

COG OPERATING

Hay Hollow
Eddy County, NM
Myox 29 State Com #1H
VH - Job #32K0611567

30-015-38981

Survey: Actual

SDI Standard Survey Report

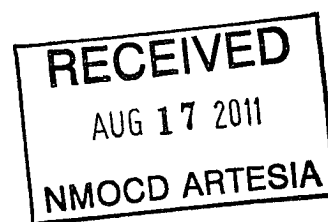
This survey is correct to the best of my knowledge and is supported by actual field data.

R. W. Barton

Notarized this date 22nd of July, 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 Myox 29 State Com #1H
Project:	Hay Hollow	TVD Reference:	WELL @ 0 0usft (Original Well Elev)
Site:	Eddy County, NM	MD Reference:	WELL @ 0 0usft (Original Well Elev)
Well:	Myox 29 State Com #1H	North Reference:	Grid
Wellbore:	VH - Job #32K0611567	Survey Calculation Method:	Minimum Curvature
Design:	VH - Job #32K0611567	Database:	EDM-Regulatory

Project	Hay Hollow		
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:	386,239 33 usft
From:	Lat/Long	Easting:	572,312 98 usft
Position Uncertainty:	0 0 usft	Slot Radius:	13-3/16"
		Latitude:	32° 3' 42 020 N
		Longitude:	104° 5' 59 660 W
		Grid Convergence:	0 12 °

Well	Myox 29 State Com #1H, Directional (Unknown)		
Well Position	+N/-S	0 0 usft	Northing: 397,624 77 usft
	+E/-W	0 0 usft	Easting: 567,304 16 usft
Position Uncertainty	0 0 usft	Wellhead Elevation:	usft
		Latitude:	32° 5' 34 800 N
		Longitude:	104° 6' 57 600 W
		Ground Level:	0 0 usft

Wellbore	VH - Job #32K0611567				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	6/16/2011	7 83	59 97	48,501

Design	VH - Job #32K0611567			
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	229 12

Survey Program	Date	7/21/2011		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
100 0	9,230 0	Actual (VH - Job #32K0611567)	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 97	326 98	100 0	0 7	-0 5	326 98	0 8	
200 0	0 82	333 18	200 0	2 1	-1 2	328 82	2 4	
300 0	0 69	335 53	300 0	3 2	-1 8	330 74	3 7	
400 0	0 38	21 17	400 0	4 1	-1 9	334 61	4 5	
500 0	0 36	46 44	500 0	4 6	-1 6	340 93	4 9	
600 0	0 26	63 48	600 0	4 9	-1 2	346 70	5 1	
700 0	0 20	50 94	700 0	5 2	-0 8	350 85	5 2	
800 0	0 15	194 97	800 0	5 1	-0 7	351 93	5 2	
900 0	0 48	211.43	900 0	4 7	-1 0	348 10	4 8	
1,000 0	0 49	220 14	1,000.0	4 0	-1 5	339 62	4 2	
1,100 0	0 91	218 28	1,100 0	3 0	-2 2	323 42	3 8	

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Well:	Myox 29 State Com #1H	North Reference:	Grid
Wellbore:	VH - Job #32K0611567	Survey Calculation Method:	Minimum Curvature
Design:	VH - Job #32K0611567	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	1.55	229.05	1,199.9	1.5	-3.8	291.93	4.0	
1,300.0	1.76	240.10	1,299.9	-0.1	-6.1	268.69	6.1	
1,400.0	1.41	249.23	1,399.8	-1.3	-8.6	261.12	8.7	
1,500.0	0.93	260.47	1,499.8	-1.9	-10.5	259.72	10.7	
1,600.0	0.57	105.93	1,599.8	-2.2	-10.9	258.64	11.1	
1,700.0	1.09	98.38	1,699.8	-2.5	-9.4	255.41	9.8	
1,800.0	0.59	193.34	1,799.8	-3.1	-8.6	250.24	9.2	
1,900.0	0.75	154.86	1,899.8	-4.2	-8.5	243.65	9.4	
2,000.0	1.54	113.31	1,999.8	-5.3	-7.0	232.59	8.8	
2,100.0	1.82	102.73	2,099.7	-6.2	-4.2	213.92	7.5	
2,200.0	1.49	103.43	2,199.7	-6.8	-1.4	191.18	7.0	
2,300.0	1.06	111.61	2,299.7	-7.5	0.8	174.13	7.5	
2,400.0	0.77	117.33	2,399.7	-8.1	2.2	164.70	8.4	
2,500.0	0.60	113.00	2,499.7	-8.7	3.3	159.09	9.3	
2,600.0	0.52	96.52	2,599.6	-8.9	4.2	154.56	9.9	
2,700.0	0.52	76.57	2,699.6	-8.9	5.1	149.91	10.2	
2,800.0	0.55	50.12	2,799.6	-8.4	5.9	144.87	10.3	
2,900.0	0.50	47.44	2,899.6	-7.8	6.6	139.78	10.3	
3,000.0	0.29	12.72	2,999.6	-7.3	7.0	136.16	10.1	
3,100.0	0.27	299.11	3,099.6	-6.9	6.9	135.33	9.8	
3,200.0	0.73	339.99	3,199.6	-6.2	6.4	134.05	9.0	
3,300.0	0.92	333.17	3,299.6	-4.9	5.9	129.98	7.6	
3,400.0	0.88	323.90	3,399.6	-3.6	5.0	125.33	6.2	
3,500.0	0.89	316.63	3,499.6	-2.4	4.1	120.49	4.7	
3,600.0	1.13	317.99	3,599.6	-1.1	2.9	110.86	3.1	
3,700.0	1.25	304.43	3,699.6	0.3	1.3	78.70	1.3	
3,800.0	1.21	288.90	3,799.5	1.2	-0.6	333.84	1.4	
3,900.0	1.18	277.20	3,899.5	1.7	-2.6	302.83	3.1	
4,000.0	1.26	278.22	3,999.5	2.0	-4.7	292.68	5.1	
4,100.0	1.29	275.09	4,099.5	2.2	-6.9	287.84	7.3	
4,200.0	1.20	272.96	4,199.4	2.4	-9.1	284.69	9.4	
4,300.0	1.03	271.43	4,299.4	2.5	-11.0	282.57	11.3	
4,400.0	1.06	260.21	4,399.4	2.3	-12.9	280.26	13.1	
4,500.0	1.20	245.24	4,499.4	1.7	-14.7	276.71	14.8	
4,600.0	1.16	237.45	4,599.4	0.7	-16.5	272.60	16.5	
4,700.0	1.03	236.92	4,699.3	-0.3	-18.1	269.10	18.1	
4,800.0	0.67	239.11	4,799.3	-1.1	-19.4	266.82	19.4	
4,900.0	0.71	235.68	4,899.3	-1.7	-20.4	265.16	20.5	
5,000.0	0.68	215.13	4,999.3	-2.6	-21.3	263.13	21.4	
5,100.0	0.62	200.53	5,099.3	-3.6	-21.8	260.74	22.1	
5,200.0	0.60	202.12	5,199.3	-4.5	-22.2	258.42	22.6	
5,300.0	0.71	202.76	5,299.3	-5.6	-22.6	256.09	23.3	
5,400.0	0.77	195.77	5,399.3	-6.8	-23.0	253.51	24.0	
5,500.0	0.89	204.70	5,499.3	-8.2	-23.5	250.86	24.9	

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Wellbore:	VH - Job #32K0611567	Survey Calculation Method:	Minimum Curvature
Design:	VH - Job #32K0611567	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	1.17	221.80	5,599.3	-9.6	-24.5	248.56	26.4
5,700.0	0.90	203.94	5,699.3	-11.1	-25.5	246.48	27.9
5,800.0	0.82	205.81	5,799.2	-12.5	-26.2	244.51	29.0
5,900.0	0.91	201.05	5,899.2	-13.9	-26.8	242.62	30.1
6,000.0	1.15	181.52	5,999.2	-15.6	-27.1	240.04	31.3
6,100.0	1.35	178.92	6,099.2	-17.8	-27.1	236.70	32.4
6,200.0	1.19	176.44	6,199.2	-20.0	-27.0	233.47	33.6
6,300.0	1.15	187.05	6,299.1	-22.0	-27.1	230.84	34.9
6,400.0	0.92	231.45	6,399.1	-23.5	-27.8	229.76	36.4
6,500.0	1.42	249.28	6,499.1	-24.5	-29.6	230.41	38.4
6,600.0	3.24	169.29	6,599.0	-27.7	-30.2	227.51	41.0
6,700.0	4.11	163.05	6,698.8	-33.9	-28.7	220.22	44.4
6,800.0	3.81	156.23	6,798.6	-40.4	-26.3	213.07	48.2
6,900.0	3.57	151.51	6,898.4	-46.1	-23.5	206.94	51.8
7,000.0	2.78	151.73	6,998.2	-51.0	-20.8	202.20	55.1
7,100.0	2.27	155.39	7,098.1	-54.9	-18.8	198.93	58.1
7,200.0	1.18	170.01	7,198.1	-57.8	-17.8	197.16	60.5
7,300.0	1.31	236.15	7,298.1	-59.4	-18.6	197.39	62.3
7,400.0	0.65	342.24	7,398.1	-59.5	-19.7	198.35	62.7
7,500.0	1.46	318.60	7,498.0	-58.0	-20.7	199.68	61.6
7,600.0	1.42	283.20	7,598.0	-56.8	-22.8	201.88	61.2
7,700.0	1.49	289.25	7,698.0	-56.1	-25.2	204.23	61.5
7,800.0	1.58	289.72	7,797.9	-55.2	-27.8	206.71	61.8
7,900.0	1.73	287.81	7,897.9	-54.2	-30.5	209.34	62.2
8,000.0	1.55	277.96	7,997.9	-53.6	-33.3	211.83	63.1
8,100.0	1.44	279.50	8,097.8	-53.2	-35.8	213.97	64.1
8,200.0	1.50	257.65	8,197.8	-53.3	-38.4	215.76	65.6
8,300.0	2.51	291.22	8,297.7	-52.8	-41.7	218.31	67.2
8,400.0	2.03	308.46	8,397.7	-50.9	-45.1	221.57	68.0
8,500.0	1.64	313.86	8,497.6	-48.8	-47.5	224.26	68.1
8,600.0	1.42	313.18	8,597.6	-46.9	-49.5	226.51	68.2
8,700.0	0.65	322.43	8,697.6	-45.6	-50.7	228.02	68.2
8,800.0	0.33	301.18	8,797.6	-45.0	-51.3	228.73	68.3
8,900.0	0.35	291.65	8,897.6	-44.8	-51.8	229.18	68.5
9,000.0	0.34	220.98	8,997.5	-44.9	-52.3	229.37	68.9
9,100.0	0.50	213.03	9,097.5	-45.5	-52.8	229.24	69.6
9,200.0	0.55	226.57	9,197.5	-46.2	-53.3	229.12	70.5
9,230.0	0.88	229.20	9,227.5	-46.4	-53.6	229.12	70.9



Scientific Drilling
Directional Drilling Operations

Project: Hay Hollow
Eddy County, NM
Well: Myox 29 State Com #1H
Wellbore: VH - Job #32K0611567
Design: VH - Job #32K0611567

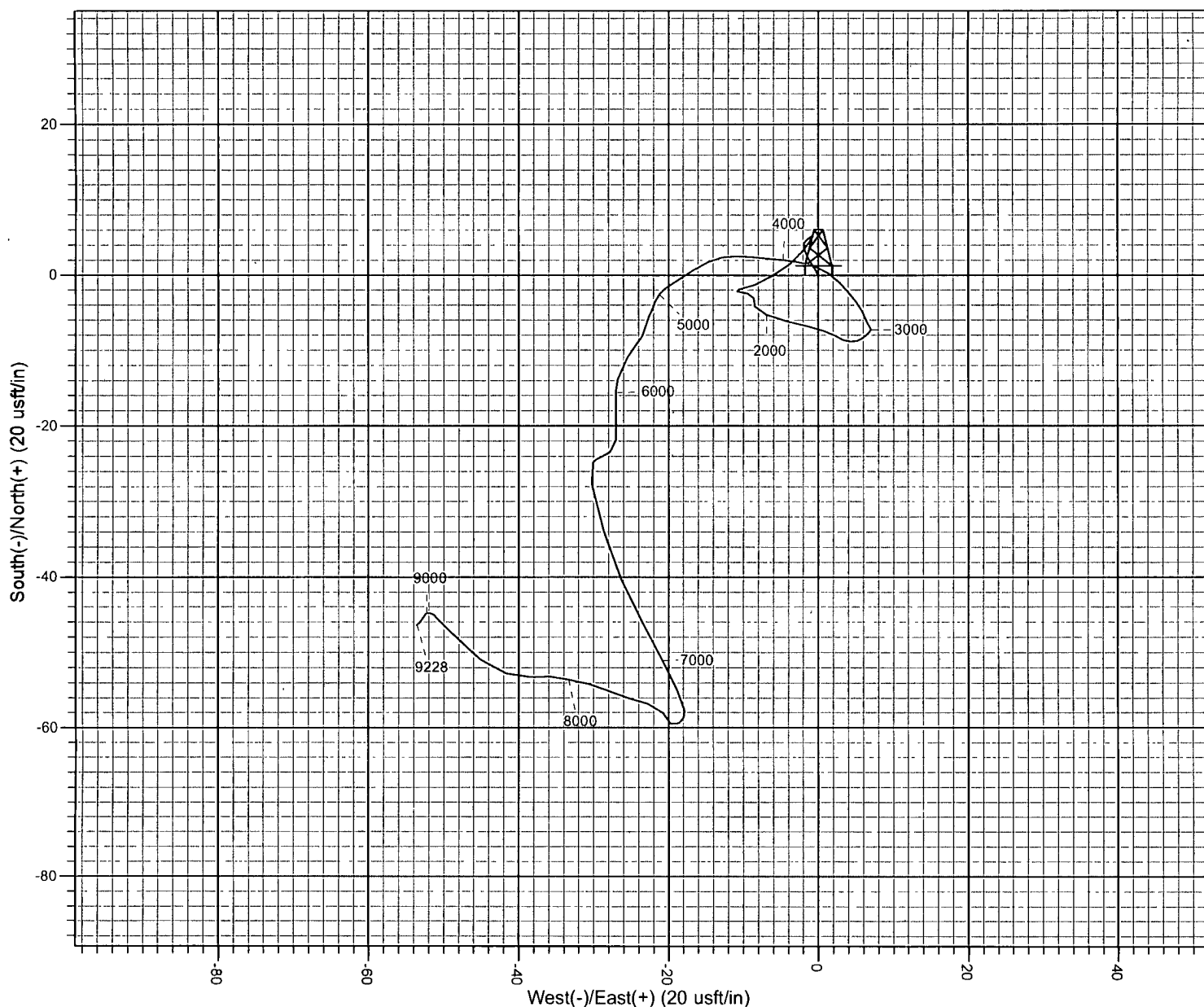


Azimuths to Grid North
True North -0 12°
Magnetic North 7 71°

Magnetic Field
Strength 48501 0snT
Dip Angle 59 97°
Date 6/16/2011
Model IGRF2010

WELL DETAILS: Myox 29 State Com #1H
WELL @ 0.0usft (Original Well Elev)
Ground Level: 0.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	397624.77	567304.16	32° 5' 34.800 N	104° 6' 57.600 W	



PROJECT DETAILS: Hay Hollow
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° 3' 42.020 N
Longitude: 104° 5' 59.660 W
Positional Uncertainty: 0.0
Convergence: 0.12
Local North: Grid