



Company: Concho
Lease/Well: Queso State/3H
Location: S:36 T:23S R:32E
Rig Name: Independence 205
State/County: New Mexico/Lea
Latitude: 32.25, Longitude: -103.62
GRID North is 0.38 Degrees East of True North
VS-Azi: 0.00 Degrees



Depth Reference : Rkb = 26 Ft

DRILLOG HA GYRO SURVEY CALCULATIONS

Filename: gyro survey.ut
Minimum Curvature Method
Report Date/Time: 12/18/2014 / 11:24

VES Survey International
West Texas
(432) 563-5444
Surveyor: Gene Heiss
Queso State 3H / API 30-025-42006

HOBBSOCD

MAR 30 2015

RECEIVED

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	****
100.00	0.13	128.96	100.00	-0.07	0.09	-0.07	0.11	128.96	0.13
200.00	0.14	96.27	200.00	-0.15	0.29	-0.15	0.33	117.54	0.08
300.00	0.19	85.61	300.00	-0.15	0.58	-0.15	0.60	104.77	0.06
400.00	0.40	81.39	400.00	-0.09	1.10	-0.09	1.10	94.58	0.21
500.00	0.45	71.56	500.00	0.09	1.82	0.09	1.82	87.20	0.09
600.00	0.21	66.76	599.99	0.29	2.36	0.29	2.38	83.08	0.24
700.00	0.06	44.53	699.99	0.39	2.57	0.39	2.60	81.26	0.16
800.00	0.11	26.70	799.99	0.51	2.64	0.51	2.69	79.00	0.06
900.00	0.37	15.66	899.99	0.91	2.78	0.91	2.92	71.80	0.27
1000.00	0.40	6.54	999.99	1.57	2.90	1.57	3.30	61.53	0.07
1100.00	0.30	3.49	1099.99	2.18	2.96	2.18	3.68	53.61	0.11
1200.00	0.61	359.62	1199.98	2.97	2.97	2.97	4.20	45.03	0.31
1300.00	0.87	347.94	1299.98	4.24	2.81	4.24	5.09	33.53	0.30
1400.00	0.62	352.69	1399.97	5.52	2.58	5.52	6.09	25.06	0.25
1500.00	0.90	346.13	1499.96	6.83	2.32	6.83	7.21	18.80	0.29
1600.00	0.91	338.35	1599.95	8.33	1.84	8.33	8.53	12.47	0.12
1700.00	0.28	319.16	1699.94	9.25	1.39	9.25	9.35	8.54	0.65
1800.00	0.13	335.84	1799.94	9.54	1.18	9.54	9.62	7.06	0.16

APR 02 2015

JM

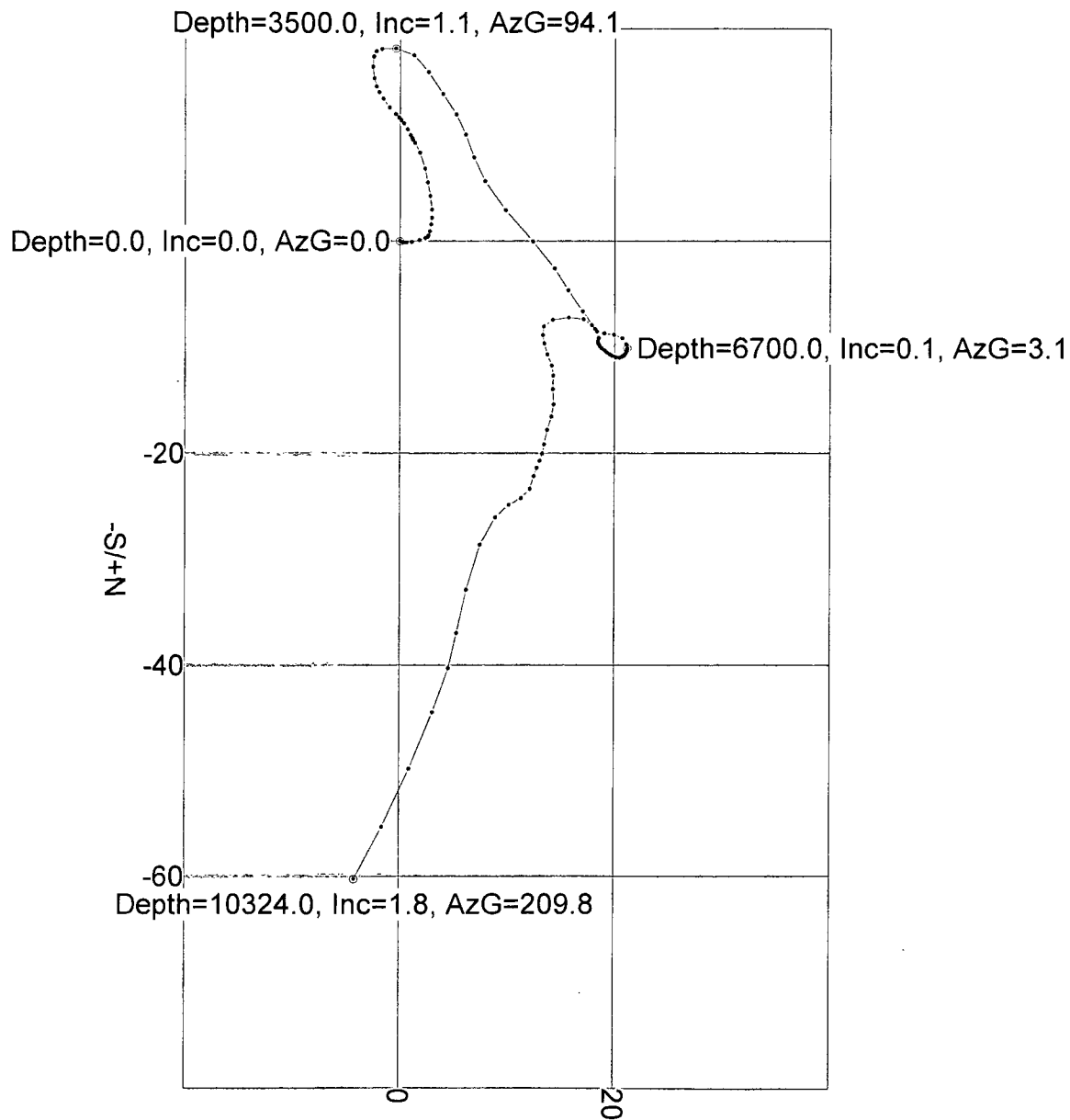
Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
1900.00	0.07	335.36	1899.94	9.70	1.11	9.70	9.76	6.52	0.07
2000.00	0.29	332.94	1999.94	9.98	0.97	9.98	10.02	5.56	0.22
2100.00	0.45	333.62	2099.94	10.55	0.68	10.55	10.57	3.71	0.16
2200.00	0.30	325.08	2199.93	11.12	0.36	11.12	11.12	1.85	0.16
2300.00	0.14	312.71	2299.93	11.41	0.12	11.41	11.42	0.60	0.17
2400.00	0.24	320.82	2399.93	11.66	-0.10	11.66	11.66	359.50	0.11
2500.00	0.27	316.48	2499.93	11.99	-0.40	11.99	12.00	358.10	0.04
2600.00	0.70	317.61	2599.93	12.62	-0.97	12.62	12.66	355.58	0.43
2700.00	0.48	334.64	2699.92	13.45	-1.57	13.45	13.54	353.36	0.28
2800.00	0.39	320.33	2799.92	14.08	-1.96	14.08	14.22	352.08	0.14
2900.00	0.32	352.42	2899.92	14.62	-2.21	14.62	14.78	351.40	0.20
3000.00	0.59	342.09	2999.92	15.38	-2.40	15.38	15.57	351.12	0.28
3100.00	0.70	1.76	3099.91	16.48	-2.54	16.48	16.68	351.23	0.25
3200.00	0.42	11.82	3199.90	17.45	-2.45	17.45	17.62	352.01	0.30
3300.00	0.24	49.50	3299.90	17.94	-2.22	17.94	18.08	352.95	0.27
3400.00	0.44	75.79	3399.90	18.17	-1.69	18.17	18.25	354.70	0.25
3500.00	1.08	94.11	3499.89	18.20	-0.37	18.20	18.20	358.83	0.68
3600.00	1.07	128.57	3599.88	17.55	1.30	17.55	17.60	4.24	0.64
3700.00	1.35	148.70	3699.85	15.96	2.64	15.96	16.18	9.41	0.50
3800.00	1.48	146.11	3799.82	13.88	3.98	13.88	14.44	15.98	0.14
3900.00	1.14	149.59	3899.80	11.95	5.20	11.95	13.03	23.51	0.35
4000.00	1.29	159.59	3999.77	10.03	6.10	10.03	11.74	31.28	0.26
4100.00	1.34	161.32	4099.75	7.87	6.86	7.87	10.44	41.10	0.06
4200.00	1.50	150.23	4199.72	5.63	7.89	5.63	9.69	54.49	0.31
4300.00	2.33	140.78	4299.66	2.92	9.82	2.92	10.25	73.45	0.89
4400.00	2.16	137.09	4399.58	-0.04	12.39	-0.04	12.39	90.17	0.23
4500.00	1.57	148.01	4499.53	-2.58	14.40	-2.58	14.63	100.15	0.69
4600.00	1.24	147.85	4599.50	-4.65	15.70	-4.65	16.37	106.50	0.33
4700.00	1.49	144.19	4699.47	-6.62	17.03	-6.62	18.27	111.24	0.27
4800.00	0.82	146.72	4799.45	-8.28	18.19	-8.28	19.98	114.46	0.67
4900.00	0.29	195.73	4899.45	-9.12	18.51	-9.12	20.64	116.22	0.67
5000.00	0.07	183.73	4999.45	-9.42	18.44	-9.42	20.71	117.05	0.22
5100.00	0.09	171.76	5099.45	-9.55	18.45	-9.55	20.78	117.38	0.03
5200.00	0.12	154.99	5199.45	-9.73	18.50	-9.73	20.90	117.73	0.04
5300.00	0.13	141.38	5299.45	-9.91	18.62	-9.91	21.09	118.02	0.03
5400.00	0.18	132.54	5399.45	-10.10	18.80	-10.10	21.34	118.24	0.06
5500.00	0.19	129.41	5499.44	-10.31	19.05	-10.31	21.66	118.43	0.01
5600.00	0.14	124.62	5599.44	-10.49	19.28	-10.49	21.95	118.55	0.05
5700.00	0.18	120.50	5699.44	-10.64	19.52	-10.64	22.23	118.60	0.04

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
5800.00	0.15	124.12	5799.44	-10.80	19.76	-10.80	22.52	118.64	0.03
5900.00	0.27	109.97	5899.44	-10.95	20.10	-10.95	22.89	118.59	0.13
6000.00	0.12	70.17	5999.44	-10.99	20.42	-10.99	23.19	118.30	0.19
6100.00	0.14	65.13	6099.44	-10.91	20.63	-10.91	23.33	117.87	0.02
6200.00	0.07	54.15	6199.44	-10.82	20.79	-10.82	23.44	117.49	0.07
6300.00	0.13	44.30	6299.44	-10.70	20.92	-10.70	23.50	117.09	0.05
6400.00	0.10	24.94	6399.44	-10.55	21.03	-10.55	23.53	116.63	0.05
6500.00	0.11	19.24	6499.44	-10.38	21.10	-10.38	23.51	116.18	0.02
6600.00	0.06	14.30	6599.44	-10.23	21.15	-10.23	23.49	115.81	0.05
6700.00	0.07	3.09	6699.44	-10.11	21.17	-10.11	23.46	115.53	0.02
6800.00	0.39	346.13	6799.44	-9.72	21.09	-9.72	23.22	114.74	0.32
6900.00	0.44	307.29	6899.44	-9.15	20.70	-9.15	22.63	113.86	0.28
7000.00	0.56	282.73	6999.43	-8.82	19.92	-8.82	21.79	113.87	0.24
7100.00	0.48	271.10	7099.43	-8.70	19.03	-8.70	20.92	114.57	0.13
7200.00	0.35	306.35	7199.43	-8.51	18.36	-8.51	20.24	114.87	0.28
7300.00	0.53	331.12	7299.42	-7.93	17.89	-7.93	19.57	113.90	0.26
7400.00	0.64	285.27	7399.42	-7.38	17.13	-7.38	18.65	113.30	0.47
7500.00	0.98	271.36	7499.41	-7.21	15.74	-7.21	17.31	114.61	0.38
7600.00	0.76	250.24	7599.40	-7.41	14.26	-7.41	16.07	117.47	0.38
7700.00	0.52	206.19	7699.39	-8.04	13.43	-8.04	15.66	120.91	0.53
7800.00	0.47	165.48	7799.39	-8.84	13.34	-8.84	16.00	123.54	0.35
7900.00	0.47	174.81	7899.39	-9.65	13.48	-9.65	16.57	125.60	0.08
8000.00	0.75	158.09	7999.38	-10.66	13.76	-10.66	17.40	127.78	0.32
8100.00	0.57	160.94	8099.37	-11.74	14.16	-11.74	18.40	129.65	0.17
8200.00	0.53	183.69	8199.37	-12.67	14.30	-12.67	19.11	131.56	0.22
8300.00	0.93	179.92	8299.36	-13.95	14.27	-13.95	19.95	134.35	0.40
8400.00	0.72	174.72	8399.35	-15.38	14.33	-15.38	21.02	137.04	0.22
8500.00	0.67	203.45	8499.34	-16.55	14.15	-16.55	21.78	139.47	0.35
8600.00	0.85	192.66	8599.33	-17.81	13.76	-17.81	22.50	142.32	0.22
8700.00	0.74	190.75	8699.33	-19.17	13.47	-19.17	23.43	144.89	0.11
8800.00	0.30	195.16	8799.32	-20.05	13.28	-20.05	24.05	146.48	0.44
8900.00	0.51	200.49	8899.32	-20.72	13.06	-20.72	24.49	147.78	0.21
9000.00	0.31	204.62	8999.32	-21.38	12.79	-21.38	24.92	149.11	0.20
9100.00	0.64	197.07	9099.31	-22.16	12.52	-22.16	25.45	150.55	0.34
9200.00	0.80	198.28	9199.30	-23.36	12.13	-23.36	26.33	152.56	0.16
9300.00	0.74	249.47	9299.30	-24.26	11.31	-24.26	26.76	155.00	0.67
9400.00	0.76	234.57	9399.29	-24.87	10.16	-24.87	26.87	157.77	0.20
9500.00	1.26	222.83	9499.27	-26.06	8.87	-26.06	27.53	161.20	0.54
9600.00	2.17	200.35	9599.23	-28.65	7.46	-28.65	29.60	165.39	1.11

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
9700.00	2.91	193.91	9699.13	-32.89	6.20	-32.89	33.47	169.33	0.80
9800.00	1.86	189.39	9799.04	-36.96	5.32	-36.96	37.34	171.81	1.07
9900.00	2.06	196.25	9898.98	-40.29	4.55	-40.29	40.55	173.56	0.31
10000.00	2.98	201.32	9998.88	-44.44	3.10	-44.44	44.55	176.01	0.94
10100.00	3.64	202.85	10098.72	-49.78	0.93	-49.78	49.79	178.93	0.66
10200.00	3.31	206.34	10198.53	-55.29	-1.58	-55.29	55.31	181.64	0.39
10324.00	1.85	209.85	10322.40	-60.23	-4.17	-60.23	60.37	183.96	1.18



VES Survey International
West Texas
(432) 563-5444
Surveyor: Gene Heiss
Queso State 3H / API 30-025-42006



VES Survey Date: 12/7/2014