

Company: EP Energy	Date: 4/15/2013	Time: 08:40:48	Page: 1
Field: Crockett Co, Tx	Co-ordinate(NE) Reference:	Site: University 44-13 AH, Grid North	
Site: University 44-13 AH	Vertical (TVD) Reference:	SITE 2745.5	
Well: 44-13 AH	Section (VS) Reference:	Well (0.00N,0.00E,180.16Azi)	
Wellpath: 44-13 AH	Survey Calculation Method:	Minimum Curvature	Db: Sybase

Field: Crockett Co, Tx
Texas
USA

Map System: US State Plane Coordinate System 1927
Geo Datum: NAD27 (Clarke 1866)
Sys Datum: Mean Sea Level

Map Zone: Texas, Central Zone
Coordinate System: Site Centre
Geomagnetic Model: IGRF2010

Site: University 44-13 AH

Crockett Co., TX

Site Position:	Northing: 499361.00 ft	Latitude: 31 2 11.043 N	
From: Map	Easting: 1709552.00 ft	Longitude: 101 15 38.692 W	
Position Uncertainty: 2.00 ft		North Reference: Grid	
Ground Level: 2716.00 ft		Grid Convergence: -0.48 deg	

Well: 44-13 AH

Slot Name:

Well Position: +N/-S 0.00 ft	Northing: 499361.00 ft	Latitude: 31 2 11.043 N	
+E/-W 0.00 ft	Easting: 1709552.00 ft	Longitude: 101 15 38.692 W	
Position Uncertainty: 0.00 ft			

Wellpath: 44-13 AH

Drilled From: Surface
Tie-on Depth: 0.00 ft
Above System Datum: Mean Sea Level
Declination: 6.19 deg
Mag Dip Angle: 59.41 deg

Current Datum: SITE
Magnetic Data: 3/28/2013
Field Strength: 47971 nT
Vertical Section: Depth From (TVD)

Height 2745.50 ft

+N/-S
ft

+E/-W
ft

Direction
deg

0.00

0.00

0.00

180.16

Survey Program for Definitive Wellpath

Date: 4/15/2013 **Validated:** No
Actual From **To**
ft ft

Version: 0
Toolcode

Tool Name

129.50	897.50	Survey #1 (129.50-897.50)	Gyro	Gyro
1030.00	14677.00	Survey #2 (1030.00-14677.00)	Ryan MWD	Ryan MWD
14677.00	14725.00	Survey #3 (14677.00-14725.00)	Projection	Projected to TD

Survey

MD ft	Incl deg	TVD ft	VS ft	Azim deg	N/S ft	E/W ft	Clsr Dist. ft	Clsr Azi. deg	Dog Leg 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
129.50	0.19	129.50	0.03	261.68	-0.03	-0.21	0.21	261.68	0.15	Gyro
229.50	0.21	229.50	0.20	141.65	-0.20	-0.26	0.33	232.90	0.35	Gyro
329.50	0.18	329.50	0.39	108.73	-0.39	0.00	0.39	180.05	0.11	Gyro
429.50	0.38	429.50	0.53	104.54	-0.53	0.47	0.71	138.29	0.20	Gyro
529.50	0.38	529.50	0.52	75.64	-0.53	1.11	1.23	115.39	0.19	Gyro
629.50	0.64	629.49	0.46	92.54	-0.47	1.99	2.05	103.29	0.30	Gyro
729.50	0.60	729.49	0.53	94.96	-0.54	3.07	3.12	99.98	0.05	Gyro
829.50	0.81	829.48	0.61	92.86	-0.62	4.30	4.34	98.22	0.21	Gyro
897.50	0.87	897.47	0.57	82.78	-0.58	5.29	5.32	96.25	0.23	Gyro
1030.00	0.90	1029.96	1.00	122.80	-1.02	7.16	7.23	98.08	0.46	Ryan MWD
1093.00	0.80	1092.95	1.65	210.10	-1.67	7.36	7.54	102.75	1.87	Ryan MWD
1189.00	3.30	1188.89	3.23	248.80	-3.24	4.45	5.50	126.13	2.84	Ryan MWD
1284.00	3.60	1283.71	5.46	245.70	-5.46	-0.82	5.52	188.56	0.37	Ryan MWD
1379.00	4.40	1378.48	8.52	240.20	-8.50	-6.70	10.82	218.26	0.93	Ryan MWD
1474.00	5.80	1473.11	11.56	255.40	-11.52	-14.51	18.53	231.55	2.04	Ryan MWD
1569.00	7.90	1567.43	13.49	264.00	-13.41	-25.65	28.95	242.39	2.45	Ryan MWD
1664.00	9.30	1661.36	14.37	268.80	-14.26	-39.82	42.29	250.30	1.65	Ryan MWD
1759.00	8.90	1755.16	14.08	273.80	-13.93	-54.83	56.57	255.74	0.93	Ryan MWD
1853.00	10.20	1847.86	13.50	271.00	-13.30	-70.40	71.65	259.30	1.47	Ryan MWD
1949.00	10.40	1942.31	13.29	270.70	-13.05	-87.57	88.53	261.52	0.22	Ryan MWD

Company: EP Energy Field: Crockett Co, Tx Site: University 44-13 AH Well: 44-13 AH Wellpath: 44-13 AH	Date: 4/15/2013 Co-ordinate(NE) Reference: Site: University 44-13 AH, Grid North Vertical (TVD) Reference: SITE 2745.5 Section (VS) Reference: Well (0.00N,0.00E,180.16Azi) Survey Calculation Method: Minimum Curvature	Time: 08:40:48 Page: 2 Db: Sybase
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Survey

MD ft	Incl deg	TVD ft	VS ft	Azim deg	N/S ft	E/W ft	Clsr Dist. ft	Clsr Azi. deg	Dog Leg deg/100ft	Tool
2044.00	10.30	2035.77	13.25	269.90	-12.96	-104.63	105.43	262.94	0.18	Ryan MWD
2138.00	11.10	2128.13	12.13	277.50	-11.79	-122.01	122.58	264.48	1.72	Ryan MWD
2233.00	11.30	2221.33	9.42	279.70	-9.03	-140.25	140.54	266.32	0.50	Ryan MWD
2329.00	10.30	2315.63	7.17	274.80	-6.73	-158.08	158.22	267.56	1.41	Ryan MWD
2424.00	8.50	2409.35	6.46	270.30	-5.98	-173.56	173.66	268.03	2.05	Ryan MWD
2519.00	7.50	2503.42	6.84	266.50	-6.32	-186.77	186.88	268.06	1.19	Ryan MWD
2614.00	8.40	2597.51	7.32	269.50	-6.76	-199.90	200.01	268.06	1.04	Ryan MWD
2709.00	9.00	2691.42	7.68	268.00	-7.08	-214.26	214.38	268.11	0.68	Ryan MWD
2804.00	8.30	2785.34	8.90	262.30	-8.26	-228.48	228.63	267.93	1.16	Ryan MWD
2899.00	7.80	2879.40	9.77	270.70	-9.10	-241.73	241.90	267.84	1.34	Ryan MWD
2994.00	7.70	2973.54	9.84	269.00	-9.13	-254.54	254.70	267.95	0.26	Ryan MWD
3089.00	8.20	3067.62	9.49	274.20	-8.75	-267.66	267.80	268.13	0.92	Ryan MWD
3185.00	10.00	3162.41	8.80	271.60	-8.01	-282.82	282.93	268.38	1.92	Ryan MWD
3280.00	8.60	3256.16	8.49	271.00	-7.66	-298.16	298.26	268.53	1.48	Ryan MWD
3375.00	9.70	3349.95	8.23	271.30	-7.35	-313.27	313.35	268.66	1.16	Ryan MWD
3470.00	10.90	3443.42	7.39	274.50	-6.47	-330.22	330.29	268.88	1.40	Ryan MWD
3566.00	9.50	3537.90	6.20	273.80	-5.23	-347.18	347.22	269.14	1.46	Ryan MWD
3661.00	10.10	3631.51	4.74	276.80	-3.72	-363.27	363.29	269.41	0.83	Ryan MWD
3755.00	11.10	3723.91	3.71	270.60	-2.65	-380.51	380.52	269.60	1.61	Ryan MWD
3850.00	9.50	3817.38	3.98	267.70	-2.87	-397.49	397.50	269.59	1.77	Ryan MWD
3946.00	10.90	3911.86	4.16	271.20	-3.00	-414.48	414.49	269.59	1.59	Ryan MWD
4041.00	9.20	4005.40	4.33	267.60	-3.13	-431.05	431.06	269.58	1.91	Ryan MWD
4136.00	10.60	4098.98	4.22	273.10	-2.97	-447.36	447.37	269.62	1.78	Ryan MWD
4231.00	9.40	4192.54	3.91	269.20	-2.61	-463.84	463.85	269.68	1.45	Ryan MWD
4326.00	9.20	4286.29	4.31	268.10	-2.97	-479.19	479.20	269.64	0.28	Ryan MWD
4421.00	10.00	4379.96	4.60	270.00	-3.22	-495.03	495.04	269.63	0.91	Ryan MWD
4515.00	10.60	4472.45	4.14	273.40	-2.71	-511.82	511.83	269.70	0.91	Ryan MWD
4611.00	8.80	4567.07	3.97	267.60	-2.49	-527.97	527.98	269.73	2.13	Ryan MWD
4707.00	9.00	4661.92	4.04	272.10	-2.53	-542.81	542.82	269.73	0.75	Ryan MWD
4801.00	10.10	4754.61	3.84	269.80	-2.28	-558.40	558.41	269.77	1.24	Ryan MWD
4897.00	12.10	4848.81	3.40	273.00	-1.79	-576.87	576.88	269.82	2.18	Ryan MWD
4992.00	11.60	4941.79	2.67	271.60	-1.00	-596.36	596.36	269.90	0.61	Ryan MWD
5087.00	10.90	5034.96	2.39	270.40	-0.67	-614.89	614.89	269.94	0.78	Ryan MWD
5183.00	10.30	5129.33	2.55	268.80	-0.79	-632.55	632.55	269.93	0.70	Ryan MWD
5277.00	8.70	5222.03	3.43	264.70	-1.62	-648.03	648.03	269.86	1.85	Ryan MWD
5372.00	9.40	5315.85	5.33	261.10	-3.48	-662.85	662.86	269.70	0.95	Ryan MWD
5467.00	10.00	5409.49	8.46	256.80	-6.57	-678.55	678.58	269.45	0.99	Ryan MWD
5562.00	8.60	5503.24	12.49	252.80	-10.55	-693.36	693.44	269.13	1.62	Ryan MWD
5657.00	8.20	5597.23	18.07	239.40	-16.10	-705.98	706.16	268.69	2.10	Ryan MWD
5753.00	8.30	5692.25	26.47	225.20	-24.47	-716.79	717.21	268.04	2.12	Ryan MWD
5847.00	7.40	5785.37	35.87	220.70	-33.84	-725.55	726.34	267.33	1.16	Ryan MWD
5942.00	7.20	5879.60	45.68	209.90	-43.64	-732.51	733.81	266.59	1.46	Ryan MWD
6037.00	6.70	5973.91	56.01	201.70	-53.95	-737.53	739.50	265.82	1.17	Ryan MWD
6132.00	6.80	6068.25	66.67	191.90	-64.60	-740.74	743.55	265.02	1.22	Ryan MWD
6227.00	7.80	6162.49	78.62	178.00	-76.55	-741.67	745.61	264.11	2.13	Ryan MWD
6322.00	9.00	6256.47	92.48	176.90	-90.41	-741.04	746.54	263.04	1.27	Ryan MWD
6386.10	13.29	6319.35	104.86	181.13	-102.79	-740.92	748.01	262.10	6.81	Ryan MWD
6416.00	15.30	6348.32	112.24	182.30	-110.17	-741.14	749.29	261.55	6.79	Ryan MWD
6447.00	20.20	6377.83	121.68	181.60	-119.61	-741.46	751.04	260.84	15.82	Ryan MWD
6479.00	24.50	6407.42	133.84	181.60	-131.77	-741.80	753.41	259.93	13.44	Ryan MWD
6511.00	28.70	6436.03	148.17	181.30	-146.09	-742.16	756.40	258.86	13.13	Ryan MWD
6543.00	32.70	6463.54	164.49	183.00	-162.41	-742.78	760.33	257.67	12.79	Ryan MWD
6575.00	36.40	6489.89	182.60	184.00	-180.52	-743.90	765.49	256.36	11.70	Ryan MWD

Company: EP Energy Field: Crockett Co, Tx Site: University 44-13 AH Well: 44-13 AH Wellpath: 44-13 AH	Date: 4/15/2013 Co-ordinate(NE) Reference: Vertical (TVD) Reference: Section (VS) Reference: Survey Calculation Method:	Time: 08:40:48 Page: 3
Site: University 44-13 AH, Grid North SITE 2745.5 Well (0.00N,0.00E,180.16Azi) Minimum Curvature		Db: Sybase

Survey

MD ft	Incl deg	TVD ft	VS ft	Azim deg	N/S ft	E/W ft	Clsr Dist. ft	Clsr Azi. deg	Dog Leg deg/100ft	Tool
6606.00	40.20	6514.21	201.76	184.30	-199.68	-745.29	771.58	255.00	12.27	Ryan MWD
6638.00	43.40	6538.07	223.05	183.20	-220.96	-746.68	778.69	253.52	10.26	Ryan MWD
6670.00	44.60	6561.09	245.25	183.10	-243.16	-747.90	786.44	251.99	3.76	Ryan MWD
6701.00	47.00	6582.70	267.44	182.50	-265.35	-748.99	794.60	250.49	7.87	Ryan MWD
6733.00	51.40	6603.60	291.65	181.70	-289.56	-749.87	803.83	248.89	13.88	Ryan MWD
6764.00	55.70	6622.01	316.57	180.50	-314.48	-750.34	813.58	247.26	14.22	Ryan MWD
6796.00	58.50	6639.39	343.44	180.20	-341.34	-750.50	824.48	245.54	8.79	Ryan MWD
6828.00	61.00	6655.51	371.08	179.80	-368.99	-750.50	836.30	243.82	7.89	Ryan MWD
6859.00	63.70	6669.90	398.54	180.30	-396.44	-750.53	848.80	242.16	8.83	Ryan MWD
6891.00	67.40	6683.14	427.66	181.20	-425.56	-750.91	863.12	240.46	11.84	Ryan MWD
6922.00	71.40	6694.05	456.67	180.60	-454.57	-751.36	878.17	238.83	13.03	Ryan MWD
6954.00	76.60	6702.86	487.42	179.20	-485.32	-751.31	894.43	237.14	16.78	Ryan MWD
6985.00	80.50	6709.02	517.79	180.50	-515.70	-751.23	911.20	235.53	13.23	Ryan MWD
7017.00	82.60	6713.72	549.44	181.00	-547.35	-751.64	929.81	233.94	6.74	Ryan MWD
7042.00	85.80	6716.25	574.31	180.90	-572.21	-752.05	944.99	232.73	12.81	Ryan MWD
7053.95	86.63	6717.03	586.23	180.33	-584.13	-752.18	952.36	232.17	8.42	Ryan MWD
7105.00	90.20	6718.45	637.24	177.90	-635.15	-751.39	983.87	229.79	8.46	Ryan MWD
7200.00	90.80	6717.62	732.05	175.40	-729.97	-745.84	1043.62	225.62	2.71	Ryan MWD
7295.00	90.20	6716.79	826.56	173.40	-824.51	-736.57	1105.60	221.78	2.20	Ryan MWD
7390.00	90.30	6716.37	920.73	171.80	-918.72	-724.34	1169.92	218.25	1.69	Ryan MWD
7485.00	90.20	6715.96	1015.26	177.50	-1013.26	-715.48	1240.41	215.23	6.00	Ryan MWD
7581.00	91.30	6714.70	1111.22	181.50	-1109.23	-714.65	1319.51	212.79	4.32	Ryan MWD
7676.00	92.50	6711.55	1205.84	187.60	-1203.83	-722.17	1403.83	210.96	6.54	Ryan MWD
7771.00	89.80	6709.64	1300.22	185.50	-1298.18	-733.01	1490.83	209.45	3.60	Ryan MWD
7866.00	90.20	6709.64	1394.85	184.90	-1392.79	-741.62	1577.93	208.03	0.76	Ryan MWD
7961.00	91.60	6708.15	1489.29	187.60	-1487.20	-751.96	1666.49	206.82	3.20	Ryan MWD
8057.00	89.90	6706.89	1584.72	185.00	-1582.60	-762.49	1756.70	205.72	3.24	Ryan MWD
8152.00	89.30	6707.56	1679.52	182.70	-1677.38	-768.87	1845.20	204.63	2.50	Ryan MWD
8246.00	88.50	6709.36	1773.47	179.90	-1771.32	-771.00	1931.85	203.52	3.10	Ryan MWD
8341.00	89.00	6711.43	1868.44	179.40	-1866.30	-770.42	2019.06	202.43	0.74	Ryan MWD
8436.00	91.70	6710.85	1963.43	181.50	-1961.28	-771.16	2107.44	201.46	3.60	Ryan MWD
8531.00	90.90	6708.70	2058.39	179.70	-2056.25	-772.16	2196.45	200.58	2.07	Ryan MWD
8626.00	89.40	6708.45	2153.28	175.60	-2151.14	-768.26	2284.22	199.65	4.60	Ryan MWD
8721.00	90.60	6708.45	2248.20	183.30	-2246.07	-767.35	2373.53	198.86	8.20	Ryan MWD
8816.00	89.00	6708.78	2343.15	180.00	-2341.01	-770.09	2464.42	198.21	3.86	Ryan MWD
8910.00	91.10	6708.70	2437.09	183.50	-2434.95	-772.96	2554.69	197.61	4.34	Ryan MWD
9005.00	89.20	6708.45	2532.00	181.60	-2529.84	-777.18	2646.53	197.08	2.83	Ryan MWD
9100.00	90.50	6708.70	2626.98	177.50	-2624.82	-776.44	2737.25	196.48	4.53	Ryan MWD
9195.00	90.30	6708.04	2721.54	172.30	-2719.41	-767.99	2825.77	195.77	5.48	Ryan MWD
9291.00	90.30	6707.53	2816.52	171.30	-2814.42	-754.30	2913.75	195.00	1.04	Ryan MWD
9386.00	90.60	6706.79	2910.62	173.30	-2908.56	-741.58	3001.61	194.30	2.13	Ryan MWD
9481.00	90.10	6706.21	3005.38	179.90	-3003.34	-735.94	3092.19	193.77	6.97	Ryan MWD
9576.00	90.20	6705.96	3100.34	183.30	-3098.28	-738.60	3185.10	193.41	3.58	Ryan MWD
9671.00	90.60	6705.29	3195.24	181.90	-3193.18	-742.91	3278.46	193.10	1.53	Ryan MWD
9766.00	89.60	6705.13	3290.18	182.60	-3288.11	-746.64	3371.81	192.79	1.28	Ryan MWD
9861.00	91.00	6704.63	3385.14	180.50	-3383.06	-749.20	3465.03	192.49	2.66	Ryan MWD
9956.00	90.40	6703.47	3480.10	182.80	-3478.01	-751.94	3558.37	192.20	2.50	Ryan MWD
10052.00	89.50	6703.55	3576.04	181.10	-3573.95	-755.21	3652.87	191.93	2.00	Ryan MWD
10147.00	90.60	6703.47	3671.03	180.90	-3668.93	-756.86	3746.19	191.66	1.18	Ryan MWD
10242.00	89.20	6703.64	3766.02	178.80	-3763.93	-756.62	3839.22	191.37	2.66	Ryan MWD
10337.00	91.60	6702.97	3860.85	186.60	-3858.74	-761.09	3933.08	191.16	8.59	Ryan MWD
10431.00	89.40	6702.15	3954.51	183.10	-3952.38	-769.03	4026.50	191.01	4.40	Ryan MWD

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Vertical (TVD) Reference:	SITE 2745.5	
Section (VS) Reference:	Well (0.00N,0.00E,180.16Azi)	
Survey Calculation Method:	Minimum Curvature	Db: Sybase

MD ft	Incl deg	TVD ft	VS ft	Azim deg	N/S ft	E/W ft	Clsr Dist. ft	Clsr Azi. deg	Dog Leg deg/100ft	Tool
10526.00	91.00	6701.82	4049.37	183.30	-4047.23	-774.33	4120.63	190.83	1.70	Ryan MWD
10621.00	90.10	6700.91	4144.30	181.10	-4142.14	-777.98	4214.57	190.64	2.50	Ryan MWD
10716.00	90.60	6700.33	4239.29	179.40	-4237.14	-778.39	4308.04	190.41	1.87	Ryan MWD
10810.00	88.90	6700.74	4333.28	179.00	-4331.12	-777.08	4400.28	190.17	1.86	Ryan MWD
10906.00	91.60	6700.32	4429.26	180.60	-4427.11	-776.75	4494.74	189.95	3.27	Ryan MWD
11001.00	90.20	6698.83	4524.23	181.70	-4522.08	-778.65	4588.62	189.77	1.87	Ryan MWD
11096.00	88.80	6699.66	4619.21	180.90	-4617.04	-780.81	4682.60	189.60	1.70	Ryan MWD
11191.00	87.60	6702.64	4714.15	178.50	-4711.99	-780.31	4776.16	189.40	2.82	Ryan MWD
11286.00	87.30	6706.87	4809.00	178.10	-4806.85	-777.50	4869.32	189.19	0.53	Ryan MWD
11380.00	89.70	6709.33	4902.90	178.10	-4900.76	-774.38	4961.56	188.98	2.55	Ryan MWD
11475.00	91.90	6708.00	4997.84	178.50	-4995.70	-771.56	5054.94	188.78	2.35	Ryan MWD
11571.00	93.30	6703.65	5093.67	177.60	-5091.55	-768.30	5149.19	188.58	1.73	Ryan MWD
11665.00	91.00	6700.12	5187.55	179.10	-5185.43	-765.60	5241.65	188.40	2.92	Ryan MWD
11761.00	87.30	6701.54	5283.48	177.90	-5281.37	-763.09	5336.21	188.22	4.05	Ryan MWD
11856.00	89.40	6704.28	5378.39	178.90	-5376.29	-760.43	5429.80	188.05	2.45	Ryan MWD
11951.00	90.90	6704.03	5473.32	177.30	-5471.23	-757.29	5523.39	187.88	2.31	Ryan MWD
12046.00	89.50	6703.70	5568.23	178.00	-5566.15	-753.39	5616.90	187.71	1.65	Ryan MWD
12141.00	91.00	6703.28	5663.21	180.90	-5661.13	-752.48	5710.92	187.57	3.44	Ryan MWD
12236.00	90.20	6702.29	5758.18	181.50	-5756.10	-754.47	5805.33	187.47	1.05	Ryan MWD
12332.00	89.90	6702.21	5854.18	180.20	-5852.09	-755.89	5900.70	187.36	1.39	Ryan MWD
12427.00	89.90	6702.37	5949.17	181.30	-5947.08	-757.14	5995.08	187.26	1.16	Ryan MWD
12523.00	90.10	6702.37	6045.16	180.00	-6043.07	-758.22	6090.45	187.15	1.37	Ryan MWD
12617.00	90.20	6702.12	6139.16	179.90	-6137.07	-758.14	6183.72	187.04	0.15	Ryan MWD
12713.00	89.80	6702.12	6235.14	182.50	-6233.04	-760.15	6279.22	186.95	2.74	Ryan MWD
12808.00	90.50	6701.88	6330.08	181.70	-6327.97	-763.63	6373.88	186.88	1.12	Ryan MWD
12903.00	90.50	6701.05	6425.06	180.80	-6422.95	-765.71	6468.43	186.80	0.95	Ryan MWD
12998.00	89.80	6700.80	6520.06	179.50	-6517.94	-765.95	6562.79	186.70	1.55	Ryan MWD
13094.00	90.40	6700.63	6616.05	181.10	-6613.94	-766.46	6658.20	186.61	1.78	Ryan MWD
13189.00	90.60	6699.80	6711.04	180.60	-6708.92	-767.87	6752.72	186.53	0.57	Ryan MWD
13283.00	89.50	6699.72	6805.03	178.30	-6802.91	-766.96	6846.01	186.43	2.71	Ryan MWD
13378.00	91.40	6698.97	6900.01	180.70	-6897.89	-766.14	6940.31	186.34	3.22	Ryan MWD
13473.00	92.40	6695.82	6994.94	181.20	-6992.83	-767.71	7034.84	186.27		