

DIG Drilling Systems

DIG Survey Report

Company: MANZANO OIL CORP.
Field: LEA COUNTY, NEW MEXICO
Site: GRANDSLAM #1
Well: GRANDSLAM #1
Wellpath: DIG SRG GYRO

Date: 6/30/98 **Time:** 14:11:38 **Page:** 1
Co-ordinate(NE) Reference: Site: GRANDSLAM #1, True North
Vertical (TVD) Reference: SITE 0.0 above Mean Sea Level
Section (VS) Reference: Slot (0.0E,0.0N,0.0Azi)
Survey Calculation Method: Minimum Curvature

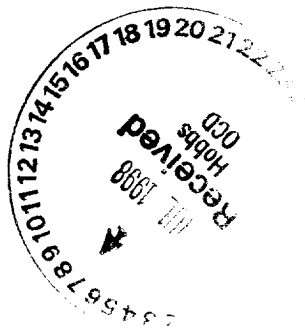
Annotation

MD ft	TVD ft		
11558.0	11530.2	LAST SURVEY POINT 11558' MD	
11600.0	11571.5	PROJECTION TO TD @ 11600' MD	

SUR N 409/5 & 2310/W
 BHL N 196/5 & 2290/W
 25-175-37e 30-025-34290

Survey

MD ft	Incl deg	Azim deg	TVD ft	N/S ft	E/W ft	VS ft	DLS d/100ft	ClsD ft	ClsA deg
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.0	0.00
100.0	0.32	266.02	100.0	0.0	-0.3	0.0	0.32	0.3	266.02
200.0	0.45	233.46	200.0	-0.3	-0.9	-0.3	0.25	0.9	252.65
300.0	0.63	240.91	300.0	-0.8	-1.7	-0.8	0.19	1.8	245.12
400.0	0.72	225.02	400.0	-1.5	-2.6	-1.5	0.21	3.0	240.20
500.0	0.77	224.20	500.0	-2.4	-3.5	-2.4	0.05	4.3	235.49
600.0	0.72	241.72	600.0	-3.2	-4.5	-3.2	0.23	5.5	234.83
700.0	0.69	245.93	700.0	-3.7	-5.6	-3.7	0.06	6.8	236.45
800.0	0.88	263.65	800.0	-4.1	-6.9	-4.1	0.31	8.0	239.66
900.0	1.24	288.44	899.9	-3.8	-8.7	-3.8	0.58	9.5	246.45
1000.0	1.33	295.14	999.9	-3.0	-10.8	-3.0	0.17	11.2	254.63
1100.0	1.40	301.06	1099.9	-1.8	-12.9	-1.8	0.16	13.0	261.85
1200.0	1.37	296.09	1199.9	-0.7	-15.0	-0.7	0.12	15.0	267.36
1300.0	0.99	305.85	1299.8	0.3	-16.8	0.3	0.43	16.8	271.16
1400.0	0.48	324.14	1399.8	1.2	-17.7	1.2	0.56	17.8	273.82
1500.0	0.58	323.95	1499.8	1.9	-18.3	1.9	0.10	18.4	276.03
1600.0	0.36	293.95	1599.8	2.5	-18.9	2.5	0.32	19.0	277.46
1700.0	0.33	257.00	1699.8	2.5	-19.4	2.5	0.22	19.6	277.42
1800.0	0.11	261.09	1799.8	2.5	-19.8	2.5	0.22	20.0	277.06
1900.0	0.25	209.87	1899.8	2.2	-20.0	2.2	0.20	20.1	276.41
2000.0	0.73	239.67	1999.8	1.7	-20.7	1.7	0.53	20.8	274.81
2100.0	0.91	229.08	2099.8	0.9	-21.8	0.9	0.23	21.8	272.35
2200.0	0.84	192.30	2199.8	-0.3	-22.6	-0.3	0.56	22.6	269.14
2300.0	0.49	205.00	2299.8	-1.4	-22.9	-1.4	0.33	23.0	266.40
2400.0	0.30	195.67	2399.8	-2.1	-23.2	-2.1	0.20	23.3	264.86
2500.0	0.39	153.32	2499.8	-2.6	-23.1	-2.6	0.26	23.2	263.48
2600.0	0.30	139.40	2599.8	-3.1	-22.8	-3.1	0.12	23.0	262.14
2700.0	0.17	31.22	2699.8	-3.2	-22.5	-3.2	0.39	22.8	261.88
2800.0	0.37	78.10	2799.8	-3.0	-22.1	-3.0	0.23	22.3	262.23
2900.0	0.24	18.26	2899.8	-2.8	-21.7	-2.8	0.32	21.9	262.78
3000.0	0.69	21.26	2999.8	-2.0	-21.5	-2.0	0.45	21.6	264.69
3100.0	0.92	20.91	3099.8	-0.7	-21.0	-0.7	0.23	21.0	268.13
3200.0	1.11	28.19	3199.7	0.9	-20.2	0.9	0.23	20.2	272.61
3300.0	1.00	21.16	3299.7	2.6	-19.4	2.6	0.17	19.6	277.58
3400.0	1.37	35.13	3399.7	4.4	-18.4	4.4	0.47	19.0	283.36
3500.0	1.27	51.84	3499.7	6.0	-16.9	6.0	0.40	17.9	289.69
3600.0	1.19	51.93	3599.7	7.4	-15.2	7.4	0.08	16.9	295.87
3700.0	1.00	53.32	3699.6	8.5	-13.7	8.5	0.19	16.1	301.95
3800.0	1.12	61.51	3799.6	9.5	-12.1	9.5	0.19	15.4	308.14
3900.0	0.70	62.95	3899.6	10.3	-10.7	10.3	0.42	14.8	313.76
4000.0	0.38	2.96	3999.6	10.9	-10.2	10.9	0.61	14.9	316.95
4100.0	0.20	51.88	4099.6	11.3	-10.0	11.3	0.29	15.1	318.52
4200.0	0.17	9.94	4199.6	11.6	-9.8	11.6	0.14	15.2	319.61
4300.0	0.26	146.96	4299.6	11.5	-9.7	11.5	0.40	15.0	319.94
4400.0	0.92	199.93	4399.6	10.6	-9.8	10.6	0.79	14.4	317.07
4500.0	1.21	181.22	4499.6	8.8	-10.1	8.8	0.45	13.4	310.85
4600.0	1.34	190.58	4599.6	6.6	-10.4	6.6	0.25	12.3	302.31



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Survey Calculation Method: Minimum Curvature

Survey

MD ft	Incl deg	Azim deg	TVD ft	N/S ft	E/W ft	VS ft	DLS d/100ft	ClsD ft	ClsA deg
4700.0	1.42	199.55	4699.5	4.2	-11.0	4.2	0.23	11.8	291.08
4800.0	1.27	221.38	4799.5	2.2	-12.1	2.2	0.53	12.3	280.45
4900.0	1.35	217.72	4899.5	0.5	-13.6	0.5	0.12	13.6	272.01
5000.0	1.50	223.13	4999.4	-1.4	-15.2	-1.4	0.20	15.3	264.71
5100.0	1.74	220.40	5099.4	-3.5	-17.1	-3.5	0.25	17.5	258.36
5200.0	1.61	220.19	5199.4	-5.8	-19.0	-5.8	0.13	19.8	253.15
5300.0	1.60	222.92	5299.3	-7.8	-20.8	-7.8	0.08	22.3	249.37
5400.0	1.59	221.16	5399.3	-9.9	-22.7	-9.9	0.05	24.8	246.41
5500.0	1.78	222.52	5499.2	-12.1	-24.7	-12.1	0.19	27.5	243.87
5600.0	1.93	219.27	5599.2	-14.6	-26.8	-14.6	0.18	30.5	241.49
5700.0	2.02	225.57	5699.1	-17.1	-29.1	-17.1	0.23	33.8	239.58
5800.0	1.87	220.13	5799.1	-19.6	-31.4	-19.6	0.24	37.0	238.08
5900.0	1.90	215.20	5899.0	-22.2	-33.4	-22.2	0.16	40.1	236.44
6000.0	1.45	230.56	5999.0	-24.3	-35.4	-24.3	0.63	42.9	235.47
6100.0	1.54	235.92	6098.9	-25.9	-37.4	-25.9	0.17	45.5	235.34
6200.0	1.64	238.94	6198.9	-27.4	-39.8	-27.4	0.13	48.3	235.47
6300.0	1.41	247.29	6298.9	-28.6	-42.1	-28.6	0.32	50.9	235.85
6400.0	1.48	250.10	6398.8	-29.5	-44.5	-29.5	0.10	53.4	236.45
6500.0	1.55	250.27	6498.8	-30.4	-47.0	-30.4	0.07	56.0	237.09
6600.0	1.31	252.72	6598.8	-31.2	-49.3	-31.2	0.25	58.4	237.70
6700.0	0.82	264.67	6698.7	-31.6	-51.2	-31.6	0.54	60.1	238.29
6800.0	0.80	283.47	6798.7	-31.5	-52.5	-31.5	0.27	61.3	239.05
6900.0	0.93	309.10	6898.7	-30.8	-53.9	-30.8	0.40	62.1	240.21
7000.0	1.06	306.75	6998.7	-29.8	-55.2	-29.8	0.14	62.7	241.67
7100.0	1.14	303.22	7098.7	-28.7	-56.8	-28.7	0.10	63.6	243.22
7200.0	0.93	272.05	7198.7	-28.1	-58.4	-28.1	0.59	64.8	244.32
7300.0	0.76	280.53	7298.7	-27.9	-59.9	-27.9	0.21	66.1	244.99
7400.0	1.74	269.02	7398.6	-27.9	-62.1	-27.9	1.01	68.0	245.84
7500.0	2.17	257.80	7498.6	-28.3	-65.4	-28.3	0.57	71.3	246.63
7600.0	2.41	258.78	7598.5	-29.1	-69.4	-29.1	0.24	75.2	247.25
7700.0	2.48	254.71	7698.4	-30.1	-73.5	-30.1	0.19	79.4	247.75
7800.0	2.54	250.82	7798.3	-31.4	-77.7	-31.4	0.18	83.8	248.01
7900.0	2.64	244.29	7898.2	-33.1	-81.9	-33.1	0.31	88.3	247.99
8000.0	2.48	251.84	7998.1	-34.8	-86.0	-34.8	0.37	92.7	247.99
8100.0	2.49	248.74	8098.0	-36.2	-90.1	-36.2	0.13	97.1	248.09
8200.0	2.33	246.54	8197.9	-37.8	-94.0	-37.8	0.18	101.3	248.07
8300.0	2.53	245.17	8297.8	-39.6	-97.8	-39.6	0.21	105.5	247.98
8400.0	2.51	244.47	8397.7	-41.4	-101.8	-41.4	0.04	109.9	247.85
8500.0	2.57	236.84	8497.6	-43.6	-105.6	-43.6	0.34	114.3	247.58
8600.0	2.55	237.43	8597.5	-46.0	-109.4	-46.0	0.03	118.7	247.18
8700.0	2.55	235.27	8697.4	-48.5	-113.1	-48.5	0.10	123.1	246.80
8800.0	2.64	235.74	8797.3	-51.1	-116.8	-51.1	0.09	127.5	246.40
8900.0	2.86	240.35	8897.2	-53.6	-120.9	-53.6	0.31	132.2	246.10
9000.0	2.69	240.94	8997.1	-56.0	-125.1	-56.0	0.17	137.1	245.91
9100.0	2.80	240.04	9097.0	-58.3	-129.3	-58.3	0.12	141.8	245.72
9200.0	2.69	239.25	9196.9	-60.7	-133.4	-60.7	0.12	146.6	245.53
9300.0	2.85	236.24	9296.8	-63.3	-137.5	-63.3	0.22	151.4	245.28
9400.0	3.09	239.47	9396.6	-66.1	-141.9	-66.1	0.29	156.5	245.03
9500.0	3.55	235.22	9496.5	-69.2	-146.8	-69.2	0.52	162.3	244.75
9555.0	3.45	233.84	9551.4	-71.2	-149.5	-71.2	0.24	165.6	244.55
9975.0	4.75	185.00	9970.4	-95.9	-161.2	-95.9	0.85	187.6	239.24
10038.0	5.00	190.00	10033.2	-101.2	-161.9	-101.2	0.73	191.0	237.98
10100.0	5.50	200.00	10094.9	-106.7	-163.4	-106.7	1.63	195.2	236.86



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MD ft	Incl deg	Azim deg	TVD ft	N/S ft	E/W ft	VS ft	DLS d/100ft	ClsD ft	ClsA deg
10155.0	6.00	215.00	10149.6	-111.5	-166.0	-111.5	2.67	200.0	236.10
10220.0	8.75	223.00	10214.1	-117.9	-171.3	-117.9	4.51	208.0	235.45
10314.0	10.00	208.40	10306.8	-130.3	-180.0	-130.3	2.85	222.3	234.10
10407.0	10.20	193.70	10398.4	-145.4	-185.8	-145.4	2.77	236.0	231.95
10502.0	9.90	178.40	10492.0	-161.8	-187.6	-161.8	2.82	247.7	229.23
10595.0	9.90	163.00	10583.6	-177.4	-185.0	-177.4	2.84	256.4	226.20
10688.0	9.80	148.50	10675.3	-191.8	-178.6	-191.8	2.66	262.1	222.95
10783.0	9.90	132.70	10768.9	-204.3	-168.3	-204.3	2.84	264.7	219.49
10877.0	10.20	117.90	10861.4	-213.6	-155.0	-213.6	2.76	264.0	215.97
10968.0	10.40	104.00	10951.0	-219.4	-139.9	-219.4	2.73	260.2	212.53
11062.0	10.70	90.20	11043.4	-221.5	-123.0	-221.5	2.70	253.3	209.04
11156.0	10.90	90.00	11135.8	-221.5	-105.4	-221.5	0.22	245.3	205.44
11251.0	11.10	84.10	11229.0	-220.6	-87.3	-220.6	1.20	237.2	201.59
11343.0	11.20	84.60	11319.3	-218.8	-69.6	-218.8	0.15	229.6	197.64
11466.0	11.20	83.00	11439.9	-216.2	-45.8	-216.2	0.25	221.0	191.97
11558.0	10.90	82.30	11530.2	-214.0	-28.4	-214.0	0.36	215.8	187.55
11600.0	10.90	82.30	11571.5	-212.9	-20.5	-212.9	0.00	213.9	185.49

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MANZANO OIL CORPORATION

