

July 25, 2014

Concho Resources, Inc.
One Concho Center
600 W. Illinois Avenue
Midland, Texas 79701

Attn: Kanicia Castillo

RE: Asio Otis Federal 3H

30-015-42395

Please find enclosed a copy of the survey from 0.00' to 4950.00' ran on the above referenced well.

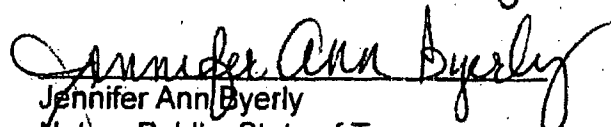
Sincerely,

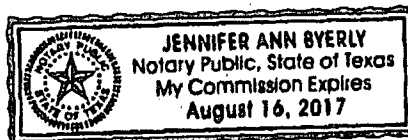

Keith Havelka
Operations

STATE OF TEXAS §

COUNTY OF NUECES §

This instrument was acknowledged before me on the 25 day of July,
A.D., 2014, by Keith Havelka.


Jennifer Ann Byerly
Notary Public, State of Texas





Company: Concho
Lease/Well: Asio Otis Federal/3H

Rig Name: Patriot 2
State/County: New Mexico/Eddy
Latitude: 32.04, Longitude: -104.23
GRID North is 0.05 Degrees East of True North
VS-Azi: 0.00 Degrees



Depth Reference : R.K.B. : 18 Feet

DRILLOG HA GYRO SURVEY CALCULATIONS

Filename: gyro survey.ut
Minimum Curvature Method
Report Date/Time: 7/25/2014 / 11:36

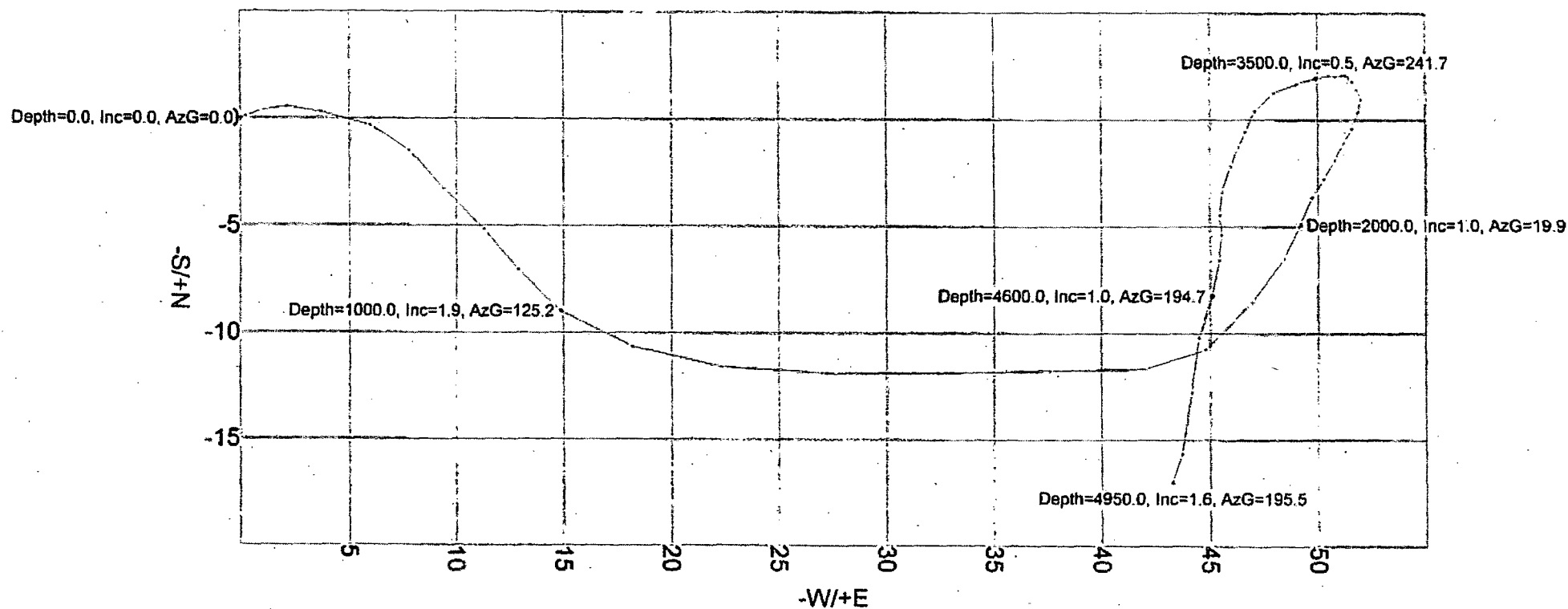
VES Survey International
Midland,Tx
(432)-563-5444
Surveyor: Tim Dillon
Asio Otis Federal 3H / API 30-015-42395

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section 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	0.00	----
100.00	0.33	67.12	100.00	0.11	0.26	0.11	0.29	67.12	0.33
200.00	0.67	71.57	200.00	0.41	1.08	0.41	1.15	69.36	0.34
300.00	0.57	92.78	299.99	0.57	2.13	0.57	2.20	75.12	0.25
400.00	1.25	102.57	399.98	0.30	3.69	0.30	3.71	86.29	0.69
500.00	1.47	107.58	499.95	-0.32	5.98	-0.32	5.99	93.06	0.25
600.00	1.12	142.75	599.92	-1.48	7.79	-1.48	7.93	100.78	0.85
700.00	1.64	135.06	699.90	-3.27	9.39	-3.27	9.94	109.21	0.55
800.00	1.47	134.32	799.86	-5.18	11.31	-5.18	12.44	114.59	0.17
900.00	1.34	146.04	899.83	-7.04	12.88	-7.04	14.68	118.66	0.31
1000.00	1.91	125.25	999.79	-8.97	14.90	-8.97	17.39	121.07	0.81
1100.00	2.37	109.70	1099.72	-10.63	18.21	-10.63	21.09	120.29	0.74
1200.00	2.54	96.74	1199.63	-11.59	22.36	-11.59	25.18	117.41	0.58
1300.00	3.07	90.39	1299.51	-11.87	27.23	-11.87	29.70	113.55	0.62
1400.00	2.85	89.31	1399.38	-11.86	32.39	-11.86	34.49	110.11	0.23
1500.00	3.11	88.60	1499.24	-11.76	37.58	-11.76	39.38	107.38	0.26
1600.00	1.92	88.82	1599.14	-11.66	41.97	-11.66	43.56	105.53	1.18
1700.00	1.64	52.50	1699.10	-10.75	44.78	-10.75	46.06	103.50	1.14
1800.00	1.94	37.49	1799.05	-8.54	46.95	-8.54	47.72	100.31	0.55

measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
1900.00	0.96	31.83	1899.02	-6.49	48.42	-6.49	48.85	97.63	0.99
2000.00	1.04	19.95	1999.00	-4.92	49.17	-4.92	49.42	95.72	0.22
2100.00	0.56	30.01	2098.99	-3.64	49.73	-3.64	49.86	94.19	0.49
2200.00	0.62	35.43	2198.98	-2.77	50.29	-2.77	50.37	93.15	0.08
2300.00	0.55	22.85	2298.98	-1.89	50.79	-1.89	50.83	92.13	0.15
2400.00	0.49	32.08	2398.98	-1.09	51.20	-1.09	51.21	91.22	0.10
2500.00	0.42	27.65	2498.97	-0.40	51.60	-0.40	51.60	90.45	0.08
2600.00	0.55	16.60	2598.97	0.38	51.90	0.38	51.90	89.58	0.16
2700.00	0.17	366.71	2698.97	0.99	52.03	0.99	52.04	88.91	0.40
2800.00	0.39	329.52	2798.97	1.42	51.85	1.42	51.87	88.43	0.25
2900.00	0.12	323.02	2898.96	1.80	51.62	1.80	51.65	88.00	0.27
3000.00	0.17	308.06	2998.96	1.98	51.44	1.98	51.48	87.80	0.06
3100.00	0.04	324.03	3098.96	2.09	51.30	2.09	51.35	87.66	0.13
3200.00	0.21	254.21	3198.96	2.07	51.10	2.07	51.15	87.68	0.20
3300.00	0.12	272.51	3298.96	2.02	50.82	2.02	50.86	87.72	0.11
3400.00	0.27	285.06	3398.96	2.09	50.49	2.09	50.53	87.63	0.15
3500.00	0.46	241.69	3498.96	1.96	49.92	1.96	49.95	87.75	0.32
3600.00	0.61	260.41	3598.96	1.68	49.04	1.68	49.07	88.03	0.23
3700.00	0.73	239.97	3698.95	1.28	47.97	1.28	47.99	88.48	0.26
3800.00	0.71	211.40	3798.94	0.43	47.10	0.43	47.10	89.48	0.36
3900.00	0.54	196.58	3898.94	-0.55	46.64	-0.55	46.64	90.68	0.24
4000.00	0.35	210.41	3998.93	-1.26	46.35	-1.26	46.37	91.56	0.22
4100.00	0.79	200.34	4098.93	-2.17	45.98	-2.17	46.01	92.70	0.45
4200.00	0.68	196.75	4198.92	-3.38	45.55	-3.38	45.68	94.24	0.12
4300.00	0.59	171.69	4298.91	-4.45	45.46	-4.45	45.67	95.59	0.29
4400.00	0.47	181.17	4398.91	-5.37	45.52	-5.37	45.84	96.73	0.15
4500.00	0.92	186.84	4498.90	-6.57	45.42	-6.57	45.89	98.24	0.45
4600.00	1.03	194.72	4598.89	-8.23	45.09	-8.23	45.84	100.35	0.17
4700.00	1.33	199.29	4698.87	-10.20	44.48	-10.20	45.64	102.91	0.32
4800.00	1.68	178.58	4798.83	-12.76	44.14	-12.76	45.94	106.12	0.64
4900.00	1.72	199.09	4898.79	-15.64	43.68	-15.64	46.40	109.70	0.61
4950.00	1.59	195.46	4948.77	-17.02	43.25	-17.02	46.48	111.48	0.33



VES Survey International
Midland, Tx
(432)-563-5444
Surveyor: Tim Dillon
Asio Otis Federal 3H / API 30-015-42395



VES Survey Date: 07/17/2014



Standard_report



Company:	COG Operating LLC	Local Co-ordinate Reference:	Well: Asio Otus Federal Well No. 3H
Project:	Eddy County, New Mexico	TVD Reference:	RKB=3338.1+17 @ 3356.10uoft (Pablot 2)
Site:	Asio Otus Federal	MD Reference:	RKB=3338.1+17 @ 3356.10uoft (Pablot 2)
Well:	Asio Otus Federal Well No. 3H	North Reference:	Grid
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Surveys Original Hole	Database:	EDM 5000.1 Database

MD (uoft)	Inc (°)	Asd (azimuth) (°)	TVD (uoft)	NBS (uoft)	EW (uoft)	DLeg (°/100ft)	V. Sec (uoft)	Northing (uoft)	Easting (uoft)
10,212.00	90.50	1.20	5,594.32	4,839.83	356.32	0.57	4,852.72	381,384.13	531,680.32
10,289.00	90.50	1.20	5,593.56	4,926.61	358.14	0.00	4,939.59	381,471.11	531,682.14
Survey projected to 10289.00 MD									

Design Annotations				
Measured Depth (uoft)	Vertical Depth (uoft)	Local Coordinates		Comment
		+N-S (uoft)	+E-W (uoft)	
100.00	100.00	0.11	0.27	Gyro
4,997.00	4,995.75	-18.38	42.85	MWD surveys
5,628.00	5,514.24	279.80	126.42	330 Hard line intercept @ 5628 MD
10,289.00	5,593.56	4,926.61	358.14	Survey projected to 10289.00 MD



Survey Report - Geographic



Company:	COG Operating LLC	Local Co-ordinate Reference:	Well Asio Otus Federal Well No. 3H
Project:	Eddy County, New Mexico	TVD Reference:	RKB=3339.1+17 @ 3356.10usft (Patriot 2)
Site:	Asio Otus Federal	MD Reference:	RKB=3339.1+17 @ 3356.10usft (Patriot 2)
Well:	Asio Otus Federal Well No. 3H	North Reference:	Grid
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Surveys Original Hole	Database:	EDM 5000.1 Database

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

Site:	Asio Otus Federal		
Site Position:	Map	Northing:	376,544.50 usft
From:		Easting:	531,304.00 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	32.03519515
		Longitude:	-104.23231238
		Grid Convergence:	0.05 °

Well:	Asio Otus Federal Well No. 3H		
Well Position	+N-S	0.00 usft	Northing:
	+E-W	0.00 usft	Easting:
Position Uncertainty	0.00 usft	Wellhead Elevation:	usft
		Latitude:	32.03519515
		Longitude:	-104.23231238
		Ground Level:	3,339.10 usft

Wellbore:	Original Hole		
Magnetics	Model Name	Sample Date	Declination
	IGRF2010	2/18/2014	7.55
			Dip Angle
			59.83
			Field Strength
			48,163

Design:	Surveys Original Hole		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
		Tie On Depth:	0.00
Vertical Section:	Depth From (TVD)	+N-S	+E-W
	(usft)	(usft)	(usft)
	0.00	0.00	0.00
			4.31

Survey Program	Date: 7/26/2014		
From	To	Survey (Wellbore)	Tool Name
(usft)	(usft)		Description
100.00	4,950.00	Gyro (Original Hole)	NS-GYRO-MS
4,997.00	10,299.00	MWD TIP=4950 MD (Original Hole)	MWD
			North sensing gyrocompassing m/s
			MWD - Standard

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N-S (usft)	+E/W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
0.00	0.00	0.00	0.00	0.00	0.00	376,544.50	531,304.00	32.03519515	-104.23231238	
100.00	0.33	67.12	100.00	0.11	0.27	376,544.61	531,304.27	32.03519545	-104.23231152	
Gyro										
200.00	0.67	71.57	200.00	0.41	1.09	376,544.91	531,305.09	32.03519627	-104.23230887	
300.00	0.57	92.78	299.99	0.57	2.14	376,545.07	531,306.14	32.03519671	-104.23230548	
400.00	1.25	102.57	399.98	0.31	3.70	376,544.81	531,307.70	32.03519598	-104.23230044	
500.00	1.47	107.58	499.95	-0.32	5.99	376,544.18	531,309.99	32.03519428	-104.23229306	
600.00	1.12	142.75	599.92	-1.48	7.80	376,543.02	531,311.80	32.03519105	-104.23228721	
700.00	1.64	135.06	699.89	-3.27	9.40	376,541.23	531,313.40	32.03518613	-104.23228204	
800.00	1.47	134.32	799.86	-5.18	11.33	376,539.32	531,315.33	32.03518087	-104.23227583	
900.00	1.34	146.04	899.83	-7.05	12.90	376,537.45	531,318.90	32.03517574	-104.23227076	



Survey Report - Geographic



Company:	COG Operating LLC	Local Co-ordinate Reference:	Well Asio Otus Federal Well No. 3H
Project:	Eddy County, New Mexico	TVD Reference:	RKB=3339.1+17 @ 3356.10usft (Patriot 2)
Site:	Asio Otus Federal	MD Reference:	RKB=3339.1+17 @ 3356.10usft (Patriot 2)
Well:	Asio Otus Federal Well No. 3H	North Reference:	Grid
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Surveys Original Hole	Database:	EDM 5000.1 Ddatabase

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
5,408.00	37.10	15.60	5,389.35	124.85	74.50	376,888.45	531,378.50	32.03553845	-104.23207159
5,440.00	39.60	18.40	5,394.44	143.93	80.31	376,888.43	531,384.31	32.03559081	-104.23205278
5,472.00	43.10	18.70	5,418.48	163.97	87.04	376,708.48	531,391.04	32.03564588	-104.23203100
5,504.00	46.60	18.70	5,441.14	185.34	94.27	376,729.84	531,398.28	32.03570442	-104.23200759
5,535.00	50.30	19.10	5,461.70	207.28	101.79	376,751.78	531,405.79	32.03576472	-104.23198327
5,567.00	54.00	18.70	5,481.33	231.19	109.97	376,775.88	531,413.97	32.03583041	-104.23195879
5,599.00	57.40	18.70	5,499.36	256.22	118.44	376,800.72	531,422.45	32.03589921	-104.23192937
5,628.00	60.86	18.70	5,514.24	279.80	126.42	376,824.29	531,430.43	32.03596400	-104.23190355
330 Hard line intercept @ 5628 MD									
5,630.00	61.10	18.70	5,515.21	281.45	128.98	376,825.95	531,430.99	32.03596855	-104.23190173
5,662.00	65.10	17.30	5,529.69	308.59	135.80	376,853.09	531,438.80	32.03604313	-104.23187322
5,694.00	69.00	16.30	5,542.16	336.79	144.31	376,881.29	531,448.31	32.03612065	-104.23184566
5,725.00	72.70	15.90	5,552.33	364.92	152.43	376,909.42	531,458.43	32.03619796	-104.23181938
5,757.00	78.10	14.90	5,560.39	394.77	160.64	376,939.27	531,464.64	32.03627998	-104.23179277
5,783.00	82.20	14.50	5,564.84	419.54	167.14	376,964.04	531,471.14	32.03634807	-104.23177172
5,815.00	85.00	13.80	5,568.41	450.37	174.91	376,984.87	531,478.92	32.03643281	-104.23174655
5,847.00	87.60	13.10	5,570.47	481.43	182.34	377,025.93	531,486.34	32.03651818	-104.23172249
5,879.00	88.70	13.10	5,571.50	512.58	189.59	377,057.08	531,493.59	32.03660378	-104.23169900
5,942.00	89.20	9.60	5,572.66	574.33	201.98	377,118.83	531,505.99	32.03677350	-104.23165881
6,037.00	89.70	6.80	5,573.57	668.34	215.53	377,212.84	531,519.53	32.03703191	-104.23161481
6,132.00	89.60	6.10	5,574.15	762.74	226.20	377,307.24	531,530.20	32.03729139	-104.23158008
6,227.00	88.30	2.90	5,575.89	857.42	233.65	377,401.91	531,537.68	32.03755184	-104.23155574
6,323.00	88.70	2.20	5,578.40	953.29	237.92	377,497.79	531,541.93	32.03781519	-104.23154167
6,418.00	89.00	1.50	5,580.31	1,048.22	240.99	377,592.72	531,544.99	32.03807815	-104.23153149
6,513.00	91.50	1.90	5,579.80	1,143.17	243.81	377,687.67	531,547.81	32.03833717	-104.23152211
6,608.00	90.30	1.20	5,578.40	1,238.12	246.38	377,782.82	531,550.38	32.03859819	-104.23151353
6,703.00	89.40	2.20	5,578.65	1,333.07	249.20	377,877.57	531,553.20	32.03885922	-104.23150414
6,799.00	89.90	2.20	5,579.24	1,429.00	252.88	377,973.50	531,556.88	32.03912292	-104.23149186
6,884.00	90.30	1.50	5,579.07	1,523.95	255.95	378,068.45	531,559.95	32.03938394	-104.23148177
6,989.00	90.30	1.20	5,578.58	1,618.92	258.19	378,163.42	531,562.19	32.03964502	-104.23147428
7,084.00	92.20	0.50	5,578.50	1,713.86	259.59	378,258.38	531,563.60	32.03990607	-104.23146942
7,179.00	88.50	1.20	5,575.92	1,808.86	261.00	378,353.35	531,565.01	32.04016715	-104.23146459
7,274.00	89.70	1.20	5,577.42	1,903.82	262.99	378,448.32	531,567.00	32.04042821	-104.23145788
7,372.00	90.50	0.80	5,577.25	2,001.81	264.70	378,543.30	531,568.71	32.04069757	-104.23145208
7,467.00	89.30	1.80	5,577.41	2,096.78	266.94	378,641.27	531,570.94	32.04095865	-104.23144455
7,562.00	87.60	2.50	5,579.98	2,191.67	270.59	378,738.17	531,574.59	32.04121950	-104.23143249
7,657.00	88.50	2.20	5,583.21	2,286.53	274.48	378,831.03	531,578.48	32.04148028	-104.23141964
7,752.00	88.50	1.40	5,585.70	2,381.45	277.48	378,925.95	531,581.48	32.04174121	-104.23140973
7,847.00	88.70	1.00	5,588.02	2,476.40	279.45	379,020.90	531,583.45	32.04200223	-104.23140302
7,942.00	88.00	0.50	5,590.76	2,571.35	280.69	379,115.85	531,584.70	32.04226326	-104.23139872
8,037.00	90.70	0.50	5,591.83	2,666.33	281.52	379,210.83	531,585.53	32.04252437	-104.23139575
8,132.00	91.60	1.70	5,589.93	2,761.29	283.35	379,305.79	531,587.35	32.04278542	-104.23138958
8,227.00	91.70	2.10	5,587.19	2,856.20	286.50	379,400.70	531,590.50	32.04304632	-104.23137913
8,309.00	90.90	2.10	5,585.33	2,938.13	289.50	379,482.82	531,593.50	32.04327152	-104.23136918
8,404.00	88.80	2.70	5,585.58	3,033.04	293.48	379,577.54	531,597.48	32.04353243	-104.23135608
8,499.00	88.80	2.20	5,587.57	3,127.93	297.54	379,672.43	531,601.54	32.04379328	-104.23134268
8,584.00	88.80	2.40	5,588.73	3,222.84	301.35	379,767.34	531,605.35	32.04405420	-104.23133007
8,689.00	90.40	1.80	5,588.56	3,317.78	304.83	379,862.28	531,608.83	32.04431517	-104.23131855
8,785.00	90.00	0.60	5,588.23	3,413.76	306.84	379,958.25	531,610.84	32.04457901	-104.23131177
8,880.00	90.10	0.50	5,588.15	3,508.75	307.75	380,053.25	531,611.75	32.04484018	-104.23130853
8,975.00	88.40	2.00	5,589.39	3,603.71	309.82	380,148.21	531,613.83	32.04510122	-104.23130156
9,070.00	89.00	2.00	5,591.55	3,698.63	313.14	380,243.13	531,617.14	32.04536214	-104.23129057
9,165.00	90.40	2.00	5,592.04	3,793.57	316.45	380,338.07	531,620.46	32.04562313	-104.23127958
9,260.00	88.60	2.80	5,592.87	3,888.48	320.43	380,432.98	531,624.43	32.04588403	-104.23126845
9,355.00	89.00	2.80	5,594.88	3,983.34	325.07	380,527.84	531,629.07	32.04614481	-104.23125118



Survey Report - Geographic

N-30NE

Company:	COG Operating LLC	Local Co-ordinate Reference:	Well Asio Otus Federal Well No. 3H
Project:	Eddy County, New Mexico	TVD Reference:	RKB=3339.1+17 @ 3356.10usft (Patriot 2)
Site:	Asio Otus Federal	MD Reference:	RKB=3339.1+17 @ 3356.10usft (Patriot 2)
Well:	Asio Otus Federal Well No. 3H	North Reference:	Grid
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Surveys Original Hole	Database:	EDM 5000.1 Database

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N-S (usft)	+E-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
9,451.00	88.50	2.50	5,596.98	4,078.22	328.51	380,623.72	531,833.51	32.04640836	-104.23123857
9,547.00	89.30	2.60	5,598.80	4,175.10	333.78	380,719.60	531,837.78	32.04667195	-104.23122250
9,642.00	89.30	2.60	5,599.96	4,270.00	338.09	380,814.50	531,842.09	32.04693281	-104.23120830
9,737.00	90.20	2.00	5,600.37	4,364.92	341.90	380,909.42	531,845.80	32.04719374	-104.23119571
9,832.00	90.00	1.80	5,600.21	4,459.87	345.05	381,004.37	531,849.05	32.04745475	-104.23118525
9,927.00	92.20	2.30	5,598.38	4,554.78	348.45	381,099.28	531,852.45	32.04771567	-104.23117400
10,022.00	90.10	2.00	5,598.48	4,649.69	352.01	381,194.19	531,856.01	32.04797657	-104.23116221
10,117.00	91.00	1.00	5,595.57	4,744.65	354.50	381,289.15	531,858.50	32.04823762	-104.23115388
10,212.00	90.50	1.20	5,594.32	4,839.63	356.32	381,384.13	531,860.32	32.04849871	-104.23114771
10,299.00	90.50	1.20	5,593.58	4,926.61	358.14	381,471.10	531,862.15	32.04873781	-104.23114157

Survey projected to 10299.00 MD

Measured Depth (usft)	Vertical Depth (usft)	+N-S (usft)	+E-W (usft)	Comment
100.00	100.00	0.11	0.27	Gyro
4,997.00	4,995.75	-18.38	42.85	MWD surveys
5,628.00	5,514.24	279.80	128.42	330 Hard line intercept @ 5628 MD
10,299.00	5,593.58	4,926.61	358.14	Survey projected to 10299.00 MD