

Leam Drilling Systems Survey Report

Company: PALADIN OIL & GAS Field: LEA COUNTY, NEW MEXICO Site: South Vacuum Unit #22 - 1 Well: 22-1 Wellpath: 1	Date: 11/17/2005 Co-ordinate(NE) Reference: Well: 22-1, Grid North Vertical (TVD) Reference: SITE 0.0 Section (VS) Reference: Well (0.00N,0.00E,174.60Azi) Survey Calculation Method: Minimum Curvature	Time: 09:05:32 Page: 1
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Survey: Scientific Gyro 0-8400'MD Company: Leam Drilling Systems, Inc. Tool:	Start Date: 11/15/2005 Engineer: Charlotte Sims Tied-to: From Surface
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Well: 22-1 **Slot Name:**
Well Position: +N-S 0.00 ft **Northing:** ft **Latitude:** SUR: N-22-18s-35e, 910/S & 1650/W
 +E-W 0.00 ft **Easting:** ft **Longitude:** BHL: N-22-18s-35e, 708/S & 1669/W
Position Uncertainty: 0.00 ft
API # 30-025-37429

Annotation

MD ft	TVD ft	
8400.00	8397.24	100 - 8400 SCIENTIFIC GYRO

Survey

MD ft	Incl deg	Azim deg	TVD ft	N/S ft	E/W ft	VS ft	ClsD deg	ClsAzim deg	Dogleg deg/100ft	Comment
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
100.00	0.43	179.84	100.00	-0.38	0.00	0.37	0.38	179.84	0.43	
200.00	0.16	173.76	200.00	-0.89	0.02	0.89	0.89	178.89	0.27	
300.00	0.19	244.05	300.00	-1.10	-0.12	1.08	1.11	186.05	0.20	
400.00	0.15	295.17	400.00	-1.12	-0.38	1.08	1.18	198.97	0.15	
500.00	0.17	207.60	500.00	-1.19	-0.57	1.43	1.32	205.59	0.22	
600.00	0.14	254.25	600.00	-1.36	-0.76	1.28	1.56	209.16	0.13	
700.00	0.11	254.52	700.00	-1.42	-0.97	1.32	1.72	214.34	0.03	
800.00	0.08	184.25	800.00	-1.51	-1.07	1.40	1.85	215.17	0.11	
900.00	0.07	246.55	900.00	-1.61	-1.13	1.49	1.96	215.05	0.08	
1000.00	0.03	274.53	1000.00	-1.63	-1.21	1.51	2.03	216.59	0.05	
1100.00	0.22	226.47	1100.00	-1.76	-1.37	1.62	2.23	218.01	0.20	
1200.00	0.30	217.07	1199.99	-2.10	-1.67	1.93	2.68	218.52	0.09	
1300.00	0.20	210.28	1299.99	-2.46	-1.92	2.27	3.12	217.94	0.10	
1400.00	0.24	201.39	1399.99	-2.80	-2.08	2.60	3.49	216.58	0.05	
1500.00	0.27	199.03	1499.99	-3.22	-2.23	3.00	3.92	214.74	0.03	
1600.00	0.23	221.16	1599.99	-3.60	-2.44	3.35	4.35	214.19	0.10	
1700.00	0.28	213.40	1699.99	-3.95	-2.71	3.68	4.79	214.44	0.06	
1800.00	0.30	231.93	1799.99	-4.32	-3.05	4.01	5.29	215.25	0.10	
1900.00	0.11	189.71	1899.99	-4.57	-3.27	4.24	5.62	215.59	0.23	
2000.00	0.10	195.19	1999.99	-4.75	-3.31	4.42	5.79	214.88	0.01	
2100.00	0.15	185.08	2099.99	-4.97	-3.35	4.63	5.99	213.97	0.05	
2200.00	0.24	92.59	2199.99	-5.11	-3.15	4.79	6.00	211.66	0.29	
2300.00	0.36	100.18	2299.99	-5.17	-2.63	4.90	5.80	206.96	0.13	
2400.00	0.31	83.33	2399.98	-5.20	-2.05	4.98	5.59	201.56	0.11	
2500.00	0.32	88.36	2499.98	-5.16	-1.50	4.99	5.37	196.27	0.03	
2600.00	0.43	85.74	2599.98	-5.12	-0.85	5.02	5.19	189.44	0.11	
2700.00	0.42	88.65	2699.98	-5.08	-0.11	5.05	5.08	181.25	0.02	
2800.00	0.41	109.07	2799.98	-5.19	0.59	5.22	5.23	173.48	0.15	
2900.00	0.29	94.35	2899.97	-5.33	1.18	5.42	5.46	167.47	0.15	
3000.00	0.33	132.72	2999.97	-5.54	1.65	5.67	5.78	163.44	0.21	
3100.00	0.35	140.24	3099.97	-5.97	2.06	6.14	6.32	161.01	0.05	
3200.00	0.33	137.91	3199.97	-6.42	2.44	6.62	6.87	159.17	0.02	
3300.00	0.42	155.34	3299.97	-6.97	2.79	7.20	7.51	158.18	0.14	
3400.00	0.34	166.99	3399.96	-7.59	3.01	7.84	8.16	158.37	0.11	
3500.00	0.37	159.29	3499.96	-8.18	3.19	8.45	8.78	158.70	0.06	
3600.00	0.21	166.43	3599.96	-8.66	3.35	8.94	9.29	158.87	0.16	
3700.00	0.38	138.47	3699.96	-9.09	3.61	9.39	9.78	158.33	0.22	
3800.00	0.28	95.01	3799.96	-9.36	4.07	9.70	10.21	156.48	0.26	

Leam Drilling Systems

Survey Report

Company: PALADIN OIL & GAS
Field: LEA COUNTY, NEW MEXICO
Site: South Vacuum Unit #22 - 1
Well: 22-1
Wellpath: 1

Date: 11/17/2005 **Time:** 09:05:32 **Page:** 2
Co-ordinate(NE) Reference: Well: 22-1, Grid North
Vertical (TVD) Reference: SITE 0.0
Section (VS) Reference: Well (0.00N,0.00E,174.60Azi)
Survey Calculation Method: Minimum Curvature **Db:** Adapti

Survey

MD ft	Incl deg	Azim deg	TVD ft	N/S ft	E/W ft	VS ft	ClsD ft	ClsAzim deg	Dogleg deg/100ft	Comment
3900.00	0.35	108.48	3899.96	-9.48	4.61	9.87	10.54	154.07	0.10	
4000.00	0.29	105.53	3999.95	-9.64	5.14	10.08	10.92	151.93	0.06	
4100.00	0.21	173.93	4099.95	-9.89	5.40	10.35	11.27	151.35	0.29	
4200.00	0.21	180.63	4199.95	-10.26	5.42	10.72	11.60	152.14	0.02	
4300.00	0.31	173.62	4299.95	-10.71	5.45	11.17	12.01	153.03	0.10	
4400.00	0.23	163.08	4399.95	-11.17	5.54	11.64	12.47	153.63	0.09	
4500.00	0.24	148.15	4499.95	-11.54	5.71	12.02	12.87	153.69	0.06	
4600.00	0.20	168.76	4599.95	-11.89	5.85	12.39	13.25	153.80	0.09	
4700.00	0.37	192.35	4699.95	-12.37	5.82	12.87	13.67	154.83	0.20	
4800.00	0.62	203.12	4799.94	-13.19	5.53	13.65	14.30	157.23	0.27	
4900.00	0.52	212.25	4899.94	-14.07	5.08	14.48	14.96	160.15	0.13	
5000.00	0.72	197.46	4999.93	-15.05	4.65	15.42	15.75	162.84	0.25	
5100.00	0.78	205.71	5099.93	-16.26	4.17	16.58	16.79	165.64	0.12	
5200.00	0.86	208.18	5199.92	-17.54	3.52	17.79	17.89	168.67	0.09	
5300.00	0.90	218.43	5299.90	-18.82	2.67	18.98	19.00	171.92	0.16	
5400.00	0.84	228.08	5399.89	-19.92	1.64	19.99	19.99	175.30	0.16	
5500.00	0.70	238.75	5499.88	-20.73	0.57	20.69	20.74	178.42	0.20	
5600.00	0.59	249.09	5599.88	-21.23	-0.43	21.09	21.23	181.16	0.16	
5700.00	0.40	259.14	5699.87	-21.48	-1.26	21.26	21.51	183.34	0.21	
5800.00	0.60	236.85	5799.87	-21.83	-2.04	21.54	21.92	185.33	0.28	
5900.00	0.54	257.38	5899.86	-22.22	-2.93	21.84	22.41	187.52	0.21	
6000.00	0.61	267.20	5999.86	-22.35	-3.93	21.88	22.69	189.96	0.12	
6100.00	0.60	265.02	6099.85	-22.42	-4.98	21.85	22.97	192.52	0.03	
6200.00	0.55	282.62	6199.85	-22.36	-5.97	21.70	23.14	194.95	0.18	
6300.00	0.59	269.24	6299.84	-22.26	-6.95	21.51	23.32	197.34	0.14	
6400.00	0.44	276.41	6399.84	-22.23	-7.85	21.39	23.57	199.45	0.16	
6500.00	0.33	263.48	6499.84	-22.22	-8.52	21.32	23.79	200.98	0.14	
6600.00	0.27	234.59	6599.84	-22.38	-8.99	21.44	24.12	201.89	0.16	
6700.00	0.50	208.13	6699.83	-22.91	-9.39	21.92	24.76	202.30	0.28	
6800.00	0.63	216.80	6799.83	-23.73	-9.93	22.69	25.72	202.70	0.16	
6900.00	0.40	210.59	6899.83	-24.47	-10.43	23.38	26.60	203.09	0.24	
7000.00	0.37	171.76	6999.82	-25.09	-10.57	23.99	27.23	202.84	0.26	
7100.00	0.31	108.99	7099.82	-25.50	-10.26	24.42	27.49	201.93	0.36	
7200.00	0.66	74.47	7199.82	-25.43	-9.45	24.43	27.13	200.39	0.44	
7300.00	0.79	69.89	7299.81	-25.04	-8.25	24.15	26.37	198.24	0.14	
7400.00	1.11	77.08	7399.80	-24.59	-6.66	23.85	25.47	195.15	0.34	
7500.00	1.07	74.99	7499.78	-24.13	-4.81	23.57	24.61	191.28	0.06	
7600.00	1.08	87.78	7599.76	-23.85	-2.97	23.47	24.04	187.10	0.24	
7700.00	1.64	101.55	7699.73	-24.10	-0.63	23.94	24.11	181.49	0.64	
7800.00	2.36	103.21	7799.67	-24.86	2.78	25.01	25.01	173.62	0.72	
7900.00	3.79	117.97	7899.53	-26.88	7.70	27.49	27.96	164.01	1.62	
8000.00	5.19	121.99	7999.22	-30.83	14.46	32.05	34.05	154.87	1.43	
8100.00	6.63	128.29	8098.68	-36.80	22.83	38.79	43.30	148.19	1.58	
8200.00	5.56	127.86	8198.12	-43.35	31.18	46.09	53.40	144.27	1.07	
8300.00	5.76	132.34	8297.63	-49.70	38.72	53.13	63.00	142.08	0.48	
8400.00	4.37	146.14	8397.24	-56.25	44.55	60.19	71.75	141.62	1.84	

Leam Drilling Systems Survey Report

Company: PALADIN OIL & GAS Field: LEA COUNTY, NEW MEXICO Site: South Vacuum Unit #22 - 1 Well: 22-1 Wellpath: 1	Date: 11/15/2005 Time: 14:21:48 Page: 1 Co-ordinate(NE) Reference: Well: 22-1, Grid North Vertical (TVD) Reference: SITE 0.0 Section (VS) Reference: Well (0.00N,0.00E,169.75Azi) Survey Calculation Method: Minimum Curvature Db: Adapti
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Survey: Leam MWD 8465'MD to 11833'MD Company: Leam Drilling Systems Tool:	Start Date: 9/28/2005 Engineer: Dwayne Smith Tied-to: User Defined
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Well: 22-1 Well Position: +N/-S 0.00 ft Northing: ft +E/-W 0.00 ft Easting : ft Position Uncertainty: 0.00 ft	Slot Name: Latitude: Longitude:
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Annotation

MD ft	TVD ft	
8400.00	8397.23	TIED INTO SCIENTIFIC GYRO
11833.00	11822.80	8465 - 11833 LEAM MWD

Survey

MD ft	Incl deg	Azim deg	TVD ft	N/S ft	E/W ft	VS ft	CisD ft	CisAzim deg	Dogleg deg/100ft	Comment
8400.00	4.37	146.14	8397.23	-56.25	44.55	63.28	71.75	141.62	0.00	
8465.00	4.70	139.20	8462.03	-60.32	47.67	67.84	76.88	141.68	0.98	
8561.00	4.80	156.70	8557.70	-66.99	51.83	75.14	84.70	142.27	1.51	
8658.00	4.00	169.90	8654.42	-74.05	54.03	82.48	91.66	143.88	1.33	
8754.00	4.80	189.40	8750.14	-81.31	53.96	89.61	97.58	146.43	1.75	
8851.00	5.00	192.80	8846.79	-89.43	52.36	97.32	103.63	149.65	0.36	
8947.00	5.10	196.50	8942.41	-97.60	50.22	104.98	109.77	152.77	0.35	
9043.00	4.50	202.30	9038.08	-105.18	47.58	111.97	115.44	155.66	0.80	
9140.00	4.00	208.50	9134.81	-111.67	44.52	117.81	120.22	158.26	0.70	
9236.00	4.00	193.70	9230.58	-117.87	42.13	123.48	125.17	160.33	1.07	
9332.00	4.70	209.30	9326.30	-124.55	39.41	129.58	130.64	162.44	1.43	
9429.00	4.10	201.10	9423.02	-131.25	36.22	135.60	136.16	164.57	0.89	
9524.00	3.90	202.80	9517.79	-137.40	33.74	141.21	141.48	166.20	0.24	
9620.00	4.50	192.70	9613.53	-144.08	31.65	147.42	147.52	167.61	0.99	
9717.00	4.80	189.10	9710.21	-151.80	30.17	154.75	154.77	168.76	0.43	
9814.00	6.00	183.60	9806.78	-160.87	29.21	163.50	163.50	169.71	1.35	
9909.00	4.00	190.50	9901.41	-169.08	28.30	171.42	171.44	170.50	2.19	
10006.00	2.80	203.10	9998.24	-174.59	26.75	176.56	176.63	171.29	1.45	
10102.00	2.80	199.70	10094.13	-178.95	25.04	180.55	180.70	172.03	0.17	
10199.00	1.70	210.70	10191.05	-182.42	23.51	183.69	183.93	172.66	1.21	
10295.00	0.80	136.70	10287.03	-184.14	23.24	185.33	185.60	172.81	1.74	
10389.00	2.20	151.40	10381.00	-186.20	24.55	187.59	187.81	172.49	1.53	
10485.00	1.90	99.50	10476.95	-188.08	27.01	189.88	190.01	171.83	1.89	
10582.00	0.90	129.40	10573.92	-188.83	29.18	191.01	191.07	171.22	1.24	
10676.00	1.90	210.10	10667.89	-190.64	28.97	192.76	192.83	171.36	2.09	
10773.00	0.60	309.30	10764.88	-191.71	27.77	193.59	193.71	171.76	2.15	
10869.00	1.70	293.70	10860.86	-190.82	26.08	192.42	192.60	172.22	1.18	
10965.00	2.10	278.30	10956.80	-190.00	23.03	191.06	191.39	173.09	0.67	
11062.00	2.20	322.70	11053.74	-188.26	20.15	188.84	189.33	173.89	1.68	
11156.00	2.60	328.70	11147.66	-185.00	17.94	185.24	185.87	174.46	0.50	
11252.00	2.90	359.30	11243.55	-180.71	16.78	180.81	181.49	174.69	1.54	
11352.00	4.00	17.30	11343.37	-174.85	17.79	175.23	175.76	174.19	1.53	
11449.00	3.40	19.30	11440.17	-168.91	19.75	169.73	170.06	173.33	0.63	
11545.00	5.00	45.90	11535.92	-163.31	23.69	164.92	165.02	171.75	2.58	
11641.00	5.40	53.70	11631.52	-157.72	30.34	160.60	160.61	169.11	0.85	
11737.00	4.70	52.50	11727.15	-152.65	37.10	156.82	157.10	166.34	0.74	
11833.00	5.10	64.20	11822.80	-148.40	44.06	153.87	154.81	163.46	1.12	

Leam Drilling Systems

Survey Report

Company: PALADIN OIL & GAS Field: LEA COUNTY, NEW MEXICO Site: South Vacuum Unit #22 - 1 Well: 22-1 Wellpath: 1	Date: 11/15/2005 Time: 14:23:06 Page: 1 Co-ordinate(NE) Reference: Well: 22-1, Grid North Vertical (TVD) Reference: SITE 0.0 Section (VS) Reference: Well (0.00N,0.00E,169.75Azi) Survey Calculation Method: Minimum Curvature Db: Adapti
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Survey: Multi-Shot Company: Leam Drilling Systems Tool:	Start Date: 10/25/2005 Engineer: Dwayne Smith Tied-to: From: Leam MWD 8465'MD to 118
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Well: 22-1 Well Position: +N-S 0.00 ft Northing: ft +E-W 0.00 ft Easting : ft Position Uncertainty: 0.00 ft	Slot Name: Latitude: Longitude:
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Annotation

MD ft	TVD ft	
11833.00	11822.80	TIED INTO LEAM MWD
12600.00	12587.65	11900 - 12600 MULTI SHOT GYRO

Survey

MD ft	Incl deg	Azim deg	TVD ft	N/S ft	E/W ft	VS ft	ClsD ft	ClsAzim. deg	Dogleg deg/100ft	Comment
11833.00	5.10	64.20	11822.80	-148.40	44.06	153.87	154.81	163.46	0.00	
11900.00	4.75	59.62	11889.56	-145.70	49.13	152.12	153.77	161.36	0.79	
12000.00	3.75	54.87	11989.28	-141.73	55.38	149.32	152.16	158.66	1.06	
12100.00	3.75	47.20	12089.07	-137.62	60.46	146.19	150.32	156.29	0.50	
12200.00	3.75	47.41	12188.85	-133.19	65.26	142.68	148.32	153.90	0.01	
12300.00	4.50	48.59	12288.59	-128.38	70.61	138.90	146.52	151.19	0.75	
12400.00	4.75	37.82	12388.27	-122.52	76.09	134.10	144.22	148.16	0.90	
12500.00	4.50	37.04	12487.94	-116.11	81.00	128.67	141.57	145.10	0.26	
12600.00	4.25	26.28	12587.65	-109.66	85.00	123.03	138.74	142.22	0.86	

Leam Drilling Systems

Survey Report

Company: PALADIN OIL & GAS Field: LEA COUNTY, NEW MEXICO Site: South Vacuum Unit #22 - 1 Well: 22-1 Wellpath: 1	Date: 11/15/2005 Co-ordinate(NE) Reference: Well: 22-1, Grid North Vertical (TVD) Reference: SITE 0.0 Section (VS) Reference: Well (0.00N,0.00E,169.75Azi) Survey Calculation Method: Minimum Curvature	Time: 14:29:52 Page: 1 Db: Adapti
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Survey: Leam MWD Company: Leam Drilling Systems Tool:	Start Date: 10/25/2005 Engineer: Dwayne Smith Tied-to: From: Definitive Path
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Well: 22-1 Well Position: +N/-S 0.00 ft Northing: ft +E/-W 0.00 ft Easting : ft Position Uncertainty: 0.00 ft	Slot Name: Latitude: Longitude:
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Annotation

MD ft	TVD ft	
12600.00	12587.65	TIED INTO MULTI SHOT GYRO
14420.00	14400.92	12768 - 14420 LEAM MWD
14592.00	14572.21	PROJECTION TO TD

Survey

MD ft	Incl deg	Azim deg	TVD ft	N/S ft	E/W ft	VS ft	ClsD ft	ClsAzim deg	Dogleg deg/100ft	Comment
12600.00	4.25	26.28	12587.65	-109.66	85.00	123.03	138.74	142.22	0.00	
12768.00	5.70	342.50	12755.07	-96.12	85.25	109.75	128.47	138.43	2.35	
12864.00	4.20	309.40	12850.73	-89.34	81.10	102.34	120.65	137.77	3.29	
12959.00	5.10	277.60	12945.43	-86.57	74.22	98.39	114.03	139.39	2.83	
13055.00	5.30	257.50	13041.05	-86.96	65.66	97.26	108.97	142.95	1.90	
13150.00	5.20	261.90	13135.65	-88.52	57.12	97.27	105.35	147.17	0.44	
13245.00	5.40	225.40	13230.27	-92.27	49.67	99.63	104.79	151.71	3.50	
13340.00	5.20	200.70	13324.87	-99.43	44.96	105.85	109.13	155.67	2.39	
13437.00	5.70	195.40	13421.44	-108.19	42.13	113.96	116.10	158.72	0.73	
13533.00	5.60	194.80	13516.97	-117.31	39.67	122.50	123.84	161.32	0.12	
13628.00	5.20	196.50	13611.55	-125.92	37.26	130.54	131.32	163.52	0.45	
13723.00	4.40	186.60	13706.21	-133.67	35.62	137.88	138.34	165.08	1.21	
13819.00	4.10	175.90	13801.95	-140.75	35.44	144.81	145.15	165.87	0.88	
13914.00	3.90	182.10	13896.72	-147.37	35.57	151.35	151.60	166.43	0.50	
14009.00	3.90	181.30	13991.50	-153.83	35.37	157.67	157.84	167.05	0.06	
14105.00	4.90	191.60	14087.22	-161.11	34.48	164.67	164.76	167.92	1.32	
14200.00	5.90	196.70	14181.80	-169.76	32.26	172.79	172.80	169.24	1.17	
14294.00	4.70	196.30	14275.39	-178.08	29.79	180.54	180.56	170.50	1.28	
14388.00	5.10	203.60	14369.05	-185.61	27.03	187.46	187.57	171.71	0.79	
14420.00	5.20	205.50	14400.92	-188.22	25.84	189.82	189.99	172.18	0.62	
14592.00	5.20	205.50	14572.21	-202.29	19.13	202.47	203.19	174.60	0.00	