

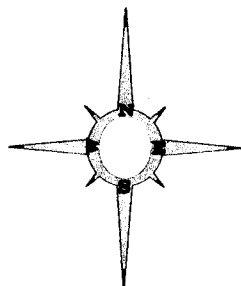
Job Number: 0012420175
LEASE/WELL: Nichols #3-2
Location: Meade County
State/Country: Kansas

CMS Energy

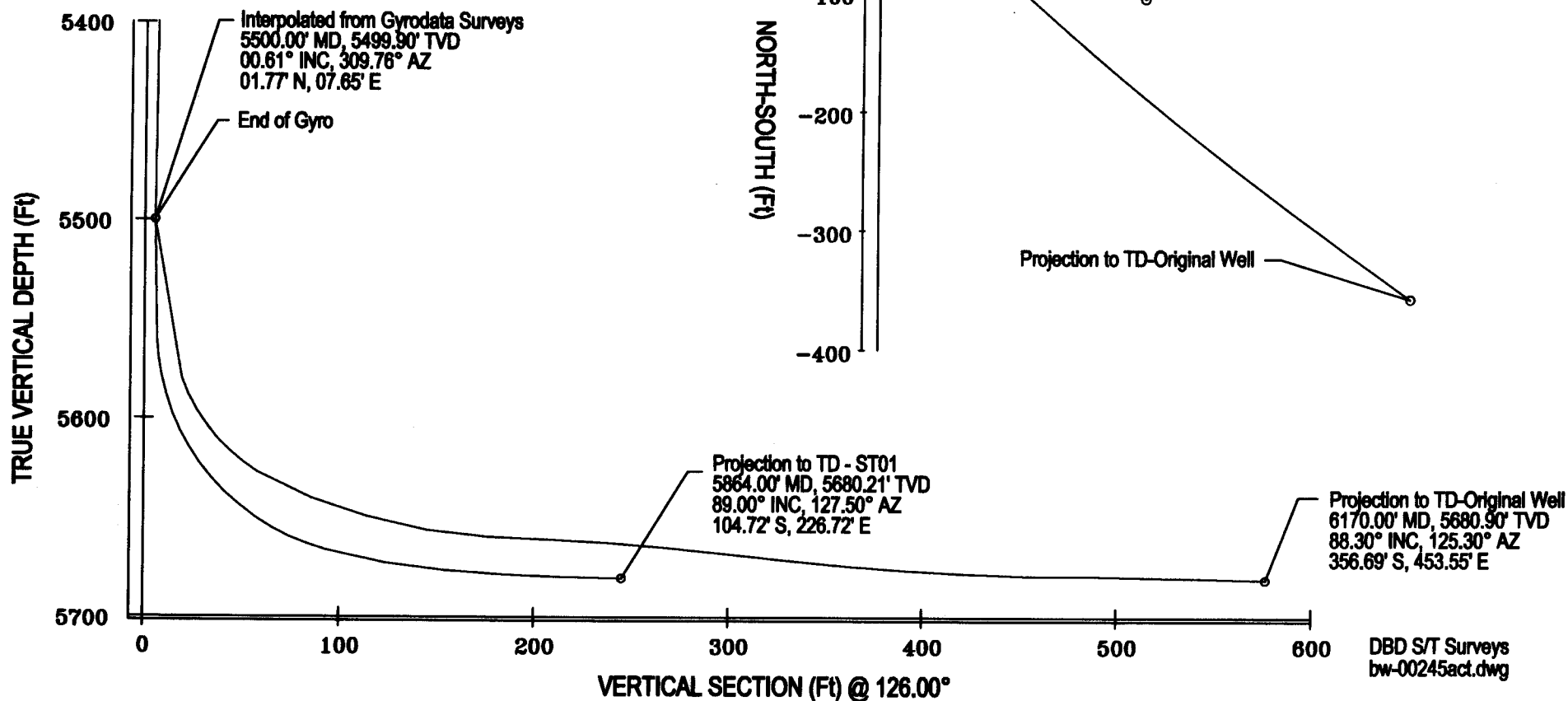
Date/Time: January 17, 2001
Declination: 7.36° E (M-T)
Grid: Based to True North



Map Drawn to True North



Magnetic to True North
Total Correction = 7.63° E





Job Number: P00-245
 Company: CMS Energy
 Lease/Well: Nichols 3-2 Re
 Location: Meade County
 Rig Name: Unknown
 RKB: Unknown
 G.L. or M.S.L.: 2518'

State/Country: Kansas
 Declination: 7.63° E (M-T) est.
 Grid: Based to True North
 File name: G:\00PROP~1\P00240\S\P00245\00245.SVY
 Date/Time: 22-Jan-01 / 08:30
 Curve Name: Gyrodata Surveys

WINSERVE SURVEY CALCULATIONS
 Minimum Curvature Method
 Vertical Section Plane 126.00
 Vertical Section Referenced to Wellhead
 Rectangular Coordinates Referenced to Wellhead

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	Vertical Section FT	Subsea TVD FT	N-S FT	E-W FT	CLOSURE		Dogleg Severity Deg/100
Distance	Direction	FT	Deg	FT	FT	FT	FT	FT	Deg	
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
200.00	.12	237.50	200.00	-.08	-200.00	-.11	-.18	.21	237.50	.06
400.00	.15	242.73	400.00	-.27	-400.00	-.35	-.59	.68	239.51	.02
600.00	.12	146.56	600.00	-.19	-600.00	-.64	-.70	.95	227.71	.10
800.00	.28	84.36	800.00	.37	-800.00	-.77	-.10	.77	187.54	.12
1000.00	.54	56.88	999.99	1.07	-999.99	-.20	1.17	1.19	99.83	.16
1200.00	.58	38.94	1199.98	1.46	-1199.98	1.10	2.60	2.82	67.09	.09
1400.00	.70	36.10	1399.97	1.51	-1399.97	2.87	3.96	4.89	54.01	.06
1600.00	.75	41.04	1599.95	1.63	-1599.95	4.85	5.54	7.36	48.79	.04
1800.00	.42	68.88	1799.94	2.14	-1799.94	6.10	7.08	9.34	49.25	.21
2000.00	.17	128.72	1999.94	2.84	-1999.94	6.18	7.99	10.10	52.30	.18
2200.00	.11	174.06	2199.94	3.26	-2199.94	5.80	8.24	10.08	54.87	.06
2400.00	.40	202.12	2399.94	3.56	-2399.94	4.96	8.00	9.42	58.19	.15
2600.00	.37	195.48	2599.93	3.95	-2599.93	3.69	7.57	8.42	63.98	.03
2800.00	.36	202.20	2799.93	4.33	-2799.93	2.49	7.16	7.58	70.81	.02
3000.00	.09	310.51	2999.93	4.32	-2999.93	2.01	6.80	7.09	73.53	.20
3200.00	.44	318.46	3199.93	3.41	-3199.93	2.69	6.17	6.73	66.47	.18
3400.00	.38	305.49	3399.92	2.00	-3399.92	3.65	5.12	6.29	54.55	.06
3600.00	.13	194.11	3599.92	1.42	-3599.92	3.81	4.53	5.92	49.90	.22
3800.00	.20	71.59	3799.92	1.71	-3799.92	3.70	4.80	6.06	52.37	.15
4000.00	.26	44.17	3999.92	1.98	-3999.92	4.14	5.45	6.84	52.79	.06
4200.00	.24	104.96	4199.92	2.43	-4199.92	4.36	6.17	7.55	54.79	.13
4400.00	.26	131.96	4399.92	3.27	-4399.92	3.94	6.91	7.96	60.30	.06
4600.00	.28	139.86	4599.91	4.20	-4599.91	3.27	7.57	8.24	66.64	.02
4800.00	.41	139.94	4799.91	5.37	-4799.91	2.35	8.34	8.66	74.29	.07

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	Vertical Section FT	Subsea TVD FT	N-S FT	E-W FT	CLOSURE		Dogleg Severity Deg/100
								Distance FT	Direction Deg	
5000.00	.38	137.26	4999.90	6.71	-4999.90	1.31	9.25	9.34	81.94	.02
5200.00	.23	260.46	5199.90	7.08	-5199.90	.76	9.31	9.34	85.35	.27
5400.00	.43	310.71	5399.90	6.05	-5399.90	1.18	8.34	8.42	81.95	.17
End of Gyro										
5500.00	.61	309.76	5499.90	5.15	-5499.90	1.77	7.65	7.85	77.00	.18



Job Number: P00-245
 Company: CMS Energy
 Lease/Well: Nichols 3-2 Re
 Location: Meade County
 Rig Name: Unknown
 RKB: Unknown
 G.L. or M.S.L.: 2518'

State/Country: Kansas
 Declination: 7.63° E (M-T) est.
 Grid: Based to True North
 File name: G:\00PROP-1\P00240\SIP00245\00245.SVY
 Date/Time: 22-Jan-01 / 08:33
 Curve Name: DBD ST Tool Surveys - Original Well Bore

WINSERVE SURVEY CALCULATIONS
 Minimum Curvature Method
 Vertical Section Plane 126.00
 Vertical Section Referenced to Wellhead
 Rectangular Coordinates Referenced to Wellhead

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	Vertical Section FT	Subsea TVD FT	N-S FT	E-W FT	CLOSURE		Dogleg Severity Deg/100
Distance FT	Direction Deg									
Interpolated from Gyrodata Surveys										
5500.00	.61	309.76	5499.90	5.15	-5499.90	1.77	7.65	7.85	77.00	.00
5582.00	20.50	124.70	5580.21	19.23	-5580.21	-6.22	19.25	20.23	107.91	25.74
5614.00	40.20	129.40	5607.69	35.30	-5607.69	-16.06	31.96	35.77	116.68	61.96
5644.00	58.80	134.40	5627.09	57.86	-5627.09	-31.33	48.76	57.96	122.72	63.25
5675.00	71.40	132.60	5640.12	85.69	-5640.12	-50.62	69.13	85.69	126.21	40.98
5705.00	73.40	132.60	5649.19	114.09	-5649.19	-69.98	90.18	114.15	127.81	6.67
5737.00	81.20	132.10	5656.22	145.09	-5656.22	-90.99	113.24	145.27	128.78	24.42
5768.00	87.10	130.90	5659.38	175.78	-5659.38	-111.41	136.32	176.06	129.26	19.42
5800.00	87.80	130.80	5660.80	207.63	-5660.80	-132.32	160.51	208.02	129.50	2.21
5831.00	86.30	130.20	5662.40	238.49	-5662.40	-152.43	184.05	238.97	129.63	5.21
5862.00	84.70	129.20	5664.83	269.33	-5664.83	-172.17	207.82	269.88	129.64	6.08
5892.00	83.80	128.90	5667.84	299.14	-5667.84	-190.97	231.00	299.72	129.58	3.16
5923.00	83.90	128.60	5671.16	329.92	-5671.16	-210.27	255.04	330.54	129.50	1.01
5954.00	85.70	128.00	5673.97	360.77	-5673.97	-229.40	279.27	361.41	129.40	6.12
5985.00	86.20	126.90	5676.16	391.68	-5676.16	-248.20	303.82	392.31	129.25	3.89
6015.00	87.00	126.40	5677.94	421.63	-5677.94	-266.08	327.84	422.23	129.06	3.14
6046.00	89.80	125.90	5678.80	452.61	-5678.80	-284.36	352.86	453.18	128.86	9.17
6076.00	89.70	126.10	5678.93	482.61	-5678.93	-301.99	377.13	483.14	128.69	.75
6107.00	88.50	125.40	5679.42	513.61	-5679.42	-320.10	402.29	514.10	128.51	4.48
6138.00	88.90	125.70	5680.12	544.60	-5680.12	-338.12	427.50	545.05	128.34	1.61

Projection to TD-Original Well										
6170.00	88.30	125.30	5680.90	576.59	-5680.90	-356.69	453.55	577.01	128.18	2.25



Job Number: P00-245
 Company: CMS Energy
 Lease/Well: Nichols 3-2 Re
 Location: Meade County
 Rig Name: Unknown
 RKB: Unknown
 G.L. or M.S.L.: 2518'

State/Country: Kansas
 Declination: 7.63° E (M-T) est.
 Grid: Based to True North
 File name: G:\00PROP-1\P00240'SVP00245\00245.SVY
 Date/Time: 22-Jan-01 / 08:47
 Curve Name: DBD ST Tool Surveys - ST01

WINSERVE SURVEY CALCULATIONS
Minimum Curvature Method
Vertical Section Plane 126.00
Vertical Section Referenced to Wellhead
Rectangular Coordinates Referenced to Wellhead

<i>Measured Depth FT</i>	<i>Incl Angle Deg</i>	<i>Drift Direction Deg</i>	<i>True Vertical Depth</i>	<i>Vertical Section FT</i>	<i>Subsea TVD FT</i>	<i>N-S FT</i>	<i>E-W FT</i>	<i>CLOSURE Distance FT</i>	<i>Direction Deg</i>	<i>Dogleg Severity Deg/100</i>
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Interpolated from Gyrodata Surveys

5500.00	.61	309.76	5499.90	5.15	-5499.90	1.77	7.65	7.85	77.00	.00
5560.00	3.10	122.20	5559.87	6.45	-5559.87	1.10	8.78	8.84	82.82	6.18
5617.00	32.80	100.40	5613.51	22.27	-5613.51	-2.59	25.65	25.78	95.76	52.53
5648.00	47.90	108.70	5637.09	40.95	-5637.09	-7.82	44.93	45.60	99.88	51.61
5679.00	62.00	109.40	5654.84	65.16	-5654.84	-16.10	68.85	70.71	103.16	45.52
5710.00	75.30	112.90	5666.11	93.02	-5666.11	-26.53	95.70	99.31	105.49	44.16
5741.00	80.40	117.10	5672.63	122.75	-5672.63	-39.34	123.14	129.28	107.72	21.12
5773.00	86.10	120.10	5676.39	154.25	-5676.39	-54.55	151.03	160.58	109.86	20.10
5803.00	86.30	121.20	5678.38	184.05	-5678.38	-69.81	176.78	190.06	111.55	3.72
5833.00	88.90	125.50	5679.64	213.98	-5679.64	-86.28	201.81	219.48	113.15	16.74

Projection to TD - ST01

5864.00	89.00	127.50	5680.21	244.97	-5680.21	-104.72	226.72	249.74	114.79	6.46
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