



PHOENIX

TECHNOLOGY SERVICES USA INC.

Job Number: 1110524
 Company: EOG Resources
 Lease/Well: Caballo 23 Fed 6H
 Location: Lea County
 Rig Name: Cactus 123
 RKB: ☐
 G.L. or M.S.L.: ☐

State/Country: New Mexico
 Declination: ☐
 Grid: ☐
 File name: C:\DOCUME~1\ADMINI~1\DESKTOP\CRAP\CAB6H
 Date/Time: 29-Sep-11 / 05:56
 Curve Name: Caballo 23 Fed. 6H Plan #2 (As Drilled)

Phoenix Technology

HOBBS OCD

WINSERVE SURVEY CALCULATIONS

OCT 11 2011

Minimum Curvature Method

Vertical Section Plane 179.56

Vertical Section Referenced to Wellhead

Rectangular Coordinates Referenced to Wellhead

RECEIVED

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	Dogleg Severity Deg/100
Scientific Gyro Tie-In							
1095.36	.94	251.94	1095.33	3.03	-2.44	-3.05	.00
1280.00	.60	273.60	1279.95	2.62	-4.84	-2.66	.24
1372.00	.70	256.70	1371.95	2.52	-5.87	-2.57	.23
1464.00	2.20	147.80	1463.93	.90	-5.48	-.94	2.73
1557.00	4.80	137.60	1556.74	-3.49	-1.90	3.47	2.86
1648.00	4.10	127.40	1647.47	-8.27	3.25	8.30	1.16
1743.00	4.00	121.40	1742.23	-12.06	8.78	12.13	.46
1838.00	3.20	119.30	1837.05	-15.09	13.92	15.19	.85
1934.00	1.80	113.20	1932.95	-16.99	17.64	17.13	1.48
2029.00	1.20	79.60	2027.92	-17.40	19.99	17.55	1.09
2125.00	1.10	27.40	2123.90	-16.40	21.40	16.56	1.06
2221.00	1.50	354.30	2219.88	-14.33	21.70	14.50	.87
2316.00	1.80	352.20	2314.84	-11.62	21.37	11.78	.32
2412.00	1.80	339.30	2410.79	-8.71	20.64	8.87	.42
2507.00	1.50	321.10	2505.76	-6.35	19.33	6.50	.63
2603.00	1.20	300.00	2601.73	-4.87	17.67	5.00	.60
2699.00	1.10	305.60	2697.71	-3.83	16.05	3.95	.16
2794.00	1.00	324.00	2792.69	-2.63	14.82	2.74	.37
2890.00	.80	340.80	2888.68	-1.32	14.11	1.43	.34
3081.00	.90	24.10	3079.66	1.31	14.28	-1.20	.33
3272.00	1.70	48.90	3270.61	4.54	17.03	-4.41	.50

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	Dogleg Severity Deg/100
3464.00	1.50	11.60	3462.54	8.88	19.68	-8.73	.54
3655.00	.50	220.40	3653.53	10.69	19.64	-10.54	1.02
3846.00	1.10	160.30	3844.51	8.33	19.72	-8.18	.50
4037.00	.80	190.10	4035.48	5.29	20.11	-5.14	.30
4229.00	1.30	236.20	4227.45	2.76	18.06	-2.62	.49
4416.00	1.70	201.50	4414.39	-1.00	15.28	1.12	.52
4607.00	1.20	197.20	4605.33	-5.55	13.65	5.65	.27
4798.00	1.50	167.60	4796.28	-9.90	13.60	10.00	.39
4943.00	1.10	208.60	4941.25	-12.98	13.34	13.08	.68
5082.00	1.50	224.60	5080.21	-15.44	11.42	15.53	.39
5273.00	.60	21.60	5271.19	-16.29	10.03	16.37	1.08
5464.00	.60	356.30	5462.18	-14.36	10.34	14.44	.14
5655.00	.70	10.70	5653.17	-12.22	10.49	12.30	.10
5847.00	.90	8.10	5845.15	-9.57	10.92	9.66	.11
6038.00	1.30	6.10	6036.12	-5.94	11.36	6.02	.21
6229.00	1.40	349.30	6227.06	-1.49	11.16	1.57	.21
6421.00	1.50	338.90	6419.00	3.16	9.82	-3.09	.15
6612.00	.40	303.30	6609.98	5.86	8.36	-5.80	.63
6803.00	.60	328.20	6800.97	7.08	7.28	-7.02	.15
6995.00	.60	306.60	6992.96	8.53	5.94	-8.48	.12
7186.00	.90	284.40	7183.94	9.50	3.68	-9.47	.22
7377.00	.80	277.50	7374.92	10.05	.91	-10.04	.07
7569.00	.70	284.10	7566.90	10.51	-1.56	-10.52	.07
7760.00	.70	290.00	7757.89	11.19	-3.78	-11.22	.04
7950.00	.40	347.50	7947.88	12.23	-5.02	-12.27	.31
8142.00	.10	353.10	8139.88	13.05	-5.18	-13.09	.16
8333.00	.70	253.30	8330.88	12.88	-6.32	-12.93	.38
8524.00	1.40	236.20	8521.84	11.25	-9.38	-11.32	.40
8715.00	1.20	231.10	8712.79	8.70	-12.87	-8.80	.12
8854.00	.80	220.90	8851.77	7.05	-14.64	-7.16	.31
8898.00	.80	223.80	8895.77	6.60	-15.06	-6.71	.09
8930.00	2.70	187.40	8927.75	5.69	-15.31	-5.80	6.59
8961.00	7.60	179.90	8958.62	2.91	-15.40	-3.03	15.92
8993.00	13.00	179.30	8990.09	-2.81	-15.35	2.69	16.88
9025.00	17.50	179.40	9020.96	-11.22	-15.26	11.10	14.06
9057.00	19.90	180.70	9051.26	-21.48	-15.27	21.36	7.61
9089.00	21.40	180.60	9081.21	-32.76	-15.40	32.64	4.69
9121.00	22.70	180.00	9110.87	-44.78	-15.46	44.66	4.12
9153.00	25.50	179.20	9140.07	-57.84	-15.36	57.72	8.81
9185.00	29.20	178.60	9168.49	-72.54	-15.08	72.42	11.59
9216.00	32.90	177.90	9195.05	-88.52	-14.58	88.40	11.99

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	Dogleg Severity Deg/100
9248.00	35.40	178.70	9221.53	-106.47	-14.05	106.36	7.94
9280.00	37.30	178.20	9247.30	-125.43	-13.54	125.32	6.01
9312.00	39.40	177.80	9272.39	-145.27	-12.85	145.17	6.61
9344.00	42.90	177.50	9296.48	-166.31	-11.98	166.21	10.95
9376.00	46.70	177.50	9319.19	-188.83	-11.00	188.74	11.87
9408.00	51.00	177.60	9340.24	-212.90	-9.97	212.81	13.44
9440.00	55.20	177.40	9359.45	-238.46	-8.85	238.38	13.13
9472.00	58.50	178.10	9376.94	-265.22	-7.80	265.16	10.47
9504.00	62.10	178.70	9392.80	-293.00	-7.03	292.94	11.37
9536.00	65.90	178.10	9406.82	-321.75	-6.22	321.69	11.99
9568.00	70.20	177.80	9418.78	-351.40	-5.16	351.35	13.47
9600.00	74.30	177.40	9428.53	-381.85	-3.88	381.81	12.87
9632.00	78.10	178.10	9436.17	-412.89	-2.67	412.86	12.06
9664.00	80.60	178.90	9442.08	-444.33	-1.84	444.30	8.19
9695.00	83.30	179.60	9446.42	-475.02	-1.44	474.99	8.99
9727.00	85.90	180.60	9449.43	-506.87	-1.50	506.85	8.70
9790.00	87.60	179.40	9453.00	-569.77	-1.50	569.74	3.30
9885.00	89.00	179.30	9455.82	-664.72	-.42	664.69	1.48
9981.00	88.50	180.00	9457.92	-760.69	.17	760.67	.90
10077.00	91.60	179.20	9457.83	-856.68	.84	856.66	3.33
10172.00	90.60	180.70	9456.01	-951.66	.92	951.63	1.90
10268.00	91.10	181.70	9454.58	-1047.62	-1.09	1047.58	1.16
10364.00	91.10	181.00	9452.74	-1143.58	-3.35	1143.52	.73
10459.00	89.80	179.60	9451.99	-1238.57	-3.85	1238.50	2.01
10554.00	90.20	181.20	9451.99	-1333.56	-4.51	1333.49	1.74
10650.00	90.20	181.00	9451.66	-1429.55	-6.36	1429.45	.21
10746.00	89.00	182.50	9452.33	-1525.49	-9.29	1525.38	2.00
10841.00	88.80	178.80	9454.15	-1620.45	-10.36	1620.33	3.90
10937.00	88.40	177.70	9456.50	-1716.38	-7.43	1716.27	1.22
11033.00	88.10	178.00	9459.43	-1812.27	-3.83	1812.18	.44
11128.00	89.90	179.30	9461.09	-1907.22	-1.60	1907.15	2.34
11224.00	89.20	178.40	9461.84	-2003.20	.33	2003.14	1.19
11320.00	90.30	180.30	9462.26	-2099.18	1.42	2099.13	2.29
11416.00	90.10	180.30	9461.93	-2195.18	.92	2195.12	.21
11510.00	90.90	178.80	9461.11	-2289.17	1.65	2289.12	1.81
11605.00	90.60	177.60	9459.86	-2384.11	4.64	2384.08	1.30
11701.00	89.60	178.50	9459.70	-2480.06	7.90	2480.04	1.40
11797.00	90.00	178.40	9460.03	-2576.02	10.50	2576.02	.43
11893.00	91.10	179.70	9459.11	-2672.00	12.09	2672.01	1.77
11988.00	90.50	179.30	9457.78	-2766.98	12.92	2767.00	.76
12084.00	90.80	178.70	9456.69	-2862.96	14.60	2862.99	.70

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	Dogleg Severity Deg/100
12180.00	89.80	178.50	9456.19	-2958.93	16.94	2958.98	1.06
12275.00	87.00	176.40	9458.84	-3053.79	21.17	3053.86	3.68
12371.00	87.20	177.40	9463.70	-3149.52	26.35	3149.63	1.06
12467.00	89.30	177.70	9466.63	-3245.38	30.45	3245.52	2.21
12563.00	89.00	177.90	9468.06	-3341.30	34.14	3341.47	.38
12658.00	89.70	178.80	9469.13	-3436.26	36.87	3436.44	1.20
12754.00	88.70	178.60	9470.47	-3532.22	39.05	3532.42	1.06
12849.00	88.30	178.80	9472.96	-3627.16	41.20	3627.37	.47
12945.00	89.10	179.20	9475.14	-3723.12	42.88	3723.34	.93
13041.00	89.90	180.00	9475.98	-3819.12	43.55	3819.34	1.18
13137.00	89.60	180.50	9476.40	-3915.11	43.13	3915.33	.61
13233.00	89.40	181.00	9477.23	-4011.10	41.87	4011.30	.56
13328.00	88.40	181.00	9479.06	-4106.07	40.22	4106.26	1.05
13424.00	88.30	181.50	9481.82	-4202.00	38.12	4202.17	.53
13520.00	89.60	181.30	9483.58	-4297.96	35.78	4298.11	1.37
13616.00	90.20	179.80	9483.75	-4393.95	34.86	4394.09	1.68
13712.00	89.50	179.10	9484.00	-4489.94	35.78	4490.09	1.03
13807.00	90.50	180.10	9484.00	-4584.94	36.44	4585.08	1.49
13903.00	90.00	180.20	9483.58	-4680.94	36.19	4681.08	.53
13999.00	89.70	180.30	9483.83	-4776.94	35.77	4777.07	.33
14062.00	89.30	180.70	9484.38	-4839.93	35.22	4840.06	.90
TD PROJECTION							
14123.00	89.30	180.70	9485.13	-4900.92	34.48	4901.04	.00