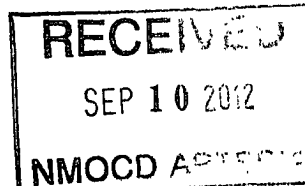


OPERATOR _____ COG 30-015-39998
WELL/LEASE Foster Eddy 31
COUNTY Eddy

STATE OF NEW MEXICO
DEVIATION REPORT



169	1.15
329	1.07
530	1.31
902	1.46
1154	1.51
1411	1.57
1729	0.98
1912	1.35
1944	0.52
2007	0.74
2070	1.48
2133	2.19
2195	2.81
2259	3.61
2323	4.68
2386	5.15
2448	5.84
2511	6.67
2575	7.54
2763	8.18
2827	8.57
2923	9.71

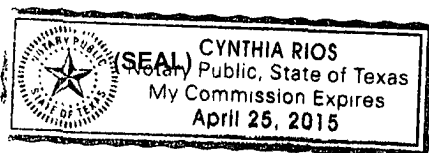
SIGNED BY: _____

RON SCANDOLARI, VP-CONTRACT DRILLING

STATE OF TEXAS

COUNTY OF MIDLAND

ON THIS 3rd DAY OF May, 2012, BEFORE ME, C RIOS, A NOTARY
PUBLIC, PERSONALLY APPEARED RON SCANDOLARI, WHO ACKNOWLEDGED AND EXECUTED
THIS DOCUMENT. WITNESS MY HAND AND OFFICIAL SEAL.



Cynthia Rios
NOTARY PUBLIC



COG Operating LLC

Eddy County, NM (NAD27 NME)

Foster Eddy #31

Foster Eddy #31

OH - Job #32D0412462

Design: Actual

SDI Standard Survey Report

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

Robert

Notarized this date 14th of May, 2012.

Carrie Reed

Notary Signature
County of Midland
State of Texas





Scientific Drilling International, Inc.
SDI Standard Survey Report



Company:	COG Operating LLC	Local Co-ordinate Reference:	Site Foster Eddy #31
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	RKB @ 3741.00usft (Basic #35)
Site:	Foster Eddy #31	MD Reference:	RKB @ 3741.00usft (Basic #35)
Well:	Foster Eddy #31	North Reference:	Grid
Wellbore:	OH - Job #32D0412462	Survey Calculation Method:	Minimum Curvature
Design:	Actual	Database:	EDM-Regulatory

Project	Eddy County, NM (NAD27 NME)		
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	Foster Eddy #31		
Site Position:		Northing:	667,890 30 usft
From:	Map	Easting:	636,569 30 usft
Position Uncertainty:	0 00 usft	Slot Radius:	13-3/16"
		Latitude:	32° 50' 7 176 N
		Longitude:	103° 53' 19 332 W
		Grid Convergence:	0 24 °

Well	Foster Eddy #31		
Well Position	+N/-S	0 00 usft	Northing:
	+E/-W	0 00 usft	Easting:
Position Uncertainty	0 00 usft	Wellhead Elevation:	usft
		Latitude:	32° 50' 7.176 N
		Longitude:	103° 53' 19 332 W
		Ground Level:	3,729 00 usft

Wellbore	OH - Job #32D0412462				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	04/22/12	7 67	60 68	48,862

Design	Actual			
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	13 68

Survey Program	Date 04/29/12				
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
100 00	1,720 00	Gyro (OH - Job #32D0412462)	Keeper	Standard Wireline Keeper ver 1 0 2	
1,912.00	6,610 00	MWD (OH - Job #32D0412462)	MWD	MWD - Standard	

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	0 00
12 56	0 15	68 58	12 56	0 01	0 02	68 58	0 02	0 02	0 02
East HL-Foster #31									
13 64	0 16	68 58	13 64	0 01	0 02	68 58	0 02	0 02	0 02
Foster Eddy #29									
16 66	0 20	68 58	16 66	0 01	0 03	68 58	0 03	0 03	0 03
North HL-Foster #31									
100.00	1 18	68.58	99.99	0 38	0.96	68 58	1 03	1 03	1 03
200 00	1 34	78 77	199 97	0 98	3 06	72 27	3 22	3 22	3 22
300 00	1 29	76 91	299.94	1 46	5 31	74 59	5 51	5 51	5 51
400 00	1 41	73 42	399 91	2 07	7 58	74 74	7 86	7 86	7 86



Scientific Drilling International, Inc.
SDI Standard Survey Report



Company:	COG Operating LLC	Local Co-ordinate Reference:	Site Foster Eddy #31
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	RKB @ 3741 00usft (Basic #35)
Site:	Foster Eddy #31	MD Reference:	RKB @ 3741 00usft (Basic #35)
Well:	Foster Eddy #31	North Reference:	Grid
Wellbore:	OH - Job #32D0412462	Survey Calculation Method:	Minimum Curvature
Design:	Actual	Database:	EDM-Regulatory

Survey							
Measured Depth (usft)	Inclination (°)	Azimuth (°)	True Vertical Depth	North/South (usft)	East/West (usft)	Closure Azimuth (°)	Closure Distance (usft)
500.00	1.31	62.16	499.89	2.95	9.77	73.19	10.21
600.00	1.30	56.63	599.86	4.11	11.73	70.69	12.43
700.00	1.18	56.66	699.84	5.30	13.54	68.62	14.54
800.00	0.90	64.76	799.82	6.20	15.11	67.68	16.33
900.00	1.46	73.78	899.80	6.89	17.04	67.98	18.38
1,000.00	1.44	69.40	999.77	7.69	19.44	68.42	20.91
1,100.00	1.61	66.77	1,099.73	8.69	21.91	68.37	23.57
1,200.00	1.63	62.27	1,199.69	9.90	24.46	67.96	26.39
1,300.00	1.74	58.72	1,299.65	11.35	27.02	67.21	29.30
1,400.00	1.29	64.42	1,399.61	12.63	29.33	66.71	31.93
1,500.00	1.23	61.20	1,499.59	13.63	31.28	66.46	34.12
1,600.00	0.87	66.71	1,599.57	14.45	32.92	66.31	35.95
1,700.00	0.84	63.17	1,699.56	15.08	34.27	66.25	37.44
1,720.00	0.66	47.53	1,719.56	15.22	34.49	66.19	37.70
Gyro Tie-In							
1,912.00	0.35	79.26	1,911.55	16.08	35.88	65.86	39.32
1,944.00	0.52	78.27	1,943.55	16.13	36.12	65.94	39.56
2,007.00	0.74	31.80	2,006.55	16.53	36.61	65.70	40.17
2,070.00	1.48	21.19	2,069.54	17.63	37.12	64.59	41.10
2,133.00	2.19	24.35	2,132.50	19.49	37.91	62.79	42.63
2,195.00	2.81	16.84	2,194.44	22.02	38.84	60.45	44.65
2,259.00	3.61	9.81	2,258.34	25.51	39.64	57.24	47.14
2,323.00	4.68	12.91	2,322.17	30.04	40.57	53.48	50.48
2,386.00	5.15	17.17	2,384.94	35.25	41.97	49.98	54.81
2,448.00	5.84	19.02	2,446.66	40.89	43.82	46.98	59.94
2,511.00	6.67	19.01	2,509.28	47.38	46.06	44.19	66.08
2,575.00	7.54	17.40	2,572.79	54.90	48.53	41.47	73.27
2,638.00	7.88	15.15	2,635.22	63.01	50.89	38.93	81.00
2,700.00	8.38	14.04	2,696.60	71.50	53.10	36.60	89.06
2,763.00	8.18	12.53	2,758.94	80.33	55.18	34.49	97.46
2,827.00	8.57	10.18	2,822.26	89.46	57.01	32.51	106.09
2,923.00	9.71	8.31	2,917.04	104.52	59.45	29.63	120.24
3,018.00	9.31	7.98	3,010.73	120.05	61.67	27.19	134.97
3,113.00	8.50	8.50	3,104.59	134.61	63.78	25.35	148.95
3,208.00	9.01	9.46	3,198.48	148.89	66.04	23.92	162.88
3,302.00	8.61	8.27	3,291.37	163.11	68.26	22.71	176.82
3,398.00	8.77	7.84	3,386.27	177.47	70.29	21.61	190.89
3,492.00	9.17	8.96	3,479.12	191.97	72.44	20.67	205.18
3,587.00	8.90	9.68	3,572.94	206.69	74.85	19.91	219.83
3,683.00	8.49	8.18	3,667.84	221.03	77.11	19.23	234.09
3,778.00	9.05	8.57	3,761.73	235.36	79.22	18.60	248.33
3,874.00	8.46	9.34	3,856.61	249.79	81.49	18.07	262.75
3,969.00	8.79	11.30	3,950.53	263.80	84.05	17.67	276.87
4,064.00	8.21	10.84	4,044.49	277.58	86.75	17.35	290.82



Scientific Drilling International, Inc.
SDI Standard Survey Report



Company:	COG Operating LLC	Local Co-ordinate Reference:	Site Foster Eddy #31
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	RKB @ 3741.00usft (Basic #35)
Site:	Foster Eddy #31	MD Reference:	RKB @ 3741.00usft (Basic #35)
Well:	Foster Eddy #31	North Reference:	Grid
Wellbore:	OH - Job #32D0412462	Survey Calculation Method:	Minimum Curvature
Design:	Actual	Database:	EDM-Regulatory

Survey							
Measured Depth (usft)	Inclination (°)	Azimuth (°)	True Vertical Depth	North/South (usft)	East/West (usft)	Closure Azimuth (°)	Closure Distance (usft)
4,159 00	8 53	11 02	4,138 48	291 16	89.37	17 06	304 57
4,255 00	8 22	9 20	4,233 45	304 93	91 83	16 76	318 45
4,349 00	8 52	10 10	4,326 45	318 41	94 12	16 47	332 03
4,445 00	8 06	8 45	4,421 45	332 07	96 36	16 18	345 77
4,540 00	8 45	8 56	4,515 46	345 56	98 38	15 89	359 29
4,635 00	8 06	9.19	4,609 48	359 04	100 48	15 63	372 83
4,730 00	8 21	11 35	4,703 52	372 26	102 88	15 45	386 22
4,826 00	8 71	10 94	4,798 48	386 12	105 60	15 30	400 30
4,918.00	8 14	7.94	4,889 49	399 41	107 83	15.11	413 71
5,013 00	8 39	7 49	4,983 50	412 94	109 66	14 87	427 26
5,109 00	9 15	9 02	5,078 38	427 43	111 77	14 65	441 80
5,204 00	8 34	10 62	5,172 27	441 66	114 22	14 50	456 19
5,300 00	8 70	11 09	5,267 21	455 63	116 90	14 39	470 39
5,363 00	8 53	10 77	5,329 50	464 89	118 69	14 32	479 81
5,457 00	8 97	11 04	5,422 41	478 93	121 40	14 22	494 08
5,552 00	8 82	13 62	5,516 26	493 28	124 53	14 17	508 76
5,647 00	8 09	14 36	5,610 23	506 84	127 90	14 16	522 73
5,742 00	8 35	15 04	5,704 25	519 97	131 35	14 18	536 31
5,838 00	8 79	16 40	5,799 18	533 74	135 23	14 22	550 61
5,933 00	8 57	18 37	5,893 10	547 42	139 51	14 30	564 92
5,997 00	8.44	16.66	5,956 39	556 45	142 36	14 35	574 37
6,093 00	8.36	10.75	6,051 36	570 05	145 68	14 34	588 38
6,188 00	8.74	11 25	6,145 31	583 92	148 38	14 26	602 48
6,283 00	8 32	9 81	6,239 26	597 77	150 96	14 17	616 54
6,377 00	8 00	10 60	6,332 30	610 90	153 32	14 09	629 85
6,473 00	8 13	11 14	6,427 36	624 13	155 86	14 02	643 29
6,562 00	8 40	11 26	6,515.43	636 68	158.35	13 97	656 07
Last MWD Survey							
6,610 00	8 40	11 26	6,562 92	643 55	159.72	13 94	663 08
Projection to Bit - PBHL-Foster #31							

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
6,562 00	6,515 43	636 68	158.35	Last MWD Survey
6,610 00	6,562 92	643 55	159 72	Projection to Bit

