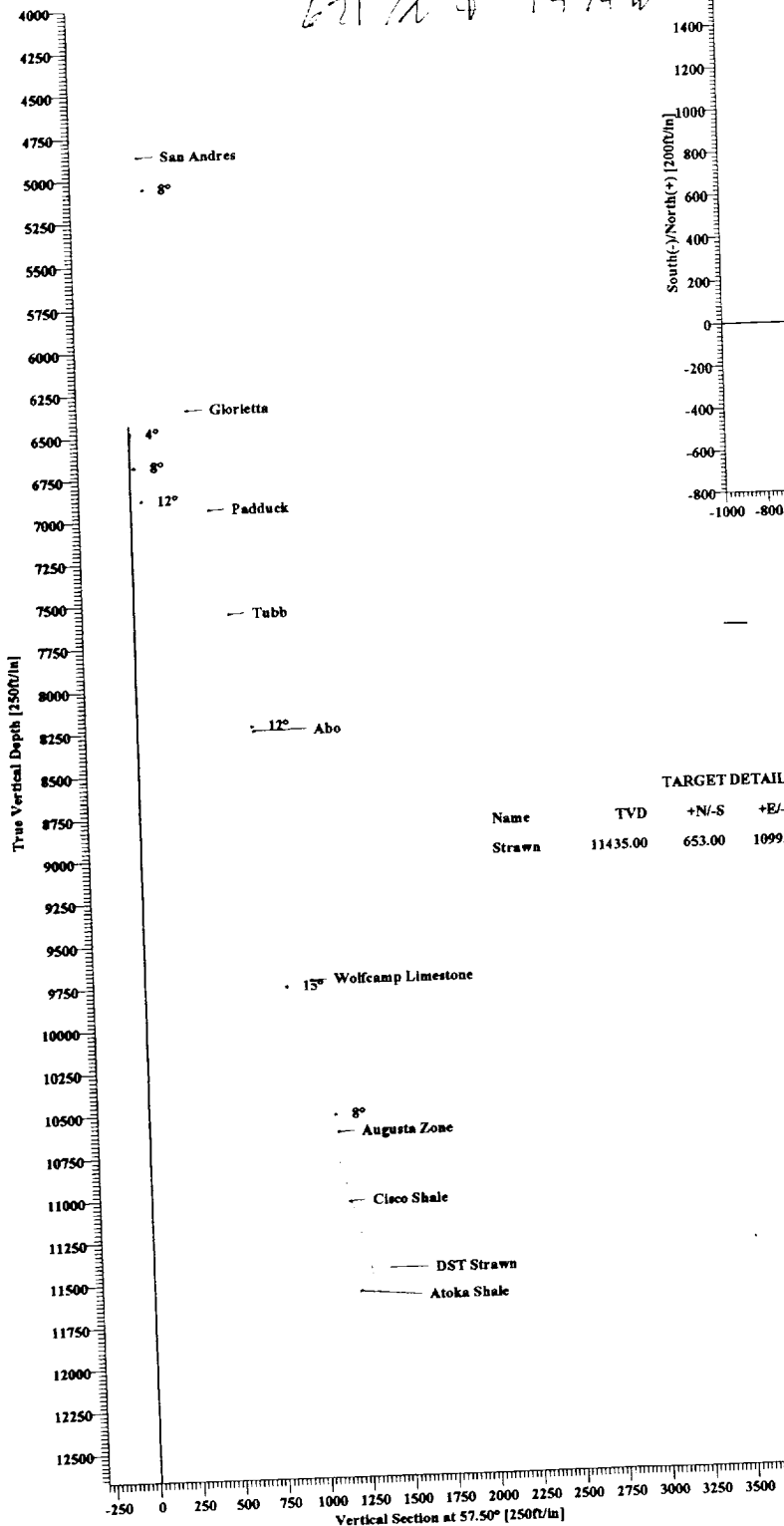




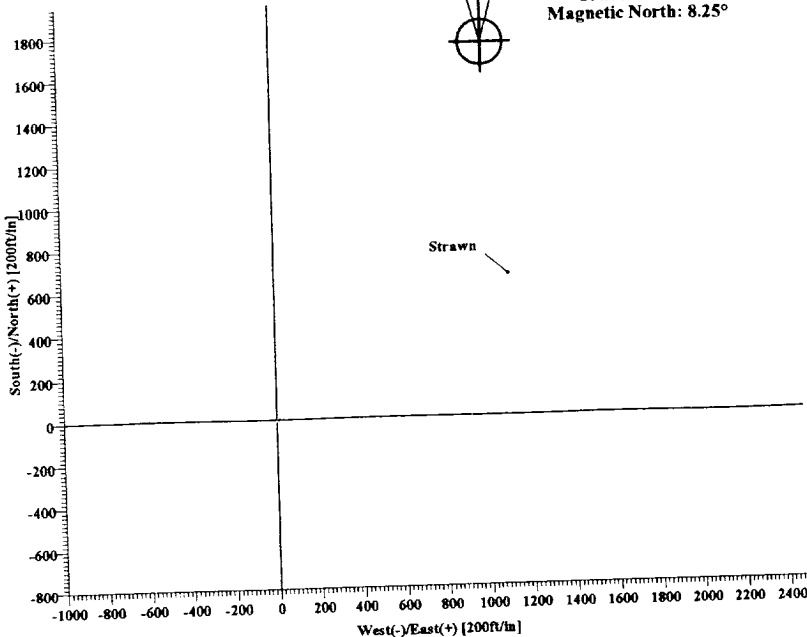
Chesapeake Operating Inc.
Shelby 1-14 #1
Lea County, New Mexico
30-025-35190

Ryan The leader in
UNDERGROUND INTELLIGENCE™

SUR: D-14-16S-36E
1229/W & 557/W
BAL: C-14-16S-36E
621/W & 1474/W



Azimuths to Grid North
True North: -0.55°
Magnetic North: 8.25°



ANNOTATIONS

No.	TVD	MD	Annotation
1	11435.00	11540.37	DST Strawn
2	4870.00	4874.84	San Andres
3	6353.00	6378.54	Glorietta
4	6944.00	6980.36	Paddock
5	7562.00	7606.82	Tubb
6	8251.00	8306.70	Abo
7	9731.00	9816.86	Wolfcamp Limestone
8	10627.00	10725.34	Augusta Zone
9	11035.00	11137.34	Cisco Shale
10	11572.00	11678.88	Atoka Shale

TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
Strawn	11435.00	653.00	1099.00	Circle (Radius: 100)

FIELD DETAILS

Lea County
New Mexico
USA
Geodetic System: US State Plane Coordinate System 1927
Ellipsoid: Clarke 1866
Zone: New Mexico, Eastern Zone
Magnetic Model: Igrf2000
System Datum: Mean Sea Level
Local North: Grid North

SITE DETAILS

Shelby 1-14
Lea County, New Mexico
W/2 Section 14-16S-36E
Site Centre Northing: 701982.00
Easting: 807429.00
Water Depth: 0.00
Positional Uncertainty: 0.00
Convergence: 0.55

WELLPATH DETAILS

OH
Original hole
Rig: SITE KB 3895.00ft
Ref. Datum: SITE KB 3895.00ft
V. Section Angle: Origin +N/-S Origin +E/-W Starting From TVD
Wellpath: (Shelby 1-14/OH)

Created By: Ryan Energy

Date: 2001/08/14

Kz

RyanUSA

Ryan Survey Report

Company: Chesapeake Operating Inc.		Date: 12/29/2000	Time: 13:30:13	Page: 1
Field: Lea County	Co-ordinate(NE) Reference:	Well: Shelby 1-14, Grid North		
Site: Shelby 1-14	Vertical (TVD) Reference:	SITE KB 3895.0 above Mean Sea Level		
Well: Shelby 1-14	Section (VS) Reference:	Well (0.0E, 0.0N, 57.5Azi)		
Wellpath: OH	Survey Calculation Method:	Minimum Curvature		

Field: Lea County New Mexico USA	Map System: US State Plane Coordinate System 1927	Map Zone: New Mexico, Eastern Zone
Ellipsoid: Clarke - 1866	North Reference: Grid	
Sys Datum: Mean Sea Level	Geomagnetic Model: igrf2000	

Site: Shelby 1-14 Lea County, New Mexico W/2 Section 14-16S-36E	
Site Position:	Northing: 701982.00 ft Latitude: 32 55 32.896 N
From: Map	Easting: 807429.00 ft Longitude: 103 19 53.168 W
Position Uncertainty: 0.00 ft	Magnetic Declination: 8.79 deg
Water Depth: 0.00 ft	Grid Convergence: 0.55 deg

Well: Shelby 1-14	
Well Position: +N/-S 0.00 ft	Northing: 701982.00 ft Latitude: 32 55 32.896 N
From Slot: +E/-W 0.00 ft	Easting: 807429.00 ft Longitude: 103 19 53.168 W
Position Uncertainty: 0.00 ft	

Wellpath: OH	Drilled From: Surface
Original hole	Tie-on Depth: ft
Vertical Section: +N/-S 0.00 ft	V.Section Direction: 57.50 deg
From: Well +E/-W 0.00 ft	
Measured Depth Reference: SITE KB	Above System Datum: Mean Sea Level

Survey History for Definitive Wellpath		
Date: 12/29/2000	Validated: YES	Version: 0.00
From ft	To ft	Survey
0.00	4316.00	#1 Multishot survey
4422.00	11895.00	#2 Ryan MWD
		PM MWD

Survey									
MD ft	Incl deg	Azim deg	TVD ft	N/S ft	E/W ft	VS ft	ClsD ft	ClsA deg	Tool
4316.00	5.00	54.00	4314.03	25.55	30.74	39.65	39.97	50.27	MWD
4422.00	5.20	47.30	4419.61	31.52	38.00	48.99	49.37	50.33	MWD
4517.00	5.50	49.40	4514.20	37.40	44.62	57.73	58.23	50.03	MWD
4612.00	5.70	52.20	4608.75	43.26	51.81	66.94	67.49	50.14	MWD
4707.00	6.00	50.80	4703.25	49.29	59.38	76.57	77.17	50.31	MWD
4801.00	6.70	61.70	4796.68	54.99	68.02	86.91	87.47	51.05	MWD
4874.84	6.85	63.66	4870.00	58.99	75.76	95.59	96.01	52.10	San Andres
4992.00	7.10	66.60	4986.30	64.96	88.66	109.68	109.92	53.77	MWD
5086.00	8.20	60.30	5079.46	70.59	99.82	122.11	122.26	54.73	MWD
5181.00	9.10	59.60	5173.38	77.75	112.18	136.39	136.49	55.28	MWD
5276.00	9.20	61.00	5267.17	85.23	125.31	151.48	151.55	55.78	MWD
5371.00	9.30	59.60	5360.93	92.80	138.57	166.73	166.77	56.19	MWD
5465.00	10.00	59.90	5453.60	100.73	152.18	182.47	182.50	56.50	MWD
5560.00	8.80	58.20	5547.33	108.70	165.49	197.98	198.00	56.70	MWD
5657.00	9.10	58.90	5643.14	116.57	178.37	213.07	213.08	56.83	MWD
5752.00	9.40	59.60	5736.91	124.38	191.49	228.33	228.34	57.00	MWD
5848.00	9.90	61.30	5831.55	132.31	205.49	244.40	244.40	57.22	MWD
5945.00	10.30	61.70	5927.05	140.43	220.44	261.37	261.37	57.50	MWD
6039.00	10.00	62.40	6019.58	148.19	235.07	277.88	277.89	57.77	MWD
6135.00	10.60	57.10	6114.03	156.85	249.87	295.02	295.02	57.88	MWD
6231.00	11.20	52.50	6208.30	167.32	264.69	313.13	313.14	57.70	MWD
6326.00	11.30	53.60	6301.48	178.46	279.50	331.61	331.61	57.44	MWD
6378.54	11.30	55.35	6353.00	184.44	287.87	341.89	341.89	57.35	Glorietta
6422.00	11.30	56.80	6395.62	189.19	294.94	350.40	350.40	57.32	MWD

RyanUSA

Ryan Survey Report

Company: Chesapeake Operating Inc.
 Field: Lea County
 Site: Shelby 1-14
 Well: Shelby 1-14
 Wellpath: OH

Date: 12/29/2000 Time: 13:30:13 Page: 2
 Co-ordinate(NE) Reference: Well: Shelby 1-14, Grid North
 Vertical (TVD) Reference: SITE KB 3895.0 above Mean Sea Level
 Section (VS) Reference: Well (0.0E,0.0N,57.5Azi)
 Survey Calculation Method: Minimum Curvature

Survey

MD ft	Incl deg	Azim deg	TVD ft	N/S ft	E/W ft	VS ft	ClkD ft	ClkA deg	Tool
6517.00	11.40	55.00	6488.76	199.67	310.42	369.09	369.09	57.25	MWD
6611.00	10.60	56.10	6581.03	209.82	325.20	387.01	387.02	57.17	MWD
6706.00	10.90	56.40	6674.36	219.67	339.94	404.73	404.74	57.13	MWD
6800.00	10.30	55.70	6766.76	229.32	354.28	422.01	422.02	57.09	MWD
6896.00	10.60	57.50	6861.17	238.90	368.82	439.42	439.43	57.07	MWD
6980.36	11.22	57.14	6944.00	247.53	382.26	455.39	455.40	57.08	Paddock
6991.00	11.30	57.10	6954.44	248.65	384.00	457.47	457.48	57.08	MWD
7087.00	9.30	58.90	7048.88	257.77	398.54	474.63	474.64	57.11	MWD
7182.00	10.80	61.30	7142.42	266.01	412.92	491.18	491.19	57.21	MWD
7276.00	11.20	54.30	7234.70	275.57	428.06	509.09	509.09	57.23	MWD
7372.00	8.70	44.80	7329.26	286.16	440.75	525.48	525.50	57.01	MWD
7467.00	6.80	52.90	7423.39	294.65	450.30	538.10	538.14	56.80	MWD
7563.00	7.70	59.90	7518.62	301.31	460.40	550.19	550.23	56.80	MWD
7606.82	8.59	60.11	7562.00	304.41	465.78	556.39	556.43	56.83	Tubb
7657.00	9.60	60.30	7611.55	308.35	472.66	564.31	564.34	56.88	MWD
7752.00	9.20	56.40	7705.27	316.48	485.86	579.82	579.85	56.92	MWD
7847.00	10.30	55.70	7798.90	325.47	499.21	595.90	595.93	56.90	MWD
7943.00	10.60	53.30	7893.31	335.58	513.38	613.28	613.33	56.83	MWD
8038.00	10.60	51.50	7986.69	346.24	527.22	630.69	630.75	56.71	MWD
8134.00	8.70	62.40	8081.33	355.10	540.57	646.71	646.77	56.70	MWD
8229.00	11.00	69.40	8174.93	361.62	555.42	662.74	662.77	56.93	MWD
8306.70	12.47	65.88	8251.00	367.66	570.01	678.29	678.30	57.18	Abo
8324.00	12.80	65.20	8267.88	369.22	573.46	682.03	682.04	57.22	MWD
8418.00	11.80	54.00	8359.74	379.24	590.69	701.95	701.95	57.30	MWD
8513.00	9.00	58.20	8453.17	388.87	604.87	719.08	719.09	57.26	MWD
8608.00	10.30	66.30	8546.83	396.20	618.96	734.90	734.91	57.38	MWD
8702.00	11.40	55.00	8639.16	404.91	634.27	752.49	752.49	57.45	MWD
8795.00	11.60	42.70	8730.30	417.05	648.14	770.72	770.73	57.24	MWD
8889.00	10.20	48.00	8822.61	429.57	660.73	788.06	788.10	56.97	MWD
8983.00	12.10	56.10	8914.83	440.63	675.10	806.13	806.17	56.87	MWD
9077.00	11.60	48.70	9006.84	452.37	690.38	825.32	825.38	56.77	MWD
9172.00	9.50	48.70	9100.22	463.85	703.44	842.50	842.61	56.60	MWD
9267.00	10.60	58.50	9193.77	473.59	716.79	858.99	859.11	56.55	MWD
9360.00	11.40	55.00	9285.06	483.33	731.61	876.72	876.85	56.55	MWD
9455.00	10.60	48.00	9378.32	494.56	745.79	894.72	894.87	56.45	MWD
9580.00	13.40	44.10	9500.58	512.66	764.42	920.16	920.41	56.15	MWD
9675.00	14.30	54.70	9592.83	527.35	781.66	942.59	942.91	55.99	MWD
9768.00	12.60	69.10	9683.30	537.61	800.52	964.00	964.29	56.12	MWD
9816.86	12.51	74.13	9731.00	540.96	810.58	974.29	974.51	56.28	Wolfcamp Limestone
9860.00	12.50	78.60	9773.12	543.16	819.65	983.13	983.28	56.47	MWD
9955.00	10.50	90.20	9866.22	545.16	838.39	1000.00	1000.05	56.97	MWD
10050.00	9.90	94.70	9959.72	544.46	855.19	1013.79	1013.79	57.52	MWD
10143.00	8.90	77.20	10051.48	545.40	870.17	1026.94	1026.97	57.92	MWD
10240.00	9.90	72.60	10147.18	549.55	885.45	1042.05	1042.13	58.17	MWD
10335.00	8.70	75.40	10240.93	553.81	900.19	1056.78	1056.91	58.40	MWD
10431.00	8.90	78.90	10335.80	557.07	914.51	1070.60	1070.82	58.65	MWD
10526.00	8.60	80.00	10429.70	559.71	928.71	1084.00	1084.34	58.92	MWD
10621.00	8.00	77.90	10523.70	562.33	942.17	1096.76	1097.23	59.17	MWD
10716.00	8.20	79.30	10617.75	564.98	955.29	1109.25	1109.86	59.40	MWD
10725.34	8.25	79.15	10627.00	565.23	956.61	1110.49	1111.12	59.42	Augusta Zone
10811.00	8.70	77.90	10711.72	567.74	968.98	1122.27	1123.05	59.63	MWD
10906.00	8.50	85.20	10805.66	569.84	983.00	1135.22	1136.22	59.90	MWD

N/S
E/W

RyanUSA

Ryan Survey Report

Company: Chesapeake Operating Inc.
Field: Lea County
Site: Shelby 1-14
Well: Shelby 1-14
Wellpath: OH

Date: 12/29/2000 **Time:** 13:30:13 **Page:** 3
Co-ordinate(NE) Reference: Well: Shelby 1-14, Grid North
Vertical (TVD) Reference: SITE KB 3895.0 above Mean Sea Level
Section (VS) Reference: Well (0.0E,0.0N,57.5Azi)
Survey Calculation Method: Minimum Curvature

Survey

MD ft	Incl deg	Azim deg	TVD ft	N/S ft	E/W ft	VS ft	ClsD ft	ClsA deg	Tool
11001.00	7.70	88.40	10899.71	570.60	996.36	1146.90	1148.18	60.20	MWD
11096.00	6.90	87.30	10993.94	571.05	1008.42	1157.32	1158.88	60.48	MWD
11137.34	6.47	92.27	11035.00	571.07	1013.23	1161.38	1163.08	60.59	Cisco Shale
11191.00	6.00	99.70	11088.34	570.48	1019.01	1165.95	1167.83	60.76	MWD
11286.00	6.40	102.10	11182.79	568.53	1029.09	1173.39	1175.69	61.08	MWD
11382.00	7.40	99.30	11278.09	566.41	1040.42	1181.81	1184.61	61.44	MWD
11477.00	7.90	99.70	11372.24	564.32	1052.89	1191.21	1194.59	61.81	MWD
11540.37	8.10	102.47	11435.00	562.63	1061.54	1197.59	1201.42	62.08	DST Strawn
11541.00	8.10	102.50	11435.62	562.61	1061.63	1197.66	1201.49	62.08	MWD
11572.00	8.40	102.80	11466.30	561.63	1065.97	1200.79	1204.87	62.22	MWD
11668.00	8.60	107.00	11561.25	557.98	1079.67	1210.39	1215.33	62.67	MWD
11678.88	8.69	108.06	11572.00	557.49	1081.23	1211.44	1216.49	62.72	Atoka Shale
11763.00	9.50	115.50	11655.07	552.53	1093.54	1219.16	1225.20	63.19	MWD
11858.00	9.10	111.60	11748.82	546.39	1107.60	1227.72	1235.04	63.74	MWD
11895.00	9.10	109.80	11785.35	544.32	1113.07	1231.22	1239.04	63.94	MWD



PATTERSON DRILLING COMPANY LP
A LIMITED PARTNERSHIP

410 North Loraine Street • Midland, Texas 79701
(915) 682-9401 • Fax (915) 682-1565

November 22, 2000

Chesapeake Operating, Inc.
P. O. Box 18496
Oklahoma City, Oklahoma 73154-0496

Re: Deviation Report
Shelby #14-1

Gentlemen:

The following is a deviation survey on the above-referenced well located in Lea County, New Mexico.

216' - 1.00	5086' - 8.20	6993' - 11.3	8796' - 11.6	10621' - 8.00
396' - 1.00	5465' - 10.0	7089' - 9.30	8890' - 10.2	10716' - 8.20
682' - 1.00	5561' - 8.80	7182' - 10.8	8983' - 12.1	10811' - 8.70
1182' - 0.75	5657' - 9.10	7281' - 11.2	9078' - 11.6	10906' - 8.50
1658' - 0.25	5753' - 9.40	7372' - 8.70	9175' - 9.50	11001' - 7.70
2132' - 0.50	5848' - 9.90	7467' - 6.80	9267' - 10.6	11099' - 6.90
2605' - 0.50	5945' - 10.3	7563' - 7.70	9455' - 10.6	11194' - 6.00
3083' - 0.75	6039' - 10.0	7657' - 9.60	9581' - 13.4	11289' - 6.40
3549' - 1.25	6134' - 10.6	7752' - 9.20	9675' - 14.3	11353' - 7.10
4063' - 5.00	6230' - 11.2	7807' - 10.3	9767' - 12.6	11385' - 7.40
4316' - 5.00	6325' - 11.3	7943' - 10.6	9829' - 12.5	11480' - 7.90
4422' - 5.20	6421' - 11.3	8134' - 8.70	9955' - 10.5	11544' - 8.10
4517' - 5.50	6519' - 11.4	8229' - 11.0	10049' - 9.90	11671' - 8.60
4612' - 5.70	6613' - 10.6	8324' - 12.8	10143' - 8.90	11765' - 9.50
4707' - 6.00	6708' - 10.9	8418' - 11.8	10240' - 9.90	11861' - 9.10
4801' - 6.70	6802' - 10.3	8513' - 9.00	10355' - 8.70	11961' - 9.10
4992' - 7.10	6898' - 10.6	8608' - 10.3	10526' - 8.60	12550' - 6.25

Sincerely,

Treva Forrester

Treva Forrester

STATE OF TEXAS)
)
COUNTY OF MIDLAND)

The foregoing was acknowledged before me this 22nd day of November, 2000 by Treva Forrester.

MY COMMISSION EXPIRES:

Denise Berk
NOTARY PUBLIC