



COG Operating LLC

**Eddy Co., NM
Myox 28 State Com
703H**

Wellbore #1

Plan: Design #1

Standard Planning Report

25 March, 2019





Nabors Drilling Solutions Planning Report



Database: RyanUSA_32Bit
Company: COG Operating LLC
Project: Eddy Co., NM
Site: Myox 28 State Com
Well: 703H
Wellbore: Wellbore #1
Design: Design #1

Local Co-ordinate Reference: Well 703H
TVD Reference: RT=30 @ 2990.00ft (Nabors 894)
MD Reference: RT=30 @ 2990.00ft (Nabors 894)
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Project: Eddy Co., NM

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: Myox 28 State Com

Site Position: Northing: 402,893.686 usft Latitude: 32° 6' 26.746200 N
From: Lat/Long Easting: 576,570.363 usft Longitude: 104° 5' 9.742200 W
Position Uncertainty: 0.00 ft Slot Radius: 13-3/16 " Grid Convergence: 0.13 °

Well: 703H

Well Position: +N/-S -5.89 ft Northing: 402,887.800 usft Latitude: 32° 6' 26.697004 N
+E/-W -399.86 ft Easting: 576,170.500 usft Longitude: 104° 5' 14.391391 W
Position Uncertainty: 2.00 ft Wellhead Elevation: Ground Level: 2,960.00 ft

Wellbore: Wellbore #1

Model Name	Sample Date	Declination	Dip Angle	Field Strength
		(°)	(°)	(nT)
HDGM_FILE	3/25/2019	7.00	59.80	47,876.10000000

Design: Design #1

Audit Notes:

Version:

Phase: PLAN Tie On Depth: 0.00

Vertical Section	Depth From (TVD)	+N/-S	+E/-W	Direction
	(ft)	(ft)	(ft)	(°)
	0.00	0.00	0.00	181.86

Plan Survey Tool Program Date: 3/25/2019

Depth From (ft)	Depth To (ft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	19,466.28	Design #1 (Wellbore #1)	MWD+HRGM OWSG MWD + HRGM

Plan Sections

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
4,500.00	0.00	0.00	4,500.00	0.00	0.00	0.00	0.00	0.00	0.00	
4,753.52	5.07	256.63	4,753.19	-2.59	-10.91	2.00	2.00	0.00	256.63	
9,077.34	5.07	256.63	9,060.09	-90.93	-382.70	0.00	0.00	0.00	0.00	
9,080.86	5.00	256.65	9,063.60	-91.00	-383.00	2.00	-2.00	0.44	178.90	
9,825.08	90.42	179.48	9,530.09	-572.18	-418.72	12.00	11.48	-10.37	-77.18	
19,466.28	90.42	179.48	9,460.00	-10,212.72	-331.30	0.00	0.00	0.00	0.00	0.00 703H - BHL



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Well 703H

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MD Reference:

RT=30 @ 2990.00ft (Nabors 894)

North Reference:

Grid

Survey Calculation Method:

Minimum Curvature

Planned 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)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00
2,600.00	0.00	0.00	2,600.00	0.00	0.00	0.00	0.00	0.00	0.00
2,700.00	0.00	0.00	2,700.00	0.00	0.00	0.00	0.00	0.00	0.00
2,800.00	0.00	0.00	2,800.00	0.00	0.00	0.00	0.00	0.00	0.00
2,900.00	0.00	0.00	2,900.00	0.00	0.00	0.00	0.00	0.00	0.00
3,000.00	0.00	0.00	3,000.00	0.00	0.00	0.00	0.00	0.00	0.00
3,100.00	0.00	0.00	3,100.00	0.00	0.00	0.00	0.00	0.00	0.00
3,200.00	0.00	0.00	3,200.00	0.00	0.00	0.00	0.00	0.00	0.00
3,300.00	0.00	0.00	3,300.00	0.00	0.00	0.00	0.00	0.00	0.00
3,400.00	0.00	0.00	3,400.00	0.00	0.00	0.00	0.00	0.00	0.00
3,500.00	0.00	0.00	3,500.00	0.00	0.00	0.00	0.00	0.00	0.00
3,600.00	0.00	0.00	3,600.00	0.00	0.00	0.00	0.00	0.00	0.00
3,700.00	0.00	0.00	3,700.00	0.00	0.00	0.00	0.00	0.00	0.00
3,800.00	0.00	0.00	3,800.00	0.00	0.00	0.00	0.00	0.00	0.00
3,900.00	0.00	0.00	3,900.00	0.00	0.00	0.00	0.00	0.00	0.00
4,000.00	0.00	0.00	4,000.00	0.00	0.00	0.00	0.00	0.00	0.00
4,100.00	0.00	0.00	4,100.00	0.00	0.00	0.00	0.00	0.00	0.00
4,200.00	0.00	0.00	4,200.00	0.00	0.00	0.00	0.00	0.00	0.00
4,300.00	0.00	0.00	4,300.00	0.00	0.00	0.00	0.00	0.00	0.00
4,400.00	0.00	0.00	4,400.00	0.00	0.00	0.00	0.00	0.00	0.00
4,500.00	0.00	0.00	4,500.00	0.00	0.00	0.00	0.00	0.00	0.00
4,600.00	2.00	256.63	4,599.98	-0.40	-1.70	0.46	0.00	0.00	0.00
4,700.00	4.00	256.63	4,699.84	-1.61	-6.79	1.83	2.00	2.00	0.00
4,753.52	5.07	256.63	4,753.19	-2.59	-10.91	2.94	2.00	2.00	0.00
4,800.00	5.07	256.63	4,799.49	-3.54	-14.90	4.02	0.00	0.00	0.00
4,900.00	5.07	256.63	4,899.10	-5.58	-23.50	6.34	0.00	0.00	0.00
5,000.00	5.07	256.63	4,998.70	-7.63	-32.10	8.66	0.00	0.00	0.00
5,100.00	5.07	256.63	5,098.31	-9.67	-40.70	10.98	0.00	0.00	0.00
5,200.00	5.07	256.63	5,197.92	-11.71	-49.30	13.31	0.00	0.00	0.00



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Well 703H
RT=30 @ 2990.00ft (Nabors 894)
RT=30 @ 2990.00ft (Nabors 894)
Grid
Minimum Curvature

Planned 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)
5,300.00	5.07	256.63	5,297.53	-13.76	-57.90	15.63	0.00	0.00	0.00
5,400.00	5.07	256.63	5,397.14	-15.80	-66.50	17.95	0.00	0.00	0.00
5,500.00	5.07	256.63	5,496.75	-17.84	-75.09	20.27	0.00	0.00	0.00
5,600.00	5.07	256.63	5,596.36	-19.89	-83.69	22.59	0.00	0.00	0.00
5,700.00	5.07	256.63	5,695.97	-21.93	-92.29	24.91	0.00	0.00	0.00
5,800.00	5.07	256.63	5,795.57	-23.97	-100.89	27.23	0.00	0.00	0.00
5,900.00	5.07	256.63	5,895.18	-26.01	-109.49	29.55	0.00	0.00	0.00
6,000.00	5.07	256.63	5,994.79	-28.06	-118.09	31.87	0.00	0.00	0.00
6,100.00	5.07	256.63	6,094.40	-30.10	-126.69	34.19	0.00	0.00	0.00
6,200.00	5.07	256.63	6,194.01	-32.14	-135.29	36.51	0.00	0.00	0.00
6,300.00	5.07	256.63	6,293.62	-34.19	-143.88	38.83	0.00	0.00	0.00
6,400.00	5.07	256.63	6,393.23	-36.23	-152.48	41.15	0.00	0.00	0.00
6,500.00	5.07	256.63	6,492.83	-38.27	-161.08	43.48	0.00	0.00	0.00
6,600.00	5.07	256.63	6,592.44	-40.32	-169.68	45.80	0.00	0.00	0.00
6,700.00	5.07	256.63	6,692.05	-42.36	-178.28	48.12	0.00	0.00	0.00
6,800.00	5.07	256.63	6,791.66	-44.40	-186.88	50.44	0.00	0.00	0.00
6,900.00	5.07	256.63	6,891.27	-46.44	-195.48	52.76	0.00	0.00	0.00
7,000.00	5.07	256.63	6,990.88	-48.49	-204.07	55.08	0.00	0.00	0.00
7,100.00	5.07	256.63	7,090.49	-50.53	-212.67	57.40	0.00	0.00	0.00
7,200.00	5.07	256.63	7,190.10	-52.57	-221.27	59.72	0.00	0.00	0.00
7,300.00	5.07	256.63	7,289.70	-54.62	-229.87	62.04	0.00	0.00	0.00
7,400.00	5.07	256.63	7,389.31	-56.66	-238.47	64.36	0.00	0.00	0.00
7,500.00	5.07	256.63	7,488.92	-58.70	-247.07	66.68	0.00	0.00	0.00
7,600.00	5.07	256.63	7,588.53	-60.75	-255.67	69.00	0.00	0.00	0.00
7,700.00	5.07	256.63	7,688.14	-62.79	-264.27	71.32	0.00	0.00	0.00
7,800.00	5.07	256.63	7,787.75	-64.83	-272.86	73.65	0.00	0.00	0.00
7,900.00	5.07	256.63	7,887.36	-66.88	-281.46	75.97	0.00	0.00	0.00
8,000.00	5.07	256.63	7,986.97	-68.92	-290.06	78.29	0.00	0.00	0.00
8,100.00	5.07	256.63	8,086.57	-70.96	-298.66	80.61	0.00	0.00	0.00
8,200.00	5.07	256.63	8,186.18	-73.00	-307.26	82.93	0.00	0.00	0.00
8,300.00	5.07	256.63	8,285.79	-75.05	-315.86	85.25	0.00	0.00	0.00
8,400.00	5.07	256.63	8,385.40	-77.09	-324.46	87.57	0.00	0.00	0.00
8,500.00	5.07	256.63	8,485.01	-79.13	-333.06	89.89	0.00	0.00	0.00
8,600.00	5.07	256.63	8,584.62	-81.18	-341.65	92.21	0.00	0.00	0.00
8,700.00	5.07	256.63	8,684.23	-83.22	-350.25	94.53	0.00	0.00	0.00
8,800.00	5.07	256.63	8,783.83	-85.26	-358.85	96.85	0.00	0.00	0.00
8,900.00	5.07	256.63	8,883.44	-87.31	-367.45	99.17	0.00	0.00	0.00
9,000.00	5.07	256.63	8,983.05	-89.35	-376.05	101.49	0.00	0.00	0.00
9,077.34	5.07	256.63	9,060.09	-90.93	-382.70	103.29	0.00	0.00	0.00
9,080.86	5.00	256.65	9,063.60	-91.00	-383.00	103.37	2.00	-2.00	0.44
9,100.00	5.95	234.49	9,082.65	-91.77	-384.62	104.19	12.00	4.94	-115.79
9,125.00	8.05	216.63	9,107.47	-93.93	-386.72	106.41	12.00	8.40	-71.46
9,150.00	10.59	206.67	9,132.14	-97.38	-388.79	109.94	12.00	10.16	-39.84
9,175.00	13.32	200.64	9,156.59	-102.13	-390.84	114.75	12.00	10.93	-24.13
9,200.00	16.14	196.65	9,180.77	-108.16	-392.85	120.84	12.00	11.30	-15.93
9,225.00	19.02	193.84	9,204.60	-115.44	-394.82	128.18	12.00	11.51	-11.25
9,250.00	21.93	191.75	9,228.02	-123.97	-396.75	136.77	12.00	11.64	-8.38
9,275.00	24.86	190.12	9,250.96	-133.72	-398.62	146.57	12.00	11.72	-6.49
9,300.00	27.81	188.82	9,273.36	-144.66	-400.44	157.56	12.00	11.78	-5.20
9,325.00	30.76	187.76	9,295.17	-156.75	-402.20	169.71	12.00	11.82	-4.27
9,350.00	33.72	186.86	9,316.31	-169.98	-403.89	182.99	12.00	11.85	-3.59
9,375.00	36.69	186.09	9,336.73	-184.30	-405.51	197.35	12.00	11.87	-3.07
9,400.00	39.66	185.42	9,356.39	-199.67	-407.06	212.77	12.00	11.89	-2.67
9,425.00	42.63	184.83	9,375.21	-216.06	-408.52	229.19	12.00	11.90	-2.36



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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)
9,449.03	45.50	184.32	9,392.47	-232.71	-409.85	245.88	12.00	11.91	-2.11
703H - FTP									
9,450.00	45.61	184.31	9,393.15	-233.40	-409.91	246.57	12.00	11.91	-2.00
9,475.00	48.59	183.83	9,410.17	-251.67	-411.20	264.87	12.00	11.92	-1.90
9,500.00	51.57	183.40	9,426.21	-270.80	-412.41	284.03	12.00	11.93	-1.73
9,525.00	54.56	183.00	9,441.23	-290.75	-413.52	304.01	12.00	11.93	-1.60
9,550.00	57.54	182.63	9,455.19	-311.46	-414.54	324.74	12.00	11.94	-1.48
9,575.00	60.53	182.28	9,468.05	-332.88	-415.45	346.17	12.00	11.94	-1.39
9,600.00	63.51	181.95	9,479.78	-354.94	-416.27	368.25	12.00	11.94	-1.31
9,625.00	66.50	181.64	9,490.34	-377.58	-416.98	390.90	12.00	11.95	-1.24
9,650.00	69.49	181.34	9,499.71	-400.75	-417.58	414.08	12.00	11.95	-1.19
9,675.00	72.47	181.06	9,507.86	-424.38	-418.08	437.71	12.00	11.95	-1.14
9,700.00	75.46	180.78	9,514.76	-448.40	-418.46	461.73	12.00	11.95	-1.10
9,725.00	78.45	180.51	9,520.40	-472.75	-418.74	486.08	12.00	11.95	-1.07
9,750.00	81.44	180.25	9,524.77	-497.36	-418.90	510.68	12.00	11.96	-1.05
9,775.00	84.43	179.99	9,527.84	-522.17	-418.95	535.48	12.00	11.96	-1.04
9,800.00	87.42	179.74	9,529.62	-547.10	-418.90	560.40	12.00	11.96	-1.03
9,825.08	90.42	179.48	9,530.09	-572.18	-418.72	585.45	12.00	11.96	-1.02
9,900.00	90.42	179.48	9,529.55	-647.09	-418.05	660.31	0.00	0.00	0.00
10,000.00	90.42	179.48	9,528.82	-747.08	-417.14	760.22	0.00	0.00	0.00
10,100.00	90.42	179.48	9,528.09	-847.08	-416.23	860.13	0.00	0.00	0.00
10,200.00	90.42	179.48	9,527.37	-947.07	-415.32	960.04	0.00	0.00	0.00
10,300.00	90.42	179.48	9,526.64	-1,047.06	-414.42	1,059.95	0.00	0.00	0.00
10,400.00	90.42	179.48	9,525.91	-1,147.06	-413.51	1,159.86	0.00	0.00	0.00
10,500.00	90.42	179.48	9,525.19	-1,247.05	-412.60	1,259.77	0.00	0.00	0.00
10,600.00	90.42	179.48	9,524.46	-1,347.04	-411.70	1,359.68	0.00	0.00	0.00
10,700.00	90.42	179.48	9,523.73	-1,447.04	-410.79	1,459.60	0.00	0.00	0.00
10,800.00	90.42	179.48	9,523.00	-1,547.03	-409.88	1,559.51	0.00	0.00	0.00
10,900.00	90.42	179.48	9,522.28	-1,647.02	-408.98	1,659.42	0.00	0.00	0.00
11,000.00	90.42	179.48	9,521.55	-1,747.02	-408.07	1,759.33	0.00	0.00	0.00
11,100.00	90.42	179.48	9,520.82	-1,847.01	-407.16	1,859.24	0.00	0.00	0.00
11,200.00	90.42	179.48	9,520.10	-1,947.00	-406.26	1,959.15	0.00	0.00	0.00
11,300.00	90.42	179.48	9,519.37	-2,047.00	-405.35	2,059.06	0.00	0.00	0.00
11,400.00	90.42	179.48	9,518.64	-2,146.99	-404.44	2,158.97	0.00	0.00	0.00
11,500.00	90.42	179.48	9,517.92	-2,246.98	-403.54	2,258.89	0.00	0.00	0.00
11,600.00	90.42	179.48	9,517.19	-2,346.98	-402.63	2,358.80	0.00	0.00	0.00
11,700.00	90.42	179.48	9,516.46	-2,446.97	-401.72	2,458.71	0.00	0.00	0.00
11,800.00	90.42	179.48	9,515.73	-2,546.96	-400.82	2,558.62	0.00	0.00	0.00
11,900.00	90.42	179.48	9,515.01	-2,646.96	-399.91	2,658.53	0.00	0.00	0.00
12,000.00	90.42	179.48	9,514.28	-2,746.95	-399.00	2,758.44	0.00	0.00	0.00
12,100.00	90.42	179.48	9,513.55	-2,846.94	-398.10	2,858.35	0.00	0.00	0.00
12,200.00	90.42	179.48	9,512.83	-2,946.94	-397.19	2,958.26	0.00	0.00	0.00
12,300.00	90.42	179.48	9,512.10	-3,046.93	-396.28	3,058.18	0.00	0.00	0.00
12,400.00	90.42	179.48	9,511.37	-3,146.92	-395.38	3,158.09	0.00	0.00	0.00
12,500.00	90.42	179.48	9,510.65	-3,246.92	-394.47	3,258.00	0.00	0.00	0.00
12,600.00	90.42	179.48	9,509.92	-3,346.91	-393.56	3,357.91	0.00	0.00	0.00
12,700.00	90.42	179.48	9,509.19	-3,446.90	-392.66	3,457.82	0.00	0.00	0.00
12,800.00	90.42	179.48	9,508.46	-3,546.90	-391.75	3,557.73	0.00	0.00	0.00
12,900.00	90.42	179.48	9,507.74	-3,646.89	-390.84	3,657.64	0.00	0.00	0.00
13,000.00	90.42	179.48	9,507.01	-3,746.88	-389.94	3,757.55	0.00	0.00	0.00
13,100.00	90.42	179.48	9,506.28	-3,846.88	-389.03	3,857.47	0.00	0.00	0.00
13,200.00	90.42	179.48	9,505.56	-3,946.87	-388.12	3,957.38	0.00	0.00	0.00
13,300.00	90.42	179.48	9,504.83	-4,046.86	-387.21	4,057.29	0.00	0.00	0.00



Nabors Drilling Solutions
Planning Report



Database: RyanUSA_32Bit
Company: COG Operating LLC
Project: Eddy Co., NM
Site: Myox 28 State Com
Well: 703H
Wellbore: Wellbore #1
Design: Design #1

Local Co-ordinate Reference

IVD Reference:

MD Reference:

North Reference:

Survey Calculation Method:

Well 703H

RT=30 @ 2990.00ft (Nabors 894)

RT=30 @ 2990.00ft (Nabors 894)

Grid

Minimum Curvature

Planned 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)
13,400.00	90.42	179.48	9,504.10	-4,146.85	-386.31	4,157.20	0.00	0.00	0.00
13,500.00	90.42	179.48	9,503.38	-4,246.85	-385.40	4,257.11	0.00	0.00	0.00
13,600.00	90.42	179.48	9,502.65	-4,346.84	-384.49	4,357.02	0.00	0.00	0.00
13,700.00	90.42	179.48	9,501.92	-4,446.83	-383.59	4,456.93	0.00	0.00	0.00
13,800.00	90.42	179.48	9,501.19	-4,546.83	-382.68	4,556.84	0.00	0.00	0.00
13,900.00	90.42	179.48	9,500.47	-4,646.82	-381.77	4,656.76	0.00	0.00	0.00
14,000.00	90.42	179.48	9,499.74	-4,746.81	-380.87	4,756.67	0.00	0.00	0.00
14,100.00	90.42	179.48	9,499.01	-4,846.81	-379.96	4,856.58	0.00	0.00	0.00
14,200.00	90.42	179.48	9,498.29	-4,946.80	-379.05	4,956.49	0.00	0.00	0.00
14,300.00	90.42	179.48	9,497.56	-5,046.79	-378.15	5,056.40	0.00	0.00	0.00
14,400.00	90.42	179.48	9,496.83	-5,146.79	-377.24	5,156.31	0.00	0.00	0.00
14,500.00	90.42	179.48	9,496.11	-5,246.78	-376.33	5,256.22	0.00	0.00	0.00
14,600.00	90.42	179.48	9,495.38	-5,346.77	-375.43	5,356.14	0.00	0.00	0.00
14,700.00	90.42	179.48	9,494.65	-5,446.77	-374.52	5,456.05	0.00	0.00	0.00
14,800.00	90.42	179.48	9,493.92	-5,546.76	-373.61	5,555.96	0.00	0.00	0.00
14,900.00	90.42	179.48	9,493.20	-5,646.75	-372.71	5,655.87	0.00	0.00	0.00
15,000.00	90.42	179.48	9,492.47	-5,746.75	-371.80	5,755.78	0.00	0.00	0.00
15,100.00	90.42	179.48	9,491.74	-5,846.74	-370.89	5,855.69	0.00	0.00	0.00
15,200.00	90.42	179.48	9,491.02	-5,946.73	-369.99	5,955.60	0.00	0.00	0.00
15,300.00	90.42	179.48	9,490.29	-6,046.73	-369.08	6,055.51	0.00	0.00	0.00
15,400.00	90.42	179.48	9,489.56	-6,146.72	-368.17	6,155.43	0.00	0.00	0.00
15,500.00	90.42	179.48	9,488.84	-6,246.71	-367.27	6,255.34	0.00	0.00	0.00
15,600.00	90.42	179.48	9,488.11	-6,346.71	-366.36	6,355.25	0.00	0.00	0.00
15,700.00	90.42	179.48	9,487.38	-6,446.70	-365.45	6,455.16	0.00	0.00	0.00
15,800.00	90.42	179.48	9,486.65	-6,546.69	-364.55	6,555.07	0.00	0.00	0.00
15,900.00	90.42	179.48	9,485.93	-6,646.69	-363.64	6,654.98	0.00	0.00	0.00
16,000.00	90.42	179.48	9,485.20	-6,746.68	-362.73	6,754.89	0.00	0.00	0.00
16,100.00	90.42	179.48	9,484.47	-6,846.67	-361.83	6,854.80	0.00	0.00	0.00
16,200.00	90.42	179.48	9,483.75	-6,946.67	-360.92	6,954.72	0.00	0.00	0.00
16,300.00	90.42	179.48	9,483.02	-7,046.66	-360.01	7,054.63	0.00	0.00	0.00
16,400.00	90.42	179.48	9,482.29	-7,146.65	-359.10	7,154.54	0.00	0.00	0.00
16,500.00	90.42	179.48	9,481.57	-7,246.65	-358.20	7,254.45	0.00	0.00	0.00
16,600.00	90.42	179.48	9,480.84	-7,346.64	-357.29	7,354.36	0.00	0.00	0.00
16,700.00	90.42	179.48	9,480.11	-7,446.63	-356.38	7,454.27	0.00	0.00	0.00
16,800.00	90.42	179.48	9,479.38	-7,546.63	-355.48	7,554.18	0.00	0.00	0.00
16,900.00	90.42	179.48	9,478.66	-7,646.62	-354.57	7,654.09	0.00	0.00	0.00
17,000.00	90.42	179.48	9,477.93	-7,746.61	-353.66	7,754.01	0.00	0.00	0.00
17,100.00	90.42	179.48	9,477.20	-7,846.61	-352.76	7,853.92	0.00	0.00	0.00
17,200.00	90.42	179.48	9,476.48	-7,946.60	-351.85	7,953.83	0.00	0.00	0.00
17,300.00	90.42	179.48	9,475.75	-8,046.59	-350.94	8,053.74	0.00	0.00	0.00
17,400.00	90.42	179.48	9,475.02	-8,146.58	-350.04	8,153.65	0.00	0.00	0.00
17,500.00	90.42	179.48	9,474.30	-8,246.58	-349.13	8,253.56	0.00	0.00	0.00
17,600.00	90.42	179.48	9,473.57	-8,346.57	-348.22	8,353.47	0.00	0.00	0.00
17,700.00	90.42	179.48	9,472.84	-8,446.56	-347.32	8,453.38	0.00	0.00	0.00
17,800.00	90.42	179.48	9,472.11	-8,546.56	-346.41	8,553.30	0.00	0.00	0.00
17,900.00	90.42	179.48	9,471.39	-8,646.55	-345.50	8,653.21	0.00	0.00	0.00
18,000.00	90.42	179.48	9,470.66	-8,746.54	-344.60	8,753.12	0.00	0.00	0.00
18,100.00	90.42	179.48	9,469.93	-8,846.54	-343.69	8,853.03	0.00	0.00	0.00
18,200.00	90.42	179.48	9,469.21	-8,946.53	-342.78	8,952.94	0.00	0.00	0.00
18,300.00	90.42	179.48	9,468.48	-9,046.52	-341.88	9,052.85	0.00	0.00	0.00
18,400.00	90.42	179.48	9,467.75	-9,146.52	-340.97	9,152.76	0.00	0.00	0.00
18,500.00	90.42	179.48	9,467.03	-9,246.51	-340.06	9,252.67	0.00	0.00	0.00
18,600.00	90.42	179.48	9,466.30	-9,346.50	-339.16	9,352.59	0.00	0.00	0.00
18,700.00	90.42	179.48	9,465.57	-9,446.50	-338.25	9,452.50	0.00	0.00	0.00



Nabors Drilling Solutions Planning Report



Database: RyanUSA_32Bit
Company: COG Operating LLC
Project: Eddy Co., NM
Site: Myox 28 State Com
Well: 703H
Wellbore: Wellbore #1
Design: Design #1

Local Co-ordinate Reference

TVD Reference:

MD Reference:

North Reference:

Survey/Calculation Method:

Well 703H

RT=30 @ 2990.00ft (Nabors 894)

RT=30 @ 2990.00ft (Nabors 894)

Grid

Minimum Curvature

Planned 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)
18,800.00	90.42	179.48	9,464.84	-9,546.49	-337.34	9,552.41	0.00	0.00	0.00
18,900.00	90.42	179.48	9,464.12	-9,646.48	-336.44	9,652.32	0.00	0.00	0.00
19,000.00	90.42	179.48	9,463.39	-9,746.48	-335.53	9,752.23	0.00	0.00	0.00
19,100.00	90.42	179.48	9,462.66	-9,846.47	-334.62	9,852.14	0.00	0.00	0.00
19,200.00	90.42	179.48	9,461.94	-9,946.46	-333.72	9,952.05	0.00	0.00	0.00
19,300.00	90.42	179.48	9,461.21	-10,046.46	-332.81	10,051.97	0.00	0.00	0.00
19,336.28	90.42	179.48	9,460.95	-10,082.74	-332.48	10,088.22	0.00	0.00	0.00
703H - LTP									
19,400.00	90.42	179.48	9,460.48	-10,146.45	-331.90	10,151.88	0.00	0.00	0.00
19,466.28	90.42	179.48	9,460.00	-10,212.72	-331.30	10,218.09	0.00	0.00	0.00
703H - BHL									

Design Targets

Target Name	hit/miss target	Shape	Dip Angle (°)	Dip Dir (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
703H - BHL	- plan hits target center	- Point	0.00	0.00	9,460.00	-10,212.72	-331.30	392,675.100	575,839.200	32° 4' 45.634489 N	104° 5' 18.512878 W
703H - LTP	- plan misses target center by 1.98ft at 19336.28ft MD (9460.95 TVD, -10082.74 N, -332.48 E)	- Point	0.00	0.00	9,461.00	-10,082.72	-330.50	392,805.100	575,840.000	32° 4' 46.921019 N	104° 5' 18.500150 W
703H - FTP	- plan misses target center by 197.59ft at 9449.03ft MD (9392.47 TVD, -232.71 N, -409.85 E)	- Point	0.00	0.00	9,530.00	-91.00	-403.10	402,796.800	575,767.400	32° 6' 25.805504 N	104° 5' 19.080463 W

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
705.00	705.00	Rustler			
2,264.00	2,264.00	TOS			
2,469.00	2,469.00	BOS (Fletcher)			
2,503.00	2,503.00	LMAR (Top Delaware)			
2,990.00	2,990.00	WFMP D			
3,351.00	3,351.00	BLCN			
4,565.01	4,565.00	CYCN			
6,154.81	6,149.00	BYCN			
6,493.14	6,486.00	Bone Sprg (BSGL)			
6,709.99	6,702.00	U Avalon Sh			
7,096.50	7,087.00	L Avalon Sh			
7,844.43	7,832.00	FBSG_sand			
8,275.11	8,261.00	SBSG_sand			
8,964.81	8,948.00	SBSG_sand_Base			
9,336.53	9,305.00	TBSG_sand			
9,528.07	9,443.00	WFMP			



Nabors Drilling Solutions
Planning Report



Database: RyanUSA_32Bit
Company: COG Operating LLC
Project: Eddy Co., NM
Site: Myox 28 State Corn
Well: 703H
Wellbore: Wellbore #1
Design: Design #1

Local/Co-ordinate/Reference: Well 703H
TVD/Reference: RT=30 @ 2990.00ft (Nabors 894)
MD/Reference: RT=30 @ 2990.00ft (Nabors 894)
North/Reference: Grid
Survey/Calculation/Method: Minimum Curvature

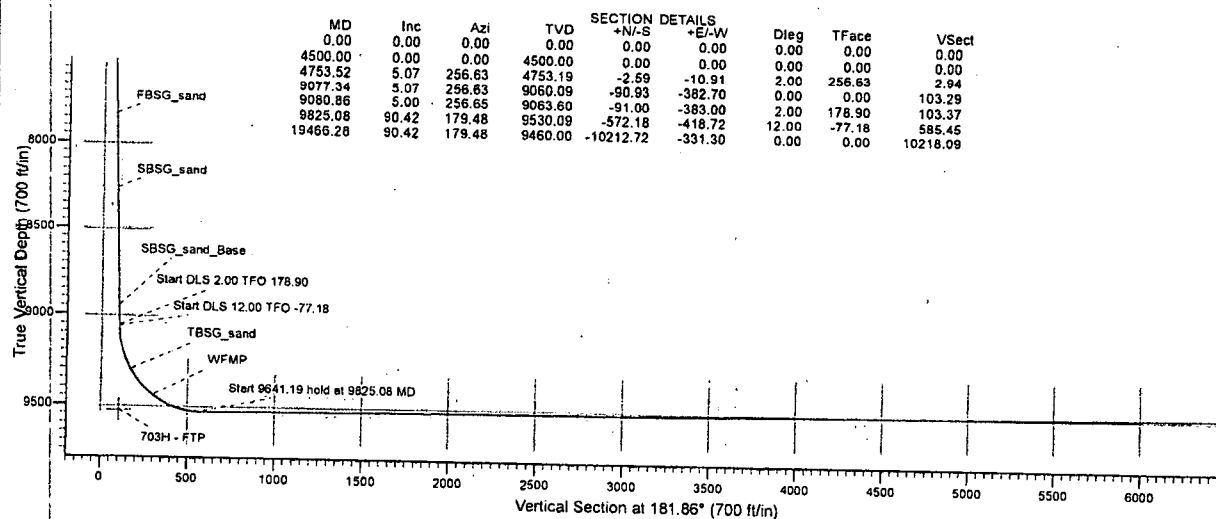
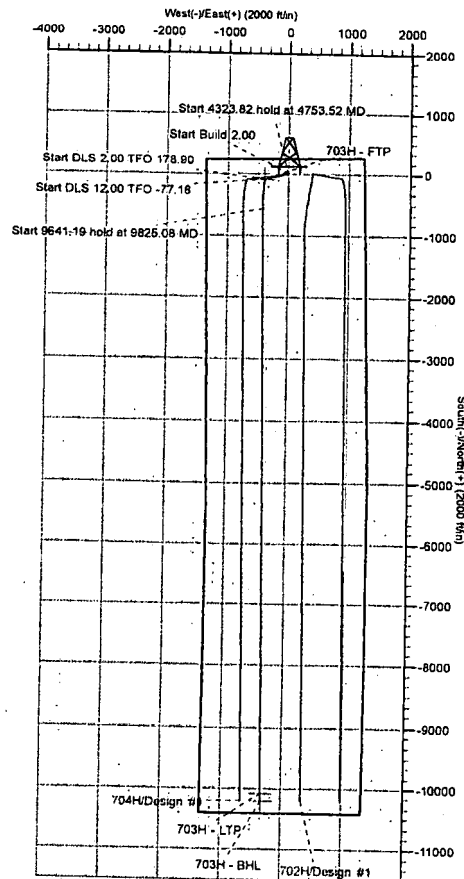
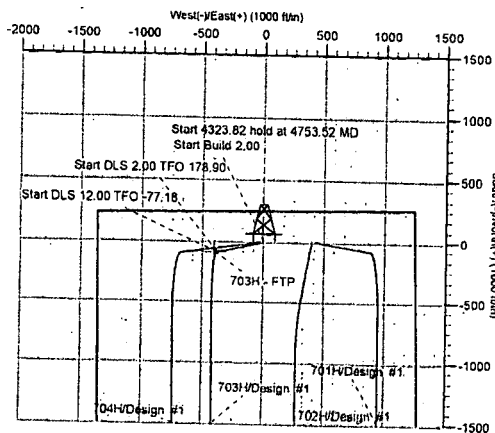
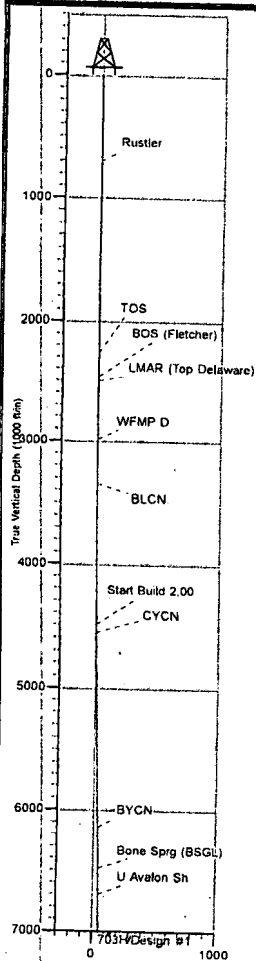
CONCHO

Project: Eddy Co., NM
 Site: Myox 28 State Com
 Well: 703H
 Wellbore: Wellbore #1
 Design: Design #1
 Northing: 402887.800
 Easting: 576170.500
 Rig: Nabors 894

NABORS



Azimuths to Grid North
 True North: -0.13°
 Magnetic North: 6.87°
 Magnetic Field
 Strength: 47876.1nT
 Dip Angle: 59.80°
 Date: 3/25/2019
 Model: HDGM_FILE



MD	Inc	Azi	TVD	SECTION DETAILS		Dleg	TFace	VSeet
				+N/-S	+E/-W			
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4500.00	0.00	0.00	4500.00	0.00	0.00	0.00	0.00	0.00
4753.52	5.07	256.63	4753.19	-2.59	-10.91	2.00	256.63	2.94
9077.34	5.07	256.63	9060.09	-90.93	-382.70	0.00	0.00	103.29
9080.86	5.00	256.65	9063.60	-91.00	-385.00	2.00	178.90	103.37
9825.08	90.42	179.48	9530.09	-572.18	-418.72	12.00	-77.18	585.45
19466.28	90.42	179.48	9460.00	-10212.72	-331.30	0.00	0.00	10218.09

