

COG OPERATING

Loco Hills Paddock
Eddy County, NM
Berry A Federal #11
VH - Job #32K0512563

30-015-30669

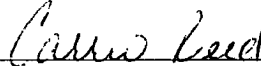
Survey: Gyro

SDI Standard Survey Report

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



Notarized this date 15th of June, 2012.



Notary Signature
County of Midland
State of Texas



Scientific Drilling International, Inc.
SDI Standard Survey Report



Company:	COG OPERATING	Local Co-ordinate Reference:	Well Berry A Federal #11
Project:	Loco Hills Paddock	TVD Reference:	WELL @ 0.00usft (Original Well Elev)
Site:	Eddy County, NM	MD Reference:	WELL @ 0.00usft (Original Well Elev)
Well:	Berry A Federal #11	North Reference:	True
Wellbore:	VH - Job #32K0512563	Survey Calculation Method:	Minimum Curvature
Design:	VH - Job #32K0512563	Database:	EDM-Regulatory

Project	Loco Hills Paddock		
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:	667,685 64 usft
From:	Lat/Long	Easting:	614,363 49 usft
Position Uncertainty:	0 00 usft	Slot Radius:	0"
		Latitude:	32° 50' 6 000 N
		Longitude:	103° 57' 39 600 W
		Grid Convergence:	0 20 °

Well	Berry A Federal #11, Vertical		
Well Position	+N/-S	0 00 usft	Northing: 662,938 16 usft
	+E/-W	0 00 usft	Easting: 609,157 76 usft
Position Uncertainty		3 00 usft	Wellhead Elevation: usft
			Latitude: 32° 49' 19 200 N
			Longitude: 103° 58' 40 800 W
			Ground Level: 0 00 usft

Wellbore	VH - Job #32K0512563				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	05/16/12	7 71	60 65	48,865

Design	VH - Job #32K0512563			
Audit Notes:				
Version:	1 0	Phase:	ACTUAL	Tie On Depth: 0 00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0 00	0 00	0 00	3 24

Survey Program	Date	06/17/12			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
100 00	6,160 00	Gyro (VH - Job #32K0512563)	Keeper	Keeper Gyro	

Survey								
Measured Depth (usft)	Inclination (°)	Azimuth (°)	True Vertical Depth	North/South (usft)	East/West (usft)	Closure Azimuth (°)	Closure Distance (usft)	
0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00
100 00	0 20	9 31	100 00	0 17	0 03	9 31	0 17	0 17
200 00	0 08	31 94	200 00	0 40	0 09	13 03	0 41	0 41
300 00	1 29	168 89	299 99	-0 64	0 35	151 58	0 73	0 73
400 00	1 72	163 60	399 96	-3 19	0 99	162 77	3 34	3 34
500 00	1 40	162 83	499 92	-5 79	1 77	162 99	6 06	6 06
600 00	1 41	172 16	599 89	-8 18	2 30	164 29	8 50	8 50
700 00	1 26	168 20	699 86	-10 47	2 69	165 58	10 81	10 81
800 00	1 09	159 35	799 84	-12 44	3 25	165 34	12 86	12 86
900 00	0 90	139 06	899 83	-13 92	4 10	163 58	14 52	14 52
1,000 00	0 88	124 42	999 81	-14 95	5 25	160 65	15 85	15 85
1,100 00	0 94	116 02	1,099 80	-15 74	6 62	157 19	17 08	17 08

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Design:	VH - Job #32K0512563	Database:	EDM-Regulatory

Survey							
Measured Depth (usft)	Inclination (°)	Azimuth (°)	True Vertical Depth	North/South (usft)	East/West (usft)	Closure Azimuth (°)	Closure Distance (usft)
1,200.00	1 11	123 48	1,199 79	-16 64	8 17	153 86	18 54
1,300.00	0 72	121 78	1,299 77	-17 50	9 51	151 49	19 92
1,400.00	0 62	113 67	1,399 77	-18 05	10 54	149 72	20 90
1,500.00	0 40	84 54	1,499 76	-18 24	11 38	148 03	21 50
1,600.00	0 39	37 61	1,599 76	-17 93	11 94	146 35	21 54
1,700.00	0 60	3 30	1,699 76	-17 14	12 18	144 61	21 02
1,800.00	0 74	11 91	1,799 75	-15 99	12 34	142 34	20 19
1,900.00	0 98	0 93	1,899 74	-14 50	12 49	139 27	19 13
2,000.00	1 25	359 58	1,999 72	-12 55	12 49	135 14	17 71
2,100.00	1 34	0 07	2,099.69	-10 29	12 48	129 51	16 18
2,200.00	1 55	356 96	2,199 66	-7 77	12 41	122 05	14 65
2,300.00	2 03	4 13	2,299 61	-4 66	12 47	110 48	13 31
2,400.00	2 29	6 23	2,399 54	-0 90	12 81	94 04	12 85
2,500.00	2 37	7 29	2,499 46	3 13	13 29	76 74	13 66
2,600.00	2 29	8 62	2,599 38	7 16	13 86	62 68	15 60
2,700.00	2 14	8 21	2,699 30	10 98	14 42	52 71	18 13
2,800.00	1 94	5 68	2,799 24	14 51	14 86	45 67	20 77
2,900.00	1.98	4 11	2,899 18	17 92	15 15	40 20	23 47
3,000.00	1 95	359 49	2,999 12	21 35	15 26	35 55	26 24
3,100.00	2 05	359 64	3,099 06	24 84	15 23	31 52	29 13
3,200.00	1 89	351 26	3,199 00	28 25	14 97	27 91	31 97
3,300.00	1 77	346 76	3,298 95	31 39	14 36	24 59	34 52
3,400.00	1 71	340 98	3,398 90	34 30	13 52	21 52	36 87
3,500.00	1 78	343 03	3,498 86	37 20	12 58	18 69	39 27
3,600.00	1 60	349.27	3,598 81	40 05	11 87	16 51	41 78
3,700.00	1 54	350 76	3,698 78	42 75	11 40	14 92	44 25
3,800.00	1 58	346 78	3,798 74	45 42	10 86	13 45	46 70
3,900.00	1 72	347 58	3,898 70	48 23	10 23	11 97	49 30
4,000.00	1 60	350 11	3,998 66	51 07	9 66	10 71	51 98
4,100.00	1 55	344 14	4,098 62	53 75	9 05	9 56	54 50
4,200.00	1 51	344 81	4,198 58	56 32	8 34	8 42	56 93
4,300.00	1 76	341 37	4,298 54	59 05	7 50	7 24	59 52
4,400.00	1 90	345 32	4,398 49	62 10	6 59	6 06	62 45
4,500.00	1 85	338.50	4,498 44	65 21	5 58	4 89	65 45
4,600.00	1 42	349.12	4,598 40	67 93	4 76	4 00	68 09
4,700.00	1 60	348 30	4,698 36	70 51	4 24	3 44	70 64
4,800.00	1 30	352 23	4,798 33	73 00	3 80	2 98	73 10
4,900.00	1 31	349 15	4,898 30	75 25	3 43	2 61	75 33
5,000.00	1 37	357 61	4,998 28	77 57	3 17	2 34	77 63
5,100.00	1 44	356 85	5,098 25	80.02	3 05	2 18	80 07
5,200.00	1 20	353 69	5,198 22	82 31	2 87	1 99	82 36
5,300.00	1 12	336 23	5,298 20	84 25	2 36	1 60	84 28
5,400.00	1 16	333 49	5,398 18	86 05	1 51	1 01	86 06
5,500.00	0 68	0.92	5,498 17	87 55	1 07	0 70	87 55

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5,600 00	0 53	15 36	5,598 16	88 59	1 20	0 78	88 59
5,700 00	0 96	23 89	5,698 15	89 80	1 66	1 06	89 81
5,800 00	2 11	25 41	5,798 12	92 23	2 79	1 73	92 27
5,900 00	2 18	24 56	5,898 05	95 62	4 37	2 62	95 72
6,000 00	2 14	14 13	5,997 98	99 16	5 62	3 24	99 32
6,100 00	2 41	0 23	6,097 90	103 07	6 08	3 38	103 25
6,160 00	2 45	354 80	6,157 84	105 61	5 97	3 24	105 78



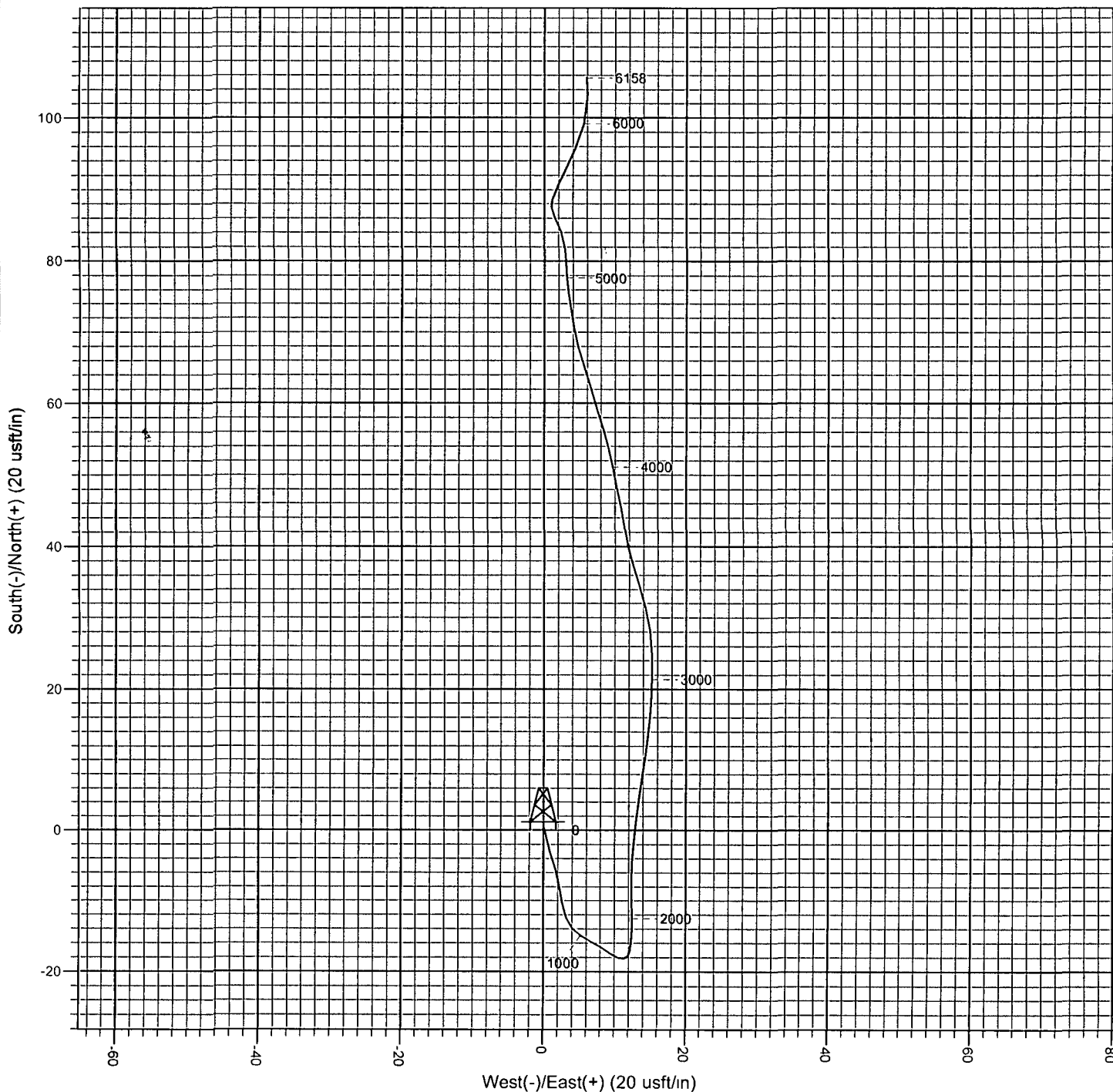
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Well: Berry A Federal #11
Wellbore: VH - Job #32K0512563
Design: VH - Job #32K0512563

WELL DETAILS: Berry A Federal #11

WELL @ 0.00usft (Original Well Elev)

Ground Level: 0.00

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	662938.16	609157.76	32° 49' 19.200 N	103° 58' 40.800 W	



PROJECT DETAILS: Loco Hills Paddock	SITE DETAILS: Eddy County, NM
Geodetic System: US State Plane 1927 (Exact solution)	Site Centre Latitude: 32° 50' 6.000 N
Datum NAD 1927 (NADCON CONUS)	Longitude: 103° 57' 39.600 W
Ellipsoid Clarke 1866	Positional Uncertainty: 0.00
Zone: New Mexico East 3001	Convergence: 0.20
System Datum: Mean Sea Level	Local North: True