

SUR: I-13-15s-31e, 1980/S & 330/E
 BHL: L-13-15s-31e, 1952/S & 4749/E ;
 API # 30-005-27994



MWD

SURVEY SHEET

Customer:	Chesapeake Operating	PGS Job #:	MNM163710
Well:	Wrinkle 13 Federal Com #1	MWD Operator:	Robert Brewer
Field/Block:	Wolfcamp	Directional Driller:	Lynn Duncan
Co./Parish:	Chaves County	Date of First Survey:	January 25, 2010
State:	New Mexico	Date of Last Survey:	February 23, 2010

Total Correction: 7.59 East Grid

Vertical Section Plane: 269.72

Nominal Dip Angle: 60.93

Magnetic Field Strength: 492

Measured					Coordinates			Closure		
Depth	Inc.	Azm.	T.V.D.	Ver. Sect.	+N / -S	+E / -W	Dist.	Angle	DLS	
Survey's are tied into:			Gyroscopic Surveying Tool					Date Received:		01/24/10
Company:			Gyrodata							
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Gyro	183.10	0.35	104.70	183.10	-0.54	-0.14	0.54	0.56	104.70	0.19
Gyro	365.90	0.37	105.08	365.90	-1.65	-0.44	1.65	1.71	104.83	0.01
Gyro	548.70	0.34	102.38	548.69	-2.75	-0.71	2.75	2.84	104.41	0.02
Gyro	735.90	0.27	132.69	735.89	-3.61	-1.13	3.62	3.79	107.28	0.09
Gyro	920.50	0.25	154.45	920.49	-4.10	-1.78	4.11	4.48	113.45	0.05
Gyro	1105.20	0.28	186.27	1105.19	-4.22	-2.60	4.24	4.97	121.50	0.08
Gyro	1293.70	0.46	265.33	1293.68	-3.42	-3.11	3.43	4.63	132.24	0.26
Gyro	1484.50	0.65	248.30	1484.47	-1.64	-3.58	1.66	3.94	155.08	0.13
Gyro	1675.40	0.26	258.23	1675.37	-0.21	-4.07	0.23	4.07	176.74	0.21
Gyro	1866.20	0.14	222.03	1866.17	0.37	-4.33	-0.35	4.34	184.60	0.09
Gyro	2056.70	0.06	77.00	2056.67	0.43	-4.48	-0.41	4.50	185.19	0.10
Gyro	2247.40	0.82	40.06	2247.36	-0.55	-3.41	0.57	3.46	170.54	0.41
Gyro	2437.50	0.66	60.84	2437.44	-2.39	-1.84	2.40	3.02	127.42	0.16
Gyro	2627.40	0.54	88.78	2627.33	-4.24	-1.28	4.25	4.44	106.82	0.16
Gyro	2818.50	0.50	94.41	2818.43	-5.98	-1.33	5.98	6.13	102.53	0.03
Gyro	3009.70	0.33	100.25	3009.62	-7.35	-1.49	7.36	7.51	101.46	0.09
Gyro	3200.70	0.35	109.40	3200.62	-8.44	-1.78	8.45	8.63	101.92	0.03
Gyro	3391.80	0.37	141.90	3391.71	-9.37	-2.46	9.38	9.70	104.71	0.11
Gyro	3582.80	0.30	132.69	3582.71	-10.11	-3.29	10.13	10.65	107.98	0.05
Gyro	3773.60	0.14	178.51	3773.51	-10.48	-3.86	10.50	11.19	110.18	0.12
Gyro	3964.90	0.23	236.69	3964.81	-10.16	-4.30	10.18	11.06	112.91	0.10
Gyro	4155.80	0.45	272.08	4155.70	-9.09	-4.49	9.12	10.16	116.21	0.15
Gyro	4346.80	0.41	288.91	4346.70	-7.70	-4.24	7.72	8.81	118.77	0.07
Gyro	4537.10	0.36	273.45	4537.00	-6.46	-3.98	6.48	7.60	121.57	0.06
Gyro	4727.40	0.40	303.14	4727.29	-5.31	-3.58	5.33	6.42	123.93	0.10
Gyro	4917.50	0.48	352.47	4917.39	-4.65	-2.43	4.67	5.26	117.51	0.20
Gyro	5107.70	0.36	314.35	5107.58	-4.13	-1.22	4.13	4.31	106.47	0.16
Gyro	5297.90	0.40	267.06	5297.78	-3.04	-0.84	3.04	3.16	105.41	0.16
Gyro	5488.30	0.40	285.97	5488.17	-1.74	-0.69	1.74	1.87	111.63	0.07
Gyro	5678.30	0.21	265.43	5678.17	-0.75	-0.54	0.76	0.93	125.31	0.11
Gyro	5868.60	0.29	282.04	5868.47	0.06	-0.46	-0.06	0.47	187.72	0.06
Gyro	6058.80	0.39	259.83	6058.67	1.17	-0.48	-1.17	1.26	247.85	0.09
Gyro	6248.10	0.26	261.63	6247.96	2.23	-0.65	-2.23	2.32	253.68	0.07
Gyro	6437.00	0.40	246.90	6436.86	3.26	-0.97	-3.26	3.40	253.37	0.09
Gyro	6625.40	0.49	249.62	6625.25	4.63	-1.51	-4.62	4.86	251.87	0.05
Gyro	6814.10	0.30	243.11	6813.95	5.83	-2.02	-5.82	6.16	250.88	0.10
Gyro	7002.70	0.49	244.31	7002.54	7.00	-2.59	-6.98	7.45	249.66	0.10
Gyro	7191.30	0.62	253.68	7191.14	8.71	-3.23	-8.69	9.27	249.63	0.08
Gyro	7379.60	0.66	256.96	7379.42	10.74	-3.76	-10.72	11.36	250.69	0.03
Gyro	7568.10	0.44	210.97	7567.92	12.18	-4.62	-12.15	13.00	249.18	0.25
Gyro	7757.00	0.32	117.49	7756.81	12.09	-5.49	-12.06	13.25	245.53	0.30
Gyro	7945.40	0.61	122.81	7945.21	10.78	-6.27	-10.75	12.45	239.73	0.16
Gyro	7983.40	0.68	120.67	7983.20	10.42	-6.50	-10.39	12.25	237.97	0.19
1	8014.00	0.80	135.50	8013.80	10.11	-6.74	-10.08	12.13	236.22	0.74



**Professional
Guidance
Services, L.L.C.**

MWD

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Well: Wrinkle 13 Federal Com #1
Field/Block: Wolfcamp
Co./Parish: Chaves County
State: New Mexico

PGS Job #: MNM163710
MWD Operator: Robert Brewer
Directional Driller: Lynn Duncan
Date of First Survey: January 25, 2010
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Total Correction: 7.59 East Grid

Vertical Section Plane: 269.72

Nominal Dip Angle: 60.93

Magnetic Field Strength: 492

Measured		Coordinates		Closure							
Depth	Inc.	Azm.	T.V.D.	Ver. Sect.	+N / -S	+E / -W	Dist.	Angle	DLS		
8045.00	0.80	134.10	8044.80	9.81	-7.05	-9.77	12.05	234.20	0.06		
8077.00	0.70	127.20	8076.80	9.49	-7.32	-9.46	11.96	232.25	0.42		
8109.00	0.70	129.80	8108.79	9.19	-7.57	-9.15	11.87	230.42	0.10		
8202.00	1.00	126.00	8201.78	8.10	-8.41	-8.06	11.65	223.79	0.33		
8294.00	0.90	148.40	8293.77	7.08	-9.49	-7.03	11.81	216.52	0.42		
8388.00	1.30	122.00	8387.75	5.79	-10.69	-5.74	12.13	208.24	0.68		
8419.00	1.50	118.50	8418.74	5.14	-11.07	-5.08	12.18	204.67	0.70		
8456.00	1.80	117.00	8455.73	4.20	-11.56	-4.14	12.28	199.71	0.82		
8487.00	1.40	181.10	8486.72	3.77	-12.16	-3.71	12.72	196.98	5.59		
8519.00	5.10	234.30	8518.67	4.94	-13.38	-4.88	14.24	200.02	13.77		
8550.00	9.90	248.70	8549.40	8.56	-15.16	-8.48	17.37	209.23	16.51		
8582.00	15.00	248.10	8580.63	14.98	-17.70	-14.89	23.13	220.07	15.94		
8612.00	20.10	247.90	8609.23	23.38	-21.09	-23.28	31.41	227.82	17.00		
8643.00	24.70	253.80	8637.88	34.56	-24.91	-34.44	42.50	234.13	16.50		
8674.00	29.20	260.20	8665.52	48.26	-28.00	-48.12	55.67	239.80	17.25		
8706.00	34.30	264.10	8692.72	64.94	-30.26	-64.79	71.51	244.97	17.17		
8737.00	39.40	266.60	8717.52	83.47	-31.74	-83.31	89.16	249.14	17.14		
8768.00	44.60	270.00	8740.55	104.19	-32.33	-104.04	108.94	252.74	18.30		
8799.00	48.70	271.70	8761.83	126.72	-31.98	-126.57	130.55	255.82	13.81		
8831.00	52.00	272.60	8782.25	151.34	-31.05	-151.19	154.34	258.39	10.54		
8862.00	54.20	273.10	8800.86	176.09	-29.82	-175.94	178.45	260.38	7.21		
8893.00	56.20	273.10	8818.55	201.50	-28.44	-201.36	203.36	261.96	6.45		
8925.00	58.20	273.50	8835.88	228.34	-26.89	-228.21	229.79	263.28	6.34		
8956.00	60.10	274.10	8851.78	254.89	-25.13	-254.77	256.00	264.37	6.35		
8987.00	63.10	274.70	8866.52	282.06	-23.03	-281.95	282.89	265.33	9.83		
9018.00	66.00	275.00	8879.84	309.94	-20.66	-309.84	310.53	266.18	9.40		
9049.00	69.00	275.30	8891.70	338.45	-18.09	-338.36	338.85	266.94	9.72		
9081.00	71.50	275.10	8902.52	368.42	-15.36	-368.35	368.67	267.61	7.83		
9112.00	73.40	274.50	8911.86	397.86	-12.89	-397.81	398.01	268.14	6.40		
9144.00	75.80	274.00	8920.36	428.62	-10.61	-428.57	428.70	268.58	7.65		
9175.00	78.40	273.40	8927.28	458.76	-8.66	-458.72	458.80	268.92	8.60		
9207.00	81.10	272.90	8932.97	490.19	-6.93	-490.16	490.21	269.19	8.58		
9238.00	83.30	272.70	8937.18	520.86	-5.43	-520.84	520.86	269.40	7.13		
9271.00	85.50	273.60	8940.40	553.64	-3.62	-553.63	553.64	269.63	7.20		
9302.00	88.50	271.40	8942.02	584.55	-2.27	-584.55	584.55	269.78	11.99		
9333.00	90.80	269.30	8942.21	615.55	-2.08	-615.54	615.55	269.81	10.05		
9365.00	91.30	268.60	8941.63	647.54	-2.67	-647.53	647.54	269.76	2.69		
9396.00	91.70	268.50	8940.82	678.52	-3.46	-678.51	678.52	269.71	1.33		
9428.00	92.20	268.90	8939.73	710.50	-4.18	-710.48	710.50	269.66	2.00		
9459.00	92.80	268.70	8938.37	741.46	-4.83	-741.45	741.46	269.63	2.04		
9490.00	91.60	268.90	8937.18	772.44	-5.48	-772.42	772.44	269.59	3.92		
9522.00	91.60	268.70	8936.29	804.42	-6.15	-804.40	804.42	269.56	0.62		
9553.00	91.90	268.60	8935.34	835.40	-6.88	-835.38	835.40	269.53	1.02		
9585.00	92.30	268.50	8934.17	867.37	-7.69	-867.34	867.38	269.49	1.29		
9616.00	92.80	268.40	8932.79	898.33	-8.52	-898.30	898.34	269.46	1.64		
9647.00	91.40	268.00	8931.66	929.30	-9.50	-929.26	929.31	269.41	4.70		



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Depth	Inc.	Azm.	T.V.D.	Ver. Sect.	+N / -S	+E / -W	Dist.	Angle	DLS	
8	9741.00	91.30	268.50	8929.44	1023.24	-12.37	-1023.19	1023.27	269.31	0.54
9	9834.00	90.90	269.60	8927.66	1116.22	-13.91	-1116.16	1116.25	269.29	1.26
0	9929.00	91.90	269.40	8925.34	1211.19	-14.74	-1211.13	1211.22	269.30	1.07
1	10023.00	90.60	269.80	8923.28	1305.16	-15.39	-1305.10	1305.19	269.32	1.45
2	10118.00	89.60	270.40	8923.12	1400.16	-15.23	-1400.10	1400.18	269.38	1.23
3	10211.00	90.40	270.80	8923.12	1493.15	-14.25	-1493.09	1493.16	269.45	0.96
4	10305.00	89.50	270.50	8923.20	1587.13	-13.19	-1587.09	1587.14	269.52	1.01
5	10399.00	89.30	271.40	8924.19	1681.11	-11.63	-1681.07	1681.11	269.60	0.98
6	10494.00	89.90	271.90	8924.85	1776.05	-8.89	-1776.03	1776.05	269.71	0.82
7	10588.00	91.30	271.80	8923.86	1869.98	-5.86	-1869.97	1869.98	269.82	1.49
8	10681.00	91.10	268.00	8921.92	1962.94	-6.02	-1962.93	1962.94	269.82	4.09
9	10775.00	91.90	268.00	8919.46	2056.86	-9.30	-2056.84	2056.86	269.74	0.85
0	10869.00	90.00	267.10	8917.90	2150.78	-13.32	-2150.74	2150.78	269.65	2.24
1	10963.00	90.20	267.70	8917.73	2244.70	-17.58	-2244.64	2244.71	269.55	0.67
2	11057.00	91.20	267.30	8916.58	2338.62	-21.68	-2338.54	2338.64	269.47	1.15
3	11151.00	92.10	267.80	8913.88	2432.51	-25.70	-2432.42	2432.55	269.39	1.10
4	11245.00	92.90	268.50	8909.78	2526.39	-28.73	-2526.28	2526.44	269.35	1.13
5	11340.00	92.50	269.40	8905.30	2621.27	-30.47	-2621.15	2621.33	269.33	1.04
6	11434.00	89.10	269.50	8903.99	2715.25	-31.37	-2715.13	2715.31	269.34	3.62
7	11518.00	91.40	270.30	8903.62	2799.24	-31.52	-2799.12	2799.30	269.35	2.90
8	11613.00	89.80	272.60	8902.63	2894.18	-29.12	-2894.07	2894.22	269.42	2.95
9	11707.00	90.10	273.00	8902.71	2988.05	-24.52	-2987.96	2988.06	269.53	0.53
0	11802.00	89.20	272.00	8903.29	3082.93	-20.38	-3082.87	3082.93	269.62	1.42
1	11896.00	90.50	272.30	8903.54	3176.84	-16.85	-3176.80	3176.84	269.70	1.42
2	11990.00	89.80	272.00	8903.29	3270.76	-13.33	-3270.73	3270.76	269.77	0.81
3	12085.00	90.50	271.40	8903.04	3365.70	-10.51	-3365.69	3365.70	269.82	0.97
4	12179.00	91.00	271.50	8901.81	3459.65	-8.13	-3459.65	3459.66	269.87	0.54
5	12273.00	90.60	270.30	8900.50	3553.62	-6.65	-3553.63	3553.63	269.89	1.35
6	12368.00	91.70	270.60	8898.59	3648.59	-5.91	-3648.60	3648.61	269.91	1.20
7	12463.00	91.40	268.50	8896.02	3743.55	-6.65	-3743.56	3743.57	269.90	2.23
8	12556.00	90.60	268.60	8894.40	3836.51	-9.01	-3836.52	3836.53	269.87	0.87
9	12649.00	91.10	268.00	8893.02	3929.47	-11.77	-3929.46	3929.48	269.83	0.84
0	12743.00	89.80	267.80	8892.28	4023.42	-15.21	-4023.40	4023.42	269.78	1.40
1	12837.00	88.70	267.90	8893.51	4117.36	-18.74	-4117.32	4117.36	269.74	1.18
2	12930.00	89.50	268.50	8894.97	4210.32	-21.66	-4210.26	4210.32	269.71	1.08
3	13023.00	89.30	267.90	8895.95	4303.28	-24.58	-4303.21	4303.28	269.67	0.68
4	13092.00	89.60	267.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00