

Scientific Drilling

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HOBBS, NM

COG RESOURCES

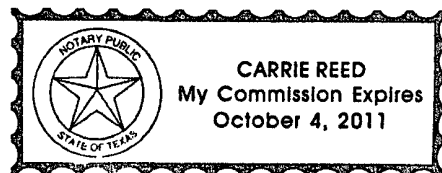
Field: Wildcat
Site: Chaves County, NM
Well: Taurus StateCom #2
Wellpath: VH - Job #32K1109492
Survey: 11/07/09

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

[Signature] Company Representative

Notorized this date 3rd of December, 2009.

[Signature]
Notary Signature
County of Midland
State of Texas





Scientific
Drilling

Scientific Drilling International Survey Report

Company: COG RESOURCES	Date: 11/13/2009	Time: 14:27:43	Page: 1
Field: Wildcat	Co-ordinate(NE) Reference:	Site: Chaves County, NM, Grid North	
Site: Chaves County, NM	Vertical (TVD) Reference:	SITE 0.0	
Well: Taurus StateCom #2	Section (VS) Reference:	Well (0.00N,0.00E,269.49Azi)	
Wellpath: VH - Job #32K1109492	Survey Calculation Method:	Minimum Curvature	
		Db:	Sybase

Survey: 11/07/09	Start Date: 11/07/2009
Company: Scientific Drilling Internatio	Engineer: Guebara w/Gray
Tool: Keeper;Keeper Gyro	Tied-to: From Surface

Survey

MD ft	Incl deg	Azim deg	TVD ft	VS ft	N/S ft	E/W ft	DLS deg/100ft	ClSD ft	ClSA deg
0.00	0.00	359.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.42	330.24	100.00	0.18	0.32	-0.18	0.42	0.37	330.24
200.00	0.92	310.55	199.99	0.96	1.16	-0.97	0.54	1.51	319.94
300.00	1.21	305.45	299.97	2.42	2.29	-2.44	0.30	3.35	313.17
400.00	1.18	271.93	399.95	4.31	2.94	-4.33	0.69	5.24	304.15
500.00	1.26	264.35	499.93	6.43	2.87	-6.46	0.18	7.06	293.94
600.00	1.21	270.61	599.91	8.58	2.77	-8.61	0.14	9.04	287.84
700.00	1.26	266.73	699.89	10.74	2.72	-10.76	0.10	11.10	284.17
800.00	1.03	275.98	799.87	12.73	2.75	-12.75	0.29	13.04	282.16
900.00	1.00	268.34	899.85	14.49	2.82	-14.52	0.14	14.79	280.98
1000.00	0.90	276.10	999.84	16.14	2.88	-16.17	0.16	16.42	280.08
1100.00	0.93	261.16	1099.82	17.73	2.83	-17.75	0.24	17.98	279.07
1200.00	0.91	271.44	1199.81	19.32	2.73	-19.35	0.17	19.54	278.03
1300.00	0.75	257.10	1299.80	20.76	2.60	-20.78	0.26	20.94	277.14
1400.00	0.54	270.99	1399.79	21.87	2.46	-21.89	0.26	22.03	276.42
1500.00	0.37	278.50	1499.79	22.66	2.52	-22.68	0.18	22.82	276.34
1600.00	0.35	311.77	1599.79	23.20	2.77	-23.23	0.21	23.39	276.81
1700.00	0.50	305.19	1699.79	23.78	3.23	-23.81	0.16	24.03	277.72
1800.00	0.44	308.43	1799.78	24.44	3.72	-24.47	0.07	24.75	278.64
1900.00	0.24	346.46	1899.78	24.78	4.16	-24.82	0.29	25.17	279.51
2000.00	0.63	59.37	1999.78	24.35	4.64	-24.40	0.60	24.83	280.78
2100.00	0.96	58.43	2099.77	23.16	5.36	-23.21	0.33	23.82	283.01
2200.00	1.07	48.71	2199.75	21.74	6.42	-21.79	0.20	22.72	286.41
2300.00	1.12	47.50	2299.73	20.30	7.69	-20.37	0.06	21.78	290.69
2400.00	1.02	45.78	2399.72	18.93	8.97	-19.01	0.11	21.02	295.27
2500.00	0.87	51.00	2499.70	17.69	10.07	-17.78	0.17	20.44	299.52
2600.00	0.78	53.88	2599.69	16.55	10.95	-16.65	0.10	19.92	303.34
2700.00	0.72	55.24	2699.68	15.47	11.71	-15.58	0.06	19.49	306.93
2800.00	0.75	51.78	2799.68	14.44	12.47	-14.55	0.05	19.16	310.61
2900.00	0.68	53.78	2899.67	13.44	13.23	-13.56	0.07	18.94	314.30
3000.00	0.70	61.60	2999.66	12.42	13.87	-12.54	0.10	18.70	317.88
3100.00	0.73	57.39	3099.65	11.34	14.50	-11.47	0.06	18.49	321.67
3200.00	0.73	63.16	3199.65	10.23	15.14	-10.36	0.07	18.34	325.61
3300.00	0.60	57.21	3299.64	9.21	15.71	-9.35	0.15	18.28	329.23
3400.00	0.60	65.60	3399.63	8.29	16.21	-8.44	0.09	18.27	332.50
3500.00	0.68	68.29	3499.63	7.26	16.64	-7.41	0.09	18.22	336.01
3600.00	0.83	69.05	3599.62	6.03	17.12	-6.18	0.15	18.20	340.15
3700.00	0.95	58.27	3699.61	4.64	17.82	-4.80	0.21	18.45	344.93
3800.00	0.90	58.02	3799.59	3.26	18.67	-3.43	0.05	18.98	349.60
3900.00	0.83	61.87	3899.58	1.95	19.43	-2.12	0.09	19.54	353.77
4000.00	0.78	61.77	3999.57	0.70	20.09	-0.88	0.05	20.11	357.48
4100.00	0.70	57.05	4099.56	-0.41	20.74	0.23	0.10	20.74	0.63
4200.00	0.49	65.29	4199.56	-1.32	21.25	1.13	0.23	21.28	3.04
4300.00	0.41	75.27	4299.56	-2.06	21.52	1.86	0.11	21.60	4.95
4400.00	0.29	48.53	4399.55	-2.59	21.78	2.40	0.20	21.91	6.29
4500.00	0.09	11.13	4499.55	-2.80	22.03	2.60	0.23	22.18	6.74
4600.00	0.24	333.76	4599.55	-2.73	22.29	2.53	0.18	22.43	6.47
4700.00	0.13	6.23	4699.55	-2.65	22.59	2.45	0.15	22.72	6.18
4800.00	0.25	357.33	4799.55	-2.65	22.92	2.45	0.12	23.05	6.10



Scientific Drilling International Survey Report

Company: COG RESOURCES	Date: 11/13/2009	Time: 14:27:43	Page: 2
Field: Wildcat	Co-ordinate(NE) Reference:	Site: Chaves County, NM, Grid North	
Site: Chaves County, NM	Vertical (TVD) Reference:	SITE 0.0	
Well: Taurus StateCom #2	Section (VS) Reference:	Well (0.00N,0.00E,269.49Azi)	
Wellpath: VH - Job #32K1109492	Survey Calculation Method:	Minimum Curvature	Db: Sybase

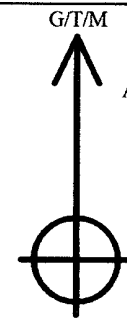
Survey

MD ft	Incl deg	Azim deg	TVD ft	VS ft	N/S ft	E/W ft	DLS deg/100ft	ClsD ft	ClsA deg
4900.00	0.70	342.66	4899.55	-2.47	23.72	2.26	0.46	23.83	5.43
5000.00	0.61	25.95	4999.54	-2.53	24.79	2.31	0.49	24.89	5.32
5100.00	0.39	53.14	5099.54	-3.04	25.47	2.81	0.32	25.62	6.30
5200.00	0.45	75.99	5199.54	-3.70	25.77	3.47	0.18	26.00	7.66
5300.00	0.15	88.71	5299.53	-4.21	25.87	3.98	0.31	26.17	8.74
5400.00	0.31	128.63	5399.53	-4.55	25.70	4.32	0.22	26.06	9.54
5500.00	0.13	215.14	5499.53	-4.69	25.44	4.47	0.33	25.83	9.96
5600.00	0.23	241.35	5599.53	-4.45	25.25	4.23	0.13	25.60	9.50
5700.00	0.25	279.91	5699.53	-4.06	25.19	3.83	0.16	25.48	8.65
5800.00	0.34	284.28	5799.53	-3.56	25.30	3.33	0.09	25.52	7.50
5900.00	0.62	277.60	5899.53	-2.73	25.45	2.51	0.29	25.57	5.63
6000.00	0.63	273.71	5999.52	-1.65	25.55	1.42	0.04	25.59	3.19
6100.00	0.79	268.30	6099.51	-0.41	25.57	0.19	0.17	25.57	0.42
6200.00	0.66	267.59	6199.50	0.85	25.52	-1.08	0.13	25.55	357.58
6300.00	0.69	268.36	6299.50	2.03	25.48	-2.26	0.03	25.58	354.94
6400.00	0.58	252.73	6399.49	3.12	25.31	-3.34	0.20	25.53	352.48
6500.00	0.45	260.00	6499.49	3.99	25.10	-4.21	0.15	25.45	350.47
6600.00	0.49	262.67	6599.48	4.80	24.97	-5.02	0.05	25.47	348.63
6700.00	0.55	272.68	6699.48	5.70	24.94	-5.93	0.11	25.64	346.63
6800.00	0.63	269.57	6799.47	6.73	24.96	-6.96	0.09	25.91	344.43
6900.00	0.56	271.74	6899.47	7.77	24.97	-7.99	0.07	26.22	342.25
7000.00	0.61	271.75	6999.46	8.79	25.00	-9.01	0.05	26.58	340.17
7100.00	0.57	284.84	7099.46	9.80	25.14	-10.03	0.14	27.07	338.26
7200.00	0.52	286.01	7199.45	10.72	25.40	-10.94	0.05	27.66	336.69
7300.00	0.39	302.06	7299.45	11.44	25.70	-11.67	0.18	28.23	335.58
7400.00	0.29	290.40	7399.45	11.96	25.97	-12.19	0.12	28.69	334.85
7500.00	0.15	269.47	7499.45	12.33	26.06	-12.56	0.16	28.93	334.26
7600.00	0.06	302.19	7599.45	12.50	26.09	-12.74	0.10	29.03	333.97
7700.00	0.40	91.01	7699.45	12.20	26.11	-12.43	0.45	28.92	334.54
7800.00	0.48	105.79	7799.44	11.45	25.99	-11.68	0.14	28.49	335.80
7900.00	0.86	94.32	7899.44	10.30	25.82	-10.53	0.40	27.88	337.81
8000.00	1.65	95.41	7999.41	8.12	25.62	-8.35	0.79	26.95	341.96
8100.00	1.81	98.22	8099.37	5.13	25.26	-5.35	0.18	25.82	348.04
8200.00	2.03	100.13	8199.31	1.82	24.73	-2.04	0.23	24.81	355.27
8300.00	3.26	82.12	8299.20	-2.74	24.80	2.52	1.47	24.93	5.79
8400.00	3.64	102.27	8399.03	-8.65	24.52	8.43	1.26	25.93	18.98
8500.00	3.54	103.94	8498.83	-14.74	23.10	14.53	0.14	27.29	32.17
8600.00	3.57	106.05	8598.64	-20.71	21.50	20.52	0.13	29.72	43.67
8700.00	3.65	106.93	8698.44	-26.73	19.71	26.56	0.10	33.07	53.42
8800.00	4.15	108.33	8798.21	-33.19	17.64	33.04	0.51	37.45	61.90
8900.00	4.36	110.93	8897.93	-40.16	15.15	40.02	0.29	42.79	69.27
8930.00	4.03	108.13	8927.85	-42.22	14.41	42.09	1.29	44.49	71.10



Scientific
Drilling

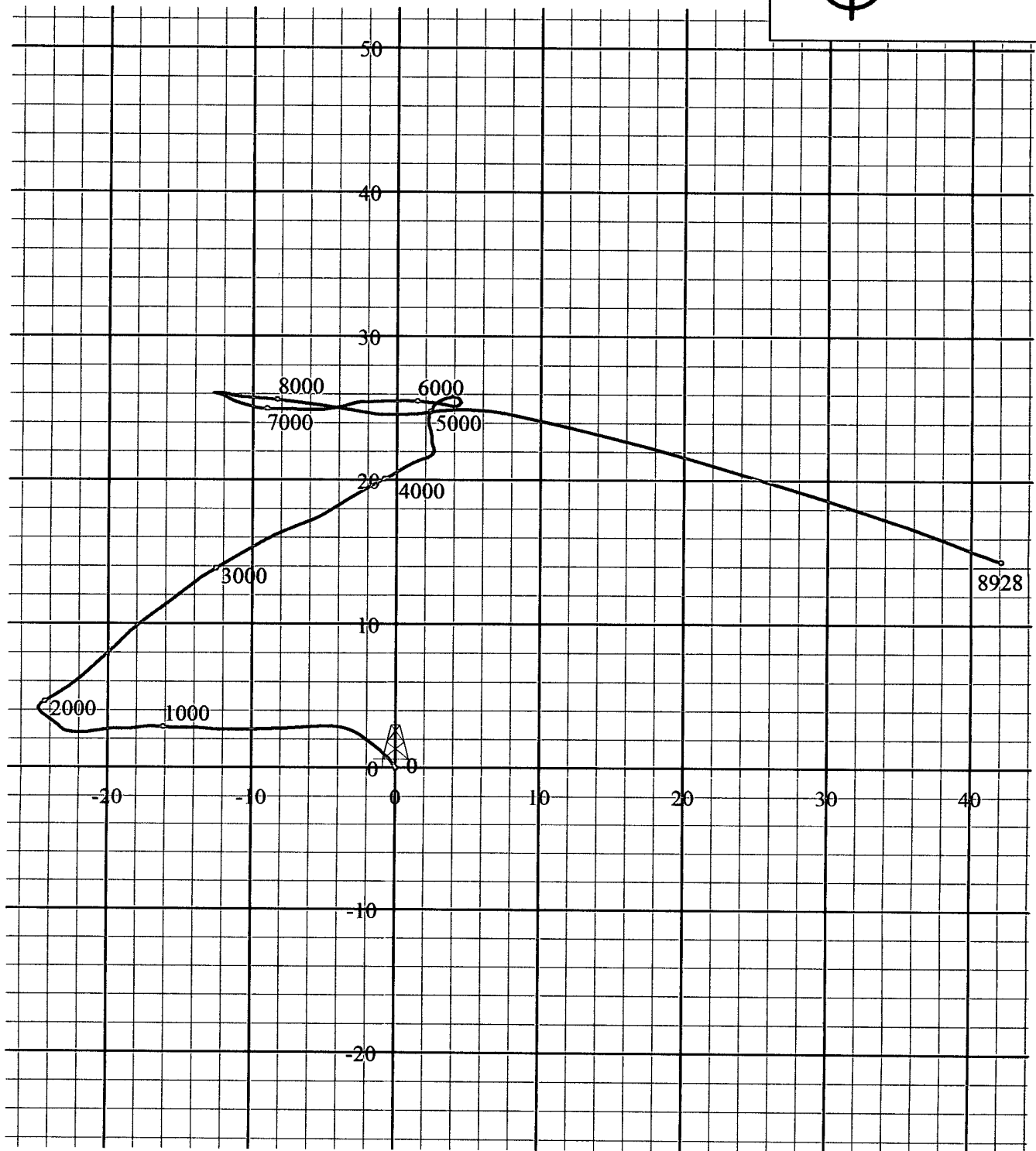
Field: Wildcat
Site: Chaves County, NM
Well: Taurus StateCom #2
Wellpath: VH - Job #32K1109492
Survey: 11/07/09



Azimuths to Grid North
True North: 0.00°
Magnetic North: 0.00°

Magnetic Field
Strength: 0nT
Dip Angle: 0.00°
Date: 11/13/2009
Model: igrf2000

South(-)/North(+) [10ft/in]



West(-)/East(+) [10ft/in]



RECEIVED

MAR 07 2010
HOBBSD

COG Operating LLC

Lea County(NAD83)

Good Hands "15" State

#1H

OH

Survey: MWD #1

Pathfinder X & Y Survey Report

08 October, 2009

PATHFINDER



Pathfinder Energy Services
Pathfinder X & Y Survey Report



Company: COG Operating LLC
Project: Lea County(NAD83)
Site: Good Hands "15" State
Well: #1H
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well #1H
TVD Reference: WELL @ 4312.00ft (Original Well Elev)
MD Reference: WELL @ 4312.00ft (Original Well Elev)
North Reference: Grd
Survey Calculation Method: Minimum Curvature
Database: Midland Database

Project: Lea County(NAD83)

Map System: US State Plane 1983
Geo Datum: North American Datum 1983
Map Zone: New Mexico Eastern Zone

System Datum: Mean Sea Level

Site: Good Hands "15" State

Site Position:		Northing:	767,625.383 ft	Latitude:	33° 6' 30.847 N
From:	Map	Easting:	735,766.229 ft	Longitude:	103° 41' 54.120 W
Position Uncertainty:	0.00 ft	Slot Radius:	"	Grid Convergence:	0.35 °

Well: #1H

Well Position	+N/-S	0.00 ft	Northing:	767,625.383 ft	Latitude:	33° 6' 30.847 N
	+E/-W	0.00 ft	Easting:	735,766.229 ft	Longitude:	103° 41' 54.120 W
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	4,294.00 ft

Wellbore: OH

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	09/12/2009	7.91	61.04	49,334

Design: OH

Audit Notes:

Version: 1.0 Phase: ACTUAL Tie On Depth: 0.00

Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	269.82



Pathfinder Energy Services
Pathfinder X & Y Survey Report



Company: COG Operating LLC
Project: Lea County(NAD83)
Site: Good Hands "15" State
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Local Co-ordinate Reference: Well #1H
TVD Reference: WELL @ 4312.00ft (Original Well Elev)
MD Reference: WELL @ 4312.00ft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Midland Database

Survey Program Date 10/08/2009

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
100.00	8,020.00	GYRO (OH)	NS-GYRO-MS	North sensing gyrocompassing m/s
8,275.00	11,621.00	MWD #1 (OH)	MWD	MWD - Standard

MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)
8,020.00	0.72	157.49	8,019.33	3,707.33	-15.52	9.72	-9.67	0.00	767,609.86	735,775.95
8,275.00	0.97	186.47	8,274.31	3,962.31	-19.14	10.09	-10.03	0.19	767,606.24	735,776.32
8,339.00	0.70	175.63	8,338.30	4,026.30	-20.07	10.06	-9.99	0.49	767,605.31	735,776.29
8,379.00	0.88	163.98	8,378.30	4,066.30	-20.61	10.16	-10.10	0.60	767,604.77	735,776.39
8,408.00	0.79	197.20	8,407.29	4,095.29	-21.02	10.16	-10.10	1.67	767,604.37	735,776.39
8,434.00	2.46	250.80	8,433.28	4,121.28	-21.37	9.58	-9.52	8.04	767,604.01	735,775.81
8,472.00	7.83	259.66	8,471.12	4,159.12	-22.10	6.26	-6.19	14.24	767,603.28	735,772.49
8,504.00	11.43	260.40	8,502.66	4,190.66	-23.02	0.99	-0.92	11.26	767,602.36	735,767.22
8,537.00	15.74	261.01	8,534.73	4,222.73	-24.27	-6.66	6.73	13.07	767,601.11	735,759.57
8,561.00	18.55	262.36	8,557.66	4,245.66	-25.29	-13.66	13.74	11.82	767,600.10	735,752.57
8,593.00	21.81	262.95	8,587.69	4,275.69	-26.69	-24.61	24.69	10.21	767,598.69	735,741.62
8,632.00	26.12	264.68	8,623.32	4,311.32	-28.38	-40.35	40.44	11.20	767,597.00	735,725.88
8,665.00	29.63	266.66	8,652.49	4,340.49	-29.53	-55.73	55.82	11.00	767,595.86	735,710.50
8,697.00	33.06	268.78	8,679.82	4,367.82	-30.17	-72.36	72.46	11.26	767,595.21	735,693.87
8,729.00	36.49	269.78	8,706.10	4,394.10	-30.40	-90.61	90.70	10.87	767,594.99	735,675.62
8,747.00	38.51	270.43	8,720.38	4,408.38	-30.38	-101.56	101.66	11.44	767,595.01	735,664.66
8,779.00	42.38	270.98	8,744.72	4,432.72	-30.12	-122.32	122.41	12.14	767,595.27	735,643.91
8,811.00	45.99	270.67	8,767.67	4,455.67	-29.80	-144.62	144.71	11.30	767,595.59	735,621.61
8,843.00	49.95	271.27	8,789.09	4,477.09	-29.39	-168.38	168.47	12.45	767,595.99	735,597.85
8,875.00	53.99	272.16	8,808.80	4,496.80	-28.63	-193.57	193.65	12.81	767,596.75	735,572.66
8,904.00	58.12	273.34	8,824.99	4,512.99	-27.47	-217.59	217.67	14.64	767,597.91	735,548.64



Pathfinder Energy Services
Pathfinder X & Y Survey Report



Company: COG Operating LLC
Project: Lea County(NAD83)
Site: Good Hands "15" State
Well: #1H
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well #1H
TVD Reference: WELL @ 4312.00ft (Original Well Elev)
MD Reference: WELL @ 4312.00ft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Midland Database

Survey

MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)
8,937.00	62.34	273.99	8,841.37	4,529.37	-25.64	-246.17	246.25	12.90	767,599.75	735,520.06
8,969.00	66.74	273.34	8,855.12	4,543.12	-23.79	-274.99	275.07	13.87	767,601.59	735,491.23
9,000.00	70.26	270.82	8,866.49	4,554.49	-22.76	-303.81	303.88	13.64	767,602.63	735,462.42
9,033.00	74.13	268.69	8,876.57	4,564.57	-22.90	-335.22	335.29	13.24	767,602.49	735,431.01
9,064.00	78.08	268.40	8,884.02	4,572.02	-23.66	-365.30	365.37	12.77	767,601.72	735,400.93
9,097.00	82.04	268.99	8,889.71	4,577.71	-24.40	-397.79	397.86	12.13	767,600.98	735,368.44
9,128.00	85.82	269.89	8,892.99	4,580.99	-24.70	-428.61	428.68	12.53	767,600.68	735,337.62
9,161.00	89.08	270.69	8,894.46	4,582.46	-24.53	-461.57	461.64	10.17	767,600.85	735,304.66
9,199.00	90.31	271.26	8,894.66	4,582.66	-23.89	-499.56	499.64	3.57	767,601.50	735,266.67
9,219.00	92.51	271.87	8,894.17	4,582.17	-23.34	-519.55	519.62	11.41	767,602.04	735,246.68
9,252.00	92.51	271.62	8,892.72	4,580.72	-22.34	-552.50	552.57	0.76	767,603.05	735,213.73
9,283.00	92.15	271.41	8,891.46	4,579.46	-21.52	-583.46	583.53	1.34	767,603.87	735,182.76
9,315.00	91.01	271.12	8,890.58	4,578.58	-20.81	-615.44	615.51	3.68	767,604.57	735,150.78
9,347.00	91.10	271.23	8,889.99	4,577.99	-20.16	-647.43	647.49	0.44	767,605.23	735,118.80
9,379.00	91.63	271.54	8,889.23	4,577.23	-19.38	-679.41	679.47	1.92	767,606.00	735,086.82
9,412.00	91.89	271.38	8,888.22	4,576.22	-18.54	-712.39	712.44	0.92	767,606.84	735,053.84
9,439.00	92.15	271.54	8,887.26	4,575.26	-17.85	-739.36	739.41	1.13	767,607.53	735,026.87
9,471.00	92.33	271.11	8,886.01	4,574.01	-17.11	-771.33	771.38	1.46	767,608.27	734,994.90
9,503.00	90.40	269.64	8,885.25	4,573.25	-16.91	-803.32	803.37	7.58	767,608.48	734,962.91
9,535.00	90.75	269.10	8,884.93	4,572.93	-17.26	-835.31	835.36	2.01	767,608.13	734,930.92
9,566.00	90.48	268.31	8,884.60	4,572.60	-17.96	-866.30	866.35	2.69	767,607.43	734,899.93
9,599.00	90.31	267.44	8,884.37	4,572.37	-19.18	-899.28	899.33	2.69	767,606.20	734,866.95
9,630.00	90.92	267.26	8,884.04	4,572.04	-20.61	-930.24	930.30	2.05	767,604.77	734,835.99
9,662.00	90.75	267.63	8,883.57	4,571.57	-22.04	-962.21	962.27	1.27	767,603.34	734,804.02
9,695.00	89.96	267.53	8,883.37	4,571.37	-23.43	-995.18	995.25	2.41	767,601.95	734,771.05
9,727.00	90.00	267.76	8,883.38	4,571.38	-24.75	-1,027.15	1,027.22	0.73	767,600.63	734,739.08
9,759.00	89.43	268.51	8,883.54	4,571.54	-25.79	-1,059.13	1,059.21	2.94	767,599.59	734,707.10



Pathfinder Energy Services
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Well: #1H
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well #1H
TVD Reference: WELL @ 4312.00ft (Original Well Elev)
MD Reference: WELL @ 4312.00ft (Original Well Elev)
North Reference: Gnd
Survey Calculation Method: Minimum Curvature
Database: Midland Database

Survey

MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)
9,791.00	90.13	268.69	8,883.66	4,571.66	-26.57	-1,091.12	1,091.20	2.26	767,598.81	734,675.11
9,823.00	90.66	268.98	8,883.44	4,571.44	-27.22	-1,123.12	1,123.20	1.89	767,598.16	734,643.11
9,855.00	91.71	269.03	8,882.78	4,570.78	-27.78	-1,155.10	1,155.19	3.28	767,597.60	734,611.13
9,886.00	91.19	269.21	8,881.99	4,569.99	-28.25	-1,186.09	1,186.17	1.78	767,597.13	734,580.14
9,918.00	89.87	269.94	8,881.70	4,569.70	-28.49	-1,218.09	1,218.17	4.71	767,596.89	734,548.14
9,950.00	89.87	269.87	8,881.77	4,569.77	-28.54	-1,250.09	1,250.17	0.22	767,596.84	734,516.14
9,982.00	88.55	270.57	8,882.21	4,570.21	-28.42	-1,282.08	1,282.17	4.67	767,596.96	734,484.15
10,015.00	86.97	270.57	8,883.50	4,571.50	-28.09	-1,315.05	1,315.14	4.79	767,597.29	734,451.17
10,047.00	85.82	270.55	8,885.51	4,573.51	-27.78	-1,346.99	1,347.07	3.59	767,597.60	734,419.24
10,079.00	86.00	270.48	8,887.79	4,575.79	-27.50	-1,378.91	1,378.99	0.60	767,597.89	734,387.32
10,111.00	87.49	270.05	8,889.61	4,577.61	-27.35	-1,410.85	1,410.93	4.85	767,598.04	734,355.38
10,143.00	89.52	270.15	8,890.45	4,578.45	-27.29	-1,442.84	1,442.92	6.35	767,598.09	734,323.39
10,175.00	89.87	269.56	8,890.62	4,578.62	-27.37	-1,474.84	1,474.92	2.14	767,598.01	734,291.39
10,207.00	89.55	269.59	8,890.78	4,578.78	-27.61	-1,506.84	1,506.92	1.00	767,597.77	734,259.39
10,238.00	90.57	269.64	8,890.75	4,578.75	-27.82	-1,537.84	1,537.92	3.29	767,597.56	734,228.39
10,270.00	91.01	269.48	8,890.31	4,578.31	-28.06	-1,569.83	1,569.91	1.46	767,597.32	734,196.40
10,302.00	89.25	269.29	8,890.23	4,578.23	-28.41	-1,601.83	1,601.91	5.53	767,596.98	734,164.40
10,334.00	88.90	269.91	8,890.75	4,578.75	-28.63	-1,633.83	1,633.91	2.22	767,596.75	734,132.40
10,366.00	89.34	269.81	8,891.24	4,579.24	-28.71	-1,665.82	1,665.90	1.41	767,596.67	734,100.41
10,398.00	90.48	269.16	8,891.29	4,579.29	-29.00	-1,697.82	1,697.90	4.10	767,596.39	734,068.41
10,430.00	91.36	269.01	8,890.78	4,578.78	-29.51	-1,729.81	1,729.89	2.79	767,595.88	734,036.42
10,462.00	90.78	269.02	8,890.18	4,578.18	-30.06	-1,761.80	1,761.89	1.81	767,595.33	734,004.43
10,494.00	91.01	269.95	8,889.68	4,577.68	-30.35	-1,793.79	1,793.88	2.99	767,595.04	733,972.43
10,558.00	92.77	270.27	8,887.57	4,575.57	-30.22	-1,857.76	1,857.84	2.80	767,595.16	733,908.47
10,602.00	91.19	270.43	8,886.05	4,574.05	-29.95	-1,901.73	1,901.81	3.61	767,595.43	733,864.50
10,666.00	92.15	271.66	8,884.18	4,572.18	-28.79	-1,965.69	1,965.77	2.44	767,596.60	733,800.54
10,730.00	95.06	272.24	8,880.16	4,568.16	-26.61	-2,029.52	2,029.59	4.64	767,598.77	733,736.71



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MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)
10,794.00	96.20	271.77	8,873.88	4,561.88	-24.39	-2,093.17	2,093.24	1.93	767,601.00	733,673.06
10,859.00	95.23	270.85	8,867.41	4,555.41	-22.91	-2,157.83	2,157.89	2.05	767,602.48	733,608.40
10,922.00	91.71	269.75	8,863.60	4,551.60	-22.58	-2,220.70	2,220.76	5.85	767,602.80	733,545.53
10,986.00	91.28	269.08	8,861.93	4,549.93	-23.23	-2,284.67	2,284.74	1.24	767,602.15	733,481.55
11,050.00	93.47	269.25	8,859.27	4,547.27	-24.16	-2,348.61	2,348.67	3.43	767,601.22	733,417.62
11,114.00	92.42	269.17	8,855.99	4,543.99	-25.05	-2,412.52	2,412.58	1.65	767,600.34	733,353.71
11,179.00	90.40	268.80	8,854.39	4,542.39	-26.20	-2,477.48	2,477.55	3.16	767,599.19	733,288.74
11,242.00	90.57	268.84	8,853.85	4,541.85	-27.49	-2,540.47	2,540.54	0.28	767,597.89	733,225.76
11,306.00	91.63	269.00	8,852.62	4,540.62	-28.70	-2,604.44	2,604.52	1.68	767,596.68	733,161.78
11,370.00	91.01	270.22	8,851.15	4,539.15	-29.14	-2,668.42	2,668.50	2.14	767,596.25	733,097.80
11,434.00	88.20	272.59	8,851.59	4,539.59	-27.57	-2,732.39	2,732.47	5.74	767,597.82	733,033.84
11,498.00	88.02	272.39	8,853.70	4,541.70	-24.79	-2,796.30	2,796.36	0.42	767,600.59	732,969.93
11,530.00	88.81	272.05	8,854.59	4,542.59	-23.55	-2,828.26	2,828.32	2.69	767,601.83	732,937.97
11,621.00	89.80	271.36	8,855.69	4,543.69	-20.84	-2,919.21	2,919.26	1.33	767,604.54	732,847.02

Proj To TD-11621.00°MD,89.80°INC,271.36°AZI, 8855.69°TVD, 2919.26°VS, -20.84°N, -2919.21°E



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North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Midland Database

Targets

Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)		
- Shape									
PBHL(#1HGH	0.00	0.00	8,821.00	-13.67	-4,530.25	767,611.712	731,235.978	33° 6' 30.980 N	103° 42' 47.380 W
- survey misses by 1611.43ft at 11621.00ft MD (8855.69 TVD, -20.84 N, -2919.21 E)									
- Point									

Survey Annotations

Measured Depth	Vertical Depth	Local Coordinates		Comment
(ft)	(ft)	+N/-S (ft)	+E/-W (ft)	
11,621.00	8,855.69	-20.84	-2,919.21	Proj To TD-11621.00'MD, 89.80°INC, 271 36°AZI, 8855.69'TVD, 2919.21'

Checked By: _____ Approved By: _____ Date: _____