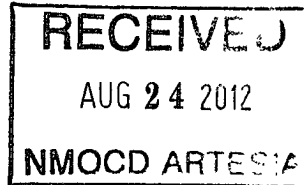


30-015-38253



COG Operating LLC

New Mexico

Eddy County, New Mexico . . .

Skelly Unit #724

SL: 2272'FNL 687'FWL BHL: 2300'FNL 980'FWL

Survey: Survey #1

Standard Survey Report

29 December, 2011

Gyrodata Survey Report

Company:	COG Operating LLC	Local Co-ordinate Reference:	Site Eddy County, New Mexico
Project:	New Mexico	TVD Reference:	WELL @ 0.0ft (Original Well Elev)
Site:	Eddy County, New Mexico	MD Reference:	WELL @ 0.0ft (Original Well Elev)
Well:	Skelly Unit #724	North Reference:	Grid
Wellbore:	SL 2272'FNL 687'FWL BHL 2300'FNL 980'FWL	Survey Calculation Method:	Minimum Curvature
Design:	SL 2272'FNL 687'FWL BHL 2300'FNL 980'FWL	Database:	EDM 5000.1 Single User Db

Project	New Mexico	System Datum:	Mean Sea Level
Map System:	US State Plane 1927 (Exact solution)		
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site	Eddy County, New Mexico		
Site Position:		Northing:	662,639.92 ft
From:	Lat/Long	Easting:	639,238.15 ft
Position Uncertainty:	0.0 ft	Slot Radius:	0 "
		Latitude:	32° 49' 15.110 N
		Longitude:	103° 52' 48.317 W
		Grid Convergence:	0.25 °

Well	Skelly Unit #724		
Well Position		Northing:	662,639.92 ft
	+N/-S 0.0 ft	Easting:	639,238.15 ft
	+E/-W 0.0 ft	Latitude:	32° 49' 15.110 N
		Longitude:	103° 52' 48.317 W
Position Uncertainty	0.0 ft	Wellhead Elevation:	ft
		Ground Level:	0.0 ft

Wellbore	SL 2272'FNL 687'FWL BHL 2300'FNL 980'FWL
-----------------	--

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	2011/12/13	7.70	60.70	48,955

Design	SL 2272'FNL 687'FWL BHL 2300'FNL 980'FWL
---------------	--

Audit Notes:	
Version:	1 0
Phase:	ACTUAL
Tie On Depth:	0.0

Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0 0	0.0	0.0	95.07

Survey Program		Date	2011/12/29	
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
100.0	4,907.0	Survey #1 (SL 2272'FNL 687'FWL BHL 2	MWD	MWD

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)
	0.0	0.00	0.00	0 0	0 0	0.0	0.0	0.00	0 00	0.00
	100 0	0.17	348.74	100 0	0.1	0.0	0.0	0.17	0.17	0.00
	200 0	0.09	105.24	200 0	0.3	0.0	0 0	0.23	-0.08	116.50
	300 0	0.27	75 56	300 0	0.3	0.3	0.3	0.20	0.18	-29.68
	400 0	0.14	38.78	400 0	0.5	0.6	0.6	0.18	-0.13	-36 78
	500 0	0.03	86 75	500 0	0.6	0.7	0.7	0.12	-0.11	47 97
	600 0	0 23	129 56	600 0	0.4	0 9	0 9	0.21	0.20	42.81
	700 0	0.42	119.32	700 0	0.1	1.4	1.4	0.20	0 19	-10.24
	800 0	0 16	134.57	800 0	-0.2	1.8	1.8	0.27	-0.26	15 25

Gyrodata Survey Report

Company:	COG Operating LLC	Local Co-ordinate Reference:	Site Eddy County, New Mexico
Project:	New Mexico	TVD Reference:	WELL @ 0.0ft (Original Well Elev)
Site:	Eddy County, New Mexico	MD Reference:	WELL @ 0.0ft (Original Well Elev)
Well:	Skelly Unit #724	North Reference:	Grid
Wellbore:	SL 2272'FNL 687'FWL BHL 2300'FNL 980'FWL	Survey Calculation Method:	Minimum Curvature
Design:	SL 2272'FNL 687'FWL BHL 2300'FNL 980'FWL	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)
900.0	0.39	114.49	900.0	-0.4	2.2	2.2	0.25	0.23	-20.08
1,000.0	0.31	95.71	1,000.0	-0.6	2.8	2.8	0.14	-0.08	-18.78
1,100.0	0.41	84.31	1,100.0	-0.6	3.4	3.5	0.12	0.10	-11.40
1,200.0	0.48	77.28	1,200.0	-0.4	4.2	4.2	0.09	0.07	-7.03
1,300.0	0.78	69.52	1,300.0	-0.1	5.2	5.2	0.31	0.30	-7.76
1,400.0	0.82	57.58	1,400.0	0.5	6.5	6.4	0.17	0.04	-11.94
1,500.0	0.72	71.61	1,500.0	1.1	7.7	7.5	0.21	-0.10	14.03
1,600.0	0.55	77.94	1,600.0	1.4	8.7	8.6	0.18	-0.17	6.33
1,700.0	0.40	87.24	1,700.0	1.5	9.6	9.4	0.17	-0.15	9.30
1,775.0	0.83	71.01	1,774.9	1.7	10.3	10.1	0.61	0.57	-21.64
Gyro Tie-In 1775' MD									
1,855.0	0.30	32.00	1,854.9	2.1	11.0	10.8	0.78	-0.66	-48.76
1,948.0	0.70	75.10	1,947.9	2.4	11.7	11.4	0.56	0.43	46.34
2,010.0	1.20	91.50	2,009.9	2.5	12.7	12.4	0.91	0.81	26.45
2,073.0	1.90	100.80	2,072.9	2.3	14.4	14.1	1.18	1.11	14.76
2,136.0	2.60	106.40	2,135.9	1.7	16.8	16.5	1.16	1.11	8.89
2,212.0	3.90	106.30	2,211.7	0.5	20.9	20.8	1.71	1.71	-0.13
2,292.0	5.10	100.50	2,291.5	-0.9	27.0	27.0	1.60	1.50	-7.25
2,387.0	6.20	96.40	2,386.0	-2.3	36.3	36.3	1.23	1.16	-4.32
2,450.0	6.30	95.20	2,448.7	-3.0	43.1	43.2	0.26	0.16	-1.90
2,544.0	6.30	95.10	2,542.1	-3.9	53.4	53.5	0.01	0.00	-0.11
2,638.0	6.40	95.90	2,635.5	-4.9	63.7	63.9	0.14	0.11	0.85
2,678.0	6.55	95.00	2,675.3	-5.3	68.2	68.4	0.45	0.38	-2.25
2,731.0	6.70	96.20	2,727.9	-5.9	74.3	74.5	0.39	0.28	2.26
2,825.0	7.10	97.30	2,821.2	-7.2	85.5	85.8	0.45	0.43	1.17
2,919.0	7.60	94.80	2,914.4	-8.5	97.4	97.8	0.63	0.53	-2.66
3,013.0	8.40	94.00	3,007.5	-9.5	110.5	110.9	0.86	0.85	-0.85
3,107.0	7.60	93.30	3,100.6	-10.3	123.5	124.0	0.86	-0.85	-0.74
3,201.0	7.60	93.30	3,193.8	-11.0	136.0	136.4	0.00	0.00	0.00
3,295.0	6.80	93.00	3,287.0	-11.7	147.7	148.2	0.85	-0.85	-0.32
3,389.0	7.10	91.30	3,380.4	-12.1	159.1	159.5	0.39	0.32	-1.81
3,490.0	6.70	95.20	3,480.6	-12.8	171.2	171.7	0.61	-0.40	3.86
3,584.0	5.80	96.80	3,574.1	-13.9	181.4	181.9	0.98	-0.96	1.70
3,646.0	5.80	95.90	3,635.7	-14.5	187.6	188.1	0.15	0.00	-1.45
3,740.0	6.00	97.90	3,729.2	-15.7	197.2	197.8	0.31	0.21	2.13
3,834.0	6.30	99.70	3,822.7	-17.3	207.1	207.9	0.38	0.32	1.91
3,928.0	6.10	92.20	3,916.2	-18.3	217.2	218.0	0.89	-0.21	-7.98
4,022.0	6.40	93.20	4,009.6	-18.8	227.4	228.2	0.34	0.32	1.06
4,116.0	5.90	91.00	4,103.1	-19.2	237.5	238.3	0.59	-0.53	-2.34
4,210.0	6.00	89.80	4,196.6	-19.2	247.2	248.0	0.17	0.11	-1.28
4,304.0	6.10	92.00	4,290.0	-19.4	257.1	257.9	0.27	0.11	2.34
4,398.0	5.10	92.70	4,383.6	-19.8	266.3	267.0	1.07	-1.06	0.74

Gyrodata Survey Report

Company: COG Operating LLC	Local Co-ordinate Reference: Site Eddy County, New Mexico
Project: New Mexico	TVD Reference: WELL @ 0.0ft (Original Well Elev)
Site: Eddy County, New Mexico	MD Reference: WELL @ 0.0ft (Original Well Elev)
Well: Skelly Unit #724	North Reference: Grid
Wellbore: SL: 2272'FNL 687'FWL BHL: 2300'FNL 980'FWL	Survey Calculation Method: Minimum Curvature
Design: SL: 2272'FNL 687'FWL BHL: 2300'FNL 980'FWL	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)
4,491.0	4.50	94.00	4,476.3	-20.2	274.1	274.8	0.66	-0.65	1.40
4,585.0	3.20	101.50	4,570.0	-21.0	280.3	281.1	1.48	-1.38	7.98
4,679.0	1.90	101.00	4,663.9	-21.8	284.4	285.2	1.38	-1.38	-0.53
4,773.0	0.70	94.50	4,757.9	-22.2	286.5	287.4	1.28	-1.28	-6.91
4,867.0	0.40	75.20	4,851.9	-22.1	287.4	288.2	0.37	-0.32	-20.53
4,907.0	0.40	75.20	4,891.9	-22.1	287.7	288.5	0.00	0.00	0.00

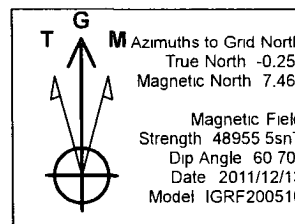
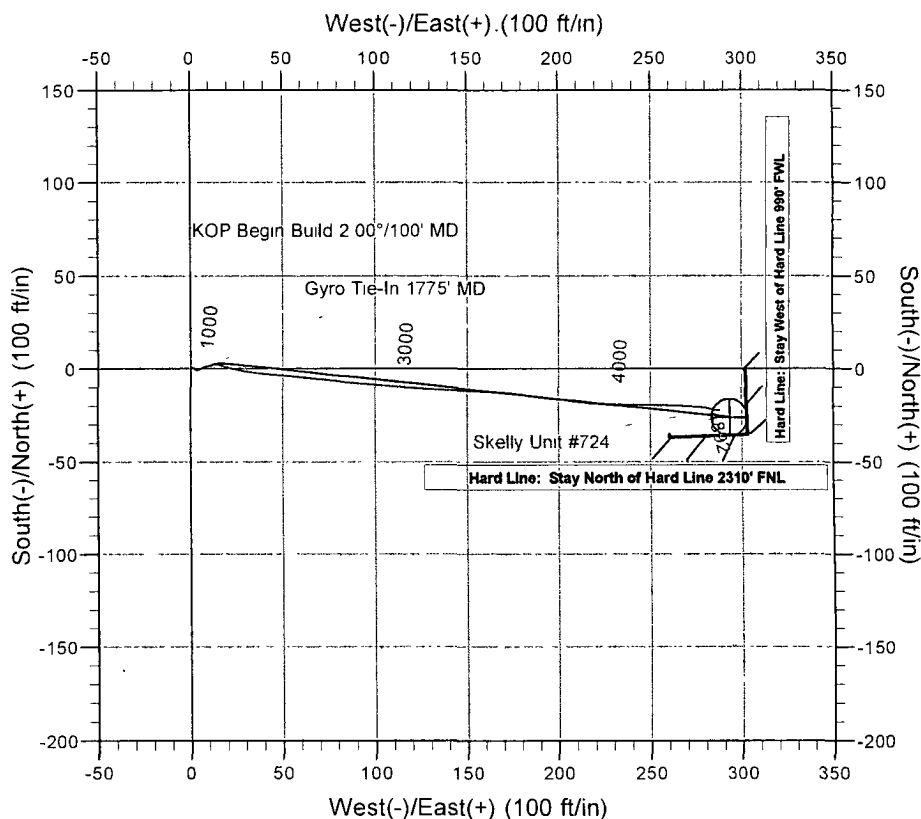
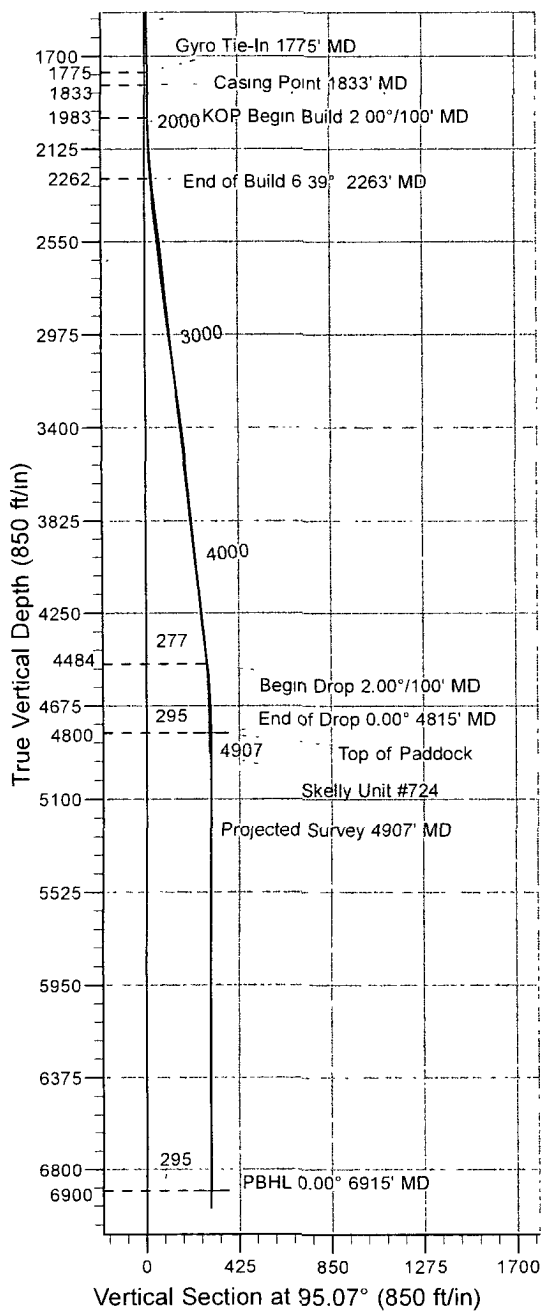
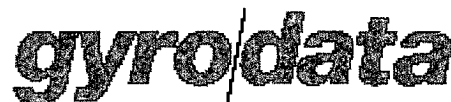
Projected Survey 4907' MD

Survey Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
1,775.0	1,774.9	1.7	10.3	Gyro Tie-In 1775' MD
4,907.0	4,891.9	-22.1	287.7	Projected Survey 4907' MD

Checked By _____	Approved By _____	Date _____
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COG Operating LLC
Skelly Unit #724
Eddy County, New Mexico



Design #2											
Surface Location											
Northing			Easting			Latitude			Longitude		
662639.92			639238.15			32° 49' 15.110 N			103° 52' 48.317 W		
Sec	MD	Inc	Azi	TVD	+N-S	+E-W	Dleg	TFace	Vsect	Target	
1	1775.0	0.83	71.01	1774.9	1.7	10.3			10.1		
2	1833.0	0.83	71.01	1832.9	2.0	11.1	0.00	0.00	10.9		
3	1983.0	0.83	71.01	1982.9	2.7	13.2	0.00	0.00	12.9		
4	2262.9	6.34	96.00	2262.2	1.7	30.5	2.00	28.57	30.2		
5	4498.0	6.34	96.00	4483.6	-24.1	275.9	0.00	0.00	277.0		
6	4815.0	0.00	0.00	4800.0	-25.9	293.4	2.00	180.00	294.5	Top of Paddock...	
7	6915.0	0.00	0.00	6900.0	-25.9	293.4	0.00	0.00	294.5	PBHL...	

To convert a Magnetic Direction to a Grid Direction, Add 7.46°



PO Box 1370
Artesia, NM 88211-1370
(575) 748-1288

January 6, 2012

COG, LLC
Fasken Center, Tower II
550 West Texas Ave, Suite 1300
Midland, TX 79701

RE: Skelly Unit #724
2299' FNL & 815' FWL
Sec. 21, T17S, R31E
Eddy County, New Mexico

Dear Sir,

The attached is the Deviation Survey for the above captioned well.

Very truly yours,

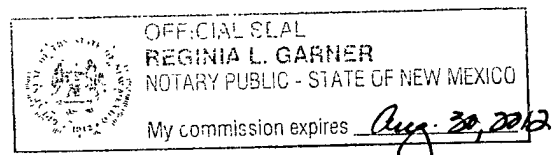
A handwritten signature in black ink, appearing to read "Eddie C. LaRue".

Eddie C. LaRue
Operations Manager

State of New Mexico }
County of Eddy }

The foregoing was acknowledged before me this 6th day of December, 2011.

A handwritten signature in black ink, appearing to read "Regina L. Garner".

Notary Public

Pason DataHub Deviation Survey

Well Dossier 1324335335 - Skelly Unit #724

#

# Date	Depth	Deviation	Direction	TVD	Horiz
12/20/2011	164	0.3	0	0	0
12/20/2011	252	0.3	0	0	0
12/20/2011	368	0.3	0	0	0
12/21/2011	605	0.1	0	0	0
12/22/2011	1096	0.6	0	0	0
12/22/2011	1595	0.6	0	0	0
12/22/2011	1814	0.5	0	0	0
12/24/2011	1858	0.3	32	0	0
12/24/2011	1948	0.7	75.1	0	0
12/24/2011	2010	1.2	91.5	0	0
12/24/2011	2073	1.9	110.8	0	0
12/24/2011	2136	2.7	106.4	0	0
12/26/2011	2292	5.1	100.5	0	0
12/26/2011	2387	6.2	96.4	0	0
12/26/2011	2450	6.3	95.2	0	0
12/26/2011	2544	6.3	95.1	0	0
12/26/2011	2638	6.4	95.9	0	0
12/26/2011	2731	6.7	96.2	0	0
12/27/2011	2825	7.1	91.3	0	0
12/27/2011	2919	7.6	94.8	0	0
12/27/2011	3013	8.4	94.0	0	0
12/27/2011	3107	7.6	93.3	0	0
12/27/2011	3201	7.6	93.3	0	0
12/27/2011	3295	6.8	93.0	0	0
12/27/2011	3389	7.1	91.3	0	0
12/27/2011	3490	6.7	95.2	0	0
12/27/2011	3584	5.8	96.8	0	0
12/27/2011	3646	5.8	95.9	0	0
12/27/2011	3740	6.0	97.9	0	0
12/27/2011	3834	6.3	99.7	0	0
12/28/2011	3929	6.1	92.2	0	0
12/28/2011	4022	6.4	93.2	0	0
12/28/2011	4116	5.9	91.0	0	0
12/28/2011	9210	6.0	89.9	0	0
12/28/2011	4304	6.1	92.0	0	0
12/28/2011	4398	5.1	92.7	0	0
12/28/2011	4491	4.5	94.0	0	0
12/28/2011	4585	3.2	101.5	0	0
12/28/2011	4679	1.9	101.0	0	0
12/28/2011	4773	0.7	94.5	0	0
12/28/2011	4867	0.4	75.2	0	0
12/29/2011	5122	0.3	0	0	0
12/29/2011	5593	0.4	0	0	0
12/30/2011	6032	1.0	0	0	0
12/30/2011	6407	1.0	0	0	0
12/30/2011	6711	2.1	0	0	0

EOF