

COG OPERATING

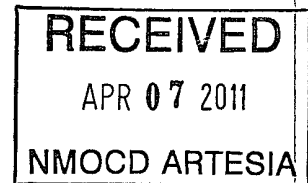
Undesignated
Eddy County, NM
Moody 17 Fee Com #3H
VH - Job #32K0111007

30-015-37636

Survey: Actual

SDI Standard Survey Report

09 January, 2011



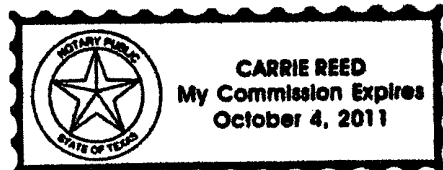
This survey is correct to the best of my knowledge and is supported by actual field data.

Richard

Notarized this date 9th of January, 2011.

Carrie Reed

Notary Signature
County of Midland
State of Texas



Scientific Drilling International, Inc.
SDI Standard Survey Report

Company:	COG OPERATING	Local Co-ordinate Reference:	Well Moody 17 Fee Com #3H
Project:	Undesignated	TVD Reference:	WELL @ 0.0usft (Original Well Elev)
Site:	Eddy County, NM	MD Reference:	WELL @ 0.0usft (Original Well Elev)
Well:	Moody 17 Fee Com #3H	North Reference:	Grid
Wellbore:	VH - Job #32K0111007	Survey Calculation Method:	Minimum Curvature
Design:	VH - Job #32K0111007	Database:	EDM-Regulatory

Project	Undesignated		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site	Eddy County, NM				
Site Position:		Northing:	408,900.82 usft	Latitude:	32° 7' 26.400 N
From:	Lat/Long	Easting:	566,971.85 usft	Longitude:	104° 7' 1.200 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16"	Grid Convergence:	0.12 °

Well	Moody 17 Fee Com #3H, Directional (Pathfinder)					
Well Position	+N/-S	0.0 usft	Northing:	408,900.82 usft	Latitude:	32° 7' 26.400 N
	+E/-W	0.0 usft	Easting:	566,971.85 usft	Longitude:	104° 7' 1.200 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level:	0.0 usft

Wellbore	VH - Job #32K0111007				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2010	1/2/2011	7.94	60.01	48,594

Design	VH - Job #32K0111007				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.0	0.0	0.0	119.84	

Survey Program		Date	1/9/2011		
From (usft)	To (usft)	Survey (Wellbore)		Tool Name	Description
100.0	6,013.0	Actual (VH - Job #32K0111007)		Keeper	Keeper Gyro

Survey							
Measured Depth (usft)	Inclination (°)	Azimuth (°)	True Vertical Depth	North/South (usft)	East/West (usft)	Closure Azimuth (°)	Closure Distance (usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.0
100.0	0.22	309.02	100.0	0.1	-0.1	309.02	0.2
200.0	0.33	265.16	200.0	0.2	-0.6	290.38	0.6
300.0	1.17	240.79	300.0	-0.3	-1.8	260.18	1.8
400.0	0.87	225.96	400.0	-1.3	-3.2	247.42	3.5
500.0	0.78	205.61	500.0	-2.5	-4.0	238.53	4.7
600.0	0.78	200.67	600.0	-3.7	-4.6	230.86	5.9
700.0	0.64	254.24	699.9	-4.5	-5.4	229.87	7.0
800.0	0.66	248.03	799.9	-4.9	-6.4	232.78	8.1
900.0	0.53	252.58	899.9	-5.2	-7.4	234.73	9.1
1,000.0	0.39	226.39	999.9	-5.6	-8.1	235.27	9.8
1,100.0	0.29	151.56	1,099.9	-6.1	-8.2	233.56	10.2

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Wellbore:	VH - Job #32K0111007	Survey Calculation Method:	Minimum Curvature
Design:	VH - Job #32K0111007	Database:	EDM-Regulatory

Survey							
Measured Depth (usft)	Inclination (°)	Azimuth (°)	True Vertical Depth	North/South (usft)	East/West (usft)	Closure Azimuth (°)	Closure Distance (usft)
1,200.0	0.23	153.13	1,199.9	-6.5	-8.0	231.06	10.3
1,300.0	0.25	134.35	1,299.9	-6.8	-7.8	228.77	10.3
1,400.0	0.18	251.51	1,399.9	-7.0	-7.7	227.91	10.4
1,500.0	0.83	223.07	1,499.9	-7.6	-8.4	227.92	11.3
1,600.0	1.08	210.92	1,599.9	-8.9	-9.4	226.43	12.9
1,700.0	1.08	156.67	1,699.9	-10.6	-9.5	221.84	14.2
1,800.0	1.81	111.56	1,799.9	-12.0	-7.6	212.41	14.3
1,900.0	2.31	94.10	1,899.8	-12.8	-4.2	198.06	13.4
2,000.0	2.61	91.28	1,999.7	-13.0	0.1	179.44	13.0
2,100.0	2.31	83.29	2,099.6	-12.8	4.4	160.97	13.5
2,200.0	2.01	82.58	2,199.5	-12.3	8.1	146.51	14.8
2,300.0	1.12	71.48	2,299.5	-11.8	10.8	137.44	16.0
2,400.0	0.77	60.34	2,399.5	-11.1	12.3	132.09	16.6
2,500.0	0.68	62.57	2,499.5	-10.5	13.4	128.08	17.1
2,600.0	0.71	57.98	2,599.5	-9.9	14.5	124.41	17.6
2,700.0	0.70	73.78	2,699.5	-9.4	15.6	121.14	18.2
2,800.0	0.75	69.23	2,799.5	-9.0	16.8	118.24	19.1
2,900.0	0.83	68.57	2,899.5	-8.5	18.1	115.24	20.0
3,000.0	0.75	74.79	2,999.4	-8.1	19.4	112.64	21.0
3,100.0	0.68	65.66	3,099.4	-7.7	20.6	110.46	21.9
3,200.0	0.65	63.26	3,199.4	-7.2	21.6	108.36	22.8
3,300.0	0.39	34.15	3,299.4	-6.6	22.3	106.56	23.3
3,400.0	0.54	29.73	3,399.4	-5.9	22.7	104.65	23.5
3,500.0	0.51	29.20	3,499.4	-5.1	23.2	102.51	23.7
3,600.0	1.02	25.44	3,599.4	-4.0	23.8	99.44	24.1
3,700.0	1.07	25.33	3,699.4	-2.3	24.6	95.36	24.7
3,800.0	1.04	28.60	3,799.4	-0.7	25.4	91.50	25.4
3,900.0	0.96	35.92	3,899.4	0.8	26.3	88.23	26.3
4,000.0	0.65	33.32	3,999.4	2.0	27.1	85.86	27.2
4,100.0	0.67	32.38	4,099.3	2.9	27.7	83.97	27.9
4,200.0	0.66	36.09	4,199.3	3.9	28.4	82.20	28.7
4,300.0	0.69	35.90	4,299.3	4.8	29.1	80.55	29.5
4,400.0	0.39	44.70	4,399.3	5.6	29.7	79.36	30.2
4,500.0	0.38	84.82	4,499.3	5.8	30.3	79.06	30.8
4,600.0	0.45	108.50	4,599.3	5.8	31.0	79.48	31.5
4,700.0	0.55	152.96	4,699.3	5.2	31.5	80.64	32.0
4,800.0	0.50	157.86	4,799.3	4.4	31.9	82.21	32.2
4,900.0	0.60	178.70	4,899.3	3.4	32.1	83.88	32.3
5,000.0	0.73	181.01	4,999.3	2.3	32.1	85.94	32.2
5,100.0	0.75	176.71	5,099.3	1.0	32.1	88.24	32.1
5,200.0	0.85	187.65	5,199.3	-0.4	32.1	90.71	32.1
5,300.0	0.98	189.48	5,299.3	-2.0	31.8	93.56	31.9
5,400.0	1.07	189.36	5,399.3	-3.7	31.5	96.77	31.8
5,500.0	1.09	187.00	5,499.2	-5.6	31.3	100.17	31.8

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Site:	Eddy County, NM	MD Reference:	WELL @ 0.0usft (Original Well Elev)
Well:	Moody 17 Fee Com #3H	North Reference:	Grid
Wellbore:	VH - Job #32K0111007	Survey Calculation Method:	Minimum Curvature
Design:	VH - Job #32K0111007	Database:	EDM-Regulatory

Survey							
Measured Depth (usft)	Inclination (°)	Azimuth (°)	True Vertical Depth	North/South (usft)	East/West (usft)	Closure Azimuth (°)	Closure Distance (usft)
5,600.0	1.04	190.98	5,599.2	-7.4	31.0	103.51	31.9
5,700.0	1.22	190.24	5,699.2	-9.4	30.6	107.03	32.0
5,800.0	1.32	193.45	5,799.2	-11.5	30.2	110.95	32.3
5,900.0	1.31	201.00	5,899.2	-13.7	29.5	114.98	32.5
6,000.0	1.59	189.67	5,999.1	-16.2	28.8	119.28	33.1
6,013.0	1.46	188.08	6,012.1	-16.5	28.8	119.84	33.2



Project: Undesignated
Eddy County, NM
Well: Moody 17 Fee Com #3H
Wellbore: VH - Job #32K0111007
Design: VH - Job #32K0111007

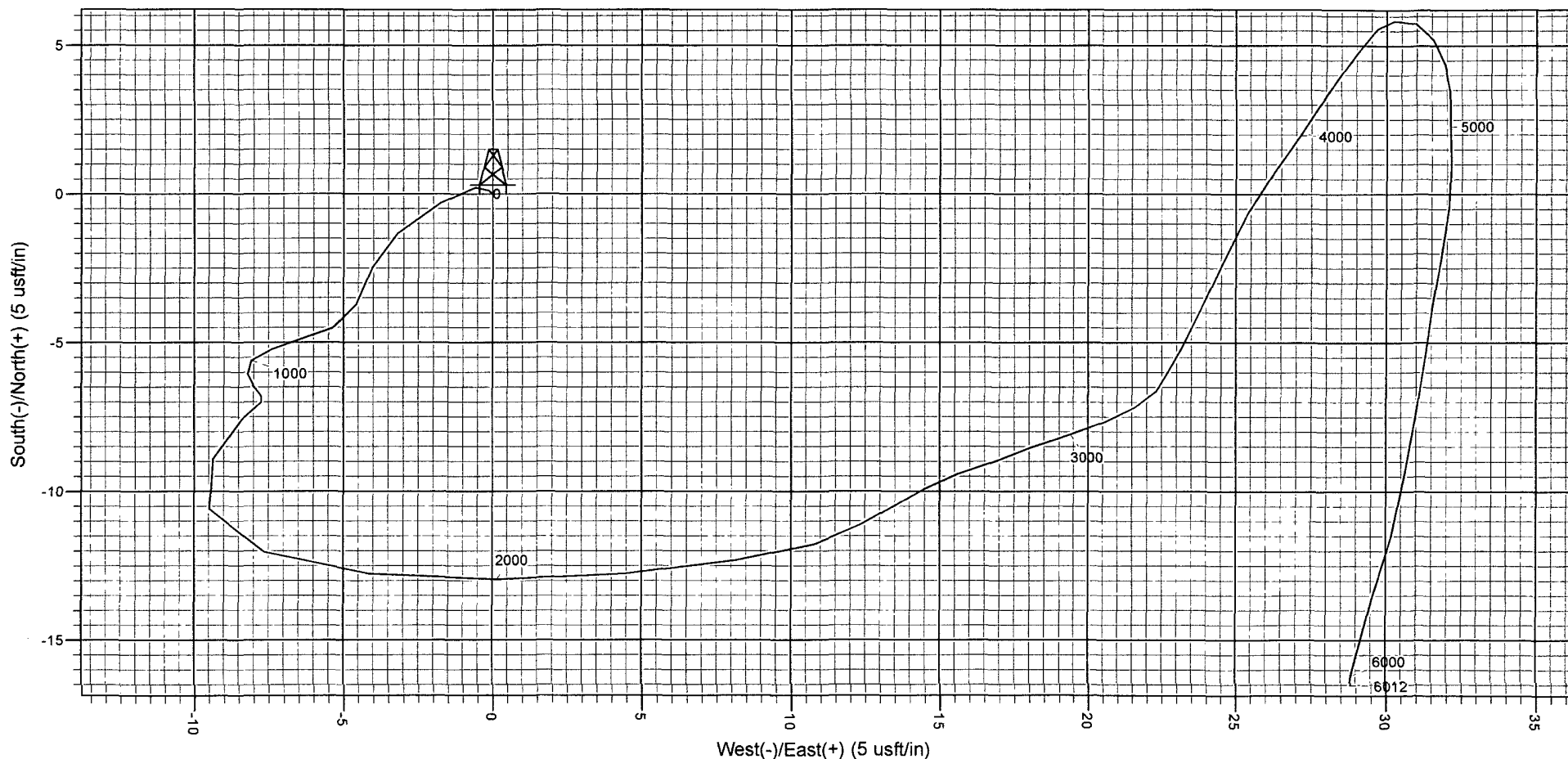


Azimuths to Grid North
True North: -0.12°
Magnetic North: 7.83°

Magnetic Field
Strength: 48594.1snT
Dip Angle: 60.01°
Date: 1/2/2011
Model: BGGM2010

WELL DETAILS: Moody 17 Fee Com #3H
WELL @ 0.0usft (Original Well Elev)

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	408900.82	566971.85	32° 7' 26.400 N	104° 7' 1.200 W	



PROJECT DETAILS: Undesignated
Geodetic System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone: New Mexico East 3001
System Datum: Mean Sea Level

SITE DETAILS: Eddy County, NM
Site Centre Latitude: 32° 7' 26.400 N
Longitude: 104° 7' 1.200 W
Positional Uncertainty: 0.0
Convergence: 0.12
Local North: Grid