

COG OPERATING

Burton Flat
Eddy County, NM
Keystone 32 Fee #1H
VH - Job #32K0511497

30-015-38594



Survey: Actual

SDI Standard Survey Report

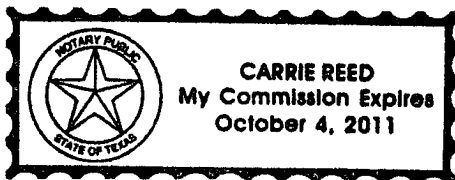
This survey is correct to the best of my knowledge and is supported by actual field data.

[Signature]

Notarized this date 30th of June, 2011.

[Signature]

Notary Signature
County of Midland
State of Texas



Scientific Drilling International, Inc.
SDI Standard Survey Report



Company:	COG OPERATING	Local Co-ordinate Reference:	Well Keystone 32 Fee #1H
Project:	Burton Flat	TVD Reference:	WELL @ 0 0usft (Original Well Elev)
Site:	Eddy County, NM	MD Reference:	WELL @ 0 0usft (Original Well Elev)
Well:	Keystone 32 Fee #1H	North Reference:	Grid
Wellbore:	VH - Job #32K0511497	Survey Calculation Method:	Minimum Curvature
Design:	VH - Job #32K0511497	Database:	EDM-Regulatory

Project		Burton Flat	
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:	558,737 97 usft	Latitude:	32° 32' 9 600 N
From:	Lat/Long	Easting:	543,555 82 usft	Longitude:	104° 11' 31 200 W
Position Uncertainty:	0 0 usft	Slot Radius:	13-3/16"	Grid Convergence:	0 08 °

Well	Keystone 32 Fee #1H, Directional (Pathfinder)					
Well Position	+N/-S	0 0 usft	Northing:	558,737 97 usft	Latitude:	32° 32' 9 600 N
	+E/-W	0 0 usft	Easting:	543,555 82 usft	Longitude:	104° 11' 31 200 W
Position Uncertainty		0 0 usft	Wellhead Elevation:	usft	Ground Level:	0 0 usft

Wellbore	VH - Job #32K0511497				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	5/27/2011	7 90	60 37	48,766

Design	VH - Job #32K0511497				
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	180 31	

Survey Program		Date	7/6/2011		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
100 0	5,890 0	Actual (VH - Job #32K0511497)	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 23	139 89	100 0	-0 2	0 1	139 89	0 2
200 0	0 40	245 52	200 0	-0 5	-0 1	187 45	0 5
300 0	0 62	280 06	300 0	-0 5	-0 9	241 11	1 0
400 0	0 56	342 40	400 0	0 1	-1 6	272 11	1 6
500 0	0 54	357 88	500 0	1 0	-1 8	299 56	2 0
600 0	0 64	10 36	600 0	2 0	-1 7	320 32	2 6
700 0	0 53	8 74	700 0	3 0	-1 5	333 58	3 4
800 0	0 40	22 20	800 0	3 8	-1 3	341 13	4 0
900 0	0 37	42 79	900 0	4 4	-0 9	347 74	4 5
1,000 0	0 51	117 63	1,000 0	4 4	-0 3	355 65	4 4
1,100 0	0 60	126 40	1,100 0	3 9	0 5	7 08	3 9

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Wellbore:	VH - Job #32K0511497	Survey Calculation Method:	Minimum Curvature
Design:	VH - Job #32K0511497	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 82	118 52	1,200 0	3 2	1 5	25 41	3 6	
1,300 0	1 06	121 24	1,299 9	2 4	3 0	50 85	3 8	
1,400 0	1 13	121 21	1,399 9	1 4	4 6	72 89	4 8	
1,500 0	1 10	123 90	1,499 9	0 4	6 2	86 64	6 2	
1,600 0	0 93	135 59	1,599 9	-0 7	7 6	95 64	7 6	
1,700 0	1 16	132 51	1,699 9	-2 0	8 9	102 74	9 1	
1,800 0	1 22	128 05	1,799 9	-3 4	10 5	107 73	11 0	
1,900 0	1 27	108 67	1,899 8	-4 4	12 4	109 42	13 1	
2,000 0	1 26	104 83	1,999 8	-5 0	14 5	109 04	15 3	
2,100 0	0 88	110 45	2,099 8	-5 6	16 3	108 83	17 2	
2,200 0	0 82	110 80	2,199 8	-6 1	17 7	108 98	18 7	
2,300 0	0 75	113 64	2,299 8	-6 6	18 9	109 19	20 0	
2,400 0	0 71	114 67	2,399 8	-7 1	20 1	109 49	21 3	
2,500 0	0 71	125 26	2,499 7	-7 7	21 2	110 06	22 5	
2,600 0	0 75	130 35	2,599 7	-8 5	22 2	111 00	23 7	
2,700 0	0 77	126 27	2,699 7	-9 3	23 2	111 90	25 0	
2,800 0	0 71	145 94	2,799 7	-10 2	24 1	113 03	26 2	
2,900 0	0 72	158 45	2,899 7	-11 3	24 7	114 68	27 2	
3,000 0	0 72	162 93	2,999 7	-12 5	25 1	116 53	28 0	
3,100 0	0 73	162 97	3,099 7	-13 7	25 5	118 34	28 9	
3,200 0	0 54	158 28	3,199 7	-14 8	25 8	119 79	29 7	
3,300 0	0 51	162 69	3,299 7	-15 6	26 1	120 91	30 5	
3,400 0	0 46	186 82	3,399 7	-16 5	26 2	122 14	31 0	
3,500 0	0 67	220 10	3,499 7	-17 3	25 8	123 87	31 1	
3,600 0	0 82	230 26	3,599 7	-18 2	24 9	126 23	30 8	
3,700 0	0 89	244 03	3,699 7	-19 0	23 6	128 84	30 3	
3,800 0	0 90	250 02	3,799 7	-19 6	22 2	131 50	29 6	
3,900 0	1 14	279 05	3,899 6	-19 7	20 5	133 97	28 4	
4,000 0	1 17	285 30	3,999 6	-19 3	18 5	136 24	26 7	
4,100 0	1 33	283 77	4,099 6	-18 8	16 4	138 89	24 9	
4,200 0	1 38	280 69	4,199 6	-18 3	14 1	142 40	23 1	
4,300 0	1 38	281 26	4,299 5	-17 8	11 7	146 69	21 3	
4,400 0	1 35	287 48	4,399 5	-17 2	9 4	151 37	19 6	
4,500 0	1 41	282 76	4,499 5	-16 6	7 1	156 91	18 0	
4,600 0	1 39	285 09	4,599 4	-16 0	4 7	163 63	16 7	
4,700 0	1 61	287 09	4,699 4	-15 3	2 2	171 85	15 4	
4,800 0	1 68	280 10	4,799 4	-14 6	-0 6	182 35	14 6	
4,900 0	1 80	274 10	4,899 3	-14 2	-3 6	194 22	14 7	
5,000 0	1 81	276 81	4,999 3	-13 9	-6 7	205 82	15 5	
5,100 0	1 64	276 83	5,099 2	-13 6	-9 7	215 63	16 7	
5,200 0	1 39	286 26	5,199 2	-13 1	-12 3	223 31	18 0	
5,300 0	1 14	286 18	5,299 2	-12 5	-14 4	229 22	19 1	
5,400 0	1 08	283 65	5,399 2	-12 0	-16 3	233 76	20 2	
5,500 0	1 29	289 50	5,499 1	-11 4	-18 3	238 16	21 5	

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Survey							
Measured Depth (usft)	Inclination (°)	Azimuth (°)	True Vertical Depth	North/South (usft)	East/West (usft)	Closure Azimuth (°)	Closure Distance (usft)
5,600 0	1 22	312 14	5,599 1	-10 3	-20 1	242 99	22 6
5,700 0	1 29	340 49	5,699 1	-8 5	-21 3	248 27	22 9
5,800 0	1 46	26 86	5,799 1	-6 3	-21 1	253 40	22 0
5,890 0	1 74	36 04	5,889 0	-4 2	-19 8	258 12	20 2



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Wellbore: VH - Job #32K0511497
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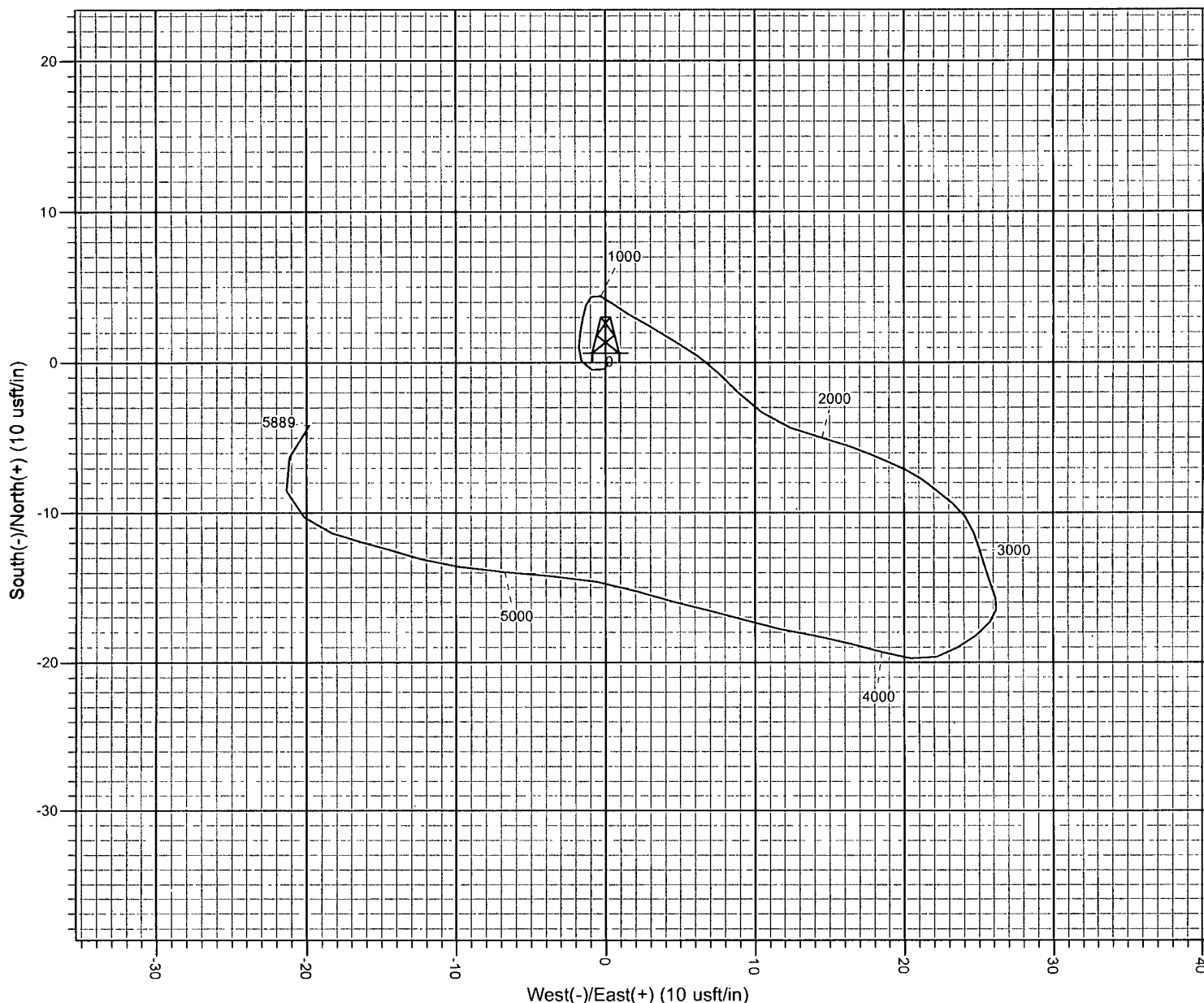


Azimuths to Grid North
True North: -0 08°
Magnetic North: 7 83°

Magnetic Field
Strength 48765.6snT
Dip Angle: 60 37°
Date: 5/27/2011
Model IGRF2010

WELL DETAILS. Keystone 32 Fee #1H
WELL @ 0.0usft (Original Well Elev)

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	558737 97	543555.82	32° 32' 9.600 N	104° 11' 31.200 W	



PROJECT DETAILS: Burton Flat
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° 32' 9.600 N
Longitude: 104° 11' 31.200 W
Positional Uncertainty: 0.0
Convergence: 0 08
Local North: Grid