6391.21	-121.38	187.90	-121.38	1.56	121.39	179.26	0.21	Ryan MWD
6583.00	2.00	6581.10	-127.71	194.60	-127.71	0.29	127.71	179.87	0.13	Ryan MWD
6774.00	1.90	6771.99	-133.81	204.50	-133.82	-1.86	133.83	180.80	0.18	Ryan MWD
6964.00	2.20	6961.87	-140.13	198.80	-140.13	-4.34	140.20	181.77	0.19	Ryan MWD
7155.00	2.20	7152.73	-147.04	200.20	-147.04	-6.79	147.20	182.64	0.03	Ryan MWD
7345.00	2.20	7342.59	-153.81	203.20	-153.82	-9.48	154.11	183.53	0.06	Ryan MWD
7536.00	2.20	7533.45	-160.58	201.90	-160.59	-12.29	161.06	184.38	0.03	Ryan MWD
7726.00	2.10	7723.31	-167.05	207.50	-167.06	-15.26	167.76	185.22	0.12	Ryan MWD
7917.00	2.10	7914.18	-173.03	214.60	-173.05	-18.87	174.07	186.22	0.14	Ryan MWD
8107.00	1.20	8104.10	-177.45	218.60	-177.47	-22.08	178.84	187.09	0.48	Ryan MWD
8298.00	0.90	8295.07	-180.44	197.10	-180.46	-23.77	182.02	187.50	0.26	Ryan MWD
8488.00	1.40	8485.03	-184.14	191.40	-184.17	-24.67	185.81	187.63	0.27	Ryan MWD
8679.00	1.00	8675.99	-188.00	200.00	-188.02	-25.70	189.77	187.78	0.23	Ryan MWD
8865.00	1.00	8861.99	-188.09	200.39	-188.12	-25.74	189.87	187.79	0.11	Ryan MWD
8704.00	1.00	8700.99	-188.40	201.60	-188.43	-25.86	190.19	187.81	0.11	Ryan MWD
8768.00	9.20	8764.74	-183.80	1.30	-183.82	-25.95	185.64	188.03	15.85	Ryan MWD
8799.00	10.50	8795.28	-178.53	9.70	-178.56	-25.41	180.36	188.10	6.24	Ryan MWD
8831.00	15.70	8826.44	-171.35	5.40	-171.37	-24.51	173.11	188.14	16.52	Ryan MWD
8863.00	21.00	8856.80	-161.30	2.00	-161.32	-23.91	163.08	188.43	16.89	Ryan MWD
8895.00	24.90	8886.26	-148.83	2.20	-148.85	-23.45	150.69	188.95	12.19	Ryan MWD
8927.00	28.00	8914.91	-134.59	0.90	-134.61	-23.07	136.57	189.73	9.85	Ryan MWD
8958.00	31.60	8941.81	-119.18	358.70	-119.21	-23.14	121.43	190.99	12.13	Ryan MWD
8990.00	35.40	8968.49	-101.54	357.10	-101.56	-23.80	104.31	193.19	12.19	Ryan MWD
9022.00	38.10	8994.12	-82.42	356.50	-82.45	-24.87	86.12	196.79	8.51	Ryan MWD
9054.00	39.30	9019.10	-62.48	354.70	-62.50	-26.41	67.85	202.91	5.14	Ryan MWD
9085.00	41.80	9042.65	-42.41	354.80	-42.43	-28.25	50.98	213.66	8.07	Ryan MWD
9117.00	43.70	9066.15	-20.78	354.40	-20.81	-30.30	36.76	235.52	6.00	Ryan MWD
9149.00	45.90	9088.85	1.64	353.60	1.61	-32.66	32.70	272.83	7.10	Ryan MWD
9181.00	48.30	9110.64	24.96	354.70	24.93	-35.04	43.01	305.43	7.91	Ryan MWD
9213.00	51.70	9131.20	49.39	356.10	49.36	-37.00	61.69	323.14	11.14	Ryan MWD
9244.00	55.10	9149.68	74.24	357.30	74.20	-38.43	83.56	332.62	11.40	Ryan MWD
9276.00	59.10	9167.06	101.07	357.00	101.03	-39.77	108.58	338.52	12.52	Ryan MWD
9308.00	63.90	9182.33	129.14	356.50	129.10	-41.36	135.57	342.24	15.06	Ryan MWD
9340.00	67.40	9195.52	158.25	357.30	158.21	-42.94	163.93	344.82	11.17	Ryan MWD
9371.00	71.00	9206.52	187.19	357.00	187.15	-44.38	192.34	346.66	11.65	Ryan MWD
9403.00	73.80	9216.20	217.66	357.90	217.62	-45.73	222.37	348.13	9.15	Ryan MWD
9435.00	78.60	9223.83	248.70	358.00	248.66	-46.84	253.04	349.33	15.00	Ryan MWD
9467.00	82.40	9229.11	280.24	358.40	280.20	-47.83	284.26	350.31	11.94	Ryan MWD
9499.00	88.30	9231.70	312.11	358.30	312.07	-48.75	315.86	351.12	18.44	Ryan MWD
9531.00	92.80	9231.40	344.09	358.40	344.05	-49.67	347.61	351.78	14.07	Ryan MWD
9562.00	94.50	9229.42	375.02	359.10	374.98	-50.35	378.34	352.35	5.93	Ryan MWD
9657.00	94.90	9221.64	469.69	359.60	469.65	-51.42	472.46	353.75	0.67	Ryan MWD
9752.00	92.80	9215.26	564.46	1.50	564.42	-50.51	566.68	354.89	2.98	Ryan MWD
9848.00	90.90	9212.16	660.35	2.40	660.31	-47.25	662.00	355.91	2.19	Ryan MWD



Ryan Energy Technologies COMPLETION REPORT



Company: Chesapeake Operating, Inc.
Field: Eddy Co. NM NAD 83
Site: PLU Big Sinks 14-25-30 USA 1H
Well: 14-25-30 USA 1H
Wellpath: ST1

Date: 11/29/2011 Time: 16:30:39 Page: 3
Co-ordinate(NE) Reference: Site: PLU Big Sinks 14-25-30 USA 1H
Vertical (TVD) Reference: SITE 3394 0
Section (VS) Reference: Well (0.00N,0.00E,359.95Azi)
Survey Calculation Method: Minimum Curvature Db: Sybase

Survey

MD ft	Incl deg	TVD ft	VS ft	Azim deg	N/S ft	E/W ft	Clsr Dist. ft	Clsr Azi. deg	DLS deg/100ft	Tool
9943.00	90.60	9210.92	755.27	2.00	755.23	-43.60	756.49	356.70	0.53	Ryan MWD
10038.00	89.50	9210.84	850.19	2.50	850.16	-39.87	851.09	357.31	1.27	Ryan MWD
10133.00	91.60	9209.92	945.06	3.10	945.03	-35.23	945.69	357.87	2.30	Ryan MWD
10228.00	91.80	9207.11	1039.87	3.30	1039.84	-29.93	1040.27	358.35	0.30	Ryan MWD
10323.00	90.70	9205.03	1134.66	3.80	1134.64	-24.05	1134.89	358.79	1.27	Ryan MWD
10418.00	91.30	9203.37	1229.45	3.40	1229.43	-18.08	1229.57	359.16	0.76	Ryan MWD
10513.00	89.40	9202.79	1324.26	3.70	1324.25	-12.20	1324.30	359.47	2.02	Ryan MWD
10608.00	89.70	9203.54	1419.01	4.30	1419.01	-5.58	1419.02	359.77	0.71	Ryan MWD
10703.00	90.00	9203.79	1513.71	4.70	1513.72	1.88	1513.72	0.07	0.53	Ryan MWD
10797.00	90.70	9203.22	1607.40	4.60	1607.41	9.50	1607.43	0.34	0.75	Ryan MWD
10892.00	89.20	9203.30	1702.03	5.30	1702.05	17.70	1702.14	0.60	1.74	Ryan MWD
10987.00	88.90	9204.87	1796.77	2.70	1796.79	24.32	1796.96	0.78	2.75	Ryan MWD
11082.00	89.20	9206.45	1891.69	1.40	1891.72	27.72	1891.92	0.84	1.40	Ryan MWD
11176.00	88.00	9208.75	1985.64	1.20	1985.66	29.85	1985.89	0.86	1.29	Ryan MWD
11272.00	89.40	9210.92	2081.60	0.60	2081.63	31.36	2081.86	0.86	1.59	Ryan MWD
11367.00	91.20	9210.43	2176.59	0.20	2176.62	32.02	2176.85	0.84	1.94	Ryan MWD
11462.00	91.60	9208.10	2271.55	358.60	2271.58	31.03	2271.79	0.78	1.74	Ryan MWD
11557.00	92.20	9204.95	2366.45	357.70	2366.48	27.96	2366.64	0.68	1.14	Ryan MWD
11652.00	91.60	9201.80	2461.33	357.80	2461.35	24.23	2461.47	0.56	0.64	Ryan MWD
11747.00	92.30	9198.57	2556.20	357.70	2556.22	20.51	2556.31	0.46	0.74	Ryan MWD
11843.00	93.60	9193.63	2651.99	357.40	2652.01	16.41	2652.06	0.35	1.39	Ryan MWD
11938.00	90.70	9190.07	2746.84	357.90	2746.85	12.52	2746.88	0.26	3.10	Ryan MWD
12033.00	90.20	9189.32	2841.77	357.80	2841.78	8.95	2841.79	0.18	0.54	Ryan MWD
12128.00	89.70	9189.40	2936.69	357.30	2936.69	4.89	2936.70	0.10	0.74	Ryan MWD
12224.00	90.20	9189.49	3032.57	357.10	3032.58	0.20	3032.58	0.00	0.56	Ryan MWD
12319.00	90.80	9188.66	3127.48	357.80	3127.48	-4.02	3127.48	359.93	0.97	Ryan MWD
12414.00	91.50	9186.75	3222.39	357.70	3222.38	-7.75	3222.39	359.86	0.74	Ryan MWD
12510.00	92.80	9183.15	3318.25	357.70	3318.24	-11.60	3318.26	359.80	1.35	Ryan MWD
12605.00	92.60	9178.68	3413.10	359.00	3413.09	-14.34	3413.12	359.76	1.38	Ryan MWD
12700.00	92.10	9174.78	3508.02	0.60	3508.01	-14.67	3508.04	359.76	1.76	Ryan MWD
12796.00	89.70	9173.27	3603.98	1.40	3603.97	-12.99	3604.00	359.79	2.64	Ryan MWD
12891.00	88.80	9174.52	3698.94	1.40	3698.94	-10.67	3698.95	359.83	0.95	Ryan MWD
12986.00	87.40	9177.67	3793.86	1.40	3793.85	-8.35	3793.86	359.87	1.47	Ryan MWD
13081.00	86.30	9182.89	3888.68	1.40	3888.68	-6.03	3888.68	359.91	1.16	Ryan MWD
13176.00	85.40	9189.76	3983.40	1.40	3983.40	-3.72	3983.40	359.95	0.95	Ryan MWD
13272.00	86.20	9196.79	4079.12	1.10	4079.12	-1.63	4079.12	359.98	0.89	Ryan MWD
13367.00	88.20	9201.43	4173.99	0.80	4173.99	-0.06	4173.99	360.00	2.13	Ryan MWD
13463.00	88.20	9204.45	4269.93	1.00	4269.93	1.45	4269.93	0.02	0.21	Ryan MWD
13558.00	88.90	9206.85	4364.89	0.30	4364.89	2.53	4364.89	0.03	1.04	Ryan MWD
13653.00	88.90	9208.68	4459.87	359.50	4459.87	2.36	4459.87	0.03	0.84	Ryan MWD
13749.00	88.40	9210.94	4555.84	359.20	4555.84	1.27	4555.84	0.02	0.61	Ryan MWD
13812.00	88.80	9212.48	4618.81	358.60	4618.81	0.06	4618.81	0.00	1.14	Ryan MWD
13865.00	88.80	9213.59	4671.78	358.60	4671.78	-1.23	4671.78	359.98	0.00	Projection