



Scientific Drilling

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HOBBSOCD

Gyroscopic Survey Report
for
CAZA OPERATING

30-D25-394D4

Well Location	LEA COUNTY, NEW MEXICO
Well Name	MOORE COWBELL 27 STATE 1H
Rig Name	NABORS 783
Survey Date	12/19/2009
Latitude	33.24 deg
North Reference	Grid North
Grid Correction	-0.35 deg
Depth Reference	RKB
Calculation Method	Minimum Curvature
Section (VS) Ref	0.00N (ft), 0.00E (ft), 269.60Azim (deg)
Definitive Survey	FINAL OUTRUN SURVEY
Operator	ANGEL GUEBARA

Comments



Survey Report

Well Name: MOORE COWBELL 27 STATE 1H

Survey: FINAL OUTFRAN SURVEY

Survey Date: 12/19/2009

MD ft	Inc deg	Azim deg	TVD ft	VS ft	Northing ft	Easting ft	DLS deg/100ft	Closure Distance ft	Closure Angle deg
0.00	0.00	0.00	0.00	0.00	0.00	0.00	Invalid	0.00	0.00
100.00	0.55	163.75	100.00	-0.13	-0.46	0.13	0.55	0.48	163.75
200.00	0.75	167.27	199.99	-0.40	-1.56	0.41	0.20	1.61	165.17
300.00	1.10	171.70	299.98	-0.67	-3.15	0.70	0.36	3.22	167.54
400.00	1.04	166.95	399.96	-1.00	-4.98	1.04	0.11	5.09	168.22
500.00	1.03	164.76	499.95	-1.43	-6.74	1.48	0.04	6.90	167.60
600.00	1.12	161.43	599.93	-1.97	-8.53	2.03	0.11	8.77	166.62
700.00	0.98	160.00	699.91	-2.56	-10.26	2.63	0.15	10.60	165.61
800.00	0.94	148.88	799.90	-3.27	-11.77	3.35	0.19	12.23	164.12
900.00	0.89	152.94	899.88	-4.03	-13.15	4.12	0.08	13.79	162.60
1000.00	0.94	148.90	999.87	-4.80	-14.55	4.90	0.09	15.35	161.39
1100.00	1.00	157.53	1099.86	-5.55	-16.06	5.66	0.16	17.03	160.59
1200.00	1.06	161.58	1199.84	-6.16	-17.74	6.28	0.10	18.82	160.50
1300.00	1.07	155.34	1299.82	-6.83	-19.47	6.97	0.12	20.68	160.31
1400.00	1.52	151.72	1399.80	-7.84	-21.49	7.99	0.46	22.93	159.62
1500.00	1.78	169.37	1499.76	-8.73	-24.19	8.90	0.57	25.78	159.79
1600.00	2.04	166.94	1599.70	-9.40	-27.45	9.59	0.28	29.08	160.74
1700.00	2.10	169.65	1699.64	-10.11	-30.99	10.32	0.11	32.67	161.58
1800.00	2.32	168.32	1799.56	-10.82	-34.78	11.06	0.22	36.50	162.35
1900.00	2.41	169.00	1899.48	-11.60	-38.83	11.87	0.09	40.60	162.99
2000.00	2.48	170.98	1999.38	-12.31	-43.02	12.61	0.11	44.84	163.66
2100.00	2.46	171.94	2099.29	-12.92	-47.29	13.26	0.04	49.11	164.34
2200.00	2.36	172.28	2199.20	-13.47	-51.46	13.83	0.11	53.28	164.95
2300.00	2.17	174.50	2299.13	-13.90	-55.38	14.29	0.21	57.19	165.53
2400.00	2.00	178.55	2399.06	-14.10	-59.01	14.52	0.22	60.77	166.18
2500.00	1.97	181.26	2499.00	-14.09	-62.47	14.52	0.10	64.14	166.91
2600.00	1.90	183.49	2598.94	-13.92	-65.85	14.38	0.10	67.40	167.68
2700.00	1.89	181.34	2698.89	-13.76	-69.16	14.24	0.07	70.61	168.36
2800.00	1.86	180.40	2798.83	-13.69	-72.44	14.19	0.04	73.82	168.91
2900.00	1.96	177.21	2898.78	-13.74	-75.77	14.27	0.14	77.10	169.34
3000.00	2.16	176.78	2998.71	-13.90	-79.35	14.45	0.20	80.66	169.68
3100.00	2.25	178.69	3098.64	-14.02	-83.19	14.60	0.12	84.46	170.04
3200.00	2.34	182.22	3198.56	-13.96	-87.19	14.57	0.17	88.40	170.51
3300.00	2.35	183.14	3298.48	-13.74	-91.27	14.38	0.04	92.40	171.05
3400.00	2.34	187.35	3398.39	-13.34	-95.35	14.01	0.17	96.37	171.64
3500.00	2.36	188.91	3498.31	-12.73	-99.41	13.43	0.07	100.31	172.31
3600.00	2.34	188.07	3598.22	-12.10	-103.46	12.82	0.04	104.25	172.94
3700.00	2.10	193.42	3698.15	-11.36	-107.26	12.11	0.31	107.94	173.56
3800.00	1.95	198.70	3798.09	-10.36	-110.66	11.14	0.24	111.21	174.25



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MD ft	Inc deg	Azim deg	TVD ft	VS ft	Northing ft	Easting ft	DLS deg/100ft	Closure Distance ft	Closure Angle deg
3900.00	1.76	201.14	3898.03	-9.25	-113.69	10.04	0.21	114.14	174.95
4000.00	1.54	201.77	3997.99	-8.18	-116.37	8.99	0.21	116.72	175.58
4100.00	1.18	207.30	4097.96	-7.19	-118.54	8.02	0.38	118.81	176.13
4200.00	0.89	205.73	4197.95	-6.37	-120.16	7.21	0.29	120.37	176.57
4300.00	0.90	206.03	4297.94	-5.67	-121.56	6.52	0.01	121.74	176.93
4400.00	0.76	196.53	4397.93	-5.13	-122.91	5.99	0.20	123.05	177.21
4500.00	0.60	200.63	4497.92	-4.75	-124.04	5.61	0.17	124.16	177.41
4600.00	0.55	201.39	4597.91	-4.38	-124.97	5.26	0.05	125.08	177.59
4700.00	0.53	204.73	4697.91	-4.01	-125.84	4.89	0.04	125.93	177.78
4800.00	0.45	196.52	4797.90	-3.70	-126.63	4.58	0.11	126.72	177.93
4900.00	0.34	206.63	4897.90	-3.45	-127.28	4.34	0.13	127.35	178.05
5000.00	0.32	226.24	4997.90	-3.11	-127.74	4.00	0.12	127.80	178.21
5100.00	0.21	247.62	5097.90	-2.74	-128.00	3.63	0.14	128.05	178.37
5200.00	0.18	256.06	5197.90	-2.42	-128.11	3.31	0.04	128.15	178.52
5300.00	0.19	256.62	5297.90	-2.10	-128.18	3.00	0.01	128.22	178.66
5400.00	0.10	332.08	5397.90	-1.90	-128.14	2.79	0.19	128.18	178.75
5500.00	0.03	288.30	5497.90	-1.83	-128.06	2.72	0.08	128.09	178.78
5600.00	0.09	57.80	5597.90	-1.87	-128.01	2.76	0.12	128.04	178.76
5700.00	0.07	354.58	5697.90	-1.93	-127.90	2.83	0.09	127.94	178.73
5800.00	0.15	23.27	5797.90	-1.98	-127.73	2.87	0.09	127.76	178.71
5900.00	0.30	50.14	5897.90	-2.23	-127.45	3.12	0.18	127.48	178.60
6000.00	0.29	48.69	5997.90	-2.62	-127.11	3.51	0.01	127.16	178.42
6100.00	0.31	56.51	6097.89	-3.04	-126.80	3.93	0.05	126.86	178.23
6200.00	0.34	41.90	6197.89	-3.47	-126.42	4.35	0.09	126.50	178.03
6300.00	0.35	38.33	6297.89	-3.86	-125.96	4.74	0.02	126.05	177.84
6400.00	0.38	31.32	6397.89	-4.23	-125.44	5.10	0.05	125.55	177.67
6500.00	0.43	35.18	6497.89	-4.62	-124.85	5.49	0.06	124.97	177.48
6600.00	0.38	43.13	6597.88	-5.07	-124.30	5.94	0.08	124.44	177.27
6700.00	0.38	41.56	6697.88	-5.52	-123.81	6.38	0.01	123.98	177.05
6800.00	0.43	52.51	6797.88	-6.04	-123.34	6.90	0.10	123.53	176.80
6900.00	0.47	50.85	6897.88	-6.66	-122.85	7.52	0.04	123.08	176.50
7000.00	0.43	52.23	6997.87	-7.28	-122.35	8.14	0.04	122.62	176.20
7100.00	0.36	58.04	7097.87	-7.85	-121.95	8.71	0.08	122.26	175.92
7200.00	0.37	85.20	7197.87	-8.45	-121.76	9.30	0.17	122.11	175.63
7300.00	0.47	78.22	7297.87	-9.18	-121.65	10.03	0.11	122.06	175.29
7400.00	0.58	93.98	7397.86	-10.09	-121.60	10.94	0.18	122.09	174.86
7500.00	1.01	92.43	7497.85	-11.47	-121.67	12.32	0.43	122.29	174.22
7600.00	1.47	92.93	7597.83	-13.64	-121.77	14.49	0.46	122.63	173.22



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7700.00	1.44	92.07	7697.80	-16.17	-121.89	17.03	0.04	123.07	172.05
7800.00	1.35	98.20	7797.77	-18.59	-122.10	19.45	0.17	123.64	170.95
7900.00	1.34	97.59	7897.74	-20.92	-122.42	21.77	0.02	124.34	169.92
8000.00	1.24	100.31	7997.71	-23.14	-122.77	24.00	0.11	125.09	168.94
8100.00	1.21	93.28	8097.69	-25.26	-123.02	26.12	0.15	125.77	168.01
8200.00	1.21	90.20	8197.67	-27.36	-123.09	28.22	0.07	126.28	167.09
8300.00	1.29	89.91	8297.64	-29.54	-123.09	30.40	0.09	126.79	166.13
8400.00	1.30	88.89	8397.62	-31.81	-123.07	32.67	0.03	127.33	165.13
8500.00	1.30	93.37	8497.59	-34.08	-123.11	34.94	0.10	127.97	164.15