Ryan

Drilling Technologies & Solutions

Ryan Energy Directional Drilling Report

Field: Eddy Co, NM NAD 83
Site: PLU Ross Ranch 6 FED 1H
Well: PLU Ross Ranch 6 FED 1H
Wellpath: 6 Fed 1H Lateral

Prepared For:

Chesapeake Operating, Inc.

Chesapeake ENERGY

Ryan Energy Technology
19510 Oil Center Blvd
Houston, TX 77073
Ph: 281-443-1414
Fx. 281-443-1676
www.ryanenergy.com

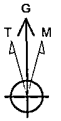
Chesapeake Operating, Inc.

Field: Eddy Co, NM NAD 83
Site: PLU Ross Ranch 6 FED 1H
Well: PLU Ross Ranch 6 FED 1H
Wellpath: 6 Fed 1H Lateral

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	igrf2005
System Datum	Mean Sea Level
Local North	Grid North



Azimuths to Grid North
True North -0.22°
Magnetic North 7.78°

Magnetic Field
Strength 48770nT
Dip Angle 60.05°
Date 2/2/2009
Model igrf2005

SITE DETAILS

PLU Ross Ranch 6 FED 1H
Section 6, T26S, R30E
Eddy Co, NM

Site Centre Northing	387769.46
Easting	669967.20
Ground Level	3083.00
Positional Uncertainty	0.00
Convergence	0.22

WELLPATH DETAILS

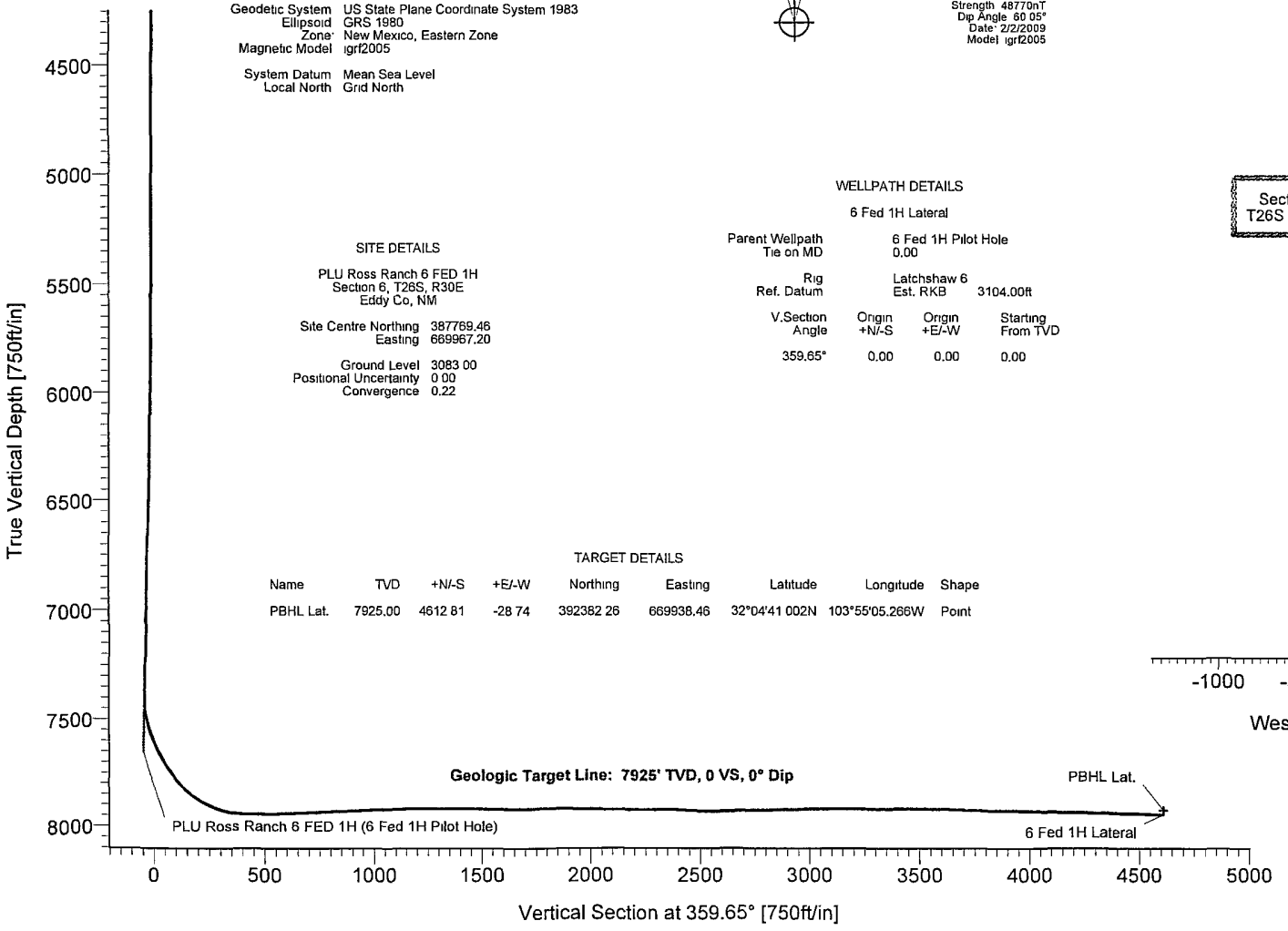
6 Fed 1H Lateral

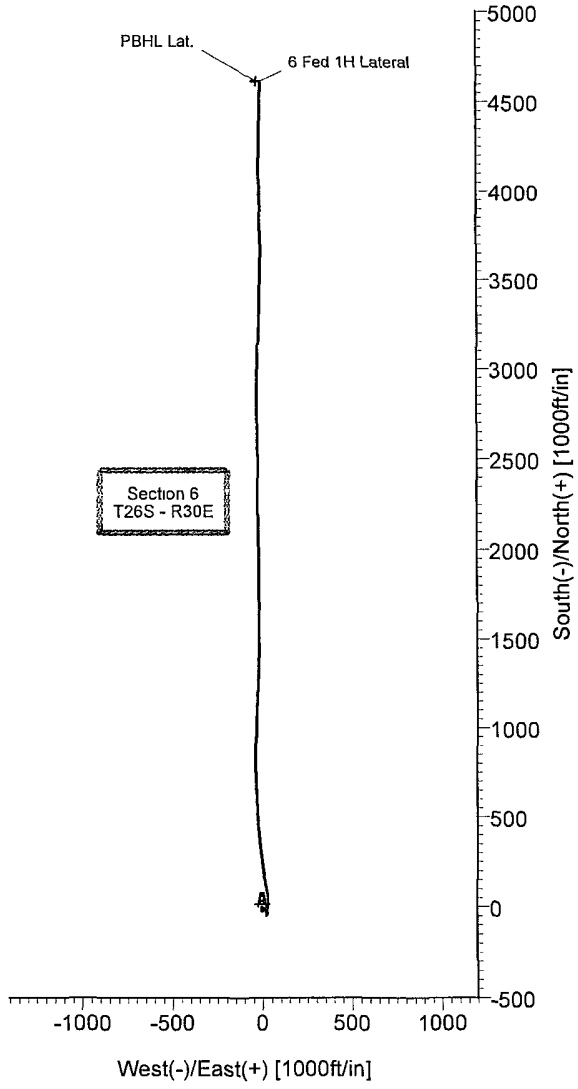
Parent Wellpath	6 Fed 1H Pilot Hole
Tie on MD	0.00
Rig	Latchshaw 6
Ref. Datum	Est. RKB 3104.00ft

V.Section Angle	Origin +N/-S	Origin +E/-W	Starting From TVD
359.65°	0.00	0.00	0.00

TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
PBHL Lat.	7925.00	4612.81	-28.74	392382.26	669938.46	32°04'41.002N	103°55'05.266W	Point





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

Wellpath (PLU Ross Ranch 6 FED 1H/6 Fed 1H Lateral)
Created By: Kevin Carr Date: 3/5/2009
Checked: _____ Date: _____
Reviewed: _____ Date: _____

Ryan Energy Technologies
Survey Report

Company:	Chesapeake Operating, Inc.	**Date:** 3/5/2009 **Time:** 07:47:25	**Page:** 1
Field:	Eddy Co, NM NAD 83	**Co-ordinate(NE) Reference:**	Site: PLU Ross Ranch 6 FED 1H, Grid Nort
Site:	PLU Ross Ranch 6 FED 1H	**Vertical (TVD) Reference:**	Est. RKB 3104.0
Well:	PLU Ross Ranch 6 FED 1H	**Section (VS) Reference:**	Well (0.00N,0.00E,359.65Azi)
Wellpath:	6 Fed 1H 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:** igrf2005

Site: PLU Ross Ranch 6 FED 1H
Section 6, T26S, R30E
Eddy Co, NM

Site Position: **Northing:** 387769.46 ft **Latitude:** 32 3 55.352 N
From: Map **Easting:** 669967.20 ft **Longitude:** 103 55 5.138 W
Position Uncertainty: 0.00 ft **North Reference:** Grid
Ground Level: 3083.00 ft **Grid Convergence:** 0.22 deg

Well: PLU Ross Ranch 6 FED 1H **Slot Name:**

Well Position: +N/-S 0.00 ft **Northing:** 387769.46 ft **Latitude:** 32 3 55.352 N
+E/-W 0.00 ft **Easting:** 669967.20 ft **Longitude:** 103 55 5.138 W
Position Uncertainty: 0.00 ft

Wellpath: 6 Fed 1H Pilot Hole **Drilled From:** Surface
Tie-on Depth: 0.00 ft
Current Datum: Est. RKB **Height** 3104.00 ft **Above System Datum:** Mean Sea Level
Magnetic Data: 2/2/2009 **Declination:** 8 00 deg
Field Strength: 48770 nT **Mag Dip Angle:** 60.05 deg

Vertical Section: Depth From (TVD) ft	+N/-S ft	+E/-W ft	Direction deg
0.00	0.00	0.00	359.65

Survey Program for Definitive Wellpath
Date: 2/17/2009 **Validated:** No **Version:** 2

Actual From ft	To ft	Survey	Toolcode	Tool Name
200.00	7650.00	Survey #2 (200.00-7650.00)	Gyro	Gyro MS

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
200.00	0.50	233.18	200.00	-0.52	-0.70	-0.52	0.25	0.25	0.00	Gyro
400.00	1.25	156.16	399.98	-3.04	-0.52	-3.04	0.62	0.37	-38.51	Gyro
600.00	2.25	165.14	599.88	-8.83	1.37	-8 84	0.52	0.50	4.49	Gyro
800.00	2.25	180.13	799.73	-16.55	2.37	-16.57	0.29	0.00	7.49	Gyro
1000.00	1.25	184.10	999.63	-22.65	2.21	-22.67	0.50	-0.50	1.98	Gyro
1200.00	0.25	271.08	1199.62	-24.82	1.61	-24.83	0.63	-0.50	43.49	Gyro
1400.00	0.75	303.05	1399.61	-24.10	0.08	-24.10	0.28	0.25	15.98	Gyro
1600.00	1.50	340.03	1599.57	-20.93	-1.91	-20.91	0.50	0.37	18.49	Gyro
1800.00	0.75	135.01	1799.55	-19.39	-1.88	-19.38	1.10	-0.37	77.49	Gyro
2000.00	1.00	329.99	1999.54	-18.81	-1.83	-18.79	0.87	0.12	-82.51	Gyro
2200.00	1.00	14.98	2199.52	-15.61	-2.25	-15.59	0.38	0.00	22.50	Gyro
2400.00	0.75	359.85	2399.49	-12.61	-1.80	-12.60	0.17	-0.12	-7.57	Gyro
2600.00	0.50	341.83	2599.48	-10.48	-2.08	-10.46	0.16	-0.12	-9.01	Gyro
2800.00	0.50	350.81	2799.47	-8.78	-2.49	-8.77	0.04	0.00	4.49	Gyro
3000.00	0.50	18.79	2999.47	-7.10	-2.35	-7.08	0.12	0.00	13.99	Gyro
3200.00	1.00	83.77	3199.45	-6.08	-0.33	-6.08	0.45	0 25	32.49	Gyro
3400.00	1.00	99.75	3399.42	-6.19	3.12	-6.21	0.14	0.00	7.99	Gyro
3600.00	0 50	115.73	3599.40	-6.86	5.63	-6.90	0.27	-0.25	7.99	Gyro
3800.00	0.25	103.71	3799.40	-7.34	6.84	-7.39	0.13	-0.12	-6.01	Gyro
4000.00	0.25	101.69	3999.40	-7.54	7.69	-7.58	0.00	0.00	-1.01	Gyro
4200.00	0.25	103.67	4199.40	-7.73	8.54	-7.78	0.00	0.00	0.99	Gyro
4400.00	0.25	104.60	4399.39	-7.94	9.39	-8.00	0.00	0.00	0.46	Gyro

Ryan Energy Technologies
Survey Report

Company:	Chesapeake Operating, Inc.	**Date:** 3/5/2009 **Time:** 07:47:25	**Page:** 2
Field:	Eddy Co, NM NAD 83	**Co-ordinate(NE) Reference:**	Site: PLU Ross Ranch 6 FED 1H, Grid Nort
Site:	PLU Ross Ranch 6 FED 1H	**Vertical (TVD) Reference:**	Est. RKB 3104.0
Well:	PLU Ross Ranch 6 FED 1H	**Section (VS) Reference:**	Well (0.00N,0.00E,359.65Azi)
Wellpath:	6 Fed 1H 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
4600.00	0.25	114.53	4599.39	-8.23	10.21	-8 29	0.02	0.00	4.96	Gyro
4800.00	0.25	134.46	4799.39	-8.72	10.92	-8.79	0.04	0.00	9.96	Gyro
5000.00	0.25	174.39	4999.39	-9.46	11.27	-9.53	0.09	0.00	19.96	Gyro
5200.00	0.25	137.32	5199.39	-10.21	11.61	-10.28	0.08	0.00	-18.53	Gyro
5400.00	0.25	118.25	5399.39	-10.74	12.29	-10.82	0.04	0.00	-9.53	Gyro
5600.00	0.50	129.17	5599.38	-11.50	13.35	-11.58	0.13	0.12	5.46	Gyro
5800.00	1.00	121.10	5799 36	-12.95	15.52	-13.05	0.25	0.25	-4.03	Gyro
6000.00	1.00	129.03	5999.33	-14.95	18.37	-15.06	0.07	0.00	3.96	Gyro
6200.00	1.00	142.96	6199.30	-17.44	20.78	-17.57	0.12	0.00	6.96	Gyro
6400.00	1.25	155.47	6399.26	-20.82	22.74	-20.96	0.17	0.12	6.25	Gyro
6600.00	1.25	164.40	6599.22	-24.91	24.23	-25.05	0.10	0.00	4.46	Gyro
6800.00	1.25	156.33	6799.17	-29.01	25.69	-29.16	0.09	0.00	-4.03	Gyro
7000.00	1.50	154.26	6999 11	-33.36	27.70	-33.53	0.13	0.12	-1.03	Gyro
7200.00	1.25	165.19	7199.05	-37.83	29.40	-38.01	0.18	-0.12	5.46	Gyro
7400.00	1.50	214.12	7399.00	-42.11	28.49	-42.28	0.58	0.12	24.46	Gyro
7600.00	1.75	226.05	7598.92	-46.39	24.82	-46.54	0.21	0.12	5.96	Gyro
7650.00	1.75	224.46	7648.90	-47.47	23.74	-47.61	0.10	0.00	-3.18	Gyro

Ryan Energy Technologies
Survey Report

Company:	Chesapeake Operating, Inc.	**Date:** 3/5/2009 **Time:** 07:45:13	**Page:** 1
Field:	Eddy Co, NM NAD 83	**Co-ordinate(NE) Reference:**	Site: PLU Ross Ranch 6 FED 1H, Grid Nort
Site:	PLU Ross Ranch 6 FED 1H	**Vertical (TVD) Reference:**	Est. RKB 3104.0
Well:	PLU Ross Ranch 6 FED 1H	**Section (VS) Reference:**	Well (0.00N,0.00E,359.65Azi)
Wellpath:	6 Fed 1H Lateral	**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:**	igrf2005

Site: PLU Ross Ranch 6 FED 1H
Section 6, T26S, R30E
Eddy Co, NM

Site Position:		**Northing:**	387769.46 ft	**Latitude:**	32	3	55.352	N
From:	Map	**Easting:**	669967.20 ft	**Longitude:**	103	55	5.138	W
Position Uncertainty:	0.00 ft			**North Reference:**			Grid	
Ground Level:	3083.00 ft			**Grid Convergence:**			0.22	deg

Well: PLU Ross Ranch 6 FED 1H **Slot Name:**

Well Position:	+N/-S 0.00 ft	**Northing:**	387769.46 ft	**Latitude:**	32	3	55.352	N
	+E/-W 0.00 ft	**Easting:**	669967.20 ft	**Longitude:**	103	55	5.138	W
Position Uncertainty:	0.00 ft							

Wellpath: 6 Fed 1H Lateral **Drilled From:** 6 Fed 1H Pilot Hole
Tie-on Depth: 0.00 ft

Current Datum:	Est. RKB **Height** 3104.00 ft	**Above System Datum:**	Mean Sea Level
Magnetic Data:	2/2/2009	**Declination:**	8.00 deg
Field Strength:	48770 nT	**Mag Dip Angle:**	60.05 deg

Vertical Section:	**Depth From (TVD)** ft	**+N/-S** ft	**+E/-W** ft	**Direction** deg
	0.00	0.00	0.00	359.65

Survey Program for Definitive Wellpath
Date: 3/5/2009 **Validated:** No **Version:** 0

Actual From ft	**To** ft	**Survey**	**Toolcode**	**Tool Name**
200.00	7400.00	Survey #2 (200.00-7400.00)	Gyro	Gyro MS
7412.00	12326.00	Survey #3 (7412.00-12326.00)	Ryan MWD	Ryan MWD
12383.00	12383.00	Survey #4 (12383.00-12383.00)	Project	

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
200.00	0.50	233.18	200.00	-0.52	-0.70	-0.52	0.25	0.25	0.00	Gyro
400.00	1.25	156.16	399.98	-3.04	-0.52	-3.04	0.62	0.37	-38.51	Gyro
600.00	2.25	165.14	599.88	-8.83	1.37	-8.84	0.52	0.50	4.49	Gyro
800.00	2.25	180.13	799.73	-16.55	2 37	-16.57	0.29	0.00	7.49	Gyro
1000.00	1.25	184.10	999.63	-22.65	2.21	-22.67	0.50	-0.50	1.98	Gyro
1200.00	0.25	271.08	1199.62	-24.82	1.61	-24.83	0.63	-0.50	43.49	Gyro
1400.00	0.75	303 05	1399.61	-24.10	0.08	-24.10	0.28	0.25	15.98	Gyro
1600.00	1.50	340.03	1599.57	-20.93	-1.91	-20.91	0.50	0.37	18.49	Gyro
1800.00	0.75	135.01	1799.55	-19.39	-1.88	-19.38	1.10	-0.37	77.49	Gyro
2000.00	1.00	329.99	1999.54	-18.81	-1.83	-18.79	0.87	0.12	-82.51	Gyro
2200.00	1.00	14.98	2199.52	-15.61	-2.25	-15.59	0.38	0.00	22.50	Gyro
2400.00	0.75	359 85	2399.49	-12.61	-1.80	-12.60	0.17	-0.12	-7.57	Gyro
2600.00	0.50	341.83	2599.48	-10.48	-2.08	-10.46	0.16	-0.12	-9.01	Gyro
2800.00	0.50	350.81	2799.47	-8.78	-2.49	-8.77	0.04	0.00	4.49	Gyro
3000.00	0.50	18.79	2999.47	-7.10	-2.35	-7.08	0.12	0.00	13.99	Gyro
3200.00	1.00	83.77	3199.45	-6.08	-0.33	-6.08	0.45	0.25	32.49	Gyro
3400.00	1.00	99.75	3399.42	-6.19	3.12	-6.21	0.14	0.00	7.99	Gyro
3600.00	0.50	115.73	3599.40	-6.86	5 63	-6.90	0.27	-0.25	7.99	Gyro
3800 00	0.25	103.71	3799.40	-7.34	6 84	-7.39	0.13	-0.12	-6.01	Gyro
4000.00	0.25	101.69	3999.40	-7.54	7.69	-7.58	0.00	0.00	-1.01	Gyro

Ryan Energy Technologies
Survey Report

Company:	Chesapeake Operating, Inc.	**Date:** 3/5/2009 **Time:** 07:45:13	**Page:** 2
Field:	Eddy Co, NM NAD 83	**Co-ordinate(NE) Reference:**	Site: PLU Ross Ranch 6 FED 1H, Grid Nort
Site:	PLU Ross Ranch 6 FED 1H	**Vertical (TVD) Reference:**	Est. RKB 3104.0
Well:	PLU Ross Ranch 6 FED 1H	**Section (VS) Reference:**	Well (0.00N,0.00E,359.65Azi)
Wellpath:	6 Fed 1H Lateral	**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
4200.00	0.25	103.67	4199.40	-7.73	8.54	-7.78	0.00	0.00	0.99	Gyro
4400.00	0.25	104.60	4399.39	-7.94	9.39	-8.00	0.00	0.00	0.46	Gyro
4600.00	0.25	114.53	4599.39	-8.23	10.21	-8.29	0.02	0.00	4.96	Gyro
4800.00	0.25	134.46	4799.39	-8.72	10.92	-8.79	0.04	0.00	9.96	Gyro
5000.00	0.25	174.39	4999.39	-9.46	11.27	-9.53	0.09	0.00	19.96	Gyro
5200.00	0.25	137.32	5199.39	-10.21	11.61	-10.28	0.08	0.00	-18.53	Gyro
5400.00	0.25	118.25	5399.39	-10.74	12.29	-10.82	0.04	0.00	-9.53	Gyro
5600.00	0.50	129.17	5599.38	-11.50	13.35	-11.58	0.13	0.12	5.46	Gyro
5800.00	1.00	121.10	5799.36	-12.95	15.52	-13.05	0.25	0.25	-4.03	Gyro
6000.00	1.00	129.03	5999.33	-14.95	18.37	-15.06	0.07	0.00	3.96	Gyro
6200.00	1.00	142.96	6199.30	-17.44	20.78	-17.57	0.12	0.00	6.96	Gyro
6400.00	1.25	155.47	6399.26	-20.82	22.74	-20.96	0.17	0.12	6.25	Gyro
6600.00	1.25	164.40	6599.22	-24.91	24.23	-25.05	0.10	0.00	4.46	Gyro
6800.00	1.25	156.33	6799.17	-29.01	25.69	-29.16	0.09	0.00	-4.03	Gyro
7000.00	1.50	154.26	6999.11	-33.36	27.70	-33.53	0.13	0.12	-1.03	Gyro
7200.00	1.25	165.19	7199.05	-37.83	29.40	-38.01	0.18	-0.12	5.46	Gyro
7400.00	1.50	214.12	7399.00	-42.11	28.49	-42.28	0.58	0.12	24.46	Gyro
7412.00	1.20	223.10	7411.00	-42.33	28.31	-42.50	3.05	-2.50	74.83	Ryan MWD
7444.00	6.10	357.90	7442.95	-40.87	28.02	-41.04	21.87	15.31	421.25	Ryan MWD
7475.00	9.70	359.80	7473.65	-36.61	27.95	-36.78	11.64	11.61	6.13	Ryan MWD
7506.00	13.10	1.20	7504.03	-30.49	28.02	-30.66	11.00	10.97	4.52	Ryan MWD
7538.00	15.20	3.30	7535.06	-22.67	28.33	-22.84	6.75	6.56	6.56	Ryan MWD
7569.00	18.50	5.10	7564.72	-13.71	29.01	-13.89	10.78	10.65	5.81	Ryan MWD
7600.00	21.90	6.40	7593.81	-3.07	30.09	-3.25	11.06	10.97	4.19	Ryan MWD
7632.00	24.10	5.20	7623.27	9.37	31.34	9.18	7.03	6.87	-3.75	Ryan MWD
7663.00	26.10	2.50	7651.34	22.49	32.22	22.29	7.43	6.45	-8.71	Ryan MWD
7694.00	28.00	359.40	7678.95	36.58	32.44	36.38	7.63	6.13	-10.00	Ryan MWD
7726.00	30.40	356.60	7706.88	52.18	31.88	51.98	8.63	7.50	-8.75	Ryan MWD
7757.00	33.30	355.10	7733.21	68.49	30.69	68.30	9.70	9.35	-4.84	Ryan MWD
7789.00	36.10	353.20	7759.52	86.61	28.82	86.43	9.38	8.75	-5.94	Ryan MWD
7820.00	38.10	348.90	7784.25	105.07	25.90	104.91	10.56	6.45	-13.87	Ryan MWD
7851.00	41.80	347.30	7808.01	124.54	21.78	124.40	12.39	11.94	-5.16	Ryan MWD
7883.00	46.50	348.60	7830.96	146.33	17.14	146.22	14.96	14.69	4.06	Ryan MWD
7914.00	51.40	350.70	7851.31	169.32	12.96	169.24	16.61	15.81	6.77	Ryan MWD
7945.00	55.40	351.70	7869.79	193.91	9.16	193.85	13.16	12.90	3.23	Ryan MWD
7976.00	59.60	352.00	7886.45	219.79	5.45	219.75	13.57	13.55	0.97	Ryan MWD
8008.00	63.60	352.70	7901.66	247.68	1.71	247.66	12.65	12.50	2.19	Ryan MWD
8039.00	68.00	353.10	7914.37	275.73	-1.78	275.74	14.24	14.19	1.29	Ryan MWD
8070.00	72.50	353.60	7924.84	304.70	-5.16	304.73	14.60	14.52	1.61	Ryan MWD
8101.00	77.20	353.60	7932.94	334.43	-8.49	334.48	15.16	15.16	0.00	Ryan MWD
8133.00	82.10	353.50	7938.69	365.70	-12.03	365.77	15.32	15.31	-0.31	Ryan MWD
8164.00	86.90	354.00	7941.66	396.37	-15.39	396.45	15.57	15.48	1.61	Ryan MWD
8195.00	89.20	355.50	7942.71	427.22	-18.22	427.32	8.86	7.42	4.84	Ryan MWD
8227.00	89.90	356.40	7942.96	459.13	-20.48	459.25	3.56	2.19	2.81	Ryan MWD
8258.00	90.50	356.80	7942.86	490.08	-22.32	490.21	2.33	1.94	1.29	Ryan MWD
8289.00	91.60	356.90	7942.29	521.03	-24.02	521.16	3.56	3.55	0.32	Ryan MWD
8383.00	91.90	357.60	7939.42	614.87	-28.53	615.04	0.81	0.32	0.74	Ryan MWD
8477.00	92.80	358.10	7935.56	708.73	-32.05	708.91	1.10	0.96	0.53	Ryan MWD
8571.00	92.20	359.30	7931.46	802.61	-34.18	802.81	1.43	-0.64	1.28	Ryan MWD
8665.00	92.00	0.80	7928.02	896.55	-34.10	896.74	1.61	-0.21	1.60	Ryan MWD
8759.00	93.40	1.30	7923.59	990.42	-32.38	990.60	1.58	1.49	0.53	Ryan MWD
8853.00	91.20	2.90	7919.82	1084.28	-28.94	1084.43	2.89	-2.34	1.70	Ryan MWD
8947.00	90.50	2.80	7918.42	1178.15	-24.27	1178.27	0.75	-0.74	-0.11	Ryan MWD
9041.00	89.60	2.20	7918.34	1272.06	-20.17	1272.16	1.15	-0.96	-0.64	Ryan MWD

Ryan Energy Technologies
Survey Report

Company:	Chesapeake Operating, Inc.	**Date:** 3/5/2009	**Time:** 07:45:13	**Page:**	3
Field:	Eddy Co, NM NAD 83	**Co-ordinate(NE) Reference:**	Site: PLU Ross Ranch 6 FED 1H, Grid Nort		
Site:	PLU Ross Ranch 6 FED 1H	**Vertical (TVD) Reference:**	Est. RKB 3104.0		
Well:	PLU Ross Ranch 6 FED 1H	**Section (VS) Reference:**	Well (0.00N,0.00E,359.65Azi)		
Wellpath:	6 Fed 1H Lateral	**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
9136.00	90.10	1.40	7918.59	1367.01	-17.18	1367.09	0.99	0.53	-0.84	Ryan MWD
9230.00	89.80	0.60	7918.67	1460.99	-15.54	1461.06	0.91	-0.32	-0.85	Ryan MWD
9324.00	89.80	0.40	7919.00	1554.99	-14.72	1555.05	0.21	0.00	-0.21	Ryan MWD
9418.00	90.10	359.90	7919.08	1648.99	-14.48	1649.05	0.62	0.32	-0.53	Ryan MWD
9512.00	90.30	359.80	7918.75	1742.99	-14.72	1743.05	0.24	0.21	-0.11	Ryan MWD
9605.00	90.20	360.00	7918.35	1835.99	-14.88	1836.04	0.24	-0.11	0.22	Ryan MWD
9699.00	89.10	359.40	7918.92	1929.98	-15.38	1930.04	1.33	-1.17	-0.64	Ryan MWD
9793.00	88.70	358.80	7920.73	2023.95	-16.85	2024.02	0.77	-0.43	-0.64	Ryan MWD
9887.00	89.80	359.00	7921 96	2117.93	-18.66	2118 00	1.19	1.17	0.21	Ryan MWD
9981.00	90.60	359.10	7921.63	2211.91	-20.22	2211.99	0.86	0.85	0.11	Ryan MWD
10076.00	89.70	359.90	7921.38	2306.91	-21.04	2306.99	1.27	-0.95	0.84	Ryan MWD
10170.00	87.00	359.60	7924.09	2400.86	-21.45	2400.94	2.89	-2.87	-0.32	Ryan MWD
10263.00	86.70	358.80	7929.20	2493.71	-22.75	2493.80	0.92	-0.32	-0.86	Ryan MWD
10356.00	91.10	359.50	7930 98	2586.66	-24.13	2586.76	4.79	4.73	0.75	Ryan MWD
10451.00	92.90	0.30	7927.67	2681.59	-24.30	2681.69	2.07	1.89	0.84	Ryan MWD
10545.00	90.90	0.10	7924.55	2775.54	-23.97	2775.63	2.14	-2.13	-0.21	Ryan MWD
10639.00	90.60	359.80	7923.32	2869.53	-24.05	2869.62	0.45	-0.32	-0 32	Ryan MWD
10733.00	91.60	0.60	7921.52	2963.51	-23.72	2963.60	1.36	1.06	0.85	Ryan MWD
10827.00	89.70	1.60	7920.45	3057.48	-21.92	3057.56	2.28	-2.02	1.06	Ryan MWD
10921.00	89.90	1.80	7920.78	3151.44	-19.13	3151.50	0.30	0.21	0.21	Ryan MWD
11015.00	89.90	2.50	7920.94	3245.37	-15.60	3245.41	0.74	0.00	0.74	Ryan MWD
11109.00	91.60	1.10	7919.71	3339 31	-12.65	3339.33	2.34	1.81	-1.49	Ryan MWD
11203.00	90.20	1.10	7918.24	3433.28	-10.85	3433.28	1.49	-1.49	0.00	Ryan MWD
11297.00	89.20	1.30	7918.73	3527.26	-8.88	3527.24	1.08	-1.06	0.21	Ryan MWD
11391.00	88.30	1.30	7920.78	3621.21	-6.74	3621.18	0.96	-0.96	0.00	Ryan MWD
11486.00	87.60	359.60	7924.18	3716.14	-6.00	3716.11	1.93	-0.74	-1.79	Ryan MWD
11580.00	89.40	359.00	7926.64	3810.10	-7.15	3810.07	2.02	1.91	-0 64	Ryan MWD
11674.00	89 10	358 50	7927.87	3904.07	-9.20	3904.05	0.62	-0.32	-0.53	Ryan MWD
11768.00	88.60	358.40	7929.75	3998.01	-11.74	3998.01	0.54	-0.53	-0.11	Ryan MWD
11862.00	87.90	358.90	7932.62	4091.94	-13.95	4091.95	0.91	-0.74	0.53	Ryan MWD
11956.00	89.20	1.90	7935.00	4185.90	-13.30	4185.90	3.48	1.38	3.19	Ryan MWD
12050.00	89.00	359.60	7936.48	4279.87	-12.07	4279.86	2.46	-0.21	-2.45	Ryan MWD
12145.00	89.00	2.20	7938.14	4374.84	-10.57	4374.82	2.74	0.00	2.74	Ryan MWD
12270.00	88.50	1.20	7940.87	4499.75	-6.87	4499.71	0.89	-0.40	-0.80	Ryan MWD
12326.00	88.50	1.20	7942.33	4555.72	-5.69	4555.67	0.00	0.00	0.00	Ryan MWD
12383.00	88.50	1.20	7943.82	4612.69	-4.50	4612.63	0.00	0.00	0.00	Project

HEADER INFORMATION
Company Chesapeake Operating, Inc.
Field Eddy Co, NM NAD 83
Site Name PLU Ross Mag Dec C +7.78 EAS TO GRID
Well Name PLU Ross Ranch 6 FED 1H
Wellpath N 6 Fed 1H Lateral AFE / OCS
Survey Nar Definitive Survey Dat 3/5/2009 Survey Typ 200 - 7400 Survey #2 : Gyro
7412 - 12326 Survey #3 · Ryan MWD
12383- 12383 Survey #4 Project
Depth Unit ft

SURFACE LOCATION
Site Northi 387769 5
Site Eastin 669967.2

BOTTOM HOLE LOCATION
BHL MD 12383
BHL TVD 7943 82

WELL INFORMATION
Well Northi 387769 5
Well Eastir 669967 2
Rig K B 3104
Vsec Angle 359 65
Vsec North 0
Vsec East 0

SURVEY LIST

MD	INC	AZI	TVD	NS	EW	VSEC	DLS	S/STVD	LeaseN/S	LeaseE/W	Northing	Easting	Latitude	Longitude
0	0	0	0	0	0	0	0	-3104	0	0	387769.5	669967 2	32°03'55.3	103°55'05.138W
200	0 5	233 18	200	-0 52	-0.7	-0 52	0 25	-2904	0 52	0 7	387768 9	669966 5	32°03'55.3	103°55'05.146W
400	1 25	156 16	399 98	-3 04	-0 52	-3 04	0 62	-2704 02	3 04	0 52	387766 4	669966 7	32°03'55 3.	103°55'05 144W
600	2 25	165 14	599 88	-8 83	1.37	-8 84	0 52	-2504 12	8.83	-1 37	387760.6	669968 6	32°03'55 2	103°55'05 122W
800	2 25	180 13	799.73	-16 55	2 37	-16 57	0 29	-2304 27	16 55	-2 37	387752.9	669969 6	32°03'55 1	103°55'05 111W
1000	1 25	184 1	999 63	-22 65	2 21	-22 67	0 5	-2104 37	22 65	-2 21	387746 8	669969 4	32°03'55 1	103°55'05 113W
1200	0 25	271 08	1199 62	-24 82	1 61	-24 83	0 63	-1904.38	24.82	-1 61	387744 6	669968 8	32°03'55 1	103°55'05 120W

1400	0.75	303.05	1399.61	-24.1	0 08	-24 1	0.28	-1704.39	24.1	-0.08	387745 4	669967 3	32°03'55.1 103°55'05 138W
1600	1.5	340 03	1599.57	-20 93	-1.91	-20.91	0.5	-1504 43	20.93	1 91	387748 5	669965 3	32°03'55 1 103°55'05.161W
1800	0 75	135 01	1799.55	-19 39	-1 88	-19.38	1.1	-1304 45	19 39	1 88	387750.1	669965 3	32°03'55 1 103°55'05 161W
2000	1	329 99	1999.54	-18 81	-1.83	-18 79	0 87	-1104.46	18.81	1 83	387750.7	669965.4	32°03'55 1 103°55'05 160W
2200	1	14.98	2199.52	-15 61	-2.25	-15 59	0 38	-904 48	15 61	2 25	387753.9	669965	32°03'55.1 103°55'05 165W
2400	0 75	359 85	2399 49	-12 61	-1.8	-12 6	0.17	-704.51	12.61	1.8	387756 8	669965 4	32°03'55 2 103°55'05 159W
2600	0 5	341.83	2599.48	-10 48	-2.08	-10.46	0 16	-504 52	10 48	2.08	387759	669965 1	32°03'55 2 103°55'05 163W
2800	0.5	350.81	2799.47	-8 78	-2.49	-8 77	0 04	-304.53	8 78	2 49	387760 7	669964 7	32°03'55.2 103°55'05 167W
3000	0.5	18 79	2999 47	-7.1	-2 35	-7.08	0.12	-104 53	7 1	2.35	387762.4	669964.9	32°03'55 2 103°55'05.166W
3200	1	83 77	3199.45	-6.08	-0.33	-6.08	0.45	95.45	6.08	0 33	387763 4	669966.9	32°03'55 2 103°55'05 142W
3400	1	99 75	3399 42	-6 19	3.12	-6 21	0.14	295 42	6 19	-3 12	387763.3	669970 3	32°03'55.2 103°55'05 102W
3600	0 5	115.73	3599.4	-6 86	5 63	-6.9	0 27	495.4	6 86	-5.63	387762.6	669972.8	32°03'55.2 103°55'05 073W
3800	0.25	103 71	3799 4	-7.34	6.84	-7.39	0.13	695 4	7.34	-6 84	387762 1	669974	32°03'55 2 103°55'05 059W
4000	0 25	101.69	3999.4	-7 54	7 69	-7.58	0	895.4	7 54	-7 69	387761.9	669974 9	32°03'55 2 103°55'05 049W
4200	0.25	103 67	4199 4	-7.73	8.54	-7.78	0	1095 4	7 73	-8 54	387761 7	669975.7	32°03'55 2 103°55'05.039W
4400	0 25	104.6	4399 39	-7 94	9 39	-8	0	1295 39	7.94	-9 39	387761.5	669976.6	32°03'55 2 103°55'05 029W
4600	0 25	114 53	4599 39	-8 23	10 21	-8 29	0 02	1495.39	8 23	-10 21	387761.2	669977 4	32°03'55 2 103°55'05 020W
4800	0 25	134 46	4799 39	-8 72	10.92	-8 79	0 04	1695 39	8 72	-10 92	387760 7	669978.1	32°03'55 2 103°55'05 011W
5000	0 25	174 39	4999.39	-9.46	11.27	-9.53	0 09	1895 39	9 46	-11 27	387760	669978 5	32°03'55 2 103°55'05.007W
5200	0 25	137 32	5199 39	-10 21	11.61	-10.28	0 08	2095 39	10 21	-11.61	387759 2	669978 8	32°03'55 2 103°55'05 003W
5400	0.25	118 25	5399.39	-10 74	12 29	-10.82	0 04	2295 39	10 74	-12.29	387758.7	669979.5	32°03'55 2 103°55'04 996W
5600	0.5	129.17	5599 38	-11 5	13 35	-11.58	0.13	2495.38	11 5	-13.35	387758	669980.6	32°03'55.2 103°55'04 983W
5800	1	121.1	5799 36	-12 95	15 52	-13.05	0 25	2695 36	12 95	-15 52	387756 5	669982 7	32°03'55.2 103°55'04 958W
6000	1	129 03	5999 33	-14 95	18 37	-15 06	0 07	2895.33	14.95	-18 37	387754.5	669985 6	32°03'55 2 103°55'04 925W
6200	1	142 96	6199 3	-17 44	20.78	-17 57	0 12	3095 3	17 44	-20 78	387752	669988	32°03'55 1 103°55'04 897W
6400	1 25	155.47	6399 26	-20 82	22 74	-20 96	0.17	3295.26	20 82	-22 74	387748.6	669989 9	32°03'55 1 103°55'04 875W
6600	1.25	164 4	6599 22	-24 91	24.23	-25 05	0 1	3495 22	24 91	-24 23	387744 6	669991 4	32°03'55.1 103°55'04 857W
6800	1 25	156 33	6799.17	-29 01	25 69	-29.16	0.09	3695.17	29 01	-25 69	387740.5	669992 9	32°03'55 0 103°55'04 841W
7000	1 5	154 26	6999.11	-33 36	27 7	-33 53	0.13	3895.11	33 36	-27 7	387736 1	669994 9	32°03'55.0 103°55'04 817W
7200	1.25	165 19	7199.05	-37 83	29 4	-38.01	0 18	4095 05	37.83	-29.4	387731 6	669996 6	32°03'54 9 103°55'04 798W
7400	1.5	214 12	7399	-42 11	28 49	-42.28	0.58	4295	42 11	-28 49	387727 4	669995 7	32°03'54.9 103°55'04.809W
7412	1 2	223 1	7411	-42 33	28 31	-42.5	3.05	4307	42 33	-28.31	387727.1	669995 5	32°03'54 9 103°55'04.811W
7444	6 1	357.9	7442 95	-40 87	28 02	-41.04	21 87	4338 95	40 87	-28 02	387728.6	669995.2	32°03'54 9 103°55'04 814W
7475	9 7	359 8	7473 65	-36 61	27 95	-36 78	11 64	4369 65	36.61	-27.95	387732 8	669995.2	32°03'54 9 103°55'04.815W
7506	13 1	1 2	7504 03	-30 49	28 02	-30 66	11	4400 03	30 49	-28 02	387739	669995 2	32°03'55 0 103°55'04.814W
7538	15 2	3 3	7535 06	-22 67	28 33	-22.84	6 75	4431.06	22 67	-28 33	387746 8	669995 5	32°03'55 1 103°55'04 810W
7569	18 5	5 1	7564.72	-13 71	29.01	-13 89	10 78	4460 72	13 71	-29 01	387755 7	669996 2	32°03'55.2 103°55'04 801W

7600	21 9	6 4	7593 81	-3 07	30.09	-3 25	11.06	4489.81	3.07	-30.09	387766 4	669997 3	32°03'55 3. 103°55'04 788W
7632	24 1	5 2	7623 27	9 37	31.34	9.18	7.03	4519 27	-9.37	-31.34	387778 8	669998 5	32°03'55.4 103°55'04 773W
7663	26 1	2.5	7651 34	22 49	32 22	22.29	7 43	4547.34	-22 49	-32.22	387791 9	669999 4	32°03'55.5 103°55'04 763W
7694	28	359.4	7678 95	36 58	32.44	36.38	7.63	4574.95	-36.58	-32.44	387806	669999.6	32°03'55 7 103°55'04.759W
7726	30 4	356 6	7706.88	52.18	31.88	51.98	8.63	4602.88	-52.18	-31 88	387821 6	669999.1	32°03'55 8 103°55'04.765W
7757	33 3	355 1	7733.21	68.49	30 69	68 3	9 7	4629 21	-68 49	-30 69	387837 9	669997.9	32°03'56 0 103°55'04.778W
7789	36 1	353.2	7759 52	86.61	28.82	86 43	9.38	4655 52	-86 61	-28 82	387856 1	669996	32°03'56.2 103°55'04.799W
7820	38 1	348.9	7784.25	105 07	25.9	104.91	10 56	4680.25	-105.07	-25.9	387874 5	669993.1	32°03'56.3 103°55'04 832W
7851	41 8	347.3	7808 01	124 54	21.78	124 4	12 39	4704 01	-124 54	-21.78	387894	669989	32°03'56 5. 103°55'04 879W
7883	46 5	348.6	7830.96	146.33	17 14	146 22	14 96	4726 96	-146 33	-17.14	387915.8	669984 3	32°03'56 8 103°55'04 932W
7914	51.4	350 7	7851 31	169 32	12 96	169 24	16 61	4747 31	-169 32	-12.96	387938 8	669980.2	32°03'57 0. 103°55'04 980W
7945	55 4	351.7	7869.79	193 91	9.16	193 85	13.16	4765.79	-193 91	-9.16	387963.4	669976 4	32°03'57 2 103°55'05.023W
7976	59 6	352	7886 45	219 79	5 45	219.75	13 57	4782 45	-219.79	-5 45	387989 2	669972.7	32°03'57 5. 103°55'05 065W
8008	63 6	352 7	7901 66	247 68	1.71	247.66	12.65	4797.66	-247 68	-1.71	388017.1	669968 9	32°03'57.8 103°55'05 107W
8039	68	353 1	7914 37	275 73	-1 78	275.74	14 24	4810 37	-275.73	1 78	388045 2	669965 4	32°03'58 0. 103°55'05.146W
8070	72.5	353 6	7924.84	304 7	-5.16	304 73	14 6	4820 84	-304 7	5 16	388074 2	669962	32°03'58 3 103°55'05.184W
8101	77 2	353 6	7932.94	334 43	-8.49	334 48	15.16	4828.94	-334.43	8.49	388103 9	669958 7	32°03'58.6 103°55'05 222W
8133	82 1	353 5	7938 69	365 7	-12 03	365 77	15 32	4834 69	-365 7	12.03	388135 2	669955.2	32°03'58.9 103°55'05.261W
8164	86 9	354	7941 66	396.37	-15 39	396 45	15 57	4837.66	-396 37	15 39	388165 8	669951 8	32°03'59 2 103°55'05.299W
8195	89 2	355.5	7942 71	427.22	-18 22	427 32	8 86	4838.71	-427.22	18 22	388196 7	669949	32°03'59 5. 103°55'05 331W
8227	89 9	356 4	7942 96	459 13	-20 48	459 25	3 56	4838 96	-459.13	20 48	388228.6	669946 7	32°03'59.8 103°55'05 355W
8258	90 5	356 8	7942.86	490 08	-22 32	490 21	2 33	4838.86	-490 08	22 32	388259.5	669944 9	32°04'00 2 103°55'05 375W
8289	91 6	356 9	7942.29	521 03	-24.02	521 16	3 56	4838 29	-521.03	24 02	388290 5	669943.2	32°04'00.5 103°55'05 394W
8383	91 9	357 6	7939 42	614 87	-28.53	615 04	0 81	4835 42	-614 87	28 53	388384.3	669938 7	32°04'01.4 103°55'05.442W
8477	92 8	358 1	7935 56	708.73	-32.05	708.91	1.1	4831 56	-708 73	32.05	388478 2	669935 1	32°04'02 3 103°55'05 479W
8571	92 2	359.3	7931.46	802 61	-34.18	802 81	1 43	4827 46	-802 61	34.18	388572 1	669933	32°04'03.2 103°55'05 499W
8665	92	0 8	7928.02	896 55	-34 1	896 74	1 61	4824 02	-896.55	34.1	388666	669933 1	32°04'04 2. 103°55'05 494W
8759	93 4	1 3	7923 59	990 42	-32.38	990 6	1.58	4819.59	-990 42	32 38	388759 9	669934.8	32°04'05.1 103°55'05.470W
8853	91 2	2 9	7919 82	1084.28	-28.94	1084 43	2 89	4815 82	-1084 28	28.94	388853 7	669938 3	32°04'06 0. 103°55'05 426W
8947	90 5	2.8	7918.42	1178 15	-24.27	1178 27	0 75	4814 42	-1178 15	24 27	388947.6	669942 9	32°04'07 0 103°55'05 367W
9041	89 6	2 2	7918 34	1272 06	-20.17	1272 16	1 15	4814 34	-1272.06	20 17	389041 5	669947	32°04'07.9 103°55'05 315W
9136	90 1	1 4	7918.59	1367 01	-17.18	1367 09	0 99	4814 59	-1367.01	17 18	389136 5	669950	32°04'08.8 103°55'05 277W
9230	89 8	0 6	7918.67	1460 99	-15 54	1461 06	0 91	4814 67	-1460 99	15 54	389230 5	669951 7	32°04'09.8 103°55'05.253W
9324	89 8	0 4	7919	1554 99	-14 72	1555 05	0 21	4815	-1554 99	14 72	389324 5	669952 5	32°04'10.7 103°55'05.239W
9418	90 1	359 9	7919 08	1648 99	-14.48	1649 05	0 62	4815.08	-1648 99	14 48	389418 4	669952 7	32°04'11.6 103°55'05.232W
9512	90 3	359 8	7918.75	1742 99	-14 72	1743 05	0 24	4814 75	-1742.99	14 72	389512.4	669952 5	32°04'12 6 103°55'05 231W
9605	90 2	360	7918 35	1835 99	-14.88	1836 04	0 24	4814.35	-1835.99	14.88	389605.4	669952 3	32°04'13 5. 103°55'05 229W

9699	89 1	359 4	7918 92	1929.98	-15 38	1930 04	1.33	4814.92	-1929 98	15.38	389699 4	669951.8	32°04'14.4 103°55'05 230W
9793	88 7	358 8	7920 73	2023 95	-16 85	2024.02	0 77	4816 73	-2023 95	16 85	389793 4	669950.3	32°04'15 3 103°55'05 243W
9887	89.8	359	7921.96	2117 93	-18 66	2118	1 19	4817 96	-2117 93	18.66	389887.4	669948 5	32°04'16.3 103°55'05 260W
9981	90 6	359 1	7921 63	2211 91	-20.22	2211.99	0.86	4817 63	-2211 91	20 22	389981 4	669947	32°04'17 2 103°55'05.274W
10076	89.7	359 9	7921 38	2306.91	-21.04	2306.99	1 27	4817.38	-2306.91	21.04	390076 4	669946.2	32°04'18 1 103°55'05 279W
10170	87	359.6	7924 09	2400 86	-21 45	2400.94	2 89	4820 09	-2400 86	21.45	390170.3	669945.7	32°04'19 1 103°55'05 280W
10263	86.7	358.8	7929.2	2493 71	-22.75	2493 8	0.92	4825 2	-2493 71	22 75	390263 2	669944 5	32°04'20.0 103°55'05 291W
10356	91.1	359.5	7930.98	2586 66	-24 13	2586 76	4.79	4826.98	-2586.66	24 13	390356 1	669943.1	32°04'20 9 103°55'05 303W
10451	92 9	0 3	7927 67	2681.59	-24.3	2681 69	2 07	4823 67	-2681 59	24 3	390451 1	669942.9	32°04'21.8 103°55'05.300W
10545	90 9	0.1	7924.55	2775 54	-23.97	2775 63	2 14	4820 55	-2775 54	23.97	390545	669943 2	32°04'22 8 103°55'05.292W
10639	90.6	359 8	7923 32	2869.53	-24.05	2869.62	0 45	4819 32	-2869 53	24 05	390639	669943 2	32°04'23 7 103°55'05 289W
10733	91 6	0.6	7921 52	2963 51	-23 72	2963.6	1 36	4817 52	-2963.51	23 72	390733	669943 5	32°04'24.6 103°55'05 281W
10827	89.7	1 6	7920 45	3057 48	-21 92	3057 56	2.28	4816.45	-3057.48	21.92	390826 9	669945.3	32°04'25 6 103°55'05.256W
10921	89 9	1 8	7920 78	3151.44	-19 13	3151 5	0.3	4816.78	-3151 44	19 13	390920.9	669948 1	32°04'26.5 103°55'05.219W
11015	89.9	2.5	7920 94	3245.37	-15 6	3245 41	0.74	4816.94	-3245 37	15 6	391014.8	669951.6	32°04'27 4 103°55'05.174W
11109	91 6	1.1	7919 71	3339.31	-12 65	3339 33	2 34	4815 71	-3339 31	12.65	391108 8	669954 6	32°04'28.3 103°55'05 136W
11203	90 2	1 1	7918 24	3433.28	-10.85	3433 28	1 49	4814 24	-3433 28	10 85	391202 7	669956.4	32°04'29 3 103°55'05 110W
11297	89.2	1 3	7918 73	3527.26	-8.88	3527.24	1.08	4814 73	-3527.26	8 88	391296 7	669958.3	32°04'30 2 103°55'05 083W
11391	88 3	1 3	7920.78	3621 21	-6 74	3621.18	0 96	4816 78	-3621.21	6.74	391390.7	669960 5	32°04'31 1 103°55'05 054W
11486	87 6	359 6	7924.18	3716 14	-6	3716 11	1.93	4820.18	-3716.14	6	391485.6	669961 2	32°04'32 1 103°55'05 041W
11580	89 4	359	7926 64	3810 1	-7 15	3810 07	2.02	4822 64	-3810 1	7.15	391579 6	669960 1	32°04'33.0 103°55'05 051W
11674	89 1	358.5	7927 87	3904 07	-9 2	3904 05	0 62	4823 87	-3904 07	9.2	391673 5	669958	32°04'33.9 103°55'05.070W
11768	88 6	358 4	7929 75	3998 01	-11.74	3998 01	0 54	4825.75	-3998.01	11.74	391767 5	669955 5	32°04'34 9 103°55'05.096W
11862	87 9	358 9	7932.62	4091.94	-13.95	4091 95	0 91	4828 62	-4091 94	13 95	391861 4	669953.2	32°04'35 8 103°55'05 117W
11956	89 2	1 9	7935	4185 9	-13 3	4185 9	3.48	4831	-4185 9	13 3	391955.4	669953.9	32°04'36.7 103°55'05.105W
12050	89	359 6	7936.48	4279.87	-12 07	4279 86	2.46	4832 48	-4279 87	12 07	392049 3	669955 1	32°04'37 7 103°55'05 087W
12145	89	2.2	7938 14	4374.84	-10 57	4374.82	2.74	4834.14	-4374 84	10 57	392144.3	669956 6	32°04'38 6 103°55'05 065W
12270	88 5	1.2	7940.87	4499 75	-6.87	4499 71	0 89	4836 87	-4499 75	6 87	392269.2	669960.3	32°04'39 8 103°55'05.016W
12326	88 5	1.2	7942 33	4555 72	-5 69	4555.67	0	4838.33	-4555.72	5 69	392325.2	669961.5	32°04'40.4 103°55'05 000W
12383	88 5	1.2	7943 82	4612 69	-4 5	4612.63	0	4839 82	-4612 69	4.5	392382 1	669962 7	32°04'41 0 103°55'04 984W