



CONFIDENTIAL

30-015-29846

**Ryan Directional Services
Directional Drilling Report**

Field: Eddy Co, NM NAD 83
Site: PLU Big Sinks 24-24-30 USA 1H
Well: 24-24-30 USA 1H
Wellpath: OH

Prepared For:

Chesapeake Operating, Inc.



Ryan Directional Services.

19510 Oil Center Blvd
Houston, TX 77073
Ph: 281-443-1414
Fx: 281-443-1676

www.ryanenergy.com



Ryan Directional Services Survey Report



Company: Chesapeake Operating, Inc.	Date: 2/22/2012	Time: 10:44:45	Page: 1
Field: Eddy Co, NM NAD 83	Co-ordinate(NE) Reference:	Site: PLU Big Sinks 24-24-30 USA 1H	
Site: PLU Big Sinks 24-24-30 USA 1H	Vertical (FVD) Reference:	SITE 3497.0	
Well: 24-24-30 USA 1H	Section (VS) Reference:	Well (0.00N,0.00E,179.77Azi)	
Wellpath: OH	Survey Calculation Method:	Minimum Curvature	Dh: 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 24-24-30 USA 1H

Eddy Co., TX

Site Position:	Northings:	440711.19 ft	Latitude:	32 12 38.145 N
From: Map	Easting:	696364.25 ft	Longitude:	103 49 55.509 W
Position Uncertainty:	0.00 ft		North Reference:	Grid
Ground Level:	3472.00 ft		Grid Convergence:	0 27 deg

Well: 24-24-30 USA 1H

Slot Name:

Well Position:	+N-S	0.00 ft	Northings:	440711.19 ft	Latitude:	32 12 38.145 N
	+E-W	0.00 ft	Easting:	696364.25 ft	Longitude:	103 49 55.509 W
Position Uncertainty:	0.00 ft					

Wellpath: OH

Current Datum:	SITE	Height	3497.00 ft	Tie-on Depth:	Surface
Magnetic Data:	1/25/2012			Above System Datum:	0.00 ft
Field Strength:	48544 nT			Declination:	Mean Sea Level
Vertical Section:	Depth From (TVD)	+N-S		Mag Dip Angle:	7.63 deg
	ft	ft		+E-W	60.11 deg
				ft	Direction
					deg
	0 00	0.00		0.00	179.77

Survey Program for Definitive Wellpath

Date: 2/20/2012

Validated: No

Version: 0

Actual From To

Survey

Toolcode

Tool Name

142.00	13912.00	Survey #1 (142.00-13912.00)	Ryan MWD	Ryan MWD
13966.00	13966.00	Survey #2 (13966.00-13966.00)	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
142.00	2.60	245.60	141.95	-1.33	-2.93	1.32	1.83	1.83	0.00	Ryan MWD
204.00	3.40	233.10	203.87	-3.02	-5.68	2.99	1.66	1.29	-20.16	Ryan MWD
294.00	3.70	183.90	293.71	-7.52	-8.02	7.48	3.30	0.33	-54.67	Ryan MWD
385.00	3.00	172.10	384.56	-12.80	-7.89	12.77	1.08	-0.77	-12.97	Ryan MWD
482.00	2.70	160.20	481.44	-17.47	-6.77	17.44	0.68	-0.31	-12.27	Ryan MWD
593.00	2.30	167.60	592.33	-22.10	-5.40	22.08	0.46	-0.36	6.67	Ryan MWD
695.00	2.10	181.60	694.26	-25.97	-5.02	25.95	0.56	-0.20	13.73	Ryan MWD
768.00	2.10	189.60	767.21	-28.63	-5.28	28.60	0.40	0.00	10.96	Ryan MWD
863.00	1.90	161.20	862.15	-31.83	-5.06	31.81	1.05	-0.21	-29.89	Ryan MWD
1053.00	3.10	168.10	1051.97	-39.84	-2.98	39.83	0.65	0.63	3.63	Ryan MWD
1148.00	3.20	170.60	1146.83	-44.97	-2.02	44.96	0.18	0.11	2.63	Ryan MWD
1242.00	2.90	163.40	1240.69	-49.84	-0.91	49.84	0.52	-0.32	-7.66	Ryan MWD
1338.00	2.60	160.00	1336.58	-54.21	0.53	54.21	0.36	-0.31	-3.54	Ryan MWD
1528.00	2.20	141.30	1526.42	-61.11	4.28	61.13	0.46	-0.21	-9.84	Ryan MWD
1718.00	2.10	105.80	1716.29	-64.90	9.91	64.94	0.69	-0.05	-18.68	Ryan MWD
1908.00	2.20	74.20	1906.17	-64.86	16.77	64.92	0.62	0.05	-16.63	Ryan MWD
2098.00	2.30	64.80	2096.02	-62.24	23.73	62.34	0.20	0.05	-4.95	Ryan MWD
2289.00	2.70	50.20	2286.84	-57.73	30.65	57.85	0.39	0.21	-7.64	Ryan MWD
2479.00	2.70	47.30	2476.63	-51.83	37.38	51.98	0.07	0.00	-1.53	Ryan MWD
2669.00	3.20	53.20	2666.38	-45.62	44.91	45.80	0.31	0.26	3.11	Ryan MWD
2859.00	2.50	66.20	2856.14	-40.77	52.95	40.98	0.50	-0.37	6.84	Ryan MWD



Ryan Directional Services Survey Report



Company: Chesapeake Operating, Inc	Date: 2/22/2012	Time: 10:44:45	Page: 2
Field: Eddy Co, NM NAD 83	Co-ordinate(N/E) Reference:	Site: PLU Big Sinks 24-24-30 USA 1H	
Site: PLU Big Sinks 24-24-30 USA 1H	Vertical (TVD) Reference:	SITE: 3497.0	
Well: 24-24-30 USA 1H	Section (VS) Reference:	Well (0.00N,0.00E,179 77Azi)	
Wellpath: OH	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
3050.00	2 30	71 00	3046 98	-37 84	60.39	38.08	0 15	-0 10	2 51	Ryan MWD
3240 00	2 60	81.60	3236 80	-35.97	68 25	36.24	0.29	0 16	5 58	Ryan MWD
3430.00	4 30	86.30	3426 45	-34.88	79.63	35.20	0 91	0 89	2 47	Ryan MWD
3621 00	5.40	83.90	3616 77	-33.46	95 71	33.85	0.59	0 58	-1 26	Ryan MWD
3811.00	7 70	54 80	3805 56	-25.17	115.01	25.63	2.09	1 21	-15 32	Ryan MWD
3988.00	3 60	65 50	3981 67	-16.03	129 76	16.55	2 38	-2.32	6 05	Ryan MWD
4077.00	1.20	260 20	4070.62	-15 03	131.39	15.56	5.36	-2.70	-185.73	Ryan MWD
4172 00	0.90	252.80	4165.61	-15 42	129.69	15.94	0.35	-0 32	-7.79	Ryan MWD
4362 00	0 80	277.90	4355.59	-15 68	126.95	16.19	0 20	-0 05	13 21	Ryan MWD
4553.00	1.00	264 50	4546.56	-15.65	123.97	16.15	0.15	0 10	-7.02	Ryan MWD
4743.00	1.50	278 90	4736.52	-15.43	119 87	15.91	0.31	0 26	7.58	Ryan MWD
4933.00	1 50	274 30	4926.45	-14.86	114.93	15.32	0.06	0 00	-2 42	Ryan MWD
5122.00	1 40	273 90	5115 39	-14.51	110.16	14.96	0.05	-0 05	-0 21	Ryan MWD
5312.00	1.20	269 00	5305 34	-14 39	105.85	14.82	0.12	-0.11	-2 58	Ryan MWD
5502.00	1.40	273 40	5495 30	-14 29	101.55	14.70	0.12	0 11	2 32	Ryan MWD
5692.00	1.30	261.20	5685 24	-14 48	97.10	14.87	0 16	-0.05	-6 42	Ryan MWD
5882.00	1.50	262.60	5875 19	-15 13	92.51	15.50	0.11	0 11	0 74	Ryan MWD
6072.00	1.50	260 80	6065 12	-15 85	87.58	16.20	0.02	0.00	-0 95	Ryan MWD
6261.00	1 40	259 20	6254 06	-16 68	82.88	17.01	0 06	-0.05	-0 85	Ryan MWD
6450.00	1.70	258 00	6442 99	-17 69	77.86	18.00	0.16	0 16	-0 63	Ryan MWD
6639.00	1 50	259 00	6631.92	-18.75	72.69	19.04	0.11	-0 11	0.53	Ryan MWD
6828.00	1 20	245 70	6820 87	-20 03	68 46	20 31	0.23	-0.16	-7 04	Ryan MWD
7017.00	0 60	260.60	7009 84	-21 01	65 68	21.27	0 34	-0 32	7.88	Ryan MWD
7206 00	0 30	236 90	7198.84	-21.44	64.29	21.70	0.18	-0 16	-12.54	Ryan MWD
7395.00	0 40	179.40	7387.83	-22.37	63 88	22.63	0 18	0 05	-30.42	Ryan MWD
7584.00	0 70	146 20	7576 82	-23 99	64 53	24.25	0 23	0 16	-17 57	Ryan MWD
7773 00	0 70	161 20	7765.81	-26.04	65 55	26.31	0 10	0 00	7.94	Ryan MWD
7963 00	0 40	152 20	7955.80	-27.73	66 23	27.99	0 16	-0.16	-4.74	Ryan MWD
8152 00	0 50	17 10	8144 80	-27 52	66 78	27.79	0 44	0 05	-71 48	Ryan MWD
8341 00	0 50	351 70	8333 79	-25 92	66.90	26.19	0 12	0 00	-13 44	Ryan MWD
8531.00	1 80	229.70	8523 76	-27 03	64 51	27.29	1.11	0 68	-64 21	Ryan MWD
8729.00	2 30	222 30	8721.64	-31 98	59.46	32 22	0.29	0 25	-3.74	Ryan MWD
8782 00	2.80	205.30	8774 58	-33.94	58.19	34.17	1.70	0 94	-32.08	Ryan MWD
8814.00	7 50	187 80	8806 45	-36.71	57 58	36.94	15 32	14 69	-54 69	Ryan MWD
8845.00	11.40	190.30	8837 02	-41 73	56.75	41.96	12.65	12.58	8.06	Ryan MWD
8877 00	15.10	192.60	8868 16	-48.92	55.28	49.14	11.68	11 56	7.19	Ryan MWD
8909.00	19 50	189 70	8898.71	-58 25	53 47	58.47	14.01	13.75	-9.06	Ryan MWD
8941.00	23 10	190 70	8928.52	-69.69	51.40	69 90	11.31	11 25	3.12	Ryan MWD
8972 00	24 90	191.30	8956.84	-82 07	48 99	82.26	5.86	5.81	1 94	Ryan MWD
9004.00	28.50	193 60	8985 42	-96.10	45.88	96.28	11.70	11.25	7.19	Ryan MWD
9036.00	32 00	193 40	9013.06	-111.77	42 12	111 94	10.94	10.94	-0 62	Ryan MWD
9067 00	35.00	191 00	9038 91	-128.49	38 52	128.65	10.58	9.68	-7 74	Ryan MWD
9099.00	37.50	188.50	9064.71	-147 14	35.32	147.28	9.07	7.81	-7.81	Ryan MWD
9131.00	39.70	188.00	9089.72	-166 89	32.46	167.02	6.94	6 87	-1.56	Ryan MWD
9163.00	42 70	187.20	9113 80	-187 78	29.68	187.90	9 52	9 37	-2.50	Ryan MWD
9194.00	45.80	186.70	9136 00	-209.26	27.06	209.36	10.06	10.00	-1.61	Ryan MWD
9226 00	47 60	185 90	9157.94	-232 40	24.51	232.50	5.91	5 62	-2 50	Ryan MWD
9258.00	49 80	185.90	9179 06	-256.31	22.04	256.40	6 87	6.87	0 00	Ryan MWD
9290.00	52 50	185.40	9199.13	-281.11	19.59	281.19	8 52	8.44	-1.56	Ryan MWD
9321 00	55 70	184 30	9217.31	-306 13	17.47	306.20	10.72	10 32	-3 55	Ryan MWD
9353 00	57 80	183.10	9234.85	-332.83	15.75	332.89	7.27	6.56	-3 75	Ryan MWD
9385.00	59.40	181 20	9251.53	-360.12	14.73	360.18	7 12	5 00	-5.94	Ryan MWD
9417.00	61.40	180.60	9267.33	-387.94	14.29	388 00	6.46	6.25	-1.87	Ryan MWD



Ryan Directional Services Survey Report



Company: Chesapeake Operating, Inc.	Date: 2/22/2012	Time: 10:44:45	Page: 3
Field: Eddy Co, NM NAD 83	Co-ordinate(NE) Reference:	Site: PLU Big Sinks 24-24-30 USA 1H	
Site: PLU Big Sinks 24-24-30 USA 1H	Vertical (TVD) Reference:	SITE: 3497.0	
Well: 24-24-30 USA 1H	Section (VS) Reference:	Well (0 00N, 0 00E, 179.77Azi)	
Wellpath: OH	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
9448.00	64.20	179.90	9281.50	-415.51	14.17	415.57	9.25	9.03	-2.26	Ryan MWD
9480.00	66.40	179.40	9294.87	-444.58	14.35	444.64	7.02	6.87	-1.56	Ryan MWD
9512.00	69.30	179.50	9306.94	-474.22	14.64	474.27	9.07	9.06	0.31	Ryan MWD
9544.00	73.20	180.80	9317.22	-504.51	14.55	504.57	12.78	12.19	4.06	Ryan MWD
9578.00	77.20	181.60	9325.90	-537.37	13.86	537.42	11.98	11.76	2.35	Ryan MWD
9610.00	79.70	181.00	9332.31	-568.71	13.15	568.76	8.03	7.81	-1.87	Ryan MWD
9642.00	80.40	181.00	9337.84	-600.22	12.60	600.27	2.19	2.19	0.00	Ryan MWD
9674.00	83.20	180.60	9342.40	-631.89	12.16	631.93	8.84	8.75	-1.25	Ryan MWD
9737.00	88.20	180.00	9347.13	-694.69	11.83	694.73	7.99	7.94	-0.95	Ryan MWD
9832.00	86.60	179.20	9351.44	-789.59	12.49	789.63	1.88	-1.68	-0.84	Ryan MWD
9928.00	90.00	179.20	9354.28	-885.52	13.83	885.57	3.54	3.54	0.00	Ryan MWD
10023.00	89.70	179.10	9354.53	-980.51	15.24	980.56	0.33	-0.32	-0.11	Ryan MWD
10118.00	91.50	180.10	9353.54	-1075.50	15.91	1075.55	2.17	1.89	1.05	Ryan MWD
10213.00	92.40	180.00	9350.30	-1170.44	15.82	1170.50	0.95	0.95	-0.11	Ryan MWD
10308.00	90.90	179.70	9347.57	-1265.40	16.07	1265.45	1.61	-1.58	-0.32	Ryan MWD
10403.00	91.50	180.00	9345.58	-1360.38	16.32	1360.43	0.71	0.63	0.32	Ryan MWD
10498.00	89.40	181.70	9344.83	-1455.36	14.91	1455.40	2.84	-2.21	1.79	Ryan MWD
10593.00	90.90	182.20	9344.58	-1550.30	11.68	1550.33	1.66	1.58	0.53	Ryan MWD
10687.00	87.10	182.20	9346.22	-1644.20	8.07	1644.22	4.04	-4.04	0.00	Ryan MWD
10783.00	86.60	182.30	9351.50	-1739.98	4.31	1739.98	0.53	-0.52	0.10	Ryan MWD
10877.00	86.80	180.90	9356.91	-1833.78	1.69	1833.77	1.50	0.21	-1.49	Ryan MWD
10972.00	88.00	180.70	9361.22	-1928.67	0.36	1928.66	1.28	1.26	-0.21	Ryan MWD
11067.00	90.50	180.70	9362.46	-2023.65	-0.80	2023.63	2.63	2.63	0.00	Ryan MWD
11162.00	91.00	180.90	9361.22	-2118.63	-2.12	2118.61	0.57	0.53	0.21	Ryan MWD
11257.00	89.80	180.60	9360.56	-2213.62	-3.37	2213.59	1.30	-1.26	-0.32	Ryan MWD
11352.00	90.40	179.50	9360.39	-2308.62	-3.45	2308.59	1.32	0.63	-1.16	Ryan MWD
11447.00	90.60	179.40	9359.56	-2403.61	-2.54	2403.58	0.24	0.21	-0.11	Ryan MWD
11542.00	90.30	178.80	9358.82	-2498.60	-1.05	2498.57	0.71	-0.32	-0.63	Ryan MWD
11638.00	91.40	178.80	9357.39	-2594.56	0.96	2594.55	1.15	1.15	0.00	Ryan MWD
11733.00	91.10	179.30	9355.32	-2689.53	2.54	2689.52	0.61	-0.32	0.53	Ryan MWD
11827.00	90.90	179.40	9353.68	-2783.51	3.61	2783.50	0.24	-0.21	0.11	Ryan MWD
11923.00	92.30	179.80	9351.00	-2879.46	4.28	2879.46	1.52	1.46	0.42	Ryan MWD
12018.00	93.10	180.10	9346.52	-2974.36	4.36	2974.35	0.90	0.84	0.32	Ryan MWD
12113.00	91.40	179.40	9342.79	-3069.28	4.77	3069.27	1.94	-1.79	-0.74	Ryan MWD
12208.00	91.30	179.40	9340.56	-3164.25	5.77	3164.25	0.11	-0.11	0.00	Ryan MWD
12304.00	91.80	179.40	9337.96	-3260.21	6.77	3260.21	0.52	0.52	0.00	Ryan MWD
12399.00	92.20	179.60	9334.64	-3355.15	7.60	3355.15	0.47	0.42	0.21	Ryan MWD
12494.00	88.90	178.80	9333.73	-3450.12	8.93	3450.13	3.57	-3.47	-0.84	Ryan MWD
12589.00	88.20	178.80	9336.14	-3545.07	10.92	3545.08	0.74	-0.74	0.00	Ryan MWD
12684.00	90.70	178.90	9337.05	-3640.03	12.82	3640.06	2.63	2.63	0.11	Ryan MWD
12780.00	91.30	178.90	9335.37	-3736.00	14.67	3736.03	0.62	0.62	0.00	Ryan MWD
12875.00	92.00	178.80	9332.64	-3830.94	16.57	3830.98	0.74	0.74	-0.11	Ryan MWD
12970.00	89.70	179.00	9331.23	-3925.91	18.39	3925.95	2.43	-2.42	0.21	Ryan MWD
13065.00	89.40	178.50	9331.97	-4020.88	20.47	4020.93	0.61	-0.32	-0.53	Ryan MWD
13161.00	89.00	178.20	9333.31	-4116.83	23.23	4116.89	0.52	-0.42	-0.31	Ryan MWD
13256.00	89.40	178.40	9334.64	-4211.78	26.05	4211.85	0.47	0.42	0.21	Ryan MWD
13351.00	88.70	177.90	9336.22	-4306.72	29.12	4306.80	0.91	-0.74	-0.53	Ryan MWD
13446.00	89.20	180.30	9337.96	-4401.68	30.61	4401.77	2.58	0.53	2.53	Ryan MWD
13542.00	88.90	180.20	9339.55	-4497.67	30.19	4497.75	0.33	-0.31	-0.10	Ryan MWD
13637.00	89.30	179.90	9341.04	-4592.66	30.11	4592.74	0.53	0.42	-0.32	Ryan MWD
13732.00	89.00	180.10	9342.45	-4687.65	30.11	4687.73	0.38	-0.32	0.21	Ryan MWD
13828.00	88.90	179.80	9344.21	-4783.63	30.19	4783.71	0.33	-0.10	-0.31	Ryan MWD
13912.00	89.60	179.90	9345.31	-4867.62	30.41	4867.71	0.84	0.83	0.12	Ryan MWD
13966.00	89.60	179.90	9345.69	-4921.62	30.50	4921.70	0.00	0.00	0.00	Projection



Ryan Directional Services COMPLETION REPORT



Company: Chesapeake Operating, Inc Date: 2/22/2012 Time: 10:45:58 Page: 1
Field: Eddy Co, NM NAD 83 Co-ordinate(NE) Reference: Site, PLU Big Sinks 24-24-30 USA 1H
Site: PLU Big Sinks 24-24-30 USA 1H Vertical (TVD) Reference: SITE 3497.0
Well: 24-24-30 USA 1H Section (VS) Reference: Well (0.00N,0.00E,179.77Az)
Wellpath: OH 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 24-24-30 USA 1H

Eddy Co, TX

Site Position:

From: Map

Position Uncertainty:

Ground Level:

Northing:

Easting:

Latitude:

Longitude:

North Reference:

Grid Convergence:

0.00 ft

3472.00 ft

440711.19 ft

696364.25 ft

32 12 38.145 N

103 49 55.509 W

Grid

0.27 deg

Well: 24-24-30 USA 1H

Slot Name:

Well Position:

+N-S

+E-W

Position Uncertainty:

0.00 ft

0.00 ft

0.00 ft

0.00 ft

Northing:

Easting:

Latitude:

Longitude:

440711.19 ft

696364.25 ft

32 12 38.145 N

103 49 55.509 W

Latitude:

Longitude:

32 12 38.145 N

103 49 55.509 W

Wellpath: OH

Current Datum: SITE

Magnetic Data:

Field Strength:

Vertical Section:

1/25/2012

48544 nT

Depth From (TVD)

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

Height 3497.00 ft

+N-S

+E-W

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

Drilled From:

Tie-on Depth:

Above System Datum:

Declination:

Mag Dip Angle:

+E-W

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

ft

Surface

0.00 ft

Mean Sea Level

7.63 deg

60.11 deg

Direction

deg

179.77

Survey

MD ft	Incl deg	TVD ft	VS ft	Azimi 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
142.00	2.60	141.95	1.32	245.60	-1.33	-2.93	3.22	245.60	1.83	Ryan MWD
204.00	3.40	203.87	2.99	233.10	-3.02	-5.68	6.43	242.05	1.66	Ryan MWD
294.00	3.70	293.71	7.48	183.90	-7.52	-8.02	10.99	226.85	3.30	Ryan MWD
385.00	3.00	384.56	12.77	172.10	-12.80	-7.89	15.04	211.64	1.08	Ryan MWD
482.00	2.70	481.44	17.44	160.20	-17.47	-6.77	18.73	201.17	0.68	Ryan MWD
593.00	2.30	592.33	22.08	167.60	-22.10	-5.40	22.75	193.73	0.46	Ryan MWD
695.00	2.10	694.26	25.95	181.60	-25.97	-5.02	26.45	190.93	0.56	Ryan MWD
768.00	2.10	767.21	28.60	189.60	-28.63	-5.28	29.11	190.44	0.40	Ryan MWD
863.00	1.90	862.15	31.81	161.20	-31.83	-5.06	32.23	189.03	1.05	Ryan MWD
1053.00	3.10	1051.97	39.83	168.10	-39.84	-2.98	39.95	184.28	0.65	Ryan MWD
1148.00	3.20	1146.83	44.96	170.60	-44.97	-2.02	45.02	182.57	0.18	Ryan MWD
1242.00	2.90	1240.69	49.84	163.40	-49.84	-0.91	49.85	181.05	0.52	Ryan MWD
1338.00	2.60	1336.58	54.21	160.00	-54.21	0.53	54.22	179.44	0.36	Ryan MWD
1528.00	2.20	1526.42	61.13	141.30	-61.11	4.28	61.26	175.99	0.46	Ryan MWD
1718.00	2.10	1716.29	64.94	105.80	-64.90	9.91	65.65	171.32	0.69	Ryan MWD
1908.00	2.20	1906.17	64.92	74.20	-64.86	16.77	66.99	165.50	0.62	Ryan MWD
2098.00	2.30	2096.02	62.34	64.80	-62.24	23.73	66.61	159.13	0.20	Ryan MWD
2289.00	2.70	2286.84	57.85	50.20	-57.73	30.65	65.36	152.03	0.39	Ryan MWD
2479.00	2.70	2476.63	51.98	47.30	-51.83	37.38	63.90	144.20	0.07	Ryan MWD
2669.00	3.20	2666.38	45.80	53.20	-45.62	44.91	64.02	135.45	0.31	Ryan MWD
2859.00	2.50	2856.14	40.98	66.20	-40.77	52.95	66.83	127.59	0.50	Ryan MWD
3050.00	2.30	3046.98	38.08	71.00	-37.84	60.39	71.26	122.07	0.15	Ryan MWD
3240.00	2.60	3236.80	36.24	81.60	-35.97	68.25	77.15	117.79	0.29	Ryan MWD
3430.00	4.30	3426.45	35.20	86.30	-34.88	79.63	86.93	113.66	0.91	Ryan MWD
3621.00	5.40	3616.77	33.85	83.90	-33.46	95.71	101.39	109.27	0.59	Ryan MWD
3811.00	7.70	3805.56	25.63	54.80	-25.17	115.01	117.73	102.35	2.09	Ryan MWD
3988.00	3.60	3981.67	16.55	65.50	-16.03	129.76	130.75	97.04	2.38	Ryan MWD



Ryan Directional Services COMPLETION REPORT



Company: Chesapeake Operating, Inc.	Date: 2/22/2012	Time: 10:45:58	Page: 2
Field: Eddy Co, NM NAD 83	Co-ordinate(NE) Reference:	Site: PLU Big Sinks 24-24-30 USA 1H	
Site: PLU Big Sinks 24-24-30 USA 1H	Vertical (TVD) Reference:	SITE 3497.0	
Well: 24-24-30 USA 1H	Section (VS) Reference:	Well (0.00N,0.00E,179.77Azi)	
Wellpath: OH	Survey Calculation Method:	Minimum Curvature	Db: Sybase

Survey

MD ft	Incl deg	TVD ft	VS ft	Azim deg	N/S ft	E/W ft	Clstr Dist. ft	Clstr Azi. deg	DLS deg/100ft	Tool
4077.00	1.20	4070.62	15.56	260.20	-15.03	131.39	132.24	96.53	5.36	Ryan MWD
4172.00	0.90	4165.61	15.94	252.80	-15.42	129.69	130.61	96.78	0.35	Ryan MWD
4362.00	0.80	4355.59	16.19	277.90	-15.68	126.95	127.92	97.04	0.20	Ryan MWD
4553.00	1.00	4546.56	16.15	264.50	-15.65	123.97	124.96	97.20	0.15	Ryan MWD
4743.00	1.50	4736.52	15.91	278.90	-15.43	119.87	120.86	97.33	0.31	Ryan MWD
4933.00	1.50	4926.45	15.32	274.30	-14.86	114.93	115.89	97.37	0.06	Ryan MWD
5122.00	1.40	5115.39	14.96	273.90	-14.51	110.16	111.11	97.51	0.05	Ryan MWD
5312.00	1.20	5305.34	14.82	269.00	-14.39	105.85	106.83	97.74	0.12	Ryan MWD
5502.00	1.40	5495.30	14.70	273.40	-14.29	101.55	102.55	98.01	0.12	Ryan MWD
5692.00	1.30	5685.24	14.87	261.20	-14.48	97.10	98.18	98.48	0.16	Ryan MWD
5882.00	1.50	5875.19	15.50	262.60	-15.13	92.51	93.74	99.29	0.11	Ryan MWD
6072.00	1.50	6065.12	16.20	260.80	-15.85	87.58	89.01	100.26	0.02	Ryan MWD
6261.00	1.40	6254.06	17.01	259.20	-16.68	82.88	84.54	101.38	0.06	Ryan MWD
6450.00	1.70	6442.99	18.00	258.00	-17.69	77.86	79.85	102.80	0.16	Ryan MWD
6639.00	1.50	6631.92	19.04	259.00	-18.75	72.69	75.07	104.46	0.11	Ryan MWD
6828.00	1.20	6820.87	20.31	245.70	-20.03	68.46	71.33	106.31	0.23	Ryan MWD
7017.00	0.60	7009.84	21.27	260.60	-21.01	65.68	68.96	107.74	0.34	Ryan MWD
7206.00	0.30	7198.84	21.70	236.90	-21.44	64.29	67.77	108.44	0.18	Ryan MWD
7395.00	0.40	7387.83	22.63	179.40	-22.37	63.88	67.69	109.30	0.18	Ryan MWD
7584.00	0.70	7576.82	24.25	146.20	-23.99	64.53	68.85	110.39	0.23	Ryan MWD
7773.00	0.70	7765.81	26.31	161.20	-26.04	65.55	70.53	111.67	0.10	Ryan MWD
7963.00	0.40	7955.80	27.99	152.20	-27.73	66.23	71.80	112.72	0.16	Ryan MWD
8152.00	0.50	8144.80	27.79	17.10	-27.52	66.78	72.23	112.40	0.44	Ryan MWD
8341.00	0.50	8333.79	26.19	351.70	-25.92	66.90	71.75	111.18	0.12	Ryan MWD
8531.00	1.80	8523.76	27.29	229.70	-27.03	64.51	69.94	112.73	1.11	Ryan MWD
8729.00	2.30	8721.64	32.22	222.30	-31.98	59.46	67.52	118.27	0.29	Ryan MWD
8782.00	2.80	8774.58	34.17	205.30	-33.94	58.19	67.37	120.25	1.70	Ryan MWD
8814.00	7.50	8806.45	36.94	187.80	-36.71	57.58	68.29	122.52	15.32	Ryan MWD
8845.00	11.40	8837.02	41.96	190.30	-41.73	56.75	70.45	126.33	12.65	Ryan MWD
8877.00	15.10	8868.16	49.14	192.60	-48.92	55.28	73.81	131.51	11.68	Ryan MWD
8909.00	19.50	8898.71	58.47	189.70	-58.25	53.47	79.07	137.45	14.01	Ryan MWD
8941.00	23.10	8928.52	69.90	190.70	-69.69	51.40	86.60	143.59	11.31	Ryan MWD
8972.00	24.90	8956.84	82.26	191.30	-82.07	48.99	95.58	149.16	5.86	Ryan MWD
9004.00	28.50	8985.42	96.28	193.60	-96.10	45.88	106.49	154.48	11.70	Ryan MWD
9036.00	32.00	9013.06	111.94	193.40	-111.77	42.12	119.44	159.35	10.94	Ryan MWD
9067.00	35.00	9038.91	128.65	191.00	-128.49	38.52	134.14	163.31	10.58	Ryan MWD
9099.00	37.50	9064.71	147.28	188.50	-147.14	35.32	151.32	166.50	9.07	Ryan MWD
9131.00	39.70	9089.72	167.02	188.00	-166.89	32.46	170.02	168.99	6.94	Ryan MWD
9163.00	42.70	9113.80	187.90	187.20	-187.78	29.68	190.12	171.02	9.52	Ryan MWD
9194.00	45.80	9136.00	209.36	186.70	-209.26	27.06	211.00	172.63	10.06	Ryan MWD
9226.00	47.60	9157.94	232.50	185.90	-232.40	24.51	233.69	173.98	5.91	Ryan MWD
9258.00	49.80	9179.06	256.40	185.90	-256.31	22.04	257.26	175.09	6.87	Ryan MWD
9290.00	52.50	9199.13	281.19	185.40	-281.11	19.59	281.79	176.01	8.52	Ryan MWD
9321.00	55.70	9217.31	306.20	184.30	-306.13	17.47	306.63	176.73	10.72	Ryan MWD
9353.00	57.80	9234.85	332.89	183.10	-332.83	15.75	333.21	177.29	7.27	Ryan MWD
9385.00	59.40	9251.53	360.18	181.20	-360.12	14.73	360.43	177.66	7.12	Ryan MWD
9417.00	61.40	9267.33	388.00	180.60	-387.94	14.29	388.21	177.89	6.46	Ryan MWD
9448.00	64.20	9281.50	415.57	179.90	-415.51	14.17	415.75	178.05	9.25	Ryan MWD
9480.00	66.40	9294.87	444.64	179.40	-444.58	14.35	444.81	178.15	7.02	Ryan MWD
9512.00	69.30	9306.94	474.27	179.50	-474.22	14.64	474.44	178.23	9.07	Ryan MWD
9544.00	73.20	9317.22	504.57	180.80	-504.51	14.55	504.72	178.35	12.78	Ryan MWD
9578.00	77.20	9325.90	537.42	181.60	-537.37	13.86	537.55	178.52	11.98	Ryan MWD



Ryan Directional Services COMPLETION REPORT



Company: Chesapeake Operating, Inc.	Date: 2/22/2012	Time: 10:45:58	Page: 3
Field: Eddy Co, NM NAD 83	Co-ordinate(NE) Reference:	Site: PLU Big Sinks 24-24-30 USA 1H	
Site: PLU Big Sinks 24-24-30 USA 1H	Vertical (TVD) Reference:	SITE 3497.0	
Well: 24-24-30 USA 1H	Section (VS) Reference:	Well (0.00N,0.00E,179.77Azi)	
Wellpath: OH	Survey Calculation Method:	Minimum Curvature	Db: Sybase

Survey

MD ft	Incl deg	TVD ft	VS ft	Azim deg	N/S ft	E/V ft	Clsr Dist. ft	Clsr Azi. deg	DLS deg/100ft	Tool
9610.00	79.70	9332.31	568.76	181.00	-568.71	13.15	568.86	178.68	8.03	Ryan MWD
9642.00	80.40	9337.84	600.27	181.00	-600.22	12.60	600.36	178.80	2.19	Ryan MWD
9674.00	83.20	9342.40	631.93	180.60	-631.89	12.16	632.01	178.90	8.84	Ryan MWD
9737.00	88.20	9347.13	694.73	180.00	-694.69	11.83	694.79	179.02	7.99	Ryan MWD
9832.00	86.60	9351.44	789.63	179.20	-789.59	12.49	789.69	179.09	1.88	Ryan MWD
9928.00	90.00	9354.28	885.57	179.20	-885.52	13.83	885.63	179.10	3.54	Ryan MWD
10023.00	89.70	9354.53	980.56	179.10	-980.51	15.24	980.63	179.11	0.33	Ryan MWD
10118.00	91.50	9353.54	1075.55	180.10	-1075.50	15.91	1075.62	179.15	2.17	Ryan MWD
10213.00	92.40	9350.30	1170.50	180.00	-1170.44	15.82	1170.55	179.23	0.95	Ryan MWD
10308.00	90.90	9347.57	1265.45	179.70	-1265.40	16.07	1265.50	179.27	1.61	Ryan MWD
10403.00	91.50	9345.58	1360.43	180.00	-1360.38	16.32	1360.48	179.31	0.71	Ryan MWD
10498.00	89.40	9344.83	1455.40	181.70	-1455.36	14.91	1455.43	179.41	2.84	Ryan MWD
10593.00	90.90	9344.58	1550.33	182.20	-1550.30	11.68	1550.34	179.57	1.66	Ryan MWD
10687.00	87.10	9346.22	1644.22	182.20	-1644.20	8.07	1644.22	179.72	4.04	Ryan MWD
10783.00	86.60	9351.50	1739.98	182.30	-1739.98	4.31	1739.98	179.86	0.53	Ryan MWD
10877.00	86.80	9356.91	1833.77	180.90	-1833.78	1.69	1833.78	179.95	1.50	Ryan MWD
10972.00	88.00	9361.22	1928.66	180.70	-1928.67	0.36	1928.67	179.99	1.28	Ryan MWD
11067.00	90.50	9362.46	2023.63	180.70	-2023.65	-0.80	2023.65	180.02	2.63	Ryan MWD
11162.00	91.00	9361.22	2118.61	180.90	-2118.63	-2.12	2118.63	180.06	0.57	Ryan MWD
11257.00	89.80	9360.56	2213.59	180.60	-2213.62	-3.37	2213.62	180.09	1.30	Ryan MWD
11352.00	90.40	9360.39	2308.59	179.50	-2308.62	-3.45	2308.62	180.09	1.32	Ryan MWD
11447.00	90.60	9359.56	2403.58	179.40	-2403.61	-2.54	2403.61	180.06	0.24	Ryan MWD
11542.00	90.30	9358.82	2498.57	178.80	-2498.60	-1.05	2498.60	180.02	0.71	Ryan MWD
11638.00	91.40	9357.39	2594.55	178.80	-2594.56	0.96	2594.56	179.98	1.15	Ryan MWD
11733.00	91.10	9355.32	2689.52	179.30	-2689.53	2.54	2689.53	179.95	0.61	Ryan MWD
11827.00	90.90	9353.68	2783.50	179.40	-2783.51	3.61	2783.51	179.93	0.24	Ryan MWD
11923.00	92.30	9351.00	2879.46	179.80	-2879.46	4.28	2879.47	179.91	1.52	Ryan MWD
12018.00	93.10	9346.52	2974.35	180.10	-2974.36	4.36	2974.36	179.92	0.90	Ryan MWD
12113.00	91.40	9342.79	3069.27	179.40	-3069.28	4.77	3069.28	179.91	1.94	Ryan MWD
12208.00	91.30	9340.56	3164.25	179.40	-3164.25	5.77	3164.25	179.90	0.11	Ryan MWD
12304.00	91.80	9337.96	3260.21	179.40	-3260.21	6.77	3260.21	179.88	0.52	Ryan MWD
12399.00	92.20	9334.64	3355.15	179.60	-3355.15	7.60	3355.15	179.87	0.47	Ryan MWD
12494.00	88.90	9333.73	3450.13	178.80	-3450.12	8.93	3450.13	179.85	3.57	Ryan MWD
12589.00	88.20	9336.14	3545.08	178.80	-3545.07	10.92	3545.08	179.82	0.74	Ryan MWD
12684.00	90.70	9337.05	3640.06	178.90	-3640.03	12.82	3640.06	179.80	2.63	Ryan MWD
12780.00	91.30	9335.37	3736.03	178.90	-3736.00	14.67	3736.03	179.78	0.62	Ryan MWD
12875.00	92.00	9332.64	3830.98	178.80	-3830.94	16.57	3830.98	179.75	0.74	Ryan MWD
12970.00	89.70	9331.23	3925.95	179.00	-3925.91	18.39	3925.95	179.73	2.43	Ryan MWD
13065.00	89.40	9331.97	4020.93	178.50	-4020.88	20.47	4020.93	179.71	0.61	Ryan MWD
13161.00	89.00	9333.31	4116.89	178.20	-4116.83	23.23	4116.90	179.68	0.52	Ryan MWD
13256.00	89.40	9334.64	4211.85	178.40	-4211.78	26.05	4211.86	179.65	0.47	Ryan MWD
13351.00	88.70	9336.22	4306.80	177.90	-4306.72	29.12	4306.82	179.61	0.91	Ryan MWD
13446.00	89.20	9337.96	4401.77	180.30	-4401.68	30.61	4401.79	179.60	2.58	Ryan MWD
13542.00	88.90	9339.55	4497.75	180.20	-4497.67	30.19	4497.77	179.62	0.33	Ryan MWD
13637.00	89.30	9341.04	4592.74	179.90	-4592.66	30.11	4592.76	179.62	0.53	Ryan MWD
13732.00	89.00	9342.45	4687.73	180.10	-4687.65	30.11	4687.74	179.63	0.38	Ryan MWD
13828.00	88.90	9344.21	4783.71	179.80	-4783.63	30.19	4783.73	179.64	0.33	Ryan MWD
13912.00	89.60	9345.31	4867.71	179.90	-4867.62	30.41	4867.72	179.64	0.84	Ryan MWD
13966.00	89.60	9345.69	4921.70	179.90	-4921.62	30.50	4921.72	179.64	0.00	Projection