

COG OPERATING

Hay Hollow
Eddy County, NM
Daisy 24 Fee Com #4H
VH - Job #32K0411324

30-015-38523

Survey: Actual

SDI Standard Survey Report

12 April, 2011

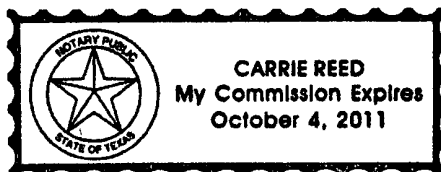
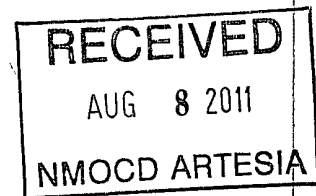
This survey is correct to the best of my knowledge and is supported by actual field data.

Wharton

Notarized this date 10th of May, 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 Daisy 24 Fee Com #4H
Project:	Hay Hollow	TVD Reference:	WELL @ 0 0usft (Original Well Elev)
Site:	Eddy County, NM	MD Reference:	WELL @ 0 0usft (Original Well Elev).
Well:	Daisy 24 Fee Com #4H	North Reference:	Grid
Wellbore:	VH - Job #32K0411324	Survey Calculation Method:	Minimum Curvature
Design:	VH - Job #32K0411324	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	Daisy 24 Fee Com #4H, Directional (Pathfinder)		
Well Position	+N/-S	0 0 usft	Northing: 403,433 07 usft
	+E/-W	0 0 usft	Easting: 561,099 86 usft
Position Uncertainty	0 0 usft	Wellhead Elevation:	usft
		Latitude:	32° 6' 32 400 N
		Longitude:	104° 8' 19 600 W
		Ground Level:	0 0 usft

Wellbore	VH - Job #32K0411324				
Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
			(°)	(°)	(nT)
	IGRF2010	4/8/2011	7 86	59 99	48,527

Design	VH - Job #32K0411324			
Audit Notes:				
Version:	1 0	Phase:	ACTUAL	Tie On Depth: 0 0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(usft)	(usft)	(usft)	(°)
	0 0	0 0	0 0	259 16

Survey Program	Date	4/12/2011		
From	To	Survey (Wellbore)	Tool Name	Description
(usft)	(usft)			
100 0	6,500 0	Actual (VH - Job #32K0411324)	Keeper	Keeper Gyro

Survey								
Measured Depth	Inclination	Azimuth	True Vertical	North/South	East/West	Closure Azimuth	Closure Distance	
(usft)	(°)	(°)	Depth	(usft)	(usft)	(°)	(usft)	
0 0	0 00	0 00	0 0	0 0	0 0	0 00	0 0	
100 0	0 22	325 44	100 0	0 2	-0 1	325 44	0 2	
200 0	0 42	341 91	200 0	0 7	-0 3	333 48	0 7	
300 0	0 23	289 43	300 0	1 1	-0 6	329 55	1 3	
400 0	0 30	284 74	400 0	1 2	-1 1	318 40	1 6	
500 0	0 41	139 72	500 0	1 0	-1 1	312 49	1 5	
600 0	0 53	163 92	600 0	0 3	-0 7	291 37	0 8	
700 0	0 14	205 34	700 0	-0 3	-0 7	248 21	0 7	
800 0	0 58	194 70	800 0	-0 9	-0 8	224 30	1 2	
900 0	0 73	220 03	900 0	-1 8	-1 4	216 88	2 3	
1,000 0	0 54	234 72	1,000 0	-2 6	-2 2	219 91	3 4	
1,100 0	0 77	250 79	1,100 0	-3 1	-3 2	225 91	4 4	

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Wellbore:	VH - Job #32K0411324	Survey Calculation Method:	Minimum Curvature
Design:	VH - Job #32K0411324	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 95	255 50	1,200 0	-3 5	-4 6	232 74	5 8
1,300 0	1 32	263 97	1,299 9	-3 9	-6 6	239 65	7 6
1,400 0	1 49	271 46	1,399 9	-3 9	-9 0	246 41	9 8
1,500 0	0 35	325 93	1,499 9	-3 7	-10 5	250 80	11 1
1,600 0	1 62	82 35	1,599 9	-3 2	-9 3	250 88	9 8
1,700 0	1 80	88 55	1,699 8	-3 0	-6 3	244 63	7 0
1,800 0	3 47	94 41	1,799 7	-3 2	-1 7	208 26	3 6
1,900 0	3 83	93 60	1,899 5	-3 6	4 6	127 96	5 9
2,000 0	3 54	94 96	1,999 3	-4 1	11 1	110 35	11 8
2,100 0	2 64	97 06	2,099 2	-4 6	16 4	105 81	17 1
2,200 0	2 08	104 80	2,199 1	-5 4	20 5	104 78	21 2
2,300 0	1 61	112 57	2,299 0	-6 4	23 5	105 23	24 4
2,400 0	1 67	111 53	2,399 0	-7 5	26 2	105 94	27 2
2,500 0	1 91	103 73	2,498 9	-8 4	29 1	106 09	30 3
2,600 0	2 00	105 97	2,598 9	-9 3	32 4	105 97	33 7
2,700 0	1 92	101 36	2,698 8	-10 1	35 7	105 76	37 1
2,800 0	2 11	98 42	2,798 8	-10 7	39 2	105 25	40 6
2,900 0	1 84	98 48	2,898 7	-11 2	42 6	104 71	44 1
3,000 0	1 72	93 39	2,998 7	-11 5	45 7	104 14	47 1
3,100 0	1 39	89 87	3,098 6	-11 6	48 4	103 48	49 8
3,200 0	1 30	84 57	3,198 6	-11 5	50 8	102 76	52 0
3,300 0	1 23	71 13	3,298 6	-11 0	52 9	101 79	54 0
3,400 0	1 28	59 00	3,398 5	-10 1	54 9	100 45	55 8
3,500 0	1 44	35 90	3,498 5	-8 5	56 6	98 57	57 2
3,600 0	1 50	19 18	3,598 5	-6 3	57 7	96 20	58 1
3,700 0	1 48	6 67	3,698 5	-3 8	58 3	93 68	58 4
3,800 0	1 32	359 45	3,798 4	-1 3	58 5	91 29	58 5
3,900 0	1 09	359 61	3,898 4	0 8	58 4	89 23	58 4
4,000 0	0 95	351 32	3,998 4	2 6	58 3	87 49	58 4
4,100 0	1 09	350 08	4,098 4	4 3	58 0	85 75	58 2
4,200 0	0 88	343 00	4,198 4	6 0	57 6	84 07	57 9
4,300 0	0 70	326 84	4,298 3	7 2	57 1	82 78	57 5
4,400 0	0 56	304 67	4,398 3	8 0	56 3	81 90	56 9
4,500 0	0 41	313 27	4,498 3	8 5	55 7	81 28	56 3
4,600 0	0 32	293 38	4,598 3	8 9	55 2	80 84	55 9
4,700 0	0 39	311 06	4,698 3	9 2	54 6	80 41	55 4
4,800 0	0 35	294 59	4,798 3	9 6	54 1	79 96	55 0
4,900 0	0 07	16 05	4,898 3	9 8	53 8	79 72	54 7
5,000 0	0 12	160 64	4,998 3	9 7	53 9	79 77	54 8
5,100 0	0 19	220 13	5,098 3	9 5	53 8	79 99	54 7
5,200 0	0 17	224 69	5,198 3	9 3	53 6	80 19	54 4
5,300 0	0 32	190 31	5,298 3	8 9	53 5	80 56	54 2
5,400 0	0 54	174 64	5,398 3	8 1	53 5	81 33	54 1
5,500 0	0 63	180 70	5,498 3	7 1	53 5	82 41	54 0

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5,600 0	0 96	184 18	5,598 3	5 7	53 4	83 86	53 7
5,700 0	1 02	190 37	5,698 3	4 0	53 2	85 67	53 4
5,800 0	1 11	196 80	5,798 3	2 2	52 8	87 58	52 8
5,900 0	1 51	196 90	5,898 3	0 0	52 1	89 95	52 1
6,000 0	1 54	180 62	5,998 2	-2 6	51 7	92 84	51 8
6,100 0	1 39	182 11	6,098 2	-5 1	51 6	95 66	51 9
6,200 0	1 42	178 01	6,198 2	-7 6	51 6	98 34	52 2
6,300 0	1 10	176 46	6,298 1	-9 8	51 7	100 69	52 7
6,400 0	0 09	340 53	6,398 1	-10 6	51 8	101 62	52 9
6,500 0	0 70	45 58	6,498 1	-10 1	52 2	101 00	53 2



Scientific Drilling
Directional Drilling Operations

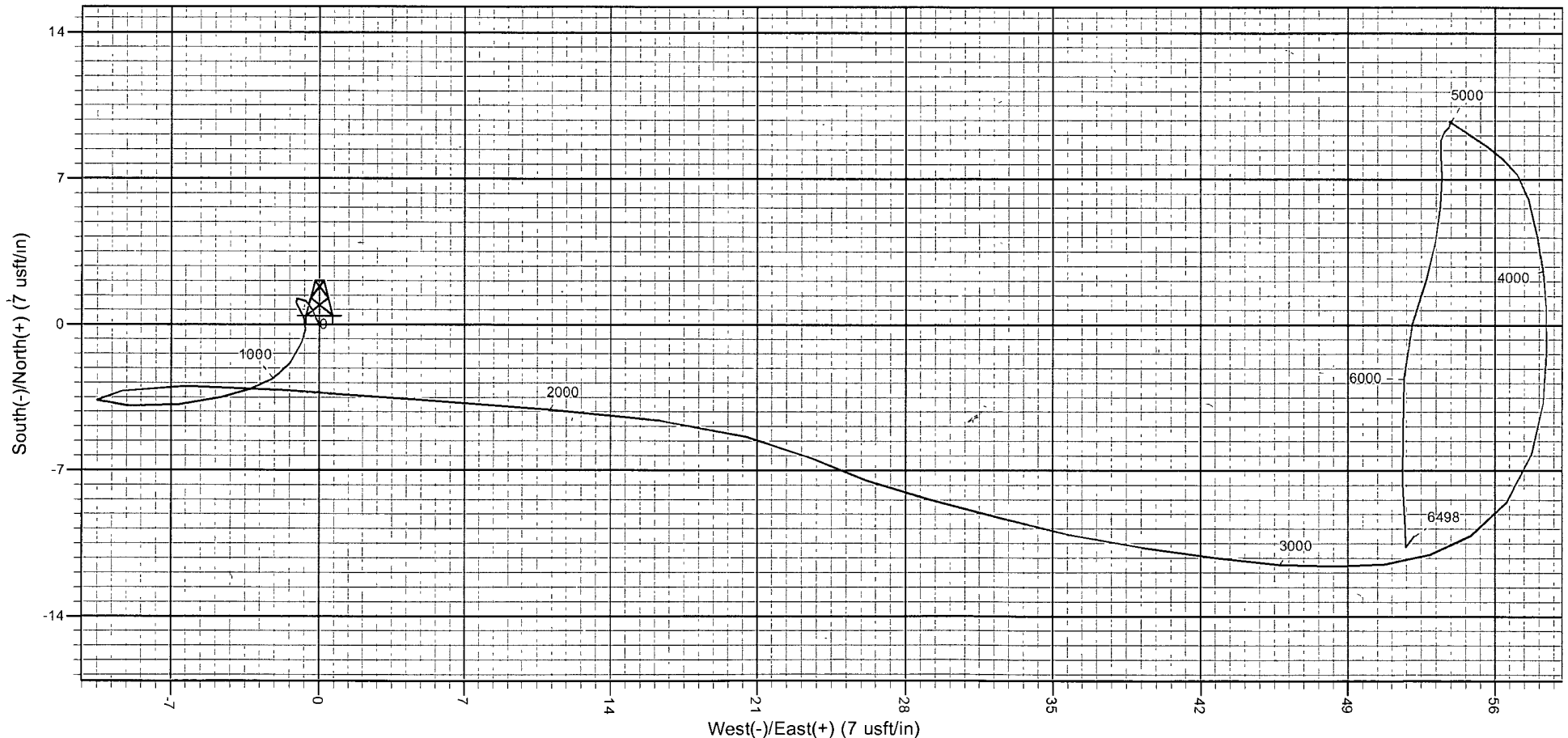
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Design: VH - Job #32K0411324



Azimuths to Grid North
True North -0 10°
Magnetic North 7 75°
Magnetic Field
Strength 48527 2snT
Dip Angle 59 99°
Date 4/8/2011
Model IGRF2010

WELL DETAILS: Daisy 24 Fee Com #4H
WELL @ 0.0usft (Original Well Elev)
Ground Level: 0 0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	403433.07	561099.86	32° 6' 32.400 N	104° 8' 9.600 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