

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
OMB No. 1004-0137
Expires: July 31, 2010

WELL COMPLETION OR RECOMPLETION REPORT AND LOG

1a. Type of Well ☒ Oil Well ☐ Gas Well ☐ Dry ☐ Other
b. Type of Completion ☒ New Well ☐ Work Over ☐ Deepen ☐ Plug Back ☐ Diff. Resvr.
Other _____

2. Name of Operator **CHESAPEAKE OPERATING, INC.** Contact: **LINDA GOOD**
E-Mail: **linda.good@chk.com**

3. Address **OKLAHOMA CITY, OK 73154-0496** 3a. Phone No. (include area code)
Ph: **405-935-4275**

4. Location of Well (Report location clearly and in accordance with Federal requirements)*
At surface **Sec 6 T26S R30E Mer NMP SWSE 350FSL 1880FEL 32.06534 N Lat, 103.91811 W Lon**
At top prod interval reported below **Sec 6 T26S R30E Mer NMP**
At total depth **NWNE 350FNL 1880FEL**

5. Lease Serial No. **NMNM102035**

6. If Indian, Allottee or Tribe Name _____

7. Unit or CA Agreement Name and No. _____

8. Lease Name and Well No. **PLU ROSS RANCH 6 FEDERAL 1H**

9. API Well No. **30-015-36883-00-X1**

10. Field and Pool, or Exploratory **UNKNOWN** *Corral Canyon*

11. Sec., T., R., M., or Block and Survey or Area **Sec 6 T26S R30E Mer NMP** *BS South*

12. County or Parish **EDDY** 13. State **NM**

14. Date Spudded **01/31/2009** 15. Date T.D. Reached **03/08/2009** 16. Date Completed **06/18/2009**
☐ D & A ☒ Ready to Prod.

17. Elevations (DF, KB, RT, GL)* **3083 GL**

18. Total Depth: **MD 12383 TVD 7944** 19. Plug Back T.D.: **MD TVD** 20. Depth Bridge Plug Set: **MD TVD**

21. Type Electric & Other Mechanical Logs Run (Submit copy of each)
CAL PLAT-XHRLAMCFL GR DLDCNL AIT USIL

22. Was well cored? ☒ No ☐ Yes (Submit analysis)
Was DST run? ☒ No ☐ Yes (Submit analysis)
Directional Survey? ☐ No ☒ Yes (Submit analysis)

23. Casing and Liner Record (Report all strings set in well)

Hole Size	Size/Grade	Wt. (#/ft.)	Top (MD)	Bottom (MD)	Stage Cementer Depth	No. of Sks. & Type of Cement	Slurry Vol. (BBL)	Cement Top*	Amount Pulled
17.500	13.375 H-40	48.0	0	850		950		0	
12.250	9.625 J-55	40.0	0	3420		1214		0	
8.750	5.500 L-80	20.0	0	12379		2300		7000	

24. Tubing Record

Size	Depth Set (MD)	Packer Depth (MD)	Size	Depth Set (MD)	Packer Depth (MD)	Size	Depth Set (MD)	Packer Depth (MD)
2.875	7246							

25. Producing Intervals

Formation	Top	Bottom	Perforated Interval	Size	No. Holes	Perf. Status
A) BONE SPRING	8071	12331	8071 TO 12331		500	OA - OPEN
B)			10231 TO 10537		50	open
C)			10605 TO 10961		50	open
D)			11060 TO 11412		50	open

27. Acid, Fracture, Treatment, Cement Squeeze, Etc.

Depth Interval	Amount and Type of Material
8071 TO 12331	FRAC W/50,000 GAL 15% HCL, 86,657 BBL, 3,340,774# SAND
10231 TO 10537	
10605 TO 10961	
11060 TO 11412	

28. Production - Interval A

Date First Produced	Test Date	Hours Tested	Test Production	Oil BBL	Gas MCF	Water BBL	Oil Gravity Corr. API	Gas Gravity	Production Method
06/18/2009	06/27/2009	24	→	156.0	1300.0	1982.0			ELECTRIC PUMPING UNIT
Choke Size	Tbg. Press. Flwg. SI	Csg. Press.	24 Hr. Rate	Oil BBL	Gas MCF	Water BBL	Gas:Oil Ratio	Well Status	
			→	156	1300	1982		POW	

28a. Production - Interval B

Date First Produced	Test Date	Hours Tested	Test Production	Oil BBL	Gas MCF	Water BBL	Oil Gravity Corr. API	Gas Gravity	Production Method
			→						
Choke Size	Tbg. Press. Flwg. SI	Csg. Press.	24 Hr. Rate	Oil BBL	Gas MCF	Water BBL	Gas:Oil Ratio	Well Status	
			→						

(See Instructions and spaces for additional data on reverse side)

ELECTRONIC SUBMISSION #72476 VERIFIED BY THE BLM WELL INFORMATION SYSTEM

** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED **

BUREAU OF LAND MANAGEMENT
CARLSBAD FIELD OFFICE

RECEIVED

SEP 15 2010

NMOCD ARTESIA

ACCEPTED FOR RECORD

JUL 29 2009

Is/ Myles Kristof

28b. Production - Interval C

Date First Produced	Test Date	Hours Tested	Test Production	Oil BBL	Gas MCF	Water BBL	Oil Gravity Corr. API	Gas Gravity	Production Method
			→						
Choke Size	Tbg. Press. Flwg. SI	Csg. Press.	24 Hr. Rate	Oil BBL	Gas MCF	Water BBL	Gas:Oil Ratio	Well Status	
			→						

28c. Production - Interval D

Date First Produced	Test Date	Hours Tested	Test Production	Oil BBL	Gas MCF	Water BBL	Oil Gravity Corr. API	Gas Gravity	Production Method
			→						
Choke Size	Tbg. Press. Flwg. SI	Csg. Press.	24 Hr. Rate	Oil BBL	Gas MCF	Water BBL	Gas:Oil Ratio	Well Status	
			→						

29. Disposition of Gas Sold, used for fuel, vented, etc.)
SOLD

30. Summary of Porous Zones (Include Aquifers):

Show all important zones of porosity and contents thereof: Cored intervals and all drill-stem tests, including depth interval tested, cushion used, time tool open, flowing and shut-in pressures and recoveries.

31. Formation (Log) Markers

Formation	Top	Bottom	Descriptions, Contents, etc.	Name	Top Meas. Depth
RUSTLER BASE OF SALT BONE SPRING <i>Delaware</i>	708 3431 7259 <i>3450</i>	3431 3450 10600 <i>7259</i>	SALT/ANHYDRITE LIMESTONE	RUSTLER BASE OF SALT BONE SPRING <i>Delaware</i>	708 3431 7259 <i>3450</i>

32. Additional remarks (include plugging procedure):

LOGS HAVE BEEN SENT VIA UPS OVERNIGHT TO JERRY FANT.

INCLINATION REPORT ATTACHED.

(CHK PN 624821)

33. Circle enclosed attachments:

- | | | | |
|---|--------------------|---------------|-----------------------|
| 1. Electrical/Mechanical Logs (1 full set req'd.) | 2. Geologic Report | 3. DST Report | 4. Directional Survey |
| 5. Sundry Notice for plugging and cement verification | 6. Core Analysis | 7. Other: | |

34. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records (see attached instructions):

**Electronic Submission #72476 Verified by the BLM Well Information System.
For CHESAPEAKE OPERATING, INC., sent to the Carlsbad
Committed to AFMSS for processing by KURT SIMMONS on 07/27/2009 (09KMS1862SE)**

Name (please print) LINDA GOOD

Title SR. REGULATORY COMPLIANCE SPEC

Signature (Electronic Submission)

Date 07/27/2009

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

**** REVISED ** REVISED ** REVISED ** REVISED ** REVISED ** REVISED ** REVISED ****

Additional data for transaction #72476 that would not fit on the form

26. Perforation Record, continued

Perf Interval	Size	No. Holes	Perf Status
11471 TO 11849		50	open
11976 TO 12331		50	open

27. Acid, Fracture, Treatment, Cement Squeeze, etc., continued

Depth Interval	Amount and Type of Material
11471 TO 11849	
11976 TO 12331	gal 15% NEFE acid. See Sundry dated 3/25/09 for detail

RECEIVED

MAY 29 2009

INCLINATION REPORT

BY: 

FIELD NAME

LEASE NAME

PLU Ross Ranch FED6 1-H

OPERATOR

Chesapeake Operating Inc.

ADDRESS

6100 N Western, Oklahoma City, OK

LOCATION (Section, Block, and Survey)

County

Eddy

RECORD OF INCLINATION

Measured Depth (feet)	Course Length (Hundreds of feet)	Angle of Inclination (Degrees)	Displacement per 100 feet (Sine of Angle x 100)	Course Displacement (Feet)	Accumulative Displacement (Feet)
355	355	1.00	1.75	6.20	6.20
1,316	961	1.10	1.92	18.45	24.64
1,975	659	1.10	1.92	12.65	37.30
2,821	846	0.70	1.22	10.34	47.63
3,490	669	0.80	1.40	9.34	56.97
4,180	690	0.20	0.35	2.41	59.38
4,974	794	0.30	0.52	4.16	63.54
5,904	930	0.80	1.40	12.98	76.52
6,507	603	1.30	2.27	13.68	90.20
7,501	994	13.10	22.67	225.29	315.49
8,059	558	93.40	99.82	557.02	872.51
9,041	982	89.60	100.00	981.98	1,854.49
9,981	940	90.60	99.99	939.95	2,794.44
10,921	940	89.80	100.00	939.99	3,734.43
11,862	941	87.80	99.93	940.31	4,674.74

Accumulative total displacement of well bore at total depth of
Inclination measurements were made in ☐ Tubing

11,862 feet = 4,674.74 feet

☐ Casing☐ Open Hole☒ Drill Pipe

Inclination Data Certification

I declare that I am authorized to make this certification, that I have personal knowledge of the inclination data and facts placed on both sides of this form and that such data and facts are true, correct, and complete to the best of my knowledge.



5/27/09

Signature of Authorized Representative

Date

Mark Cochran CFO

Name of Person and Title

Latshaw Drilling Company, LLC

Name of Company

Telephone: 918-355-4380

Inclination Data Certification

I declare that I am authorized to make this certification, that I have personal knowledge of the inclination data and facts placed on both sides of this form and that such data and facts are true, correct, and complete to the best of my knowledge.

Signature of Authorized Representative

Date

Name of Person and Title

Operator

Telephone:



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.



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: 10N
Magnetic Model: IGR12005

System Datum: Mean Sea Level
Local North: Grid North



Admagnetic to Grid North
True North: 0.22°
Magnetic North: 7.78°
Magnetic Field
Strength: 48.700 T
Dip Angle: 60.95°
Date: 2/2/2009
Model: IGR2005

WELLPATH DETAILS

Parent Wellpath:
Tie on MD:
6 Fed 1H Lateral
0.00

Rpt:
Ref. Datum:
Litchhaw 6
Est. RKB: 3104.00H

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

Site Centre Northing: 387769.46
Easting: 669567.20

Ground Level: 3983.00
Positional Uncertainty: 0.00
Convergence: 0.22

TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape	Point
PBHL Lat.	7925.00	4812.81	-28.74	392382.28	669838.46	32°04'41.00"N	103°55'05.26"W		

Geologic Target Line: 7925' TVD, 0 VS, 0° Dip

PLU Ross Ranch 6 FED 1H (6 Fed 1H Pilot Hole)

PBHL Lat.

6 Fed 1H Lateral

Vertical Section at 359.65° [750ft/in]

Ryan Energy Technologies
16510 Oil Center Blvd
Houston, TX 77058
Ph: 281-443-1114
Fx: 281-443-1876



Volume: PLU Ross Ranch 6 FED 1H (6 Fed 1H Lateral)
Created By: Ryan Energy
Checked By: Ryan Energy
Date: 5/2/2010
User: Ryan Energy
Drawn: Ryan Energy



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	
Geo Datum: GRS 1980	
Sys Datum: Mean Sea Level	
Map Zone: New Mexico, Eastern Zone	
Coordinate System: Site Centre	
Geomagnetic Model: igrf2005	

Site: PLU Ross Ranch 6 FED 1H		Section: 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	
Current Datum: Est RKB	Height 3104.00 ft	Tie-on Depth:	0.00 ft
Magnetic Data: 2/2/2009		Above System Datum:	Mean Sea Level
Field Strength: 48770 nT		Declination:	8.00 deg
Vertical Section: Depth From (TVD)	+N/-S	Mag Dip Angle:	60.05 deg
ft	ft	+E/-W	Direction
		ft	deg
0.00	0.00	0.00	359.65

Survey Program for Definitive Wellpath		Version: 2	
Date: 2/17/2009	Validated: No	Toolcode	Tool Name
Actual From ft	To ft		
200.00	7650.00	Survey #2 (200.00-7650.00)	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.
Field: Eddy Co, NM NAD 83
Site: PLU Ross Ranch 6 FED 1H
Well: PLU Ross Ranch 6 FED 1H
Wellpath: 6 Fed 1H Pilot Hole

Date: 3/5/2009 Time: 07:47:25 Page: 2
Co-ordinate(NE) Reference: Site: PLU Ross Ranch 6 FED 1H, Grid North
Vertical (TVB) Reference: Est. RKB 3104.0
Section (VS) Reference: Well (0.00N,0.00E,359.65Azi)
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										
Current Datum: Est. RKB		Height 3104.00 ft	Drilled From: 6 Fed 1H Pilot Hole							
Magnetic Data: 2/2/2009			Tie-on Depth: 0.00 ft							
Field Strength: 48770 nT			Above System Datum: Mean Sea Level							
Vertical Section: Depth From (TVD)			Declination: 8.00 deg							
ft		+N/-S ft	Mag Dip Angle: 60.05 deg							
0.00		0.00	+E/-W ft	Direction deg						
			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.
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

Date: 3/5/2009 Time: 07:45:13 Page: 2
Co-ordinate(NE) Reference: Site: PLU Ross Ranch 6 FED 1H, Grid Nort
Vertical (TVD) Reference: Est. RKB 3104.0
Section (YS) Reference: Well (0.00N,0.00E,359.65Azi)
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.
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

Date: 3/5/2009 Time: 07:45:13 Page: 3
Co-ordinate(NE) Reference: Site: PLU Ross Ranch 6 FED 1H, Grid Nort
Vertical (TVD) Reference: Est. RKB 3104.0
Section (VS) Reference: Well (0.00N,0.00E,359.65Azi)
Survey Calculation Method: Minimum Curvature Dlt: 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