

Results of Directional Survey

API number:	30-025-40318			
OGRID:		Operator:	DEVON ENERGY PRODUCTION COMPANY, LP	
		Property:	MALACHITE 22 FEDERAL	# 1H

surface	ULSTR:	D	22	T 19S	R 33E
				330 FNL	330 FWL

BH Loc	ULSTR:	M	22	T 19S	R 33E
13591	MD	9199.7	TVD	332 FSL	402 FWL
				4948 FNL	

Top Perf/OH	ULSTR:	D	22	T 19S	R 33E
9334	MD	9130.7	TVD	696 FNL	345 FWL

Bot Perf/OH	ULSTR:	M	22	T 19S	R 33E
13522	MD	9197.5	TVD	400 FSL	401 FWL
				4880 FNL	

	MD	N/S	E/W	VD
	9322	-354.63	15.35	9127.12
TOP PERFS/OH	9334	-366.09	15.04	9130.66
	9354	-385.19	14.52	9136.56
	13493	-4520.54	70.82	9191.42
BOT PERFS/OH	13522	-4549.52	71.18	9197.51
	13524	-4551.52	71.20	9197.93

NEXT TO LAST	13524	-4551.52	71.20	9197.93
LAST READING	13591	-4618.49	72.01	9199.68
TD	13591	-4618.49	72.01	9199.68

Surface Location	330	FN	330	FW
Projected BHL	4948	FN	402	FW
Location of				
Top Perfs/OH	696	FN	345	FW
Bottom Perfs/OH	4880	FN	401	FW

SUMMARY of Subsurface Locations

Surface Location	D-22-19S-33E	330	FN	330	FW	Vert. Depth
Top Perfs/OH	D-22-19S-33E	696	FN	345	FW	9130.66
Bottom Perfs/OH	M-22-19S-33E	4880	FN	401	FW	9197.51
Projected TD	M-22-19S-33E	4948	FN	402	FW	9199.68

MAY 23 2012

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Measured UTM Coordinates			Sub-Sea	Vertical	Local Coordinates	
Depth	Incl.	Azim.	Vertical	Dogleg	Northings	Eastings
Northings	Eastings		Depth	Depth		
(ft)	(ft)		Section	Rate	(ft)	(ft)
(ft)	(ft)		(ft)	(°/100ft)		
0.00	0.000	0.000	-3658.40	0.00	0.00 N	0.00 E
601621.470 N	749054.280 E		0.00	0.00		
100.00	0.580	44.720	-3558.40	100.00	0.36 N	0.36 E
601621.830 N	749054.636 E		-0.35	0.58		
200.00	0.710	44.640	-3458.41	199.99	1.16 N	1.15 E
601622.630 N	749055.428 E		-1.14	0.13		
300.00	0.660	41.000	-3358.42	299.98	2.04 N	1.96 E
601623.506 N	749056.241 E		-2.01	0.07		
400.00	0.770	51.570	-3258.42	399.98	2.89 N	2.87 E
601624.358 N	749057.145 E		-2.85	0.17		
500.00	0.800	50.210	-3158.43	499.97	3.75 N	3.93 E
601625.222 N	749058.208 E		-3.70	0.04		
600.00	0.810	51.200	-3058.44	599.96	4.64 N	5.02 E
601626.112 N	749059.295 E		-4.57	0.02		
700.00	0.850	50.240	-2958.45	699.95	5.56 N	6.14 E
601627.029 N	749060.416 E		-5.47	0.04		
800.00	0.750	54.670	-2858.46	799.94	6.41 N	7.24 E
601627.882 N	749061.520 E		-6.31	0.12		
900.00	0.660	47.020	-2758.47	899.93	7.18 N	8.20 E
601628.653 N	749062.476 E		-7.07	0.13		
1000.00	0.530	63.750	-2658.48	999.92	7.78 N	9.03 E
601629.251 N	749063.312 E		-7.65	0.22		
1100.00	0.400	60.060	-2558.48	1099.92	8.16 N	9.75 E
601629.629 N	749064.029 E		-8.02	0.13		
1200.00	0.370	88.970	-2458.48	1199.92	8.34 N	10.37 E
601629.809 N	749064.654 E		-8.19	0.19		
1300.00	0.270	124.650	-2358.48	1299.92	8.21 N	10.89 E
601629.681 N	749065.171 E		-8.06	0.22		
1400.00	0.290	160.580	-2258.48	1399.92	7.84 N	11.17 E
601629.309 N	749065.449 E		-7.68	0.17		
1500.00	0.290	149.230	-2158.48	1499.92	7.38 N	11.38 E
601628.852 N	749065.663 E		-7.22	0.06		
1600.00	0.450	136.600	-2058.49	1599.91	6.88 N	11.78 E
601628.350 N	749066.062 E		-6.71	0.18		
1700.00	0.430	129.620	-1958.49	1699.91	6.36 N	12.34 E
601627.825 N	749066.621 E		-6.18	0.06		
1800.00	0.390	126.010	-1858.49	1799.91	5.92 N	12.91 E
601627.386 N	749067.185 E		-5.73	0.05		
1900.00	0.380	132.750	-1758.49	1899.91	5.49 N	13.42 E
601626.960 N	749067.704 E		-5.30	0.05		
2000.00	0.370	109.370	-1658.50	1999.90	5.16 N	13.97 E
601626.628 N	749068.252 E		-4.96	0.15		
2100.00	0.340	86.950	-1558.50	2099.90	5.07 N	14.57 E
601626.537 N	749068.853 E		-4.86	0.14		
2200.00	0.340	79.350	-1458.50	2199.90	5.14 N	15.16 E
601626.608 N	749069.441 E		-4.92	0.05		
2300.00	0.460	58.010	-1358.50	2299.90	5.41 N	15.79 E

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601626.875	N	749070.073	E	-5.18	0.19		
2400.00		0.700	38.840	-1258.51	2399.89	6.09 N	16.52 E
601627.564	N	749070.796	E	-5.86	0.31		
2500.00		0.820	47.050	-1158.52	2499.88	7.06 N	17.42 E
601628.527	N	749071.703	E	-6.81	0.16		
2600.00		1.080	49.150	-1058.53	2599.87	8.16 N	18.66 E
601629.631	N	749072.940	E	-7.90	0.26		
2700.00		1.340	52.120	-958.55	2699.85	9.50 N	20.30 E
601630.965	N	749074.576	E	-9.21	0.27		
2800.00		1.490	57.850	-858.58	2799.82	10.91 N	22.32 E
601632.375	N	749076.599	E	-10.59	0.21		
2900.00		1.990	61.250	-758.63	2899.77	12.43 N	24.94 E
601633.902	N	749079.222	E	-12.08	0.51		
3000.00		2.090	61.320	-658.69	2999.71	14.14 N	28.06 E
601635.612	N	749082.344	E	-13.74	0.10		
3100.00		1.860	59.280	-558.75	3099.65	15.85 N	31.06 E
601637.316	N	749085.339	E	-15.41	0.24		
3200.00		1.120	56.910	-458.79	3199.61	17.21 N	33.27 E
601638.679	N	749087.553	E	-16.74	0.74		
3300.00		0.500	31.410	-358.80	3299.60	18.11 N	34.32 E
601639.585	N	749088.599	E	-17.63	0.70		
3400.00		0.170	357.970	-258.80	3399.60	18.64 N	34.54 E
601640.106	N	749088.822	E	-18.15	0.37		
3500.00		0.520	270.040	-158.80	3499.60	18.78 N	34.08 E
601640.254	N	749088.363	E	-18.30	0.54		
3600.00		0.920	258.020	-58.81	3599.59	18.62 N	32.84 E
601640.088	N	749087.123	E	-18.15	0.43		
3700.00		1.000	259.610	41.18	3699.58	18.29 N	31.20 E
601639.764	N	749085.480	E	-17.85	0.08		
3800.00		0.970	257.470	141.16	3799.56	17.95 N	29.52 E
601639.423	N	749083.795	E	-17.53	0.05		
3900.00		0.950	258.500	241.15	3899.55	17.60 N	27.88 E
601639.074	N	749082.157	E	-17.21	0.03		
4000.00		0.810	259.170	341.14	3999.54	17.31 N	26.37 E
601638.776	N	749080.650	E	-16.93	0.14		
4100.00		0.690	259.830	441.13	4099.53	17.07 N	25.08 E
601638.537	N	749079.363	E	-16.71	0.12		
4200.00		0.690	257.630	541.12	4199.52	16.83 N	23.90 E
601638.301	N	749078.182	E	-16.49	0.03		
4300.00		0.710	259.690	641.11	4299.51	16.59 N	22.70 E
601638.062	N	749076.985	E	-16.27	0.03		
4400.00		0.720	283.550	741.11	4399.51	16.63 N	21.48 E
601638.098	N	749075.764	E	-16.32	0.30		
4500.00		0.680	297.300	841.10	4499.50	17.05 N	20.35 E
601638.517	N	749074.626	E	-16.76	0.17		
4600.00		0.740	304.050	941.09	4599.49	17.68 N	19.28 E
601639.151	N	749073.564	E	-17.41	0.10		
4700.00		0.690	303.060	1041.08	4699.48	18.37 N	18.24 E
601639.841	N	749072.524	E	-18.11	0.05		
4800.00		0.660	315.450	1141.08	4799.48	19.11 N	17.34 E
601640.580	N	749071.615	E	-18.86	0.15		
4900.00		0.570	326.250	1241.07	4899.47	19.93 N	16.65 E
601641.404	N	749070.935	E	-19.70	0.15		
5000.00		0.590	319.280	1341.07	4999.47	20.74 N	16.04 E
601642.208	N	749070.323	E	-20.51	0.07		
5100.00		0.600	327.320	1441.06	5099.46	21.57 N	15.42 E
601643.039	N	749069.704	E	-21.35	0.08		
5200.00		0.640	339.870	1541.05	5199.45	22.53 N	14.95 E
601644.004	N	749069.229	E	-22.32	0.14		
5300.00		0.990	7.330	1641.04	5299.44	23.91 N	14.87 E
601645.385	N	749069.147	E	-23.70	0.52		
5400.00		1.430	16.060	1741.02	5399.42	25.97 N	15.32 E
601647.441	N	749069.603	E	-25.75	0.48		

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5500.00	1.390	16.010	1840.99	5499.39	28.34 N	16.00 E
601649.806 N	749070.282 E	-28.11	0.04			
5600.00	1.350	20.460	1940.96	5599.36	30.61 N	16.75 E
601652.075 N	749071.029 E	-30.37	0.11			
5700.00	1.380	20.800	2040.93	5699.33	32.83 N	17.59 E
601654.305 N	749071.868 E	-32.58	0.03			
5800.00	1.620	24.870	2140.90	5799.30	35.24 N	18.61 E
601656.713 N	749072.890 E	-34.98	0.26			
5900.00	1.780	23.900	2240.86	5899.26	37.95 N	19.83 E
601659.415 N	749074.114 E	-37.66	0.16			
6000.00	1.600	17.370	2340.81	5999.21	40.70 N	20.88 E
601662.168 N	749075.160 E	-40.40	0.26			
6100.00	1.580	14.400	2440.77	6099.17	43.37 N	21.64 E
601664.835 N	749075.919 E	-43.06	0.08			
6200.00	1.270	14.890	2540.74	6199.14	45.77 N	22.27 E
601667.242 N	749076.547 E	-45.45	0.31			
6300.00	1.030	10.340	2640.72	6299.12	47.73 N	22.71 E
601669.197 N	749076.993 E	-47.40	0.26			
6400.00	0.590	323.150	2740.71	6399.11	49.02 N	22.57 E
601670.493 N	749076.846 E	-48.70	0.76			
6500.00	0.870	285.730	2840.71	6499.11	49.64 N	21.53 E
601671.111 N	749075.806 E	-49.33	0.54			
6600.00	0.920	288.030	2940.69	6599.09	50.10 N	20.03 E
601671.565 N	749074.312 E	-49.81	0.06			
6700.00	0.810	285.630	3040.68	6699.08	50.53 N	18.59 E
601672.004 N	749072.868 E	-50.27	0.12			
6800.00	0.840	293.480	3140.67	6799.07	51.02 N	17.23 E
601672.487 N	749071.515 E	-50.77	0.12			
6900.00	0.870	293.140	3240.66	6899.06	51.61 N	15.86 E
601673.077 N	749070.144 E	-51.38	0.03			
7000.00	0.880	290.860	3340.65	6999.05	52.18 N	14.45 E
601673.649 N	749068.729 E	-51.97	0.04			
7100.00	0.930	302.130	3440.64	7099.04	52.88 N	13.04 E
601674.354 N	749067.324 E	-52.69	0.18			
7200.00	0.880	301.530	3540.62	7199.02	53.72 N	11.70 E
601675.187 N	749065.982 E	-53.55	0.05			
7300.00	0.800	302.040	3640.61	7299.01	54.49 N	10.46 E
601675.959 N	749064.736 E	-54.34	0.08			
7400.00	0.680	306.590	3740.61	7399.01	55.21 N	9.39 E
601676.683 N	749063.668 E	-55.07	0.13			
7500.00	0.880	309.520	3840.60	7499.00	56.06 N	8.32 E
601677.525 N	749062.599 E	-55.93	0.20			
7600.00	0.880	313.260	3940.58	7598.98	57.07 N	7.17 E
601678.540 N	749061.447 E	-56.96	0.06			
7700.00	1.000	306.210	4040.57	7698.97	58.11 N	5.90 E
601679.582 N	749060.184 E	-58.02	0.17			
7800.00	1.050	311.390	4140.55	7798.95	59.23 N	4.51 E
601680.703 N	749058.792 E	-59.16	0.11			
7900.00	1.310	320.390	4240.53	7898.93	60.72 N	3.10 E
601682.190 N	749057.376 E	-60.67	0.32			
8000.00	1.610	321.960	4340.50	7998.90	62.71 N	1.50 E
601684.177 N	749055.782 E	-62.68	0.30			
8100.00	1.550	336.000	4440.46	8098.86	65.05 N	0.09 E
601686.519 N	749054.366 E	-65.04	0.39			
8200.00	1.480	345.760	4540.43	8198.83	67.54 N	0.78 W
601689.006 N	749053.498 E	-67.54	0.27			
8300.00	1.310	349.520	4640.40	8298.80	69.91 N	1.31 W
601691.382 N	749052.973 E	-69.92	0.19			
8400.00	0.720	355.150	4740.38	8398.78	71.66 N	1.57 W
601693.132 N	749052.712 E	-71.68	0.60			
8500.00	0.750	114.110	4840.38	8498.78	72.02 N	1.02 W
601693.491 N	749053.256 E	-72.03	1.27			
8525.00	0.750	114.110	4865.38	8523.78	71.89 N	0.73 W

Last Gyro Survey

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					First Phoenix MWD Survey	
601693.357	N	749053.555	E	-71.89	0.00	
8594.00		4.700	161.000	4934.29	8592.69	69.03 N 0.61 E
601690.498	N	749054.888	E	-69.01	6.12	
8625.00		5.400	161.700	4965.17	8623.57	66.44 N 1.48 E
601687.912	N	749055.759	E	-66.41	2.27	
8657.00		7.600	170.500	4996.96	8655.36	62.93 N 2.30 E
601684.395	N	749056.581	E	-62.89	7.53	
8689.00		10.200	174.000	5028.57	8686.97	58.02 N 2.95 E
601679.490	N	749057.227	E	-57.97	8.30	
8720.00		13.600	175.900	5058.90	8717.30	51.65 N 3.49 E
601673.122	N	749057.775	E	-51.60	11.04	
8752.00		17.400	177.100	5089.73	8748.13	43.12 N 4.01 E
601664.588	N	749058.286	E	-43.06	11.92	
8784.00		21.800	179.400	5119.87	8778.27	32.39 N 4.31 E
601653.863	N	749058.590	E	-32.33	13.96	
8815.00		26.100	180.600	5148.20	8806.60	19.81 N 4.30 E
601641.282	N	749058.579	E	-19.75	13.96	
8847.00		29.500	180.200	5176.50	8834.90	4.89 N 4.20 E
601626.360	N	749058.478	E	-4.83	10.64	
8879.00		32.000	179.800	5204.00	8862.40	11.47 S 4.20 E
601610.000	N	749058.480	E	11.53	7.84	
8911.00		34.400	178.500	5230.77	8889.17	28.99 S 4.47 E
601592.483	N	749058.746	E	29.05	7.82	
8942.00		37.200	178.000	5255.91	8914.31	47.11 S 5.02 E
601574.359	N	749059.303	E	47.18	9.08	
8974.00		40.300	177.200	5280.87	8939.27	67.12 S 5.87 E
601554.350	N	749060.146	E	67.20	9.81	
9005.00		43.100	177.800	5304.01	8962.41	87.72 S 6.76 E
601533.750	N	749061.042	E	87.81	9.12	
9037.00		46.200	178.000	5326.77	8985.17	110.19 S 7.59 E
601511.279	N	749061.865	E	110.29	9.70	
9069.00		49.800	177.600	5348.18	9006.58	133.95 S 8.50 E
601487.520	N	749062.780	E	134.06	11.29	
9100.00		53.300	177.400	5367.46	9025.86	158.20 S 9.56 E
601463.269	N	749063.840	E	158.32	11.30	
9132.00		56.300	177.400	5385.90	9044.30	184.32 S 10.75 E
601437.150	N	749065.026	E	184.45	9.37	
9164.00		59.200	177.300	5402.97	9061.37	211.35 S 12.00 E
601410.119	N	749066.278	E	211.50	9.07	
9195.00		61.700	177.300	5418.26	9076.66	238.29 S 13.27 E
601383.183	N	749067.548	E	238.45	8.06	
9227.00		64.200	178.000	5432.81	9091.21	266.76 S 14.43 E
601354.710	N	749068.715	E	266.94	8.05	
9259.00		66.800	178.700	5446.08	9104.48	295.86 S 15.27 E
601325.606	N	749069.551	E	296.05	8.37	
9291.00		68.800	180.000	5458.17	9116.57	325.49 S 15.60 E
601295.983	N	749069.885	E	325.68	7.29	
9322.00		71.400	181.000	5468.72	9127.12	354.63 S 15.35 E
601266.838	N	749069.628	E	354.81	8.92	
9354.00		74.300	182.100	5478.16	9136.56	385.19 S 14.52 E
601236.276	N	749068.799	E	385.36	9.64	
9385.00		78.200	182.200	5485.53	9143.93	415.28 S 13.39 E
601206.191	N	749067.669	E	415.43	12.58	
9417.00		82.300	181.600	5490.94	9149.34	446.79 S 12.35 E
601174.678	N	749066.625	E	446.92	12.95	
9449.00		86.600	180.600	5494.04	9152.44	478.63 S 11.73 E
601142.841	N	749066.015	E	478.75	13.79	
9480.00		89.900	180.100	5494.98	9153.38	509.61 S 11.55 E
601111.861	N	749065.826	E	509.72	10.77	
9512.00		90.600	180.000	5494.84	9153.24	541.61 S 11.52 E
601079.861	N	749065.798	E	541.72	2.21	
9607.00		90.900	181.100	5493.60	9152.00	636.59 S 10.61 E
600984.875	N	749064.886	E	636.68	1.20	

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9702.00	89.100	181.100	5493.60	9152.00	731.57 S	8.78 E
600889.897	N	749063.062 E	731.62	1.89		
9797.00	88.300	179.500	5495.76	9154.16	826.54 S	8.28 E
600794.926	N	749062.565 E	826.58	1.88		
9892.00	88.800	180.600	5498.16	9156.56	921.51 S	8.20 E
600699.959	N	749062.482 E	921.54	1.27		
9987.00	89.100	179.900	5499.90	9158.30	1016.49 S	7.79 E
600604.976	N	749062.067 E	1016.50	0.80		
10082.00	89.800	179.500	5500.81	9159.21	1111.49 S	8.28 E
600509.983	N	749062.565 E	1111.49	0.85		
10177.00	88.700	178.900	5502.06	9160.46	1206.47 S	9.61 E
600415.002	N	749063.891 E	1206.48	1.32		
10272.00	88.300	179.500	5504.54	9162.94	1301.43 S	10.94 E
600320.044	N	749065.217 E	1301.45	0.76		
10367.00	87.700	178.900	5507.86	9166.26	1396.36 S	12.26 E
600225.112	N	749066.543 E	1396.39	0.89		
10462.00	88.000	177.900	5511.42	9169.82	1491.25 S	14.91 E
600130.217	N	749069.193 E	1491.31	1.10		
10555.00	88.100	178.700	5514.59	9172.99	1584.16 S	17.67 E
600037.313	N	749071.951 E	1584.25	0.87		
10644.00	88.700	178.200	5517.07	9175.47	1673.09 S	20.08 E
599948.381	N	749074.357 E	1673.21	0.88		
10739.00	87.800	178.100	5519.97	9178.37	1767.99 S	23.14 E
599853.476	N	749077.422 E	1768.14	0.95		
10833.00	88.600	178.100	5522.93	9181.33	1861.90 S	26.26 E
599759.575	N	749080.537 E	1862.08	0.85		
10927.00	91.600	179.300	5522.76	9181.16	1955.86 S	28.39 E
599665.611	N	749082.670 E	1956.06	3.44		
11023.00	92.400	180.500	5519.41	9177.81	2051.80 S	28.56 E
599569.672	N	749082.838 E	2052.00	1.50		
11117.00	90.500	180.000	5517.03	9175.43	2145.76 S	28.15 E
599475.708	N	749082.428 E	2145.95	2.09		
11211.00	89.900	179.300	5516.71	9175.11	2239.76 S	28.72 E
599381.711	N	749083.002 E	2239.94	0.98		
11305.00	90.000	179.300	5516.79	9175.19	2333.75 S	29.87 E
599287.718	N	749084.150 E	2333.94	0.11		
11397.00	90.500	179.800	5516.39	9174.79	2425.75 S	30.59 E
599195.723	N	749084.873 E	2425.94	0.77		
11489.00	89.600	177.600	5516.31	9174.71	2517.72 S	32.68 E
599103.753	N	749086.960 E	2517.93	2.58		
11582.00	90.000	177.200	5516.63	9175.03	2610.62 S	36.90 E
599010.850	N	749091.179 E	2610.88	0.61		
11676.00	90.100	177.600	5516.55	9174.95	2704.52 S	41.16 E
598916.947	N	749095.443 E	2704.83	0.44		
11768.00	89.800	178.100	5516.63	9175.03	2796.46 S	44.61 E
598825.012	N	749098.894 E	2796.81	0.63		
11860.00	90.000	178.300	5516.79	9175.19	2888.41 S	47.50 E
598733.058	N	749101.784 E	2888.80	0.31		
11953.00	90.000	178.100	5516.79	9175.19	2981.37 S	50.43 E
598640.104	N	749104.705 E	2981.78	0.22		
12045.00	90.100	178.100	5516.71	9175.11	3073.32 S	53.48 E
598548.154	N	749107.755 E	3073.76	0.11		
12137.00	90.700	178.400	5516.07	9174.47	3165.27 S	56.28 E
598456.200	N	749110.565 E	3165.75	0.73		
12231.00	89.600	178.300	5515.82	9174.22	3259.23 S	58.99 E
598362.241	N	749113.272 E	3259.74	1.18		
12323.00	89.600	177.900	5516.46	9174.86	3351.18 S	62.04 E
598270.294	N	749116.322 E	3351.72	0.43		
12415.00	90.300	178.600	5516.54	9174.94	3443.13 S	64.85 E
598178.338	N	749119.131 E	3443.71	1.08		
12507.00	88.700	178.300	5517.35	9175.75	3535.09 S	67.34 E
598086.378	N	749121.620 E	3535.69	1.77		
12601.00	88.500	178.400	5519.64	9178.04	3629.02 S	70.05 E

Devon Malachite 22 Federal 1H Final Survey.txt							
597992.445	N	749124.325	E	3629.65	0.24		
12693.00		89.600	179.300	5521.17	9179.57	3720.99 S	71.89 E
597900.479	N	749126.171	E	3721.64	1.54		
12817.00		91.000	179.800	5520.52	9178.92	3844.98 S	72.87 E
597776.488	N	749127.145	E	3845.63	1.20		
12878.00		90.700	180.400	5519.61	9178.01	3905.98 S	72.76 E
597715.495	N	749127.039	E	3906.61	1.10		
12971.00		89.600	180.800	5519.37	9177.77	3998.97 S	71.78 E
597622.502	N	749126.065	E	3999.58	1.26		
13063.00		89.300	180.600	5520.25	9178.65	4090.96 S	70.66 E
597530.513	N	749124.941	E	4091.55	0.39		
13145.00		87.000	180.200	5522.90	9181.30	4172.91 S	70.09 E
597448.563	N	749124.369	E	4173.48	2.85		
13247.00		87.200	180.000	5528.06	9186.46	4274.78 S	69.91 E
597346.694	N	749124.191	E	4275.34	0.28		
13340.00		87.200	180.000	5532.60	9191.00	4367.66 S	69.91 E
597253.805	N	749124.191	E	4368.22	0.00		
13432.00		87.700	179.600	5536.70	9195.10	4459.57 S	70.23 E
597161.897	N	749124.512	E	4460.12	0.70		
13493.00		88.500	179.300	5538.72	9197.12	4520.54 S	70.82 E
597100.934	N	749125.097	E	4521.09	1.40		
13524.00		88.500	179.300	5539.53	9197.93	4551.52 S	71.20 E
597069.947	N	749125.476	E	4552.07	0.00	Last Phoenix MWD Survey	
13591.00		88.500	179.300	5541.28	9199.68	4618.49 S	72.01 E
597002.975	N	749126.294	E	4619.05	0.00	Projection To TD	

All data are in feet unless otherwise stated. Directions and coordinates are relative to Grid North.
Vertical depths are relative to WELL. Northings and Eastings are relative to well.

The Dogleg Severity is in Degrees per 100 feet.
Vertical Section is from Slot and calculated along an Azimuth of 179.190° (Grid).

Coordinate System is North American Datum 1983 US State Plane 1983, New Mexico Eastern Zone.
Grid Convergence at Surface is 0.364°.

Based upon Minimum Curvature type calculations, at a Measured Depth of 13591.00ft., the Bottom Hole Displacement is 4619.06ft., in the Direction of 179.190° (Grid).



PHOENIX
TECHNOLOGY SERVICES

HOBBS OCD

MAY 18 2012

RECEIVED

February 21, 2012

Oil Conservation Division
State of New Mexico
1625 N. French Drive
Hobbs, New Mexico 88240

Dear District 1

Re: Devon Energy
Malachite 22 Fed 1H
Lea County, NM
API #30-025-40318
Job No. 1210022

SUR:D-22-19s-33e, 3330/N & 330/W
BHL: M-22-19s-33e, 4948/N & 402/E
API # 30-025-40318

Enclosed please find the Survey Data Certification, and the original Plat and one copy of the Survey Report performed on the above referenced Well by Phoenix Technology Services, Inc. Other information required by your office is as follows:

Name & Title of Surveyor	Drainhole Number	Surveyed Depths		Dates Performed		Type of Survey
		From	To	Start	End	
Marc Flusche	1H	8,594	13,524	02/01/12	02/14/12	MWD

A certified plat on which the bottom hole location is oriented both to the surface location and to the lease lines (or unit lines in case of pooling) is attached to the survey report. If any other information is required, please contact the undersigned at the letterhead address and phone number.

Best Regards,

Gretchen Briggs
Operations Administrator

Certified mail receipt number: **7010 1670 0000 9227 7324**

HOBBS OCD

MAY 21 2012

Phoenix Technology Services SURVEY DATA CERTIFICATION

RECEIVED



PHOENIX JOB NUMBER

1210022

OPERATOR

Devon Energy

WELL NAME Malachite 22 Fed 1H

COUNTY & STATE

Lea, New Mexico

API WELL NUMBER

30-025-40318

PROPOSED DIRECTION

179.19

TIE-IN DATA						
MEASURED	VERTICAL			N-S	E-W	DATA
DEPTH	DEPTH	INCLIN	AZIMUTH	COORD	COORD	SOURCE
8,525 ft	8,523.78 ft	0.75	114.11	71.89 ft	73 ft	Gyro

FIRST	FIRST		
SURVEY	SURVEY		
DATE	DEPTH	INCLIN	AZIMUTH
1-Feb-12	8,594 ft	4.7	161.0

SURVEY INSTRUMENT
TYPE

Phoenix MWD

LAST	LAST		
SURVEY	SURVEY		
DATE	DEPTH	INCLIN	AZIMUTH
14-Feb-12	13,524 ft	88.5	179.3

TO THE BEST OF MY KNOWLEDGE I
CERTIFY THIS SURVEY DATA TO BE
TRUE AND CORRECT.

PROJECTED	PROJECTED		
TD SURVEY	TD SURVEY		
DATE	DEPTH	INCLIN	AZIMUTH
14-Feb-12	13,591 ft	88.5	179.3

Marc Flusche

PRINT YOUR NAME ABOVE

SIGN YOUR NAME ABOVE

MAGNETIC DECLINATION OR TOTAL GRID

TOTAL CORRECTION USED	
	7.23
DECLINATION OR GRID	DECLINATION

2/14/2012

TODAY'S DATE

MWD SUPERVISOR 1

Marc Flusche

DIRECTIONAL DRILLER 1

Greg Scott

MWD SUPERVISOR 2

Paul Perhonis

DIRECTIONAL DRILLER 2

Bubba Sanchez

1805 Brittmore Road

Houston, Texas 77043

(713)3370609 (Voice), (713)337-0599 (Fax)



Devon

Lea County, NM (Nad83)

Malachite 22 Federal

Malachite 22 Fed 1H

Wellbore #1

Survey: Phoenix MWD Surveys

Devon Energy Inc.

15 February, 2012

SUR:D-22-19s-33e, 3330/N & 330/W
BHL: M-22-19s-33e, 4948/N & 402/E
API # 30-025-40318



PHOENIX
TECHNOLOGY SERVICES

RECEIVED

MAY 18 2012

HOBBS OCD



Phoenix Technology Services
Devon Energy Inc.



Company:	Devon	Local Co-ordinate Reference:	Well Malachite 22 Fed 1H
Project:	Lea County NM (Nad83)	TVD Reference:	WELL @ 3658.40usft (Original Well Elev + 19' KB)
Site:	Malachite 22 Federal	MD Reference:	WELL @ 3658.40usft (Original Well Elev + 19' KB)
Well:	Malachite 22 Fed 1H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	GCR DB v5000

Project: Lea County, NM (Nad83)			
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site:		Malachite 22 Federal			
Site Position:		Northing:		601,621.47 usft	
From:	Map	Easting:		749,054.28 usft	
Position Uncertainty:		Slot Radius:		13-3/16 "	
				Latitude: 32° 39' 7.5250 N	
				Longitude: 103° 39' 30.3832 W	
				Grid Convergence: 0.36 °	

Well		Malachite 22 Fed 1H				
Well Position	+N/-S	0.00 usft	Northing:	601,621.47 usft	Latitude:	32° 39' 7.5250 N
	+E/-W	0.00 usft	Easting:	749,054.28 usft	Longitude:	103° 39' 30.3832 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	3,639.40 usft

Wellbore					
Wellbore #1					
Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
			(°)	(°)	(nT)
	IGRF2010_14	12/15/11	7.60	60.56	48,813

Design:		Wellbore #1		
Audit Notes:				
Version:	1.0	Phase:	ACTUAL	Tie On Depth: 0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	179.19



Phoenix Technology Services
Devon Energy Inc.



Company:	Devon	Local Co-ordinate Reference:	Well Malachite 22 Fed 1H
Project:	Lea County, NM (Nad83)	TVD Reference:	WELL @ 3658.40usft (Original Well Elev + 19' KB)
Site:	Malachite 22 Federal	MD Reference:	WELL @ 3658.40usft (Original Well Elev + 19' KB)
Well:	Malachite 22 Fed 1H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	GCR DB v5000

Survey Program		Date	02/15/12		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
100.00	8,500.00	Gyro Surveys (Wellbore #1)	MWD	MWD - Standard	
8,525.00	13,591.00	Phoenix MWD Surveys (Wellbore #1)	MWD	MWD - Standard	

Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVDSS (usft)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLog (°/100usft)	Northing (usft)	Easting (usft)	
8,500.00	0.75	114.11	4,840.38	8,498.78	72.02	-1.02	-72.03	0.00	601,693.49	749,053.26	
Last Gyro Survey											
8,525.00	0.75	114.11	4,865.38	8,523.78	71.89	-0.73	-71.89	0.00	601,693.36	749,053.55	
First Phoenix MWD Survey											
8,594.00	4.70	161.00	4,934.29	8,592.69	69.03	0.61	-69.01	6.12	601,690.50	749,054.89	
8,625.00	5.40	161.70	4,965.17	8,623.57	66.44	1.48	-66.41	2.27	601,687.91	749,055.76	
8,657.00	7.60	170.50	4,996.96	8,655.36	62.93	2.30	-62.89	7.53	601,684.40	749,056.58	
8,689.00	10.20	174.00	5,028.57	8,686.97	58.02	2.95	-57.97	8.30	601,679.49	749,057.23	
8,720.00	13.60	175.90	5,058.90	8,717.30	51.65	3.49	-51.60	11.04	601,673.12	749,057.77	
8,752.00	17.40	177.10	5,089.73	8,748.13	43.12	4.01	-43.06	11.92	601,664.59	749,058.29	
8,784.00	21.80	179.40	5,119.87	8,778.27	32.39	4.31	-32.33	13.96	601,653.86	749,058.59	
8,815.00	26.10	180.60	5,148.20	8,806.60	19.81	4.30	-19.75	13.96	601,641.28	749,058.58	
8,847.00	29.50	180.20	5,176.50	8,834.90	4.89	4.20	-4.83	10.64	601,626.36	749,058.48	
8,879.00	32.00	179.80	5,204.00	8,862.40	-11.47	4.20	11.53	7.84	601,610.00	749,058.48	
8,911.00	34.40	178.50	5,230.77	8,889.17	-28.99	4.47	29.05	7.82	601,592.48	749,058.75	
8,942.00	37.20	178.00	5,255.91	8,914.31	-47.11	5.02	47.18	9.08	601,574.36	749,059.30	
8,974.00	40.30	177.20	5,280.87	8,939.27	-67.12	5.87	67.20	9.81	601,554.35	749,060.15	
9,005.00	43.10	177.80	5,304.01	8,962.41	-87.72	6.76	87.81	9.12	601,533.75	749,061.04	
9,037.00	46.20	178.00	5,326.77	8,985.17	-110.19	7.59	110.29	9.70	601,511.28	749,061.87	
9,069.00	49.80	177.60	5,348.18	9,006.58	-133.95	8.50	134.06	11.29	601,487.52	749,062.78	
9,100.00	53.30	177.40	5,367.46	9,025.86	-158.20	9.56	158.32	11.30	601,463.27	749,063.84	
9,132.00	56.30	177.40	5,385.90	9,044.30	-184.32	10.75	184.45	9.37	601,437.15	749,065.03	



Phoenix Technology Services
Devon Energy Inc.



Company:	Devon	Local Co-ordinate Reference:	Well: Malachite 22 Fed.1H
Project:	Lea County -NM (Nad83)	TVD Reference:	WELL @ 3658.40usft (Original Well Elev + 19' KB)
Site:	Malachite 22 Federal	MD Reference:	WELL @ 3658.40usft (Original Well Elev + 19' KB)
Well:	Malachite 22 Fed.1H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	GCR DB V5000

Survey										
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVDSS (usft)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
9,164.00	59.20	177.30	5,402.97	9,061.37	-211.35	12.00	211.50	9.07	601,410.12	749,066.28
9,195.00	61.70	177.30	5,418.26	9,076.66	-238.29	13.27	238.45	8.06	601,383.18	749,067.55
9,227.00	64.20	178.00	5,432.81	9,091.21	-266.76	14.43	266.94	8.05	601,354.71	749,068.71
9,259.00	66.80	178.70	5,446.08	9,104.48	-295.86	15.27	296.05	8.37	601,325.61	749,069.55
9,291.00	68.80	180.00	5,458.17	9,116.57	-325.49	15.60	325.68	7.29	601,295.98	749,069.88
9,322.00	71.40	181.00	5,468.72	9,127.12	-354.63	15.35	354.81	8.92	601,266.84	749,069.63
9,354.00	74.30	182.10	5,478.16	9,136.56	-385.19	14.52	385.36	9.64	601,236.28	749,068.80
9,385.00	78.20	182.20	5,485.53	9,143.93	-415.28	13.39	415.43	12.58	601,206.19	749,067.67
9,417.00	82.30	181.60	5,490.94	9,149.34	-446.79	12.35	446.92	12.95	601,174.68	749,066.63
9,449.00	86.60	180.60	5,494.04	9,152.44	-478.63	11.73	478.75	13.79	601,142.84	749,066.01
9,480.00	89.90	180.10	5,494.98	9,153.38	-509.61	11.55	509.72	10.77	601,111.86	749,065.83
9,512.00	90.60	180.00	5,494.84	9,153.24	-541.61	11.52	541.72	2.21	601,079.86	749,065.80
9,607.00	90.90	181.10	5,493.60	9,152.00	-636.59	10.61	636.68	1.20	600,984.88	749,064.89
9,702.00	89.10	181.10	5,493.60	9,152.00	-731.57	8.78	731.62	1.89	600,889.90	749,063.06
9,797.00	88.30	179.50	5,495.76	9,154.16	-826.54	8.28	826.58	1.88	600,794.93	749,062.56
9,892.00	88.80	180.60	5,498.16	9,156.56	-921.51	8.20	921.54	1.27	600,699.96	749,062.48
9,987.00	89.10	179.90	5,499.90	9,158.30	-1,016.49	7.79	1,016.50	0.80	600,604.98	749,062.07
10,082.00	89.80	179.50	5,500.81	9,159.21	-1,111.49	8.28	1,111.49	0.85	600,509.98	749,062.56
10,177.00	88.70	178.90	5,502.06	9,160.46	-1,206.47	9.61	1,206.48	1.32	600,415.00	749,063.89
10,272.00	88.30	179.50	5,504.54	9,162.94	-1,301.43	10.94	1,301.45	0.76	600,320.04	749,065.22
10,367.00	87.70	178.90	5,507.86	9,166.26	-1,396.36	12.26	1,396.39	0.89	600,225.11	749,066.54
10,462.00	88.00	177.90	5,511.42	9,169.82	-1,491.25	14.91	1,491.31	1.10	600,130.22	749,069.19
10,555.00	88.10	178.70	5,514.59	9,172.99	-1,584.16	17.67	1,584.25	0.87	600,037.31	749,071.95
10,644.00	88.70	178.20	5,517.07	9,175.47	-1,673.09	20.08	1,673.21	0.88	599,948.38	749,074.36
10,739.00	87.80	178.10	5,519.97	9,178.37	-1,767.99	23.14	1,768.14	0.95	599,853.48	749,077.42
10,833.00	88.60	178.10	5,522.93	9,181.33	-1,861.90	26.26	1,862.08	0.85	599,759.57	749,080.54
10,927.00	91.60	179.30	5,522.76	9,181.16	-1,955.86	28.39	1,956.06	3.44	599,665.61	749,082.67



Phoenix Technology Services
Devon Energy Inc.



Company:	Devon	Local Co-ordinate Reference:	Well: Malachite 22 Fed 1H
Project:	Lea County, NM (Nad83)	TVD Reference:	WELL @ 3658.40usft (Original Well Elev + 19' KB)
Site:	Malachite 22 Federal	MD Reference:	WELL @ 3658.40usft (Original Well Elev + 19' KB)
Well:	Malachite 22 Fed 1H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	GCR DB v5000

Survey										
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVDSS (usft)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
11,023.00	92.40	180.50	5,519.41	9,177.81	-2,051.80	28.56	2,052.00	1.50	599,569.67	749,082.84
11,117.00	90.50	180.00	5,517.03	9,175.43	-2,145.76	28.15	2,145.95	2.09	599,475.71	749,082.43
11,211.00	89.90	179.30	5,516.71	9,175.11	-2,239.76	28.72	2,239.94	0.98	599,381.71	749,083.00
11,305.00	90.00	179.30	5,516.79	9,175.19	-2,333.75	29.87	2,333.94	0.11	599,287.72	749,084.15
11,397.00	90.50	179.80	5,516.39	9,174.79	-2,425.75	30.59	2,425.94	0.77	599,195.72	749,084.87
11,489.00	89.60	177.60	5,516.31	9,174.71	-2,517.72	32.68	2,517.93	2.58	599,103.75	749,086.96
11,582.00	90.00	177.20	5,516.63	9,175.03	-2,610.62	36.90	2,610.88	0.61	599,010.85	749,091.18
11,676.00	90.10	177.60	5,516.55	9,174.95	-2,704.52	41.16	2,704.83	0.44	598,916.95	749,095.44
11,768.00	89.80	178.10	5,516.63	9,175.03	-2,796.46	44.61	2,796.81	0.63	598,825.01	749,098.89
11,860.00	90.00	178.30	5,516.79	9,175.19	-2,888.41	47.50	2,888.80	0.31	598,733.06	749,101.78
11,953.00	90.00	178.10	5,516.79	9,175.19	-2,981.37	50.43	2,981.78	0.22	598,640.10	749,104.71
12,045.00	90.10	178.10	5,516.71	9,175.11	-3,073.32	53.48	3,073.76	0.11	598,548.15	749,107.76
12,137.00	90.70	178.40	5,516.07	9,174.47	-3,165.27	56.28	3,165.75	0.73	598,456.20	749,110.56
12,231.00	89.60	178.30	5,515.82	9,174.22	-3,259.23	58.99	3,259.74	1.18	598,362.24	749,113.27
12,323.00	89.60	177.90	5,516.46	9,174.86	-3,351.18	62.04	3,351.72	0.43	598,270.29	749,116.32
12,415.00	90.30	178.60	5,516.54	9,174.94	-3,443.13	64.85	3,443.71	1.08	598,178.34	749,119.13
12,507.00	88.70	178.30	5,517.35	9,175.75	-3,535.09	67.34	3,535.69	1.77	598,086.38	749,121.62
12,601.00	88.50	178.40	5,519.64	9,178.04	-3,629.02	70.05	3,629.65	0.24	597,992.45	749,124.33
12,693.00	89.60	179.30	5,521.17	9,179.57	-3,720.99	71.89	3,721.64	1.54	597,900.48	749,126.17
12,817.00	91.00	179.80	5,520.52	9,178.92	-3,844.98	72.87	3,845.63	1.20	597,776.49	749,127.15
12,878.00	90.70	180.40	5,519.61	9,178.01	-3,905.98	72.76	3,906.61	1.10	597,715.49	749,127.04
12,971.00	89.60	180.80	5,519.37	9,177.77	-3,998.97	71.78	3,999.58	1.26	597,622.50	749,126.06
13,063.00	89.30	180.60	5,520.25	9,178.65	-4,090.96	70.66	4,091.55	0.39	597,530.51	749,124.94
13,145.00	87.00	180.20	5,522.90	9,181.30	-4,172.91	70.09	4,173.48	2.85	597,448.56	749,124.37
13,247.00	87.20	180.00	5,528.06	9,186.46	-4,274.78	69.91	4,275.34	0.28	597,346.69	749,124.19
13,340.00	87.20	180.00	5,532.60	9,191.00	-4,367.66	69.91	4,368.22	0.00	597,253.81	749,124.19
13,432.00	87.70	179.60	5,536.70	9,195.10	-4,459.57	70.23	4,460.12	0.70	597,161.90	749,124.51



Phoenix Technology Services
Devon Energy Inc.



Company:	Devon	Local Co-ordinate Reference:	Well: Malachite 22 Fed 1H
Project:	Lea County, NM, (Nad83)	TVD Reference:	WELL @ 3658.40usft (Original Well Elev + 19' KB)
Site:	Malachite 22 Federal	MD Reference:	WELL @ 3658.40usft (Original Well Elev + 19' KB)
Well:	Malachite 22 Fed 1H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	GCR DB V5000

Survey										
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVDSS (usft)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
13,493.00	88.50	179.30	5,538.72	9,197.12	-4,520.54	70.82	4,521.09	1.40	597,100.93	749,125.10
13,524.00	88.50	179.30	5,539.53	9,197.93	-4,551.52	71.20	4,552.07	0.00	597,069.95	749,125.48
Last Phoenix MWD Survey										
13,591.00	88.50	179.30	5,541.28	9,199.68	-4,618.49	72.01	4,619.05	0.00	597,002.98	749,126.29
Projection To TD										

Survey Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
8,500.00	8,498.78	72.02	-1.02	Last Gyro Survey
8,525.00	8,523.78	71.89	-0.73	First Phoenix MWD Survey
13,524.00	9,197.93	-4,551.52	71.20	Last Phoenix MWD Survey
13,591.00	9,199.68	-4,618.49	72.01	Projection To TD

Checked By: _____	Approved By: _____	Date: _____
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Devon



Project: Lea County, NM (Nad83)
Site: Malachite 22 Federal
Well: Malachite 22 Fed 1H
Wellbore: Wellbore #1
Plan: Plan #3 013012
Rig: McVay #8

WELL DETAILS Malachite 22 Fed 1H

Ground Level	3639.40
North	601621.47
East	749054.28
Lat	32° 39' 7.5250 N
Long	103° 38' 30.3832 W

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
18.40	18.40	QUATERNARY
1408.40	1408.48	RUSTLER DOL
3098.40	3098.75	BASE SALADO SALT
3268.40	3268.80	YATES SS
3508.40	3508.80	SEVEN RIVERS
4263.40	4263.88	QUEEN SS
4718.40	4718.92	GRAYBURG
6078.40	6079.22	CHERRY CANYON
7498.40	7499.47	BRYSHY CANYON
7808.40	7809.47	1ST BONE SPRING LM
9158.40	910376.88	1ST BONE SPRING SS

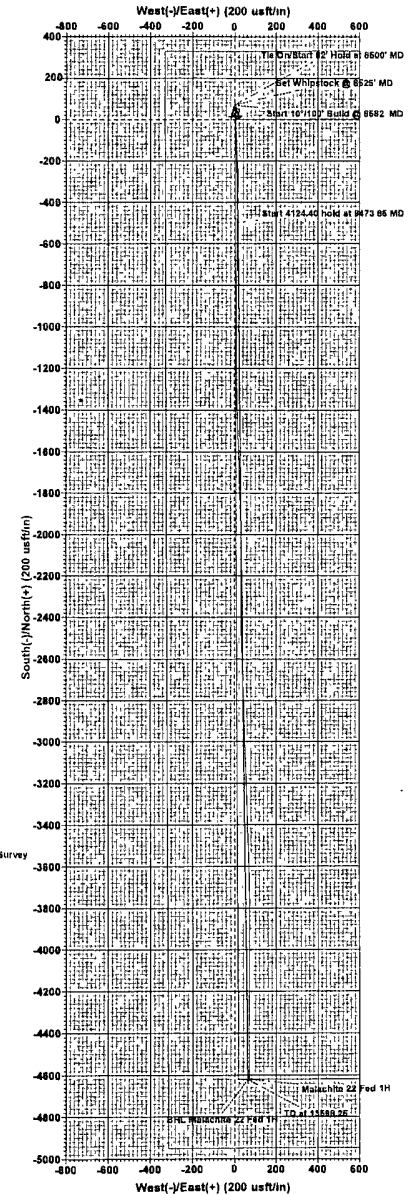
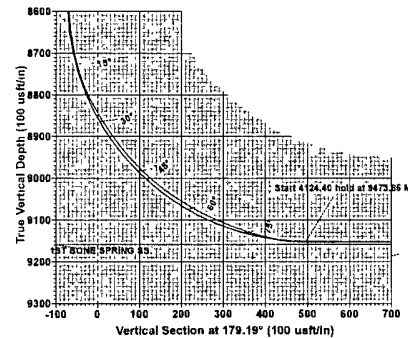
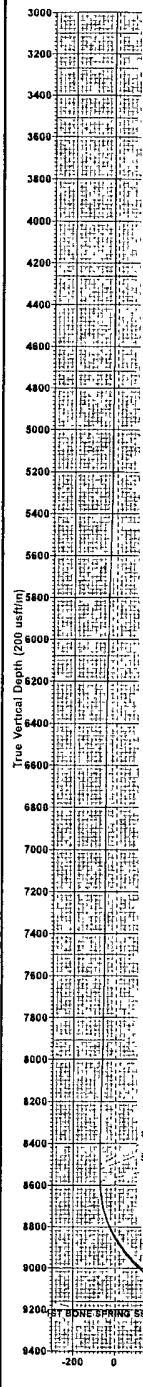
SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Deg	TFace	Vsect
8500.00	0.75	114.11	8498.78	72.02	-1.02	0.00	0.00	-72.03
8525.00	0.75	114.11	8580.77	71.58	-0.04	0.00	0.00	-71.58
9473.85	89.50	179.29	9150.52	-496.24	13.73	10.00	65.19	496.38
13598.25	89.50	179.29	9186.51	-4620.16	65.00	0.00	0.00	4620.62

BHL Malachite 22 Fed 1H
 BHL Malachite 22 Fed 1H

ANNOTATIONS

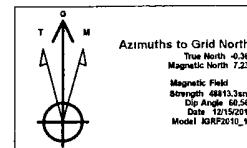
TVD	MD	Annotation
8498.78	8500.00	The On/Start 82' Hold at 8500' MD
8523.78	8525.00	Set Whipstock @ 8525' MD
8580.77	8582.00	Start 10"/100' Build @ 8582' MD
9150.52	9473.85	Start 4124.40 hold at 9473.85 MD
9186.51	13598.25	TD at 13598.25



Phoenix MWD Surveys

TD at 13598.25

BHL Malachite 22 Fed 1H



1 in. = 1000 feet, 1 in. = 1000 meters