



30-015-38642

Cog Operating LLC- Eastern NM

Eddy County

Super Fortress "29"

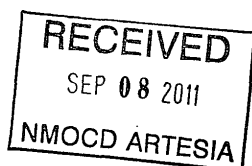
3H

OH

Design: OH

Pathfinder X&Y Report

18 May, 2011



PATHFINDER
A Schlumberger Company



Pathfinder
Pathfinder X&Y Report



Company: Cog Operating LLC- Eastern NM
Project: Eddy County
Site: Super Fortress "29"
Well: 3H
Wellbore: OH
Design: OH

Local/Co-ordinate Reference: Well 3H
TVD Reference: WELL @ 3491.40usft (Original Well Elev)
MD Reference: WELL @ 3491.40usft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

Project: Eddy County

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

System Datum: Mean Sea Level

Site: Super Fortress "29"

Site Position: From: Map
Position Uncertainty: 0.00 usft
Northing: 596,006.610 usft
Easting: 676,815.070 usft
Slot Radius: 13-3/16 "
Latitude: 32° 38' 13.959 N
Longitude: 103° 45' 32.215 W
Grid Convergence: 0.31 °

Well: 3H

Well Position: +N/-S 0.00 usft
+E/-W 0.00 usft
Position Uncertainty: 0.00 usft
Northing: 596,006.610 usft
Easting: 676,815.070 usft
Wellhead Elevation: usft
Latitude: 32° 38' 13.959 N
Longitude: 103° 45' 32.215 W
Ground Level: 3,473.40 usft

Wellbore: OH

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	1/13/2011	7.74	60.57	48,921

Design: OH

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	180.84



Pathfinder
Pathfinder X&Y Report



Company: Cog Operating LLC- Eastern NM
Project: Eddy County
Site: Super Fortress "29"
Well: 3H
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well 3H
TVD Reference: WELL @ 3491.40usft (Original Well Elev)
MD Reference: WELL @ 3491.40usft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

Survey Program		Date 5/18/2011		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
100.00	8,400.00	GYRO (OH)	CB-GYRO-MS	Camera based gyro multishot
8,432.00	13,335.00	Survey #2 - MWD (OH)	MWD	MWD - Standard

MD (usft)	Inc (")	Azi (azimuth) (")	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg ("/100usft)	Northing (usft)	Easting (usft)
0.00	0.00	0.00	0.00	-3,491.40	0.00	0.00	0.00	0.00	596,006.61	676,815.07
100.00	0.29	268.60	100.00	-3,391.40	-0.01	-0.25	0.01	0.29	596,006.60	676,814.82
200.00	0.35	229.48	200.00	-3,291.40	-0.21	-0.74	0.22	0.22	596,006.40	676,814.33
300.00	0.69	230.90	299.99	-3,191.41	-0.79	-1.44	0.81	0.34	596,005.82	676,813.63
400.00	0.93	252.96	399.98	-3,091.42	-1.41	-2.68	1.45	0.39	596,005.20	676,812.39
500.00	1.03	253.96	499.97	-2,991.43	-1.89	-4.32	1.96	0.10	596,004.72	676,810.75
600.00	0.88	262.34	599.96	-2,891.44	-2.24	-5.95	2.33	0.20	596,004.37	676,809.12
700.00	0.92	261.26	699.94	-2,791.46	-2.47	-7.50	2.58	0.04	596,004.14	676,807.57
800.00	0.58	252.10	799.93	-2,691.47	-2.75	-8.78	2.87	0.36	596,003.86	676,806.29
900.00	0.44	235.56	899.93	-2,591.47	-3.12	-9.57	3.26	0.20	596,003.49	676,805.50
1,000.00	0.21	175.37	999.93	-2,491.47	-3.52	-9.88	3.66	0.38	596,003.09	676,805.19
1,100.00	0.26	79.44	1,099.93	-2,391.47	-3.66	-9.64	3.80	0.35	596,002.95	676,805.43
1,200.00	0.27	93.50	1,199.93	-2,291.47	-3.63	-9.18	3.77	0.07	596,002.98	676,805.89
1,300.00	0.93	64.49	1,299.92	-2,191.48	-3.30	-8.21	3.42	0.71	596,003.31	676,806.86
1,400.00	2.21	67.29	1,399.88	-2,091.52	-2.20	-5.70	2.29	1.28	596,004.41	676,809.37
1,500.00	2.95	62.51	1,499.78	-1,991.62	-0.27	-1.64	0.29	0.77	596,006.34	676,813.43
1,600.00	3.12	62.71	1,599.64	-1,891.76	2.17	3.06	-2.21	0.17	596,008.78	676,818.13
1,700.00	3.11	62.43	1,699.49	-1,791.91	4.67	7.89	-4.78	0.02	596,011.28	676,822.96
1,800.00	2.54	76.64	1,799.37	-1,692.03	6.44	12.45	-6.62	0.90	596,013.05	676,827.52
1,900.00	2.52	77.82	1,899.27	-1,592.13	7.41	16.75	-7.66	0.06	596,014.02	676,831.82
2,000.00	2.07	76.25	1,999.19	-1,492.21	8.30	20.65	-8.61	0.45	596,014.91	676,835.72



Pathfinder
Pathfinder X&Y Report



Company: Cog Operating LLC- Eastern NM
Project: Eddy County
Site: Super Fortress "29"
Well: 3H
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well 3H
TVD Reference: WELL @ 3491.40usft (Original Well Elev)
MD Reference: WELL @ 3491.40usft (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)	
2,100.00	1.14	60.22	2,099.15	-1,392.25	9.23	23.27	-9.57	1.02	596,015.84	676,838.34	
2,200.00	1.09	69.91	2,199.13	-1,292.27	10.05	25.03	-10.41	0.19	596,016.66	676,840.10	
2,300.00	0.78	48.37	2,299.12	-1,192.28	10.83	26.43	-11.21	0.46	596,017.44	676,841.50	
2,400.00	0.95	45.88	2,399.11	-1,092.29	11.86	27.53	-12.26	0.17	596,018.47	676,842.60	
2,500.00	0.64	28.00	2,499.10	-992.30	12.93	28.39	-13.34	0.39	596,019.54	676,843.46	
2,600.00	0.78	39.37	2,599.09	-892.31	13.95	29.09	-14.37	0.20	596,020.56	676,844.16	
2,700.00	0.69	31.05	2,699.08	-792.32	14.99	29.83	-15.42	0.14	596,021.60	676,844.90	
2,800.00	0.80	76.95	2,799.08	-692.32	15.66	30.82	-16.11	0.59	596,022.27	676,845.89	
2,900.00	0.63	117.84	2,899.07	-592.33	15.56	31.98	-16.03	0.52	596,022.17	676,847.05	
3,000.00	0.78	133.33	2,999.06	-492.34	14.84	32.97	-15.32	0.24	596,021.45	676,848.04	
3,100.00	0.62	163.27	3,099.06	-392.34	13.85	33.62	-14.35	0.39	596,020.46	676,848.69	
3,200.00	0.06	129.95	3,199.05	-292.35	13.30	33.81	-13.80	0.57	596,019.91	676,848.88	
3,300.00	0.42	323.32	3,299.05	-192.35	13.56	33.63	-14.05	0.48	596,020.17	676,848.70	
3,400.00	0.28	341.03	3,399.05	-92.35	14.09	33.34	-14.57	0.18	596,020.70	676,848.41	
3,500.00	0.56	305.40	3,499.05	7.65	14.60	32.86	-15.08	0.37	596,021.21	676,847.93	
3,600.00	0.61	276.12	3,599.04	107.64	14.94	31.93	-15.41	0.30	596,021.55	676,847.00	
3,700.00	0.89	284.95	3,699.03	207.63	15.20	30.65	-15.65	0.30	596,021.81	676,845.72	
3,800.00	0.84	286.40	3,799.02	307.62	15.61	29.20	-16.03	0.05	596,022.22	676,844.27	
3,900.00	0.84	285.89	3,899.01	407.61	16.01	27.79	-16.42	0.01	596,022.62	676,842.86	
4,000.00	0.92	274.77	3,999.00	507.60	16.28	26.28	-16.66	0.19	596,022.89	676,841.35	
4,100.00	1.16	279.59	4,098.98	607.58	16.52	24.49	-16.87	0.26	596,023.13	676,839.56	
4,200.00	1.33	284.53	4,198.96	707.56	16.98	22.36	-17.30	0.20	596,023.59	676,837.43	
4,300.00	1.36	291.20	4,298.93	807.53	17.70	20.13	-17.99	0.16	596,024.31	676,835.20	
4,400.00	1.28	290.55	4,398.91	907.51	18.52	17.98	-18.78	0.08	596,025.13	676,833.05	
4,500.00	1.24	290.36	4,498.88	1,007.48	19.29	15.92	-19.52	0.04	596,025.90	676,830.99	
4,600.00	1.22	281.65	4,598.86	1,107.46	19.88	13.86	-20.08	0.19	596,026.49	676,828.93	
4,700.00	1.33	278.45	4,698.83	1,207.43	20.26	11.67	-20.43	0.13	596,026.87	676,826.74	



Pathfinder
Pathfinder X&Y Report



Company: Cog Operating LLC- Eastern NM
Project: Eddy County
Site: Super Fortress "29"
Well: 3H
Wellbore: OH
Design: OH

Local Co-ordinate Reference:
TVD Reference:
MD Reference:
North Reference:
Survey Calculation Method:
Database:
Well 3H
WELL @ 3491.40usft (Original Well Elev)
WELL @ 3491.40usft (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)	DLeg (°/100usft)	Northing (usft)	Easting (usft)	
4,800.00	1.31	273.06	4,798.81	1,307.41	20.49	9.38	-20.63	0.13	596,027.10	676,824.45	
4,900.00	1.27	272.73	4,898.78	1,407.38	20.61	7.14	-20.71	0.04	596,027.22	676,822.21	
5,000.00	1.12	266.05	4,998.76	1,507.36	20.59	5.05	-20.67	0.20	596,027.20	676,820.12	
5,100.00	1.13	265.18	5,098.74	1,607.34	20.44	3.10	-20.49	0.02	596,027.05	676,818.17	
5,200.00	1.11	270.56	5,198.72	1,707.32	20.37	1.15	-20.39	0.11	596,026.98	676,816.22	
5,300.00	0.65	283.74	5,298.71	1,807.31	20.51	-0.37	-20.51	0.50	596,027.12	676,814.70	
5,400.00	0.48	268.88	5,398.71	1,907.31	20.64	-1.34	-20.62	0.22	596,027.25	676,813.73	
5,500.00	0.19	241.19	5,498.70	2,007.30	20.55	-1.91	-20.52	0.32	596,027.16	676,813.16	
5,600.00	0.27	139.26	5,598.70	2,107.30	20.29	-1.90	-20.26	0.36	596,026.90	676,813.17	
5,700.00	0.55	133.22	5,698.70	2,207.30	19.79	-1.40	-19.76	0.28	596,026.40	676,813.67	
5,800.00	0.86	134.92	5,798.69	2,307.29	18.93	-0.51	-18.92	0.31	596,025.54	676,814.56	
5,900.00	1.02	131.10	5,898.68	2,407.28	17.81	0.69	-17.82	0.17	596,024.42	676,815.76	
6,000.00	0.94	131.07	5,998.66	2,507.26	16.69	1.98	-16.72	0.08	596,023.30	676,817.05	
6,100.00	0.92	120.71	6,098.65	2,607.25	15.74	3.29	-15.79	0.17	596,022.35	676,818.36	
6,200.00	1.04	118.12	6,198.64	2,707.24	14.90	4.78	-14.97	0.13	596,021.51	676,819.85	
6,300.00	1.22	120.45	6,298.62	2,807.22	13.94	6.49	-14.03	0.19	596,020.55	676,821.56	
6,400.00	1.09	124.61	6,398.60	2,907.20	12.86	8.19	-12.98	0.15	596,019.47	676,823.26	
6,500.00	0.82	128.07	6,498.58	3,007.18	11.87	9.54	-12.01	0.28	596,018.48	676,824.61	
6,600.00	0.57	157.49	6,598.58	3,107.18	10.97	10.29	-11.12	0.43	596,017.58	676,825.36	
6,700.00	0.38	221.31	6,698.57	3,207.17	10.27	10.27	-10.41	0.53	596,016.88	676,825.34	
6,800.00	0.48	240.22	6,798.57	3,307.17	9.81	9.68	-9.95	0.17	596,016.42	676,824.75	
6,900.00	0.52	258.88	6,898.57	3,407.17	9.51	8.87	-9.64	0.17	596,016.12	676,823.94	
7,000.00	0.71	268.93	6,998.56	3,507.16	9.41	7.81	-9.53	0.22	596,016.02	676,822.88	
7,100.00	0.53	284.08	7,098.56	3,607.16	9.51	6.74	-9.61	0.24	596,016.12	676,821.81	
7,200.00	0.42	255.20	7,198.55	3,707.15	9.53	5.94	-9.62	0.26	596,016.14	676,821.01	
7,300.00	0.77	240.22	7,298.55	3,807.15	9.11	5.00	-9.18	0.38	596,015.72	676,820.07	
7,400.00	1.38	228.78	7,398.53	3,907.13	7.98	3.51	-8.03	0.64	596,014.59	676,818.58	



Pathfinder
Pathfinder X&Y Report



Company: Cog Operating LLC- Eastern NM
Project: Eddy County
Site: Super Fortress "29"
Well: 3H
Wellbore: OH
Design: OH

Local Co-ordinate Reference:
TVD Reference:
MD Reference:
North Reference:
Survey Calculation Method:
Database:
Well 3H
WELL @ 3491.40usft (Original Well Elev)
WELL @ 3491.40usft (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)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
7,500.00	1.80	217.90	7,498.49	4,007.09	5.95	1.64	-5.97	0.52	596,012.56	676,816.71
7,600.00	1.60	232.79	7,598.45	4,107.05	3.86	-0.43	-3.86	0.48	596,010.47	676,814.64
7,700.00	1.02	240.42	7,698.42	4,207.02	2.58	-2.32	-2.54	0.60	596,009.19	676,812.75
7,800.00	0.61	219.84	7,798.41	4,307.01	1.73	-3.44	-1.68	0.50	596,008.34	676,811.63
7,900.00	0.44	229.80	7,898.41	4,407.01	1.07	-4.07	-1.01	0.19	596,007.68	676,811.00
8,000.00	0.49	252.39	7,998.40	4,507.00	0.70	-4.77	-0.63	0.19	596,007.31	676,810.30
8,100.00	0.24	261.06	8,098.40	4,607.00	0.54	-5.39	-0.46	0.26	596,007.15	676,809.68
8,200.00	0.52	261.80	8,198.40	4,707.00	0.44	-6.04	-0.35	0.28	596,007.05	676,809.03
8,300.00	0.41	268.13	8,298.39	4,806.99	0.36	-6.85	-0.26	0.12	596,006.97	676,808.22
8,400.00	0.47	273.58	8,398.39	4,906.99	0.38	-7.62	-0.26	0.07	596,006.99	676,807.45
8,432.00	3.43	188.95	8,430.37	4,938.97	-0.56	-7.90	0.68	10.68	596,006.05	676,807.17
8,464.00	9.58	178.67	8,462.15	4,970.75	-4.17	-7.98	4.29	19.48	596,002.44	676,807.09
8,496.00	12.84	177.26	8,493.54	5,002.14	-10.39	-7.75	10.50	10.22	595,996.22	676,807.32
8,528.00	14.42	176.79	8,524.63	5,033.23	-17.92	-7.36	18.03	4.95	595,988.69	676,807.71
8,559.00	16.44	178.44	8,554.52	5,063.12	-26.16	-7.02	26.26	6.67	595,980.45	676,808.05
8,591.00	19.17	179.25	8,584.98	5,093.58	-35.94	-6.83	36.04	8.57	595,970.67	676,808.24
8,623.00	22.34	179.87	8,614.90	5,123.50	-47.28	-6.75	47.37	9.93	595,959.33	676,808.32
8,655.00	25.06	180.63	8,644.20	5,152.80	-60.14	-6.81	60.23	8.55	595,946.47	676,808.26
8,686.00	27.44	182.99	8,672.00	5,180.60	-73.84	-7.25	73.94	8.38	595,932.77	676,807.82
8,718.00	30.16	183.70	8,700.04	5,208.64	-89.23	-8.16	89.34	8.57	595,917.38	676,806.91
8,751.00	33.68	183.59	8,728.04	5,236.64	-106.64	-9.26	106.76	10.67	595,899.97	676,805.81
8,782.00	37.81	183.36	8,753.20	5,261.80	-124.71	-10.36	124.85	13.33	595,881.90	676,804.71
8,814.00	41.94	183.32	8,777.75	5,286.35	-145.19	-11.55	145.34	12.91	595,861.42	676,803.52
8,846.00	45.81	181.48	8,800.82	5,309.42	-167.34	-12.47	167.51	12.73	595,839.27	676,802.60
8,878.00	48.72	179.73	8,822.53	5,331.13	-190.84	-12.71	191.00	9.94	595,815.77	676,802.36
8,909.00	51.70	179.64	8,842.37	5,350.97	-214.66	-12.58	214.82	9.62	595,791.95	676,802.49
8,941.00	55.84	180.81	8,861.28	5,369.88	-240.46	-12.69	240.62	13.27	595,766.15	676,802.38



Pathfinder
Pathfinder X&Y Report



Company: Cog Operating LLC- Eastern NM
Project: Eddy County
Site: Super Fortress "29"
Well: 3H
Wellbore: OH
Design: OH

Local Co-ordinate Reference:
TVD Reference: WELL @ 3491.40usft (Original Well Elev)
MD Reference: WELL @ 3491.40usft (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)	
8,973.00	60.15	182.05	8,878.23	5,386.83	-267.58	-13.37	267.75	13.86	595,739.03	676,801.70	
9,005.00	63.58	182.89	8,893.32	5,401.92	-295.77	-14.59	295.95	10.97	595,710.84	676,800.48	
9,037.00	67.09	183.08	8,906.67	5,415.27	-324.81	-16.11	325.01	10.98	595,681.80	676,798.96	
9,068.00	70.17	183.11	8,917.97	5,426.57	-353.63	-17.66	353.85	9.94	595,652.98	676,797.41	
9,100.00	73.25	182.68	8,928.01	5,436.61	-383.97	-19.20	384.21	9.71	595,622.64	676,795.87	
9,132.00	77.73	182.23	8,936.02	5,444.62	-414.91	-20.52	415.17	14.07	595,591.70	676,794.55	
9,164.00	81.87	182.77	8,941.69	5,450.29	-446.37	-21.90	446.64	13.04	595,560.24	676,793.17	
9,189.00	83.98	182.60	8,944.77	5,453.37	-471.15	-23.06	471.44	8.47	595,535.46	676,792.01	
9,221.00	86.26	182.60	8,947.49	5,456.09	-503.00	-24.51	503.31	7.12	595,503.61	676,790.56	
9,316.00	88.29	181.80	8,952.01	5,460.61	-597.82	-28.15	598.17	2.30	595,408.79	676,786.92	
9,412.00	89.87	182.05	8,953.55	5,462.15	-693.75	-31.37	694.13	1.67	595,312.86	676,783.70	
9,507.00	89.52	181.87	8,954.05	5,462.65	-788.69	-34.62	789.11	0.41	595,217.92	676,780.45	
9,602.00	90.31	182.15	8,954.20	5,462.80	-883.63	-37.95	884.09	0.88	595,122.98	676,777.12	
9,698.00	89.52	181.96	8,954.34	5,462.94	-979.57	-41.40	980.07	0.85	595,027.04	676,773.67	
9,793.00	89.52	180.92	8,955.13	5,463.73	-1,074.53	-43.78	1,075.06	1.09	594,932.08	676,771.29	
9,889.00	89.52	180.86	8,955.94	5,464.54	-1,170.52	-45.27	1,171.06	0.06	594,836.09	676,769.80	
9,984.00	89.69	181.17	8,956.59	5,465.19	-1,265.50	-46.96	1,266.05	0.37	594,741.11	676,768.11	
10,079.00	89.96	181.71	8,956.88	5,465.48	-1,360.47	-49.34	1,361.05	0.64	594,646.14	676,765.73	
10,175.00	89.96	181.34	8,956.95	5,465.55	-1,456.44	-51.90	1,457.04	0.39	594,550.17	676,763.17	
10,270.00	89.78	181.07	8,957.17	5,465.77	-1,551.42	-53.90	1,552.04	0.34	594,455.19	676,761.17	
10,366.00	89.78	181.56	8,957.53	5,466.13	-1,647.39	-56.10	1,648.04	0.51	594,359.22	676,758.97	
10,461.00	90.31	182.03	8,957.46	5,466.06	-1,742.34	-59.08	1,743.02	0.75	594,264.27	676,755.99	
10,556.00	90.13	182.57	8,957.09	5,465.69	-1,837.26	-62.89	1,837.99	0.60	594,169.35	676,752.18	
10,651.00	90.04	182.85	8,956.95	5,465.55	-1,932.16	-67.38	1,932.94	0.31	594,074.45	676,747.69	
10,747.00	90.40	180.51	8,956.59	5,465.19	-2,028.11	-70.19	2,028.92	2.47	593,978.50	676,744.88	
10,842.00	89.96	180.19	8,956.29	5,464.89	-2,123.11	-70.77	2,123.92	0.57	593,883.50	676,744.30	
10,937.00	90.04	180.46	8,956.29	5,464.89	-2,218.11	-71.31	2,218.91	0.30	593,788.50	676,743.76	



Pathfinder
Pathfinder X&Y Report



Company: Cog Operating LLC- Eastern NM
Project: Eddy County
Site: Super Fortress "29"
Well: 3H
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well 3H
TVD Reference: WELL @ 3491.40usft (Original Well Elev)
MD Reference: WELL @ 3491.40usft (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)	D Leg (°/100usft)	Northing (usft)	Easting (usft)
11,033.00	89.87	180.00	8,956.36	5,464.96	-2,314.10	-71.70	2,314.91	0.51	593,692.51	676,743.37
11,128.00	90.04	180.44	8,956.44	5,465.04	-2,409.10	-72.06	2,409.90	0.50	593,597.51	676,743.01
11,224.00	90.22	179.17	8,956.22	5,464.82	-2,505.10	-71.74	2,505.88	1.34	593,501.51	676,743.33
11,319.00	91.36	179.61	8,954.91	5,463.51	-2,600.08	-70.72	2,600.84	1.29	593,406.53	676,744.35
11,414.00	90.57	178.78	8,953.31	5,461.91	-2,695.06	-69.39	2,695.79	1.21	593,311.55	676,745.68
11,510.00	90.13	178.70	8,952.72	5,461.32	-2,791.03	-67.28	2,791.72	0.47	593,215.58	676,747.79
11,605.00	88.81	178.51	8,953.60	5,462.20	-2,886.00	-64.97	2,886.64	1.40	593,120.61	676,750.10
11,700.00	88.20	179.12	8,956.08	5,464.68	-2,980.95	-63.00	2,981.55	0.91	593,025.66	676,752.07
11,796.00	88.11	180.38	8,959.17	5,467.77	-3,076.89	-62.58	3,077.48	1.32	592,929.72	676,752.49
11,891.00	89.08	181.24	8,961.50	5,470.10	-3,171.85	-63.93	3,172.45	1.36	592,834.76	676,751.14
11,987.00	90.84	181.64	8,961.57	5,470.17	-3,267.82	-66.34	3,268.44	1.88	592,738.79	676,748.73
12,082.00	91.10	183.01	8,959.96	5,468.56	-3,362.73	-70.19	3,363.39	1.47	592,643.88	676,744.88
12,177.00	90.22	181.76	8,958.86	5,467.46	-3,457.63	-74.15	3,458.35	1.61	592,548.98	676,740.92
12,273.00	91.19	182.56	8,957.68	5,466.28	-3,553.56	-77.76	3,554.31	1.31	592,453.05	676,737.31
12,368.00	89.25	183.54	8,957.32	5,465.92	-3,648.42	-82.82	3,649.24	2.29	592,358.19	676,732.25
12,463.00	90.04	184.74	8,957.91	5,466.51	-3,743.16	-89.68	3,744.08	1.51	592,263.45	676,725.39
12,559.00	90.66	184.67	8,957.32	5,465.92	-3,838.84	-97.55	3,839.86	0.65	592,167.77	676,717.52
12,654.00	90.22	182.19	8,956.59	5,465.19	-3,933.66	-103.23	3,934.75	2.65	592,072.95	676,711.84
12,750.00	90.22	182.16	8,956.22	5,464.82	-4,029.59	-106.88	4,030.72	0.03	591,977.02	676,708.19
12,845.00	90.13	182.10	8,955.93	5,464.53	-4,124.52	-110.41	4,125.70	0.11	591,882.09	676,704.66
12,940.00	89.34	182.28	8,956.37	5,464.97	-4,219.45	-114.04	4,220.67	0.85	591,787.16	676,701.03
13,004.00	88.99	183.21	8,957.30	5,465.90	-4,283.37	-117.10	4,284.63	1.55	591,723.24	676,697.97
13,099.00	88.02	183.31	8,959.78	5,468.38	-4,378.18	-122.50	4,379.51	1.03	591,628.43	676,692.57
13,195.00	88.20	181.97	8,962.95	5,471.55	-4,474.03	-126.92	4,475.41	1.41	591,532.58	676,688.15
13,284.00	88.55	182.51	8,965.47	5,474.07	-4,562.92	-130.40	4,564.34	0.72	591,443.69	676,684.67
13,335.00	88.55	182.51	8,966.76	5,475.36	-4,613.86	-132.63	4,615.30	0.00	591,392.75	676,682.44



Pathfinder
Pathfinder X&Y Report



Company: Cog Operating LLC- Eastern NM
Project: Eddy County
Site: Super Fortress "29"
Well: 3H
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well 3H
TVD Reference: WELL @ 3491.40usft (Original Well Elev)
MD Reference: WELL @ 3491.40usft (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)	
8,400.00	8,398.39	0.38	-7.62	KOP - 8400.00'MD, 8398.39TVD', 0.38'N, -7.62'E
9,412.00	8,953.55	-693.75	-31.37	LP - 9412.00'MD, 8953.55TVD', -693.75'N, -31.37'E
13,335.00	8,966.76	-4,613.86	-132.63	BHL - 13335.00'MD, 8966.76TVD', -4613.86'N, -132.63'E

Checked By: _____ Approved By: _____ Date: _____