

PATRIOT DRILLING, LLC

OPERATOR: COG Operating, LLC.
WELL/LEASE: Really Scary Fed # 5H
COUNTY: Eddy Co., New Mexico
Sec. 33, T24S, R28E

30-015-40241

**STATE OF NEW MEXICO
DEVIATION REPORT**

<u>Depth</u>	<u>Deviation</u>	<u>Depth</u>	<u>Deviation</u>
174	1	3,407	1 1/2
516	1 1/2	4,174	1 1/2
762	2 1/2	4,450	3/4
888	2 1/2	4,741	1/4
100	2 1/2	4,993	1/2
1,237	1 3/4	5,530	2 1/2
1,516	3/4	5,848	1
1,902	2	6,043	2
2,053	2 1/2	6,586	2
2,212	3	6,904	2 1/2
2,374	2 1/2	7,120	1 1/2
2,521	2	7,343	2 1/2
2,808	1 1/4	4,513	1 1/4
3,090	1 1/2	7,545	1

COG OPERATING, LLC
RECEIVED

JUN 20 2012

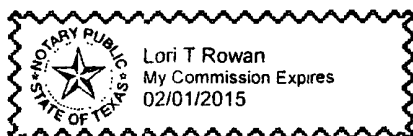
ARTESIA WEST

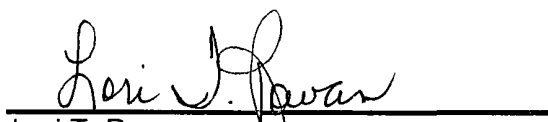
Patriot Drilling, LLC


M. Leroy Peterson, Executive Vice-
President

The foregoing instrument was acknowledged before me on this 4th day of June, 2012 by M. Leroy Peterson, Executive Vice-President of Patriot Drilling, LLC.

My Commission Expires: 02/01/2015




Lori T. Rowan
Notary Public for Ector Co., Texas



Company: COG Operating LLC (Concho)
 Lease/Well: Really Scary Federal/No. 005H
 Location: Sect 33 T 24 S R 28 E
 Rig Name: Patriot Drilling #6
 State/County: New Mexico/Eddy
 Latitude: 32.17
 GRID North is 0.13 Degrees East of True North
 VS-Azi: 0.00 Degrees



Depth Reference : 16'

DRILLOG HA GYRO SURVEY CALCULATIONS

Filename: really scary federal #5h_1st.ut

Minimum Curvature Method

Report Date/Time: 5/30/2012 / 13:48

Vaughn Energy Services

Fort Worth, Texas

817-741-3610

Surveyor: Jason Wilson

Really Scary Federal No. 005H / API 30-015-40241

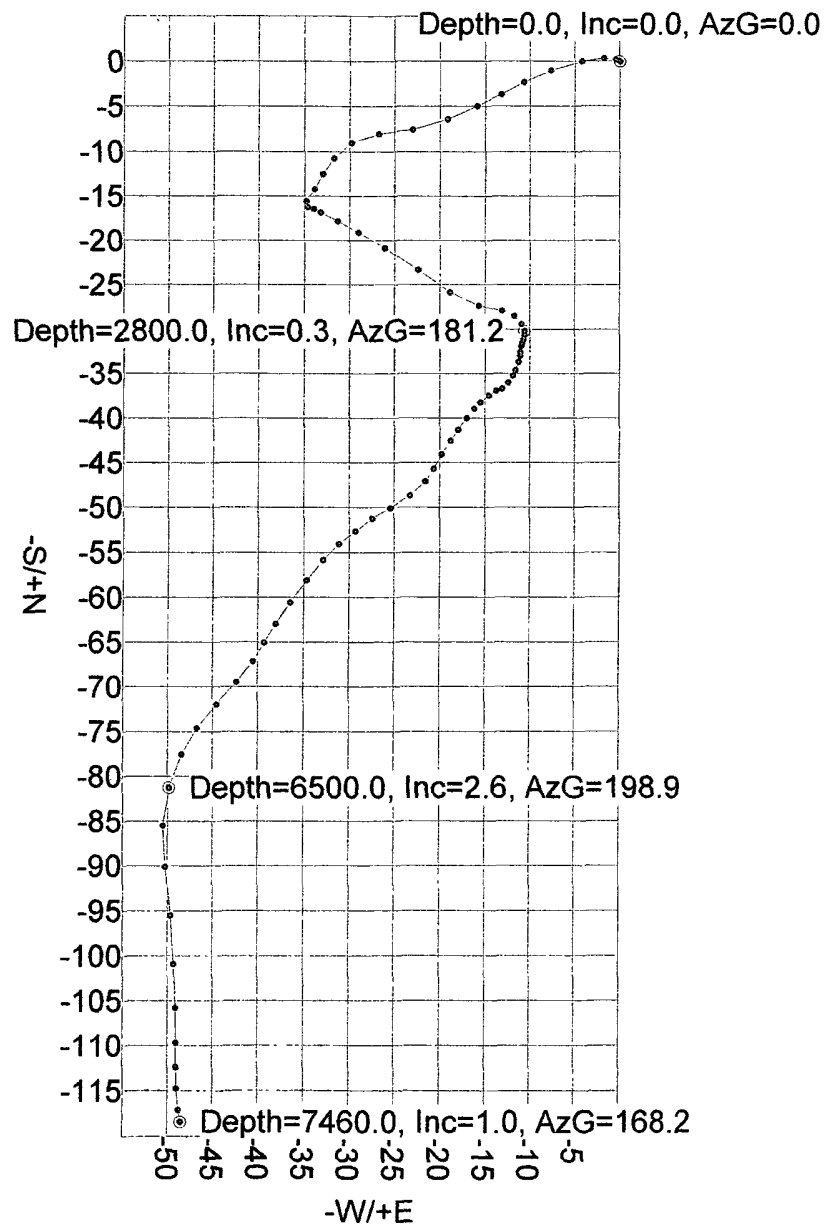
Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	****
100.00	0.54	292.33	100.00	0.18	-0.43	0.47	292.33	0.54
200.00	0.98	267.76	199.99	0.32	-1.72	1.75	280.62	0.54
300.00	1.95	258.94	299.96	-0.04	-4.24	4.24	269.49	0.99
400.00	2.17	249.87	399.89	-1.02	-7.68	7.75	262.47	0.39
500.00	1.62	241.27	499.84	-2.34	-10.70	10.95	257.64	0.62
600.00	1.67	242.86	599.80	-3.69	-13.23	13.74	254.42	0.07
700.00	1.74	244.51	699.75	-5.01	-15.90	16.67	252.52	0.08
800.00	2.34	247.37	799.69	-6.45	-19.16	20.22	251.40	0.61
900.00	2.28	260.33	899.61	-7.57	-23.01	24.22	251.79	0.52
1000.00	2.05	265.09	999.54	-8.06	-26.75	27.93	253.24	0.29
1100.00	1.74	236.81	1099.48	-9.04	-29.80	31.14	253.13	0.97
1200.00	1.28	219.15	1199.45	-10.73	-31.77	33.54	251.33	0.65
1300.00	1.16	208.95	1299.43	-12.48	-32.97	35.25	249.26	0.25
1400.00	1.08	207.55	1399.41	-14.21	-33.89	36.75	247.26	0.08
1500.00	0.78	221.51	1499.39	-15.55	-34.78	38.10	245.90	0.38
1600.00	0.72	105.71	1599.39	-16.23	-34.63	38.24	244.88	1.27
1700.00	0.09	110.54	1699.39	-16.43	-33.95	37.72	244.18	0.63
1800.00	0.89	115.84	1799.38	-16.79	-33.18	37.19	243.16	0.80

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
1900.00	1.53	118.69	1899.36	-17.77	-31.31	36.00	240.42	0.65
2000.00	1.52	120.74	1999.32	-19.09	-29.00	34.72	236.63	0.06
2100.00	2.35	122.06	2099.27	-20.86	-26.12	33.43	231.39	0.83
2200.00	2.75	124.97	2199.17	-23.32	-22.42	32.35	223.87	0.43
2300.00	2.20	126.02	2299.07	-25.83	-18.89	32.00	216.19	0.55
2400.00	1.97	103.36	2399.01	-27.36	-15.67	31.53	209.80	0.85
2500.00	1.04	101.11	2498.97	-27.93	-13.11	30.85	205.15	0.93
2600.00	0.73	128.68	2598.96	-28.50	-11.73	30.82	202.36	0.52
2700.00	0.73	147.70	2698.95	-29.43	-10.89	31.38	200.30	0.24
2800.00	0.27	181.18	2798.95	-30.20	-10.55	31.99	199.26	0.53
2900.00	0.22	187.43	2898.95	-30.63	-10.58	32.40	199.06	0.05
3000.00	0.38	201.60	2998.95	-31.13	-10.73	32.93	199.02	0.18
3100.00	0.11	198.19	3098.95	-31.53	-10.88	33.35	199.04	0.28
3200.00	0.33	192.54	3198.95	-31.89	-10.97	33.73	198.99	0.22
3300.00	0.44	185.86	3298.94	-32.55	-11.07	34.38	198.79	0.12
3400.00	0.12	175.51	3398.94	-33.03	-11.11	34.85	198.58	0.32
3500.00	0.66	195.83	3498.94	-33.69	-11.26	35.52	198.47	0.55
3600.00	0.43	205.26	3598.93	-34.59	-11.57	36.48	198.50	0.25
3700.00	0.37	209.06	3698.93	-35.22	-11.89	37.17	198.66	0.07
3800.00	0.73	213.08	3798.93	-36.03	-12.40	38.11	198.99	0.37
3900.00	0.44	248.92	3898.92	-36.71	-13.11	38.98	199.65	0.46
4000.00	0.35	245.97	3998.92	-36.97	-13.74	39.44	200.39	0.10
4100.00	0.77	234.67	4098.91	-37.48	-14.56	40.21	201.23	0.44
4200.00	0.61	225.03	4198.91	-38.24	-15.49	41.26	202.04	0.20
4300.00	0.53	221.28	4298.90	-38.97	-16.17	42.19	202.53	0.09
4400.00	1.00	217.10	4398.89	-40.01	-17.00	43.47	203.02	0.47
4500.00	0.89	215.57	4498.88	-41.33	-17.97	45.07	203.50	0.11
4600.00	0.83	213.41	4598.87	-42.56	-18.82	46.54	203.85	0.07
4700.00	1.26	211.14	4698.85	-44.11	-19.78	48.34	204.16	0.44
4800.00	0.84	205.19	4798.83	-45.71	-20.66	50.16	204.33	0.44
4900.00	1.06	220.19	4898.82	-47.08	-21.57	51.78	204.62	0.33
5000.00	1.62	230.71	4998.79	-48.68	-23.27	53.95	205.54	0.61
5100.00	1.35	244.84	5098.76	-50.08	-25.43	56.16	206.92	0.45
5200.00	1.34	235.03	5198.73	-51.25	-27.45	58.13	208.18	0.23
5300.00	1.33	232.47	5298.71	-52.62	-29.33	60.24	209.13	0.06
5400.00	1.31	230.08	5398.68	-54.06	-31.13	62.38	209.93	0.06
5500.00	1.53	219.91	5498.65	-55.82	-32.86	64.78	210.48	0.34
5600.00	1.76	216.88	5598.61	-58.08	-34.64	67.63	210.81	0.24
5700.00	1.77	215.03	5698.56	-60.58	-36.45	70.70	211.04	0.06

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
5800.00	1.51	212.47	5798.52	-62.95	-38.05	73.56	211.15	0.28
5900.00	1.28	209.02	5898.49	-65.04	-39.29	75.98	211.14	0.24
6000.00	1.49	210.07	5998.46	-67.14	-40.49	78.40	211.09	0.22
6100.00	1.94	225.23	6098.41	-69.46	-42.35	81.35	211.37	0.64
6200.00	1.93	218.66	6198.36	-71.97	-44.60	84.67	211.79	0.22
6300.00	1.98	219.11	6298.30	-74.63	-46.74	88.06	212.06	0.06
6400.00	1.94	201.12	6398.24	-77.55	-48.45	91.44	211.99	0.61
6500.00	2.59	198.88	6498.16	-81.27	-49.79	95.31	211.49	0.65
6600.00	2.40	180.29	6598.07	-85.50	-50.53	99.31	210.58	0.83
6700.00	2.89	172.48	6697.96	-90.09	-50.21	103.14	209.13	0.60
6800.00	3.37	175.52	6797.81	-95.52	-49.65	107.65	207.46	0.51
6900.00	2.82	176.74	6897.67	-100.91	-49.28	112.30	206.03	0.55
7000.00	2.73	178.97	6997.55	-105.75	-49.10	116.59	204.90	0.14
7100.00	1.75	179.55	7097.47	-109.66	-49.04	120.13	204.09	0.98
7200.00	1.40	180.12	7197.43	-112.41	-49.03	122.64	203.57	0.36
7300.00	1.23	178.25	7297.41	-114.70	-49.00	124.73	203.13	0.17
7400.00	1.55	170.64	7397.38	-117.11	-48.75	126.85	202.60	0.37
7460.00	1.01	168.15	7457.36	-118.43	-48.51	127.98	202.27	0.90



Vaughn Energy Services
Fort Worth, Texas
817-741-3610
Surveyor: Jason Wilson
Really Scary Federal No. 005H / API 30-015-40241



VES Survey Date: 05/22/2012



COG Operating LLC

Eddy County(NAD83)

Really Scary Federal

#5H

OH

Design: OH

Pathfinder X & Y Report

30 May, 2012



A Schlumberger Company



Pathfinder
Pathfinder X & Y Report

PATHFINDER
A Schlumberger Company

Company: COG Operating LLC
Project: Eddy County(NAD83)
Site: Really Scary Federal
Well: #5H
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well #5H
TVD Reference: kb = 17' @ 3019.0usft (Original Well Elev)
MD Reference: kb = 17' @ 3019.0usft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

Project	Eddy County(NAD83)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	Really Scary Federal		
Site Position:		Northing:	424,813 620 usft
From:	Map	Easting:	617,589.000 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	32.168
		Longitude:	-104.087
		Grid Convergence:	0.13 °

Well	#5H		
Well Position	+N/-S	0.0 usft	Northing: 424,813.620 usft
	+E/-W	0.0 usft	Easting: 617,589.000 usft
Position Uncertainty	0.0 usft	Wellhead Elevation:	usft
		Latitude:	32.168
		Longitude:	-104.087
		Ground Level:	3,002.0 usft

Wellbore	OH		
Magnetics	Model Name	Sample Date	Declination
	IGRF200510	5/8/2012	(°)
			7.70
		Dip Angle	(°)
		60.05	
		Field Strength	(nT)
		48,480	

Design	OH		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
		Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(usft)	(usft)	(usft)
	0.0	0.0	0.0
		Direction	(°)
		1 03	



Pathfinder
Pathfinder X & Y Report

PATHFINDER
A Schlumberger Company

Company: COG Operating LLC
Project: Eddy County(NAD83)
Site: Really Scary Federal
Well: #5H
Wellbore: OH
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Local Co-ordinate Reference: Well #5H
TVD Reference: kb = 17' @ 3019.0usft (Original Well Elev)
MD Reference: kb = 17' @ 3019.0usft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

Survey Program		Date 5/30/2012			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
100.0	7,460.0	Gyro #1 (OH)	NS-GYRO-MS	North sensing gyrocompassing m/s	
7,513.0	12,615.0	MWD #1 (OH)	MWD	MWD - Standard	

Survey										
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
0.0	0.00	0.00	0.0	-3,019.0	0.0	0.0	0.0	0.00	424,813.62	617,589.00
100.0	0.54	292.33	100.0	-2,919.0	0.2	-0.4	0.2	0.54	424,813.80	617,588.56
200.0	0.98	267.76	200.0	-2,819.0	0.3	-1.7	0.3	0.54	424,813.94	617,587.27
300.0	1.95	258.94	300.0	-2,719.0	0.0	-4.3	-0.1	0.99	424,813.58	617,584.75
400.0	2.17	249.87	399.9	-2,619.1	-1.0	-7.7	-1.2	0.39	424,812.61	617,581.30
500.0	1.62	241.27	499.8	-2,519.2	-2.3	-10.7	-2.5	0.62	424,811.28	617,578.28
600.0	1.67	242.86	599.8	-2,419.2	-3.7	-13.3	-3.9	0.07	424,809.93	617,575.75
700.0	1.74	244.51	699.8	-2,319.2	-5.0	-15.9	-5.3	0.09	424,808.61	617,573.08
800.0	2.34	247.37	799.7	-2,219.3	-6.4	-19.2	-6.8	0.61	424,807.17	617,569.83
900.0	2.28	260.33	899.6	-2,119.4	-7.6	-23.0	-8.0	0.52	424,806.06	617,565.98
1,000.0	2.05	265.09	999.5	-2,019.5	-8.1	-26.8	-8.5	0.29	424,805.57	617,562.24
1,100.0	1.74	236.81	1,099.5	-1,919.5	-9.0	-29.8	-9.6	0.97	424,804.58	617,559.19
1,200.0	1.28	219.15	1,199.4	-1,819.6	-10.7	-31.8	-11.3	0.65	424,802.89	617,557.21
1,300.0	1.16	208.95	1,299.4	-1,719.6	-12.5	-33.0	-13.1	0.25	424,801.13	617,556.02
1,400.0	1.08	207.55	1,399.4	-1,619.6	-14.2	-33.9	-14.8	0.08	424,799.41	617,555.09
1,500.0	0.78	221.51	1,499.4	-1,519.6	-15.6	-34.8	-16.2	0.37	424,798.07	617,554.20
1,600.0	0.72	105.71	1,599.4	-1,419.6	-16.2	-34.6	-16.9	1.27	424,797.39	617,554.36
1,700.0	0.09	110.54	1,699.4	-1,319.6	-16.4	-34.0	-17.0	0.63	424,797.19	617,555.03
1,800.0	0.89	115.84	1,799.4	-1,219.6	-16.8	-33.2	-17.4	0.80	424,796.82	617,555.81
1,900.0	1.53	118.69	1,899.4	-1,119.6	-17.8	-31.3	-18.3	0.64	424,795.84	617,557.68
2,000.0	1.52	120.74	1,999.3	-1,019.7	-19.1	-29.0	-19.6	0.06	424,794.53	617,559.99



Pathfinder
Pathfinder X & Y Report

PATHFINDER
A Schlumberger Company

Company: COG Operating LLC
Project: Eddy County(NAD83)
Site: Really Scary Federal
Well: #5H
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well #5H
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MD Reference: kb = 17' @ 3019.0usft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
2,100.0	2.35	122.06	2,099.3	-919.7	-20.9	-26.1	-21.3	0.83	424,792.76	617,562.87
2,200.0	2.75	124.97	2,199.2	-819.8	-23.3	-22.4	-23.7	0.42	424,790.30	617,566.57
2,300.0	2.20	126.02	2,299.1	-719.9	-25.8	-18.9	-26.2	0.55	424,787.79	617,570.09
2,400.0	1.97	103.36	2,399.0	-620.0	-27.4	-15.7	-27.6	0.85	424,786.27	617,573.31
2,500.0	1.04	101.11	2,499.0	-520.0	-27.9	-13.1	-28.2	0.93	424,785.70	617,575.87
2,600.0	0.73	128.68	2,599.0	-420.0	-28.5	-11.7	-28.7	0.52	424,785.12	617,577.26
2,700.0	0.73	147.70	2,699.0	-320.0	-29.4	-10.9	-29.6	0.24	424,784.19	617,578.10
2,800.0	0.27	181.18	2,798.9	-220.1	-30.2	-10.6	-30.4	0.53	424,783.41	617,578.44
2,900.0	0.22	187.43	2,898.9	-120.1	-30.6	-10.6	-30.8	0.06	424,782.99	617,578.41
3,000.0	0.38	201.60	2,998.9	-20.1	-31.1	-10.7	-31.3	0.18	424,782.49	617,578.26
3,100.0	0.11	198.19	3,098.9	79.9	-31.5	-10.9	-31.7	0.27	424,782.09	617,578.11
3,200.0	0.33	192.54	3,198.9	179.9	-31.9	-11.0	-32.1	0.22	424,781.71	617,578.01
3,300.0	0.44	185.86	3,298.9	279.9	-32.6	-11.1	-32.8	0.12	424,781.05	617,577.91
3,400.0	0.12	175.51	3,398.9	379.9	-33.1	-11.1	-33.2	0.32	424,780.57	617,577.88
3,500.0	0.66	195.83	3,498.9	479.9	-33.7	-11.3	-33.9	0.55	424,779.91	617,577.73
3,600.0	0.43	205.26	3,598.9	579.9	-34.6	-11.6	-34.8	0.25	424,779.01	617,577.42
3,700.0	0.37	209.06	3,698.9	679.9	-35.2	-11.9	-35.4	0.07	424,778.39	617,577.10
3,800.0	0.73	213.08	3,798.9	779.9	-36.0	-12.4	-36.3	0.36	424,777.58	617,576.59
3,900.0	0.44	248.92	3,898.9	879.9	-36.7	-13.1	-36.9	0.45	424,776.90	617,575.89
4,000.0	0.35	245.97	3,998.9	979.9	-37.0	-13.7	-37.2	0.09	424,776.64	617,575.25
4,100.0	0.77	234.67	4,098.9	1,079.9	-37.5	-14.6	-37.7	0.43	424,776.13	617,574.42
4,200.0	0.61	225.03	4,198.9	1,179.9	-38.3	-15.5	-38.5	0.20	424,775.36	617,573.50
4,300.0	0.53	221.28	4,298.9	1,279.9	-39.0	-16.2	-39.3	0.09	424,774.64	617,572.82
4,400.0	1.00	217.10	4,398.9	1,379.9	-40.0	-17.0	-40.3	0.47	424,773.60	617,571.99
4,500.0	0.89	215.57	4,498.9	1,479.9	-41.4	-18.0	-41.7	0.11	424,772.27	617,571.01
4,600.0	0.83	213.41	4,598.9	1,579.9	-42.6	-18.8	-42.9	0.07	424,771.03	617,570.16
4,700.0	1.26	211.14	4,698.9	1,679.9	-44.1	-19.8	-44.5	0.43	424,769.49	617,569.19



Pathfinder
Pathfinder X & Y Report



A Schlumberger Company

Company: COG Operating LLC
Project: Eddy County(NAD83)
Site: Really Scary Federal
Well: #5H
Wellbore: OH
Design: OH

Local Co-ordinate Reference:
TVD Reference:
MD Reference:
North Reference:
Survey Calculation Method:
Database:

Well #5H
kb = 17' @ 3019.0usft (Original Well Elev)
kb = 17' @ 3019.0usft (Original Well Elev)
Grid
Minimum Curvature
EDM 5000 1 Single User Db

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	D Leg (°/100usft)	Northing (usft)	Easting (usft)
4,800.0	0.84	205.19	4,798.8	1,779.8	-45.7	-20.7	-46.1	0.43	424,767.88	617,568.31
4,900.0	1.06	220.19	4,898.8	1,879.8	-47.1	-21.6	-47.5	0.33	424,766.51	617,567.40
5,000.0	1.62	230.71	4,998.8	1,979.8	-48.7	-23.3	-49.1	0.61	424,764.91	617,565.71
5,100.0	1.35	244.84	5,098.8	2,079.8	-50.1	-25.5	-50.6	0.45	424,763.51	617,563.55
5,200.0	1.34	235.03	5,198.7	2,179.7	-51.3	-27.5	-51.8	0.23	424,762.34	617,561.52
5,300.0	1.33	232.47	5,298.7	2,279.7	-52.7	-29.4	-53.2	0.06	424,760.97	617,559.65
5,400.0	1.31	230.08	5,398.7	2,379.7	-54.1	-31.2	-54.6	0.06	424,759.53	617,557.85
5,500.0	1.53	219.91	5,498.6	2,479.6	-55.9	-32.9	-56.4	0.33	424,757.77	617,556.12
5,600.0	1.76	216.88	5,598.6	2,579.6	-58.1	-34.7	-58.7	0.25	424,755.52	617,554.34
5,700.0	1.77	215.03	5,698.6	2,679.6	-60.6	-36.5	-61.2	0.06	424,753.02	617,552.53
5,800.0	1.51	212.47	5,798.5	2,779.5	-63.0	-38.1	-63.6	0.27	424,750.65	617,550.94
5,900.0	1.28	209.02	5,898.5	2,879.5	-65.1	-39.3	-65.8	0.24	424,748.56	617,549.69
6,000.0	1.49	210.07	5,998.5	2,979.5	-67.2	-40.5	-67.9	0.21	424,746.46	617,548.49
6,100.0	1.94	225.23	6,098.4	3,079.4	-69.5	-42.4	-70.2	0.64	424,744.14	617,546.64
6,200.0	1.93	218.66	6,198.4	3,179.4	-72.0	-44.6	-72.8	0.22	424,741.63	617,544.39
6,300.0	1.98	219.11	6,298.3	3,279.3	-74.6	-46.8	-75.5	0.05	424,738.98	617,542.25
6,400.0	1.94	201.12	6,398.2	3,379.2	-77.6	-48.5	-78.4	0.61	424,736.06	617,540.55
6,500.0	2.59	198.88	6,498.2	3,479.2	-81.3	-49.8	-82.2	0.66	424,732.34	617,539.20
6,600.0	2.40	180.29	6,598.1	3,579.1	-85.5	-50.5	-86.4	0.83	424,728.11	617,538.46
6,700.0	2.89	172.48	6,698.0	3,679.0	-90.1	-50.2	-91.0	0.61	424,723.52	617,538.78
6,800.0	3.37	175.52	6,797.8	3,778.8	-95.5	-49.7	-96.4	0.51	424,718.09	617,539.34
6,900.0	2.82	176.74	6,897.7	3,878.7	-100.9	-49.3	-101.8	0.55	424,712.70	617,539.71
7,000.0	2.73	178.97	6,997.6	3,978.6	-105.8	-49.1	-106.6	0.14	424,707.86	617,539.89
7,100.0	1.75	179.55	7,097.5	4,078.5	-109.7	-49.1	-110.5	0.98	424,703.96	617,539.95
7,200.0	1.40	180.12	7,197.4	4,178.4	-112.4	-49.0	-113.3	0.35	424,701.21	617,539.96
7,300.0	1.23	178.25	7,297.4	4,278.4	-114.7	-49.0	-115.6	0.18	424,698.91	617,539.99
7,400.0	1.55	170.64	7,397.4	4,378.4	-117.1	-48.8	-118.0	0.37	424,696.51	617,540.24



Pathfinder
Pathfinder X & Y Report

PATHFINDER
A Schlumberger Company

Company: COG Operating LLC
Project: Eddy County(NAD83)
Site: Really Scary Federal
Well: #5H
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well #5H
TVD Reference: kb = 17' @ 3019.0usft (Original Well Elev)
MD Reference: kb = 17' @ 3019.0usft (Original Well Elev)
North Reference: Grd
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northings (usft)	Easting (usft)
7,460.0	1.01	168.15	7,457.4	4,438.4	-118.4	-48.5	-119.3	0.90	424,695.19	617,540.48
7,513.0	1.06	228.09	7,510.4	4,491.4	-119.2	-48.8	-120.1	1.95	424,694.40	617,540.21
7,545.0	1.14	235.03	7,542.4	4,523.4	-119.6	-49.3	-120.5	0.49	424,694.02	617,539.73
7,577.0	1.32	13.11	7,574.3	4,555.3	-119.4	-49.4	-120.3	7.18	424,694.20	617,539.55
KOP - 7577.0 'MD, 7574.3 'TVD, 13.11 'AZI, 1.32 'INC, -119.4 'N, -49.4 'E										
7,608.0	6.33	22.95	7,605.3	4,586.3	-117.5	-48.7	-118.4	16.24	424,696.12	617,540.30
7,640.0	13.45	10.12	7,636.8	4,617.8	-112.2	-47.4	-113.0	23.16	424,701.42	617,541.65
7,672.0	17.94	2.12	7,667.6	4,648.6	-103.6	-46.5	-104.4	15.54	424,710.01	617,542.48
7,704.0	22.86	1.86	7,697.6	4,678.6	-92.5	-46.1	-93.3	15.38	424,721.16	617,542.87
7,735.0	27.35	3.35	7,725.6	4,706.6	-79.3	-45.5	-80.1	14.63	424,734.29	617,543.48
7,768.0	30.69	5.20	7,754.5	4,735.5	-63.4	-44.3	-64.2	10.48	424,750.25	617,544.69
7,800.0	33.94	5.46	7,781.5	4,762.5	-46.3	-42.7	-47.1	10.17	424,767.28	617,546.28
7,831.0	36.93	4.14	7,806.8	4,787.8	-28.4	-41.2	-29.2	9.96	424,785.19	617,547.77
7,863.0	39.57	2.47	7,831.9	4,812.9	-8.7	-40.1	-9.4	8.86	424,804.96	617,548.91
7,895.0	41.86	2.65	7,856.2	4,837.2	12.2	-39.2	11.5	7.17	424,825.81	617,549.84
7,927.0	44.14	2.56	7,879.6	4,860.6	34.0	-38.2	33.3	7.13	424,847.61	617,550.83
7,958.0	47.04	3.35	7,901.3	4,882.3	56.1	-37.0	55.4	9.53	424,869.73	617,551.98
7,990.0	49.07	3.44	7,922.6	4,903.6	79.9	-35.6	79.2	6.35	424,893.48	617,553.38
8,021.0	51.18	4.05	7,942.5	4,923.5	103.6	-34.1	103.0	6.97	424,917.22	617,554.94
8,053.0	53.46	4.67	7,962.1	4,943.1	128.9	-32.1	128.3	7.29	424,942.47	617,556.87
8,085.0	55.40	5.29	7,980.7	4,961.7	154.8	-29.9	154.2	6.26	424,968.40	617,559.13
8,116.0	57.42	5.46	7,997.8	4,978.8	180.5	-27.5	180.0	6.53	424,994.11	617,561.55
8,148.0	60.32	6.25	8,014.4	4,995.4	207.7	-24.7	207.3	9.31	425,021.36	617,564.35
8,180.0	63.05	6.78	8,029.6	5,010.6	235.7	-21.5	235.3	8.65	425,049.34	617,567.54
8,211.0	65.60	7.31	8,043.0	5,024.0	263.4	-18.0	263.1	8.37	425,077.07	617,570.97
8,243.0	69.12	7.22	8,055.3	5,036.3	292.7	-14.3	292.4	11.00	425,106.36	617,574.70
8,275.0	73.42	6.34	8,065.6	5,046.6	322.8	-10.7	322.6	13.69	425,136.45	617,578.28



Pathfinder
Pathfinder X & Y Report

PATHFINDER
A Schlumberger Company

Company: COG Operating LLC
Project: Eddy County(NAD83)
Site: Really Scary Federal
Well: #5H
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well #5H
TVD Reference: kb = 17' @ 3019.0usft (Original Well Elev)
MD Reference: kb = 17' @ 3019.0usft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000 1 Single User Db

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
8,306.0	76.59	6.68	8,073.6	5,054.6	352.6	-7.3	352.4	10.28	425,166.19	617,581.67
8,338.0	78.61	7.75	8,080.5	5,061.5	383.6	-3.4	383.5	7.11	425,197.20	617,585.60
8,370.0	81.16	8.54	8,086.1	5,067.1	414.8	1.1	414.7	8.33	425,228.38	617,590.06
8,401.0	84.06	8.98	8,090.1	5,071.1	445.1	5.7	445.2	9.46	425,258.76	617,594.75
8,433.0	87.41	8.62	8,092.5	5,073.5	476.7	10.6	476.8	10.53	425,290.29	617,599.63
8,528.0	90.48	5.02	8,094.2	5,075.2	571.0	21.9	571.3	4.98	425,384.58	617,610.90
LP - 8528.0 'MD, 8094.2 'TVD, 5.02 'AZI, 90.48 'INC, 571.0 'N, 21.9 'E										
8,623.0	88.81	5.02	8,094.8	5,075.8	665.6	30.2	666.0	1.76	425,479.21	617,619.21
8,717.0	88.64	4.05	8,096.9	5,077.9	759.3	37.6	759.8	1.05	425,572.89	617,626.64
8,812.0	87.85	1.51	8,099.8	5,080.8	854.1	42.2	854.7	2.80	425,667.72	617,631.25
8,907.0	88.29	1.24	8,103.0	5,084.0	949.0	44.5	949.7	0.54	425,762.64	617,633.53
9,002.0	87.76	0.98	8,106.3	5,087.3	1,043.9	46.4	1,044.6	0.62	425,857.57	617,635.37
9,097.0	90.57	1.86	8,107.6	5,088.6	1,138.9	48.7	1,139.6	3.10	425,952.52	617,637.72
9,192.0	91.10	2.65	8,106.3	5,087.3	1,233.8	52.5	1,234.6	1.00	426,047.43	617,641.46
9,287.0	90.13	1.07	8,105.2	5,086.2	1,328.8	55.5	1,329.5	1.95	426,142.37	617,644.54
9,382.0	89.52	1.24	8,105.5	5,086.5	1,423.7	57.5	1,424.5	0.67	426,237.35	617,646.46
9,477.0	89.87	1.33	8,106.0	5,087.0	1,518.7	59.6	1,519.5	0.38	426,332.33	617,648.59
9,571.0	90.04	1.24	8,106.1	5,087.1	1,612.7	61.7	1,613.5	0.20	426,426.30	617,650.70
9,665.0	90.31	1.24	8,105.8	5,086.8	1,706.7	63.7	1,707.5	0.29	426,520.28	617,652.73
9,761.0	91.80	0.89	8,104.1	5,085.1	1,802.6	65.5	1,803.5	1.59	426,616.25	617,654.51
9,856.0	88.64	0.98	8,103.7	5,084.7	1,897.6	67.1	1,898.5	3.33	426,711.22	617,656.06
9,951.0	88.11	1.15	8,106.4	5,087.4	1,992.5	68.8	1,993.5	0.59	426,806.17	617,657.83
10,046.0	88.29	0.72	8,109.4	5,090.4	2,087.5	70.4	2,088.4	0.49	426,901.11	617,659.38
10,141.0	88.55	0.98	8,112.0	5,093.0	2,182.4	71.8	2,183.4	0.39	426,996.06	617,660.79
10,236.0	88.46	0.89	8,114.5	5,095.5	2,277.4	73.3	2,278.3	0.13	427,091.01	617,662.34
10,331.0	89.34	0.80	8,116.3	5,097.3	2,372.4	74.7	2,373.3	0.93	427,185.98	617,663.74
10,426.0	89.43	0.80	8,117.3	5,098.3	2,467.4	76.1	2,468.3	0.09	427,280.97	617,665.06



Pathfinder
Pathfinder X & Y Report



Company: COG Operating LLC
Project: Eddy County(NAD83)
Site: Really Scary Federal
Well: #5H
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well #5H
TVD Reference: kb = 17' @ 3019.0usft (Original Well Elev)
MD Reference: kb = 17' @ 3019.0usft (Original Well Elev)
North Reference: Grd
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
10,521.0	90.92	2.38	8,117.0	5,098.0	2,562.3	78.7	2,563.3	2.29	427,375.93	617,667.70
10,616.0	91.19	1.95	8,115.3	5,096.3	2,657.2	82.3	2,658.3	0.53	427,470.84	617,671.29
10,711.0	91.28	2.47	8,113.2	5,094.2	2,752.1	85.9	2,753.2	0.56	427,565.75	617,674.95
10,806.0	91.28	2.12	8,111.1	5,092.1	2,847.0	89.8	2,848.2	0.37	427,660.65	617,678.75
10,900.0	91.28	2.12	8,109.0	5,090.0	2,940.9	93.2	2,942.1	0.00	427,754.56	617,682.23
10,995.0	90.66	0.61	8,107.4	5,088.4	3,035.9	95.5	3,037.1	1.72	427,849.52	617,684.49
11,090.0	90.57	0.73	8,106.4	5,087.4	3,130.9	96.6	3,132.1	0.16	427,944.51	617,685.60
11,185.0	89.69	359.60	8,106.2	5,087.2	3,225.9	96.9	3,227.1	1.51	428,039.50	617,685.88
11,279.0	89.60	358.74	8,106.7	5,087.7	3,319.9	95.5	3,321.1	0.92	428,133.49	617,684.51
11,374.0	89.69	359.00	8,107.3	5,088.3	3,414.9	93.6	3,416.0	0.29	428,228.47	617,682.64
11,469.0	89.69	358.27	8,107.8	5,088.8	3,509.8	91.4	3,510.9	0.77	428,323.44	617,680.38
11,564.0	89.78	358.95	8,108.3	5,089.3	3,604.8	89.1	3,605.8	0.72	428,418.41	617,678.07
11,659.0	90.04	358.93	8,108.4	5,089.4	3,699.8	87.3	3,700.7	0.27	428,513.40	617,676.32
11,754.0	89.96	358.02	8,108.4	5,089.4	3,794.7	84.8	3,795.7	0.96	428,608.36	617,673.79
11,849.0	89.34	0.19	8,109.0	5,090.0	3,889.7	83.3	3,890.6	2.38	428,703.34	617,672.30
11,944.0	89.34	0.30	8,110.1	5,091.1	3,984.7	83.7	3,985.6	0.12	428,798.33	617,672.71
12,038.0	89.43	0.50	8,111.1	5,092.1	4,078.7	84.4	4,079.6	0.23	428,892.33	617,673.37
12,133.0	89.52	0.50	8,112.0	5,093.0	4,173.7	85.2	4,174.6	0.09	428,987.32	617,674.20
12,228.0	89.52	0.88	8,112.8	5,093.8	4,268.7	86.3	4,269.6	0.40	429,082.31	617,675.34
12,323.0	89.60	0.04	8,113.5	5,094.5	4,363.7	87.1	4,364.5	0.89	429,177.30	617,676.10
12,418.0	89.60	0.94	8,114.2	5,095.2	4,458.7	87.9	4,459.5	0.95	429,272.29	617,676.91
12,513.0	89.52	0.63	8,114.9	5,095.9	4,553.7	89.2	4,554.5	0.34	429,367.28	617,678.22
12,568.0	89.52	0.77	8,115.4	5,096.4	4,608.7	89.9	4,609.5	0.25	429,422.28	617,678.89
12,615.0	89.52	0.77	8,115.8	5,096.8	4,655.7	90.5	4,656.5	0.00	429,469.27	617,679.52

BHL - 12615.0 'MD, 8115.8 'TVD, 0.77 'AZI, 89.52 'INC, 4655.7 'N, 90.5 'E



Pathfinder
Pathfinder X & Y Report



Company: COG Operating LLC
Project: Eddy County(NAD83)
Site: Really Scary Federal
Well: #5H
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well #5H
TVD Reference: kb = 17' @ 3019.0usft (Original Well Elev)
MD Reference: kb = 17' @ 3019.0usft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
7,577.0	7,574.3	-119.4	-49.4	KOP - 7577.0 'MD, 7574.3 'TVD, 13.11 'AZI, 1.32 'INC, -119.4 'N, -49.4 'E
8,528.0	8,094.2	571.0	21.9	LP - 8528.0 'MD, 8094.2 'TVD, 5.02 'AZI, 90.48 'INC, 571.0 'N, 21.9 'E
12,615.0	8,115.8	4,655.7	90.5	BHL - 12615.0 'MD, 8115.8 'TVD, 0.77 'AZI, 89.52 'INC, 4655.7 'N, 90.5 'E

Checked By: _____ Approved By: _____ Date: _____



Project: Eddy County(NAD83)
Site: Really Scary Federal
Well: #5H
Wellbore: OH
Plan: Post Gyro Plan #2 (#5H/OH)

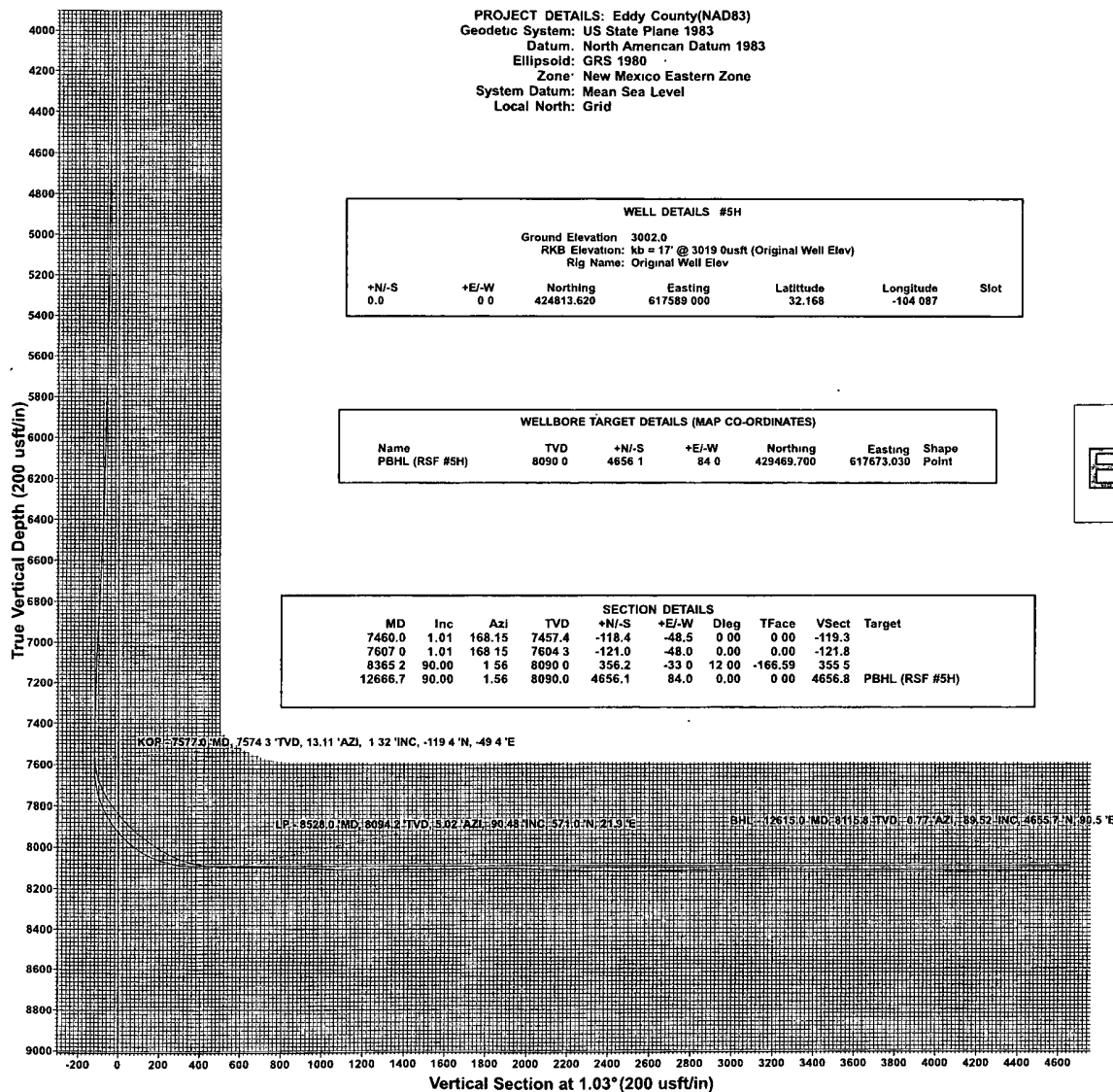


Azimuths to Grid North
True North: -0.13°
Magnetic North: 7.57°
Magnetic Field
Strength: 48479.8snT
Dip Angle: 60.05°
Date: 5/8/2012
Model: IGRF200510



A Schlumberger Company

West(-)/East(+) (200 usft/in)



EOW

