



LEAM Drilling Systems, Inc. Survey Calculations

Job Number: D-3913-MD

Operator: POGO

Location: Eddy County, NM

Lease/Well: Lost Tank 3 Federal Deep 23

Calculation Method: Minimum Curvature

Proposed Azimuth: 0.00

Bearing: N0.00E

Units: English(ft)

MeasDepth	CrsLen	Drift	Azimuth	Bearing	TVD	Vsect	NS(±)	EW(±)	Build	Turn	Dogleg
952.00	0.00	0.00	0.00	N0.00E	952.00	0.00	0.00	0.00	0.00	0.00	0.00
1038.00	86.00	1.00	349.60	N10.40W	1038.00	0.74	0.74	-0.14	1.16	-12.09	1.16
1133.00	95.00	0.90	355.90	N4.10W	1132.98	2.30	2.30	-0.34	-0.11	6.63	0.15
1229.00	96.00	0.70	355.30	N4.70W	1228.97	3.63	3.63	-0.44	-0.21	-0.62	0.21
1326.00	97.00	1.10	353.30	N6.70W	1325.96	5.15	5.15	-0.60	0.41	-2.06	0.41
1421.00	95.00	1.10	351.10	N8.90W	1420.94	6.96	6.96	-0.85	0.00	-2.32	0.04
1517.00	96.00	1.10	355.90	N4.10W	1516.93	8.79	8.79	-1.05	0.00	5.00	0.10
1613.00	96.00	1.20	3.20	N3.20E	1612.91	10.71	10.71	-1.06	0.10	7.60	0.18
1709.00	96.00	1.50	357.40	N2.60W	1708.88	12.97	12.97	-1.06	0.31	-6.04	0.34
1805.00	96.00	1.80	11.30	N11.30E	1804.84	15.70	15.70	-0.83	0.31	14.48	0.52
1902.00	97.00	2.00	17.70	N17.70E	1901.79	18.81	18.81	-0.01	0.21	6.60	0.30
1997.00	95.00	2.20	17.90	N17.90E	1996.72	22.12	22.12	1.05	0.21	0.21	0.21
2092.00	95.00	2.40	21.90	N21.90E	2091.65	25.70	25.70	2.35	0.21	4.21	0.27
2188.00	96.00	2.20	27.30	N27.30E	2187.57	29.20	29.20	3.95	-0.21	5.63	0.31
2284.00	96.00	2.00	32.00	N32.00E	2283.50	32.26	32.26	5.68	-0.21	4.90	0.27
2380.00	96.00	2.30	33.60	N33.60E	2379.44	35.29	35.29	7.64	0.31	1.67	0.32
2507.00	127.00	3.50	36.80	N36.80E	2506.27	40.51	40.51	11.37	0.94	2.52	0.95
2603.00	96.00	2.90	48.80	N48.80E	2602.12	44.46	44.46	14.95	-0.63	12.50	0.93
2699.00	96.00	2.50	49.80	N49.80E	2698.02	47.41	47.41	18.38	-0.42	1.04	0.42
2796.00	97.00	3.10	47.40	N47.40E	2794.90	50.55	50.55	21.92	0.62	-2.47	0.63
2892.00	96.00	2.90	51.40	N51.40E	2890.77	53.82	53.82	25.73	-0.21	4.17	0.30
2988.00	96.00	1.90	59.30	N59.30E	2986.68	56.15	56.15	29.00	-1.04	8.23	1.09
3082.00	94.00	2.40	65.00	N65.00E	3080.62	57.78	57.78	32.12	0.53	6.06	0.58
3178.00	96.00	2.40	66.50	N66.50E	3176.53	59.43	59.43	35.79	0.00	1.56	0.07
3273.00	95.00	2.60	78.20	N78.20E	3271.44	60.66	60.66	39.72	0.21	12.32	0.58
3369.00	96.00	2.70	88.90	N88.90E	3367.34	61.15	61.15	44.11	0.10	11.15	0.53
3465.00	96.00	3.30	87.30	N87.30E	3463.21	61.33	61.33	49.13	0.63	-1.67	0.63
3561.00	96.00	3.40	85.20	N85.20E	3559.05	61.70	61.70	54.73	0.10	-2.19	0.17
3657.00	96.00	1.70	82.90	N82.90E	3654.95	62.11	62.11	58.98	-1.77	-2.40	1.77
3753.00	96.00	1.50	104.80	S75.20E	3750.91	61.96	61.96	61.61	-0.21	22.81	0.67
3880.00	127.00	2.00	92.70	S87.30E	3877.85	61.44	61.44	65.43	0.39	-9.53	0.49
3905.00	25.00	2.10	98.60	S81.40E	3902.83	61.35	61.35	66.32	0.40	23.60	0.93
4112.00	207.00	1.30	112.60	S67.40E	4109.74	59.88	59.88	72.24	-0.39	6.76	0.43
4208.00	96.00	1.20	121.10	S58.90E	4205.72	58.94	58.94	74.10	-0.10	8.85	0.22
4305.00	97.00	1.20	120.90	S59.10E	4302.70	57.89	57.89	75.84	0.00	-0.21	0.00
4401.00	96.00	1.10	146.90	S33.10E	4398.68	56.60	56.60	77.21	-0.10	27.08	0.55
4497.00	96.00	1.10	124.40	S55.60E	4494.66	55.31	55.31	78.47	0.00	-23.44	0.45
4593.00	96.00	1.40	131.30	S48.70E	4590.64	54.02	54.02	80.11	0.31	7.19	0.35
4689.00	96.00	1.60	146.50	S33.50E	4686.61	52.13	52.13	81.73	0.21	15.83	0.46
4785.00	96.00	1.20	161.90	S18.10E	4782.58	50.05	50.05	82.79	-0.42	16.04	0.57
4881.00	96.00	1.40	161.30	S18.70E	4878.55	47.99	47.99	83.47	0.21	-0.62	0.21
4977.00	96.00	1.50	157.00	S23.00E	4974.52	45.72	45.72	84.34	0.10	-4.48	0.15

LEAM Drilling Systems, Inc.
Survey Calculations

Job Number: D-3913-MD

Operator: POGO **Location:** Eddy County, NM **Lease/Well:** Lost Tank 3 Federal Deep 23
Calculation Method: Minimum Curvature **Proposed Azimuth:** 0.00 **Bearing:** N0.00E

Units: English(ft)

<u>MeasDepth</u>	<u>CrsLen</u>	<u>Drift</u>	<u>Azimuth</u>	<u>Bearing</u>	<u>TVD</u>	<u>Vsect</u>	<u>NS(±)</u>	<u>EW(±)</u>	<u>Build</u>	<u>Turn</u>	<u>Dogleg</u>
5073.00	96.00	1.40	161.00	S19.00E	5070.49	43.45	43.45	85.21	-0.10	4.17	0.15
5168.00	95.00	1.40	148.40	S31.60E	5165.46	41.37	41.37	86.20	0.00	-13.26	0.32
5264.00	96.00	1.20	142.50	S37.50E	5261.44	39.57	39.57	87.43	-0.21	-6.15	0.25
5360.00	96.00	1.20	146.10	S33.90E	5357.42	37.94	37.94	88.60	0.00	3.75	0.08
5455.00	95.00	1.10	156.90	S23.10E	5452.40	36.28	36.28	89.51	-0.11	11.37	0.25
5550.00	95.00	1.20	143.40	S36.60E	5547.38	34.64	34.64	90.46	0.11	-14.21	0.30
5646.00	96.00	1.10	159.40	S20.60E	5643.36	32.97	32.97	91.39	-0.10	16.67	0.35
5741.00	95.00	1.50	150.90	S29.10E	5738.34	31.03	31.03	92.31	0.42	-8.95	0.47
5837.00	96.00	1.20	144.50	S35.50E	5834.31	29.11	29.11	93.51	-0.31	-6.67	0.35
5933.00	96.00	1.50	145.80	S34.20E	5930.28	27.25	27.25	94.80	0.31	1.35	0.31
6028.00	95.00	1.50	143.20	S36.80E	6025.25	25.23	25.23	96.24	0.00	-2.74	0.07
6125.00	97.00	1.60	155.70	S24.30E	6122.22	22.98	22.98	97.56	0.10	12.89	0.36
6220.00	95.00	1.70	142.80	S37.20E	6217.18	20.65	20.65	98.96	0.11	-13.58	0.40
6316.00	96.00	1.80	147.50	S32.50E	6313.13	18.24	18.24	100.63	0.10	4.90	0.18
6412.00	96.00	1.60	149.50	S30.50E	6409.09	15.82	15.82	102.12	-0.21	2.08	0.22
6508.00	96.00	1.90	147.70	S32.30E	6505.05	13.32	13.32	103.65	0.31	-1.88	0.32
6603.00	95.00	1.70	161.20	S18.80E	6600.00	10.65	10.65	104.94	-0.21	14.21	0.49
6699.00	96.00	2.20	166.90	S13.10E	6695.94	7.51	7.51	105.82	0.52	5.94	0.56
6795.00	96.00	1.90	167.50	S12.50E	6791.88	4.16	4.16	106.58	-0.31	0.62	0.31
6891.00	96.00	1.90	167.20	S12.80E	6887.83	1.05	1.05	107.28	0.00	-0.31	0.01
6987.00	96.00	1.60	157.70	S22.30E	6983.78	-1.74	-1.74	108.14	-0.31	-9.90	0.43
7082.00	95.00	1.60	168.10	S11.90E	7078.75	-4.26	-4.26	108.92	0.00	10.95	0.31
7178.00	96.00	1.20	168.30	S11.70E	7174.72	-6.56	-6.56	109.40	-0.42	0.21	0.42
7273.00	95.00	1.30	181.90	S1.90W	7269.70	-8.61	-8.61	109.56	0.11	14.32	0.33
7369.00	96.00	1.30	182.30	S2.30W	7365.67	-10.79	-10.79	109.48	0.00	0.42	0.01
7465.00	96.00	1.70	176.40	S3.60E	7461.64	-13.30	-13.30	109.53	0.42	-6.15	0.45
7561.00	96.00	1.70	175.90	S4.10E	7557.60	-16.14	-16.14	109.72	0.00	-0.52	0.02
7656.00	95.00	1.20	157.00	S23.00E	7652.57	-18.46	-18.46	110.21	-0.53	-19.89	0.72
7752.00	96.00	1.50	162.70	S17.30E	7748.54	-20.58	-20.58	110.98	0.31	5.94	0.34
7847.00	95.00	1.50	166.40	S13.60E	7843.51	-22.98	-22.98	111.64	0.00	3.89	0.10
7943.00	96.00	1.20	180.50	S0.50W	7939.48	-25.21	-25.21	111.93	-0.31	14.69	0.46
8039.00	96.00	1.50	176.50	S3.50E	8035.45	-27.46	-27.46	111.99	0.31	-4.17	0.33
8132.00	93.00	1.50	192.50	S12.50W	8128.42	-29.87	-29.87	111.80	0.00	17.20	0.45
8228.00	96.00	1.40	211.70	S31.70W	8224.39	-32.09	-32.09	110.92	-0.10	20.00	0.51
8324.00	96.00	0.80	216.60	S36.60W	8320.37	-33.63	-33.63	109.90	-0.63	5.10	0.63
8420.00	96.00	1.70	236.70	S56.70W	8416.35	-34.95	-34.95	108.31	0.94	20.94	1.03
8515.00	95.00	2.10	233.80	S53.80W	8511.30	-36.75	-36.75	105.73	0.42	-3.05	0.43
8612.00	97.00	2.60	241.60	S61.60W	8608.22	-38.85	-38.85	102.36	0.52	8.04	0.61
8740.00	128.00	2.10	255.20	S75.20W	8736.11	-40.83	-40.83	97.54	-0.39	10.63	0.58
8836.00	96.00	2.60	292.90	N67.10W	8832.03	-40.43	-40.43	93.83	0.52	39.27	1.66
8931.00	95.00	2.50	301.40	N58.60W	8926.94	-38.51	-38.51	90.08	-0.11	8.95	0.41
9028.00	97.00	2.20	308.30	N51.70W	9023.86	-36.25	-36.25	86.81	-0.31	7.11	0.42

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9124.00	96.00	1.70	294.40	N65.60W	9119.80	-34.52	-34.52	84.07	-0.52	-14.48	0.71
9220.00	96.00	2.00	291.60	N68.40W	9215.75	-33.32	-33.32	81.21	0.31	-2.92	0.33
9316.00	96.00	1.90	282.30	N77.70W	9311.70	-32.36	-32.36	78.10	-0.10	-9.69	0.35
9412.00	96.00	1.90	278.80	N81.20W	9407.64	-31.78	-31.78	74.97	0.00	-3.65	0.12
9508.00	96.00	1.50	276.40	N83.60W	9503.60	-31.40	-31.40	72.15	-0.42	-2.50	0.42
9668.00	160.00	1.60	291.30	N68.70W	9663.54	-30.35	-30.35	67.99	0.06	9.31	0.26
9764.00	96.00	1.10	276.80	N83.20W	9759.52	-29.76	-29.76	65.83	-0.52	-15.10	0.63
9860.00	96.00	1.50	252.50	S72.50W	9855.49	-30.02	-30.02	63.71	0.42	-25.31	0.70
9957.00	97.00	1.70	251.20	S71.20W	9952.46	-30.87	-30.87	61.14	0.21	-1.34	0.21
10053.00	96.00	1.50	257.70	S77.70W	10048.42	-31.60	-31.60	58.56	-0.21	6.77	0.28
10149.00	96.00	1.20	234.20	S54.20W	10144.39	-32.45	-32.45	56.52	-0.31	-24.48	0.65
10245.00	96.00	1.10	213.00	S33.00W	10240.37	-33.81	-33.81	55.20	-0.10	-22.08	0.45
10340.00	95.00	1.00	216.20	S36.20W	10335.36	-35.25	-35.25	54.22	-0.11	3.37	0.12
10435.00	95.00	1.30	204.10	S24.10W	10430.34	-36.90	-36.90	53.29	0.32	-12.74	0.40
10532.00	97.00	1.20	208.00	S28.00W	10527.31	-38.80	-38.80	52.36	-0.10	4.02	0.14
10627.00	95.00	1.80	213.50	S33.50W	10622.28	-40.92	-40.92	51.07	0.63	5.79	0.65
10723.00	96.00	1.90	217.00	S37.00W	10718.23	-43.45	-43.45	49.28	0.10	3.65	0.16
10819.00	96.00	2.30	221.90	S41.90W	10814.17	-46.16	-46.16	47.04	0.42	5.10	0.46
10915.00	96.00	1.10	267.20	S87.20W	10910.13	-47.64	-47.64	44.83	-1.25	47.19	1.79
11011.00	96.00	1.40	262.80	S82.80W	11006.10	-47.83	-47.83	42.75	0.31	-4.58	0.33
11107.00	96.00	1.90	257.00	S77.00W	11102.06	-48.33	-48.33	40.03	0.52	-6.04	0.55
11201.00	94.00	1.80	248.00	S68.00W	11196.02	-49.24	-49.24	37.14	-0.11	-9.57	0.33
11296.00	95.00	2.20	247.00	S67.00W	11290.96	-50.51	-50.51	34.08	0.42	-1.05	0.42
11391.00	95.00	2.20	250.00	S70.00W	11385.89	-51.84	-51.84	30.69	0.00	3.16	0.12
11488.00	97.00	0.50	350.10	N9.90W	11482.86	-52.06	-52.06	28.87	-1.75	103.20	2.41
Straightline Projection to the bit											
11530.00	42.00	0.50	350.10	N9.90W	11524.86	-51.70	-51.70	28.81	0.00	0.00	0.00



POGO PRODUCING COMPANY

April 13, 2007

Bureau of Land Management
620 E. Greene Street
Carlsbad, New Mexico 88221-1778



Re: Lost Tank 3 Federal Deep #23
30-015-35354
1405' FNL & 630' FWL
Section 3, T24S, R29E
Eddy County, NM
NM-0417696

Dear Sir,

Please find attached copies of the deviation survey for the above captioned well. The survey was inadvertently left out of the completion paper work that was filed for this well.

If you need anything else, please feel free to give me a call.

Sincerely,

Pogo Producing Company

Cathy Wright
Sr. Eng Tech

Cc: Oil Conservation Division
Attn: Bryan Arrant
1301 W. Grand Avenue
Artesia, NM 88210-2834