



Gyroscopic Survey Report
for
Black Hills

Well Location	460-21 #2
Well Name	Jic46021#2
Rig Number	
Survey Date	08/12/13
Latitude	36.8012200N
North Reference	True North
Grid Correction	None
Depth Reference	kb (13.00 ft)
Calculation Method	Minimum Curvature
Section (VS) Ref	Undefined
Definitive Survey	Jicarilla 460-21 #2 Computed
Operator(s)	D . Moore

Well Notes

OIL CONS. DIV DIST. 3

APR 23 2014



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Survey: Jicarilla 460-21 #2 Computed
Survey Date: 08/12/13

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
50.00	0.18	99.56	50.00	-0.01	0.08	0.37
100.00	0.37	99.59	100.00	-0.05	0.31	0.37
150.00	0.52	101.06	150.00	-0.12	0.70	0.31
200.00	0.43	97.89	200.00	-0.19	1.11	0.19
250.00	0.30	105.95	250.00	-0.25	1.42	0.28
300.00	0.12	106.06	299.99	-0.31	1.59	0.36
350.00	0.06	84.44	349.99	-0.32	1.67	0.13
400.00	0.07	42.34	399.99	-0.29	1.72	0.10
450.00	0.14	35.74	449.99	-0.22	1.78	0.14
500.00	0.23	18.86	499.99	-0.07	1.85	0.20
550.00	0.25	21.39	549.99	0.12	1.92	0.05
600.00	0.22	34.06	599.99	0.31	2.01	0.12
650.00	0.19	55.39	649.99	0.43	2.13	0.17
700.00	0.18	78.54	699.99	0.50	2.28	0.15
750.00	0.28	74.18	749.99	0.54	2.47	0.22
800.00	0.33	86.30	799.99	0.59	2.73	0.17
850.00	0.33	94.32	849.99	0.59	3.02	0.09
900.00	0.35	114.45	899.99	0.51	3.30	0.24
950.00	0.58	123.71	949.99	0.31	3.66	0.49
1000.00	0.57	128.27	999.99	0.01	4.06	0.10
1050.00	0.74	136.00	1049.98	-0.38	4.48	0.39
1100.00	0.76	135.98	1099.98	-0.85	4.94	0.03
1150.00	0.78	148.41	1149.97	-1.38	5.35	0.34
1200.00	0.79	159.32	1199.97	-1.99	5.65	0.30
1250.00	0.86	160.48	1249.96	-2.67	5.89	0.13
1300.00	0.83	153.12	1299.96	-3.34	6.18	0.22
1350.00	0.84	151.13	1349.95	-3.99	6.52	0.06
1400.00	0.76	148.59	1399.95	-4.59	6.87	0.17
1450.00	0.65	150.67	1449.94	-5.12	7.18	0.23
1500.00	0.55	156.37	1499.94	-5.58	7.42	0.22
1550.00	0.58	157.65	1549.94	-6.04	7.61	0.06
1600.00	0.59	162.71	1599.94	-6.52	7.78	0.11
1650.00	0.59	173.27	1649.93	-7.02	7.89	0.22
1700.00	0.65	174.43	1699.93	-7.55	7.95	0.12
1750.00	0.66	169.83	1749.93	-8.12	8.03	0.11
1800.00	0.67	160.10	1799.92	-8.68	8.18	0.23
1850.00	0.63	162.39	1849.92	-9.22	8.36	0.10



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1900.00	0.57	166.55	1899.92	-9.72	8.50	0.15
1950.00	0.53	151.79	1949.92	-10.16	8.67	0.29
2000.00	0.55	143.56	1999.91	-10.56	8.92	0.16
2050.00	0.56	146.56	2049.91	-10.96	9.19	0.06
2100.00	0.42	141.13	2099.91	-11.30	9.44	0.28
2150.00	0.42	125.09	2149.91	-11.55	9.71	0.24
2200.00	0.53	115.40	2199.91	-11.76	10.07	0.26
2250.00	0.49	114.72	2249.90	-11.94	10.47	0.08
2300.00	0.46	113.68	2299.90	-12.11	10.85	0.05
2350.00	0.37	122.73	2349.90	-12.28	11.17	0.23
2400.00	0.43	144.42	2399.90	-12.52	11.41	0.32
2450.00	0.50	138.58	2449.90	-12.84	11.66	0.17
2500.00	0.58	129.39	2499.90	-13.16	12.00	0.23
2550.00	0.63	130.76	2549.89	-13.50	12.40	0.11
2600.00	0.83	140.61	2599.89	-13.96	12.84	0.48
2650.00	0.93	145.80	2649.88	-14.57	13.30	0.25
2700.00	1.02	147.88	2699.88	-15.28	13.76	0.19
2750.00	1.11	143.83	2749.87	-16.05	14.29	0.24
2800.00	0.96	137.86	2799.86	-16.75	14.85	0.37
2850.00	0.87	137.88	2849.85	-17.34	15.39	0.18
2900.00	0.95	141.86	2899.85	-17.95	15.90	0.21
2950.00	0.93	143.46	2949.84	-18.61	16.40	0.07
3000.00	0.95	128.61	2999.83	-19.19	16.96	0.49
3050.00	0.86	135.18	3049.83	-19.71	17.55	0.27
3058.14	1.00	130.81	3057.96	-19.80	17.65	1.90