



Gyroscopic Survey Report
for
Black Hills

Well Location	Jicarilla 451-04#44
Well Name	Jicarilla 451-04#44
Rig Number	A+ 14
Survey Date	08/08/13
Latitude	36°44'55.700"N
North Reference	True North
Grid Correction	None
Depth Reference	RKB (13.00 ft)
Calculation Method	Minimum Curvature
Section (VS) Ref	Undefined
Definitive Survey	Jicarilla 451-04#44
Operator(s)	D. Moore

Well Notes

OIL CONS. DIV DIST. 3

APR 23 2014

Survey Report

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MD ft	Inc deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	DLS 7100ft
0.00	0.00	0.00	0.00	0.00	0.00	Invalid
25.00	0.10	32.62	25.00	0.02	0.01	0.40
50.00	0.20	32.62	50.00	0.07	0.05	0.40
75.00	0.30	32.62	75.00	0.17	0.11	0.40
100.00	0.39	32.21	100.00	0.29	0.19	0.37
125.00	0.32	21.99	125.00	0.43	0.26	0.39
150.00	0.26	8.30	150.00	0.55	0.29	0.38
175.00	0.27	9.97	175.00	0.66	0.31	0.07
200.00	0.25	0.60	200.00	0.78	0.32	0.19
225.00	0.18	331.83	225.00	0.86	0.30	0.50
250.00	0.15	328.81	250.00	0.93	0.27	0.13
275.00	0.14	321.91	275.00	0.98	0.23	0.08
300.00	0.15	300.19	300.00	1.02	0.19	0.22
325.00	0.25	322.66	325.00	1.08	0.13	0.52
350.00	0.21	283.84	350.00	1.13	0.05	0.64
375.00	0.15	273.82	375.00	1.15	-0.03	0.29
400.00	0.18	275.89	400.00	1.15	-0.10	0.14
425.00	0.28	294.49	425.00	1.18	-0.19	0.48
450.00	0.34	301.39	450.00	1.25	-0.31	0.31
475.00	0.31	312.10	475.00	1.33	-0.43	0.28
500.00	0.35	318.61	500.00	1.43	-0.53	0.21
525.00	0.40	332.74	524.99	1.57	-0.62	0.43
550.00	0.36	340.33	549.99	1.72	-0.68	0.25
575.00	0.34	1.60	574.99	1.87	-0.71	0.53
600.00	0.23	12.91	599.99	1.99	-0.69	0.49
625.00	0.15	13.37	624.99	2.07	-0.67	0.33
650.00	0.07	315.54	649.99	2.12	-0.68	0.52
675.00	0.06	286.82	674.99	2.13	-0.70	0.13
700.00	0.12	268.58	699.99	2.13	-0.74	0.25
725.00	0.17	272.23	724.99	2.13	-0.80	0.24
750.00	0.24	295.60	749.99	2.16	-0.88	0.42
775.00	0.23	321.80	774.99	2.22	-0.96	0.43
800.00	0.20	2.18	799.99	2.30	-0.99	0.60
825.00	0.09	10.54	824.99	2.37	-0.99	0.47
850.00	0.07	201.73	849.99	2.37	-0.99	0.60
875.00	0.18	122.31	874.99	2.34	-0.96	0.70
900.00	0.13	107.29	899.99	2.31	-0.90	0.25
925.00	0.36	215.63	924.99	2.24	-0.92	1.67



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950.00	0.13	250.07	949.99	2.16	-0.99	1.04
975.00	0.18	257.14	974.99	2.14	-1.06	0.19
1000.00	0.11	279.07	999.99	2.14	-1.12	0.35
1025.00	0.03	308.44	1024.99	2.15	-1.15	0.32
1050.00	0.08	354.23	1049.99	2.17	-1.15	0.24
1075.00	0.14	40.94	1074.99	2.21	-1.14	0.42
1100.00	0.28	122.74	1099.99	2.20	-1.06	1.19
1125.00	0.24	168.62	1124.99	2.12	-1.00	0.82
1150.00	0.29	169.04	1149.99	2.00	-0.98	0.23
1175.00	0.22	203.71	1174.99	1.90	-0.99	0.67
1200.00	0.13	205.03	1199.99	1.83	-1.02	0.35
1225.00	0.08	247.03	1224.99	1.79	-1.05	0.36
1250.00	0.07	230.78	1249.99	1.78	-1.07	0.10
1275.00	0.25	52.10	1274.99	1.80	-1.04	1.26
1300.00	0.33	80.38	1299.99	1.85	-0.93	0.66
1325.00	0.36	105.05	1324.99	1.84	-0.78	0.61
1350.00	0.43	110.09	1349.99	1.79	-0.61	0.29
1375.00	0.40	137.70	1374.99	1.69	-0.47	0.80
1400.00	0.37	138.91	1399.99	1.56	-0.36	0.16
1425.00	0.45	154.50	1424.99	1.41	-0.26	0.56
1450.00	0.28	119.30	1449.99	1.30	-0.16	1.11
1475.00	0.28	122.87	1474.99	1.23	-0.06	0.07
1500.00	0.40	114.99	1499.99	1.16	0.07	0.53
1525.00	0.53	123.48	1524.99	1.06	0.24	0.59
1550.00	0.66	118.87	1549.98	0.93	0.47	0.57
1575.00	0.92	136.29	1574.98	0.71	0.73	1.40
1600.00	1.02	136.88	1599.98	0.41	1.02	0.39
1625.00	1.02	139.66	1624.97	0.08	1.32	0.20
1650.00	1.04	143.12	1649.97	-0.28	1.60	0.26
1675.00	1.08	156.78	1674.97	-0.67	1.83	1.02
1700.00	0.92	159.58	1699.96	-1.08	1.99	0.68
1725.00	1.02	160.45	1724.96	-1.47	2.13	0.41
1750.00	0.86	152.37	1749.96	-1.85	2.30	0.81
1775.00	0.82	152.14	1774.95	-2.17	2.47	0.19
1800.00	0.77	149.16	1799.95	-2.48	2.64	0.26
1825.00	0.79	152.77	1824.95	-2.77	2.80	0.22
1850.00	0.77	145.82	1849.95	-3.07	2.97	0.39



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1875.00	0.78	150.38	1874.94	-3.35	3.15	0.25
1900.00	0.79	156.67	1899.94	-3.66	3.31	0.35
1925.00	0.74	166.62	1924.94	-3.98	3.41	0.57
1950.00	0.61	165.71	1949.94	-4.26	3.48	0.54
1975.00	0.75	185.90	1974.94	-4.56	3.50	1.11
2000.00	0.68	188.19	1999.93	-4.87	3.46	0.31
2025.00	0.58	185.51	2024.93	-5.14	3.43	0.41
2050.00	0.63	192.23	2049.93	-5.40	3.39	0.35
2075.00	0.67	195.37	2074.93	-5.67	3.32	0.21
2100.00	0.55	181.52	2099.93	-5.93	3.28	0.75
2125.00	0.53	167.63	2124.93	-6.16	3.30	0.53
2150.00	0.67	167.34	2149.92	-6.42	3.35	0.56
2175.00	0.64	168.13	2174.92	-6.70	3.41	0.13
2200.00	0.67	170.98	2199.92	-6.98	3.47	0.18
2225.00	0.62	162.03	2224.92	-7.25	3.53	0.44
2250.00	0.61	177.47	2249.92	-7.51	3.58	0.67
2275.00	0.56	173.15	2274.92	-7.77	3.60	0.26
2300.00	0.51	168.61	2299.92	-8.00	3.64	0.29
2325.00	0.45	175.18	2324.92	-8.20	3.67	0.32
2350.00	0.38	164.19	2349.91	-8.38	3.70	0.40
2375.00	0.46	158.38	2374.91	-8.56	3.76	0.34
2400.00	0.42	157.16	2399.91	-8.73	3.83	0.17
2425.00	0.50	171.52	2424.91	-8.93	3.88	0.57
2450.00	0.46	166.42	2449.91	-9.13	3.92	0.23
2475.00	0.40	177.46	2474.91	-9.32	3.95	0.41
2500.00	0.39	170.95	2499.91	-9.49	3.97	0.19
2525.00	0.42	154.17	2524.91	-9.65	4.02	0.49
2550.00	0.35	156.11	2549.91	-9.81	4.09	0.27
2575.00	0.32	118.43	2574.91	-9.91	4.18	0.88
2600.00	0.33	107.46	2599.91	-9.97	4.31	0.25
2625.00	0.38	55.85	2624.91	-9.94	4.45	1.26
2650.00	0.45	48.25	2649.91	-9.83	4.60	0.35
2675.00	0.45	43.21	2674.91	-9.69	4.74	0.16
2700.00	0.54	34.45	2699.91	-9.53	4.87	0.46
2725.00	0.63	17.59	2724.90	-9.30	4.98	0.79
2750.00	0.84	23.40	2749.90	-9.00	5.09	0.89
2775.00	0.71	21.07	2774.90	-8.68	5.22	0.56
2800.00	0.81	24.80	2799.90	-8.38	5.35	0.46



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2825.00	0.83	28.23	2824.90	-8.06	5.51	0.21
2850.00	0.96	37.26	2849.89	-7.73	5.72	0.78
2875.00	1.01	43.73	2874.89	-7.41	6.00	0.48
2900.00	1.06	49.30	2899.88	-7.10	6.33	0.45
2925.00	1.05	53.73	2924.88	-6.81	6.69	0.33
2950.00	1.02	52.99	2949.88	-6.54	7.05	0.13
2975.00	1.15	51.16	2974.87	-6.25	7.42	0.56
3000.00	1.14	49.81	2999.87	-5.93	7.81	0.11
3025.00	1.14	50.14	3024.86	-5.61	8.19	0.04
3050.00	1.13	54.15	3049.86	-5.31	8.58	0.32
3075.00	1.17	54.20	3074.85	-5.01	8.99	0.15
3100.00	1.06	52.57	3099.85	-4.73	9.38	0.46
3125.00	0.94	52.37	3124.84	-4.46	9.72	0.47
3150.00	0.96	53.55	3149.84	-4.21	10.06	0.11
3175.00	0.86	60.64	3174.84	-3.99	10.39	0.60
3200.00	0.96	55.18	3199.83	-3.78	10.73	0.52
3225.00	0.94	51.05	3224.83	-3.53	11.06	0.29
3250.00	0.86	55.58	3249.83	-3.30	11.37	0.43
3275.00	0.86	45.43	3274.82	-3.06	11.66	0.61
3300.00	0.82	46.89	3299.82	-2.81	11.92	0.16
3325.00	0.82	55.66	3324.82	-2.58	12.20	0.50
3350.00	0.92	47.99	3349.82	-2.35	12.50	0.61
3375.00	0.86	51.12	3374.81	-2.10	12.79	0.31
3400.00	0.73	51.06	3399.81	-1.88	13.06	0.52
3425.00	0.70	57.27	3424.81	-1.70	13.31	0.33
3450.00	0.82	67.22	3449.81	-1.54	13.61	0.70
3475.00	0.93	53.99	3474.80	-1.36	13.93	0.92
3500.00	0.98	48.61	3499.80	-1.10	14.26	0.42
3525.00	0.90	36.41	3524.80	-0.80	14.54	0.86
3550.00	0.89	31.77	3549.79	-0.47	14.76	0.30
3558.06	0.68	33.63	3557.86	-0.38	14.81	2.57