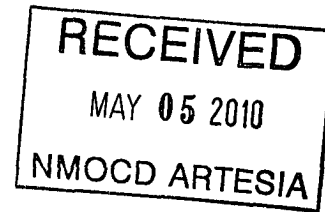


30 015 37475



COG Operating LLC

Eddy County, NM (NAN27 NME)

Skelly Unit #819

Skelly Unit #819

OH

Design: Actual

Standard Survey Report

05 March, 2010

Handwritten signature/initials





Scientific Drilling
Survey Report



Company:	COG Operating LLC	Local Co-ordinate Reference:	Site Skelly Unit #819
Project:	Eddy County, NM (NAN27 NME)	TVD Reference:	Ground Elev @ 3886 00ft (Rig ?)
Site:	Skelly Unit #819	MD Reference:	Ground Elev @ 3886 00ft (Rig ?)
Well:	Skelly Unit #819	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Actual	Database:	EDM 5000 1 Single User Db

Project	Eddy County, NM (NAN27 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	Skelly Unit #819		
Site Position:		Northing:	669,582 30 ft
From:	Map	Easting:	644,436 70 ft
Position Uncertainty:	0 00 ft	Slot Radius:	0 "
		Latitude:	32° 50' 23 581 N
		Longitude:	103° 51' 47 037 W
		Grid Convergence:	0 26 °

Well	Skelly Unit #819		
Well Position	+N/-S	0 00 ft	Northing:
	+E/-W	0 00 ft	Easting:
Position Uncertainty	0 00 ft	Wellhead Elevation:	ft
		Latitude:	32° 50' 23 581 N
		Longitude:	103° 51' 47 037 W
		Ground Level:	3,886 00 ft

Wellbore	OH		
Magnetics	Model Name:	Sample Date	Declination:
			(°)
	IGRF200510	2010/03/05	7 91
			Dip Angle:
			(°)
			60 76
			Field Strength
			(nT)
			49,111

Design:	Actual		
Audit Notes:			
Version:	1 0	Phase:	ACTUAL
		Tie On Depth:	0 00
Vertical Section:	Depth From (TVD):	+N/-S	+E/-W
	(ft)	(ft)	(ft)
	0 00	0 00	0 00
			Direction:
			(°)
			306 11

Survey Program:	Date: 2010/03/05		
From:	To:	Survey (Wellbore):	Tool Name
(ft)	(ft)		Description:
100 00	1,745 00	Gyro Survey (OH)	Keeper
1,849 00	6,930 00	MWD Survey (OH)	MWD
			Standard Wireline Keeper ver 1 0 2
			MWD - Standard

Survey:									
Measured:	Inclination:	Azimuth:	Vertical:	+N/-S	+E/-W:	Vertical:	Dogleg:	Build:	Turn:
Depth:	(°)	(°)	Depth:	(ft)	(ft)	Section:	Rate	Rate:	Rate:
(ft)			(ft)			(ft)	(°/100ft)	(°/100ft)	(°/100ft)
0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00
100 00	0 07	181 13	100 00	-0 06	0 00	-0 04	0 07	0 07	0 00
200 00	0 17	128 25	200 00	-0 21	0 11	-0 22	0 14	0 10	-52 88
300 00	0 13	111 56	300 00	-0 35	0 34	-0 48	0 06	-0 04	-16 69
400 00	0 28	172 15	400 00	-0 63	0 47	-0 76	0 24	0 15	60 59
500 00	0 38	159 01	500 00	-1 18	0 63	-1 20	0 12	0 10	-13 14
600 00	0 53	129 51	599 99	-1 79	1 10	-1 94	0 27	0 15	-29 50
700 00	0 59	123 09	699 99	-2 36	1 89	-2 92	0 09	0 06	-6 42
800 00	0 70	107 38	799 98	-2 83	2 91	-4 01	0 21	0 11	-15 71
900 00	0 53	111 03	899 98	-3 17	3 92	-5 04	0 17	-0 17	3 65



Scientific Drilling
Survey Report



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Well:	Skelly Unit #819	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Actual	Database:	EDM 5000 1 Single User Db

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
1,000 00	0 45	95 22	999 97	-3 38	4 74	-5 82	0 16	-0 08	-15 81
1,100 00	0 56	83 82	1,099 97	-3 36	5 62	-6 52	0 15	0 11	-11 40
1,200 00	0 71	76 72	1,199 96	-3 16	6 71	-7 28	0 17	0 15	-7 10
1,300 00	0 95	60 86	1,299 95	-2 62	8 04	-8 03	0 33	0 24	-15 86
1,400 00	1 30	56 06	1,399 93	-1 58	9 70	-8 77	0 36	0 35	-4 80
1,500 00	1 44	48 55	1,499 91	-0 12	11 58	-9 43	0 23	0 14	-7 51
1,600 00	1 58	40 98	1,599 87	1 76	13 43	-9 81	0 24	0 14	-7 57
1,700 00	1 26	49 05	1,699 84	3 52	15 16	-10 18	0 38	-0 32	8 07
1,745 00	1 25	49 10	1,744 83	4 16	15 91	-10 40	0 02	-0 02	0 11
Gyro Tie-in									
1,849 00	1 29	51 91	1,848 80	5 63	17 69	-10 97	0 07	0 04	2 70
1,913 00	1 47	12 54	1,912 79	6 87	18 43	-10 84	1 48	0 28	-61 52
1,976 00	2 42	348 96	1,975 75	8 97	18 35	-9 54	1 94	1 51	-37 43
2,040 00	3 29	332 25	2,039 67	11 92	17 24	-6 90	1 87	1 36	-26 11
2,102 00	4 03	316 39	2,101 55	15 07	14 91	-3 16	2 01	1 19	-25 58
2,165 00	4 50	305 57	2,164 37	18 11	11 37	1 49	1 48	0 75	-17 17
2,230 00	5 34	298 17	2,229 13	21 02	6 63	7 03	1 62	1 29	-11 38
2,293 00	6 40	297 47	2,291 80	24 03	0 93	13 41	1 69	1 68	-1 11
2,357 00	7 68	295 44	2,355 32	27 51	-6 10	21 14	2 04	2 00	-3 17
2,452 00	6 89	295 58	2,449 55	32 70	-16 97	32 98	0 83	-0 83	0 15
2,546 00	7 47	299 49	2,542 81	38 14	-27 37	44 59	0 81	0 62	4 16
2,641 00	7 53	301 24	2,637 00	44 41	-38 07	56 93	0 25	0 06	1 84
2,735 00	6 34	299 80	2,730 31	50 18	-47 84	68 22	1 28	-1 27	-1 53
2,830 00	7 05	309 08	2,824 67	56 46	-56 92	79 26	1 36	0 75	9 77
2,926 00	7 38	305 19	2,919 91	63 73	-66 53	91 31	0 61	0 34	-4 05
3,021 00	7 69	298 82	3,014 09	70 31	-77 09	103 71	0 94	0 33	-6 71
3,115 00	8 72	300 03	3,107 12	76 91	-88 77	117 04	1 11	1 10	1 29
3,210 00	7 95	299 64	3,201 12	83 76	-100 71	130 73	0 81	-0 81	-0 41
3,304 00	7 88	297 21	3,294 22	89 92	-112 09	143 55	0 36	-0 07	-2 59
3,399 00	8 63	304 17	3,388 24	96 91	-123 78	157 11	1 31	0 79	7 33
3,494 00	8 14	304 02	3,482 23	104 67	-135 25	170 95	0 52	-0 52	-0 16
3,589 00	7 76	304 07	3,576 31	112 03	-146 14	184 09	0 40	-0 40	0 05
3,684 00	7 35	302 69	3,670 49	118 90	-156 57	196 56	0 47	-0 43	-1 45
3,779 00	7 08	299 02	3,764 74	125 02	-166 80	208 44	0 56	-0 28	-3 86
3,872 00	7 03	297 82	3,857 03	130 46	-176 84	219 76	0 17	-0 05	-1 29
3,968 00	7 92	307 75	3,952 22	137 25	-187 27	232 18	1 63	0 93	10 34
4,064 00	7 73	305 93	4,047 33	145 09	-197 73	245 25	0 33	-0 20	-1 90
4,159 00	7 71	305 80	4,141 46	152 57	-208 07	258 01	0 03	-0 02	-0 14
4,254 00	7 53	304 71	4,235 63	159 84	-218 36	270 61	0 24	-0 19	-1 15
4,350 00	7 42	304 59	4,330 81	166 94	-228 63	283 09	0 12	-0 11	-0 13
4,444 00	7 47	305 09	4,424 02	173 90	-238 63	295 27	0 09	0 05	0 53
4,539 00	7 16	304 79	4,518 24	180 83	-248 54	307 36	0 33	-0 33	-0 32
4,635 00	6 71	304 13	4,613 54	187 39	-258 10	318 95	0 48	-0 47	-0 69



Scientific Drilling
Survey Report



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Well:	Skelly Unit #819	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Actual	Database:	EDM 5000 1 Single User Db

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
4,729 00	6 73	302 63	4,706 90	193 44	-267 28	329 93	0 19	0 02	-1 60
4,824 00	6 33	302 26	4,801 28	199 23	-276 40	340 71	0 42	-0 42	-0 39
4,920 00	6 07	302 65	4,896 72	204 80	-285 15	351 06	0 27	-0 27	0 41
5,015 00	5 77	305 47	4,991 21	210 28	-293 27	360 85	0 44	-0 32	2 97
5,110 00	5 44	303 10	5,085 76	215 51	-300 93	370 12	0 42	-0 35	-2 49
5,206 00	5 10	305 58	5,181 35	220 48	-308 21	378 93	0 43	-0 35	2 58
5,301 00	5 05	303 95	5,275 98	225 27	-315 11	387 33	0 16	-0 05	-1 72
5,396 00	4 84	305 07	5,370 63	229 91	-321 86	395 52	0 24	-0 22	1 18
5,490 00	5 00	315 45	5,464 28	235 10	-327 98	403 53	0 96	0 17	11 04
5,586 00	4 97	315 14	5,559 92	241 03	-333 85	411 76	0 04	-0 03	-0 32
5,681 00	4 81	315 40	5,654 57	246 79	-339 55	419 76	0 17	-0 17	0 27
5,784 00	4 56	318 37	5,757 23	252 92	-345 30	428 02	0 34	-0 24	2 88
5,879 00	3 43	314 70	5,852 00	257 74	-349 83	434 52	1 22	-1 19	-3 86
5,975 00	3 60	317 18	5,947 82	261 97	-353 92	440 32	0 24	0 18	2 58
6,069 00	3 34	308 13	6,041 64	265 83	-358 08	445 95	0 64	-0 28	-9 63
6,164 00	3 42	310 88	6,136 48	269 39	-362 40	451 54	0 19	0 08	2 89
6,259 00	3 28	311 77	6,231 32	273 06	-366 57	457 07	0 16	-0 15	0 94
6,357 00	2 48	309 00	6,329 19	276 26	-370 31	461 98	0 83	-0 82	-2 83
6,450 00	2 59	306 07	6,422 10	278 76	-373 57	466 09	0 18	0 12	-3 15
6,545 00	2 45	311 80	6,517 01	281 38	-376 82	470 25	0 30	-0 15	6 03
6,640 00	2 80	306 19	6,611 91	284 10	-380 20	474 59	0 46	0 37	-5 91
6,736 00	2 38	304 01	6,707 81	286 60	-383 75	478 93	0 45	-0 44	-2 27
6,884 00	2 51	306 04	6,855 68	290 23	-388 92	485 24	0 11	0 09	1 37
MWD Survey									
6,930 00	2 51	306 04	6,901 63	291 41	-390 54	487 26	0 00	0 00	0 00
Projection to Bit									

Design Annotations:

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
1,745 00	1,744 83	4 16	15 91	Gyro Tie-in
6,884 00	6,855 68	290 23	-388 92	MWD Survey
6,930 00	6,901 63	291 41	-390 54	Projection to Bit

Checked By: _____ Approved By: _____ Date: _____