

Results of Directional Survey

API number:	30-025-41558		
OGRID:		Operator:	COG PRODUCTION, LLC
		Property:	KING TUT FEDERAL # 2H

surface	ULSTR:	C	30	T 24S	R 32E
				190 FSL	1650 FWL

BH Loc	ULSTR:	N	31	T 24S	R 32E
18142.00	MD	8415.4	TVD	343 FSL	1666 FWL

Top Perf/OH	ULSTR:	C	30	T 24S	R 32E
8615	MD	8394.7	TVD	698 FNL	1598 FWL

Bot Perf/OH	ULSTR:	N	31	T 24S	R 32E
17975	MD	8415.6	TVD	510 FSL	1658 FWL

	MD	N/S	E/W	VD
	8588.00	434710.21	690615.71	8386.50
TOP PERFS/OH	8615.00	434684.64	690618.46	8394.70
	8615.00	434684.64	690618.46	8394.70
	17926.00	425380.86	690676.24	8416.20
BOT PERFS/OH	17975.00	425331.91	690678.34	8415.57
	18020.00	425286.95	690680.26	8415.00

NEXT TO LAST	18092.00	425215.04	690683.78	8414.90
LAST READING	18142.00	425165.10	690686.22	8415.40
TD	18142.00	425165.10	690686.22	8415.40

Surface Loc	435382.40	Northing	690607.10	Easting
	190	FN	1650	FW
Projected BHL	425165.10	Northing	690686.22	Easting
Location of				
Top Perfs/OH	434684.64	Northing	690618.46	Easting
Bot Perfs/OH	425331.91	Northing	690678.34	Easting

SUMMARY of Subsurface Locations

Surface Loc	C-30-24S-32E	190	FN	1650	FW	Vert. Depth
Top Perfs/OH	C-30-24S-32E	698	FN	1598	FW	8394.70 NW
Bot Perfs/OH	N-31-24S-32E	510	FS	1658	FW	8415.57 SW
Projected TD	N-31-24S-32E	343	FS	1666	FW	8415.40 SW

NE		Northing		Easting	NAD 27

FEB 19 2015



November 17, 2014

HOBBS
FEB 13 2015
RECEIVED

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

30-025-41558

Attn: Kanicia Castillo

RE: King Tut Federal 2H

Please find enclosed a copy of the survey from 0.00' to 7779.00' ran on the above referenced well.

Sincerely,

Keith Havelka
Operations

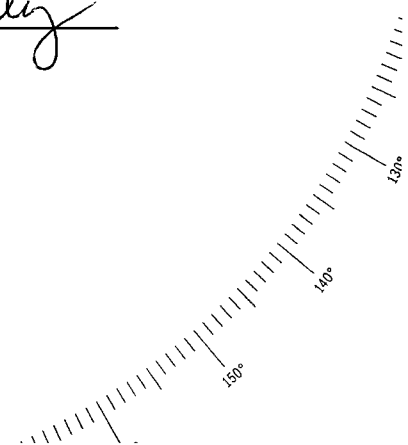
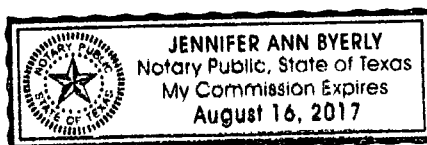
STATE OF TEXAS §

§

COUNTY OF NUECES §

This instrument was acknowledged before me on the 17 day of November A.D., 2014, by Keith Havelka.

Jennifer Ann Byerly
Notary Public, State of Texas





Company: Concho Oil & Gas
Lease/Well: King Tut Federal/2H

Rig Name: Independence 205
State/County: New Mexico/Lea
Latitude: 32.19, Longitude: -103.72
GRID North is 0.33 Degrees East of True North
VS-Azi: 0.00 Degrees



Depth Reference : RKB= 26 Feet

DRILLOG HA GYRO SURVEY CALCULATIONS

Filename: ...ut federal #2h gyro survey.ut
Minimum Curvature Method
Report Date/Time: 11/17/2014 / 14:33

VES Survey International
Fort Worth, Texas
817-741-3610
Surveyor: Logan Henry
King Tut Federal 2H / API 30-025-41558

HOBES OGD

FEB 13 2015

RECEIVED

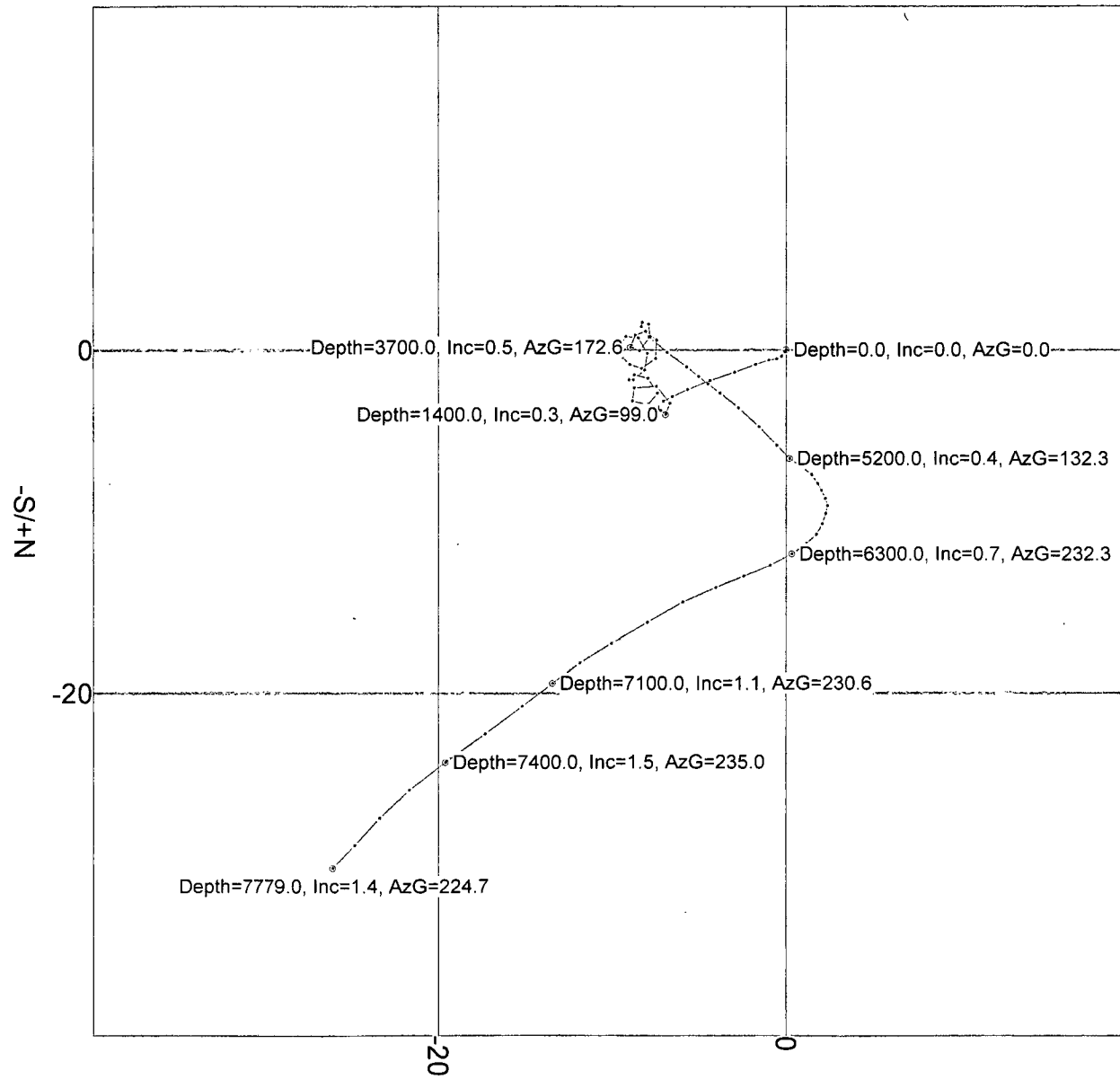
Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	****
100.00	0.16	214.77	100.00	-0.11	-0.08	-0.11	0.14	214.77	0.16
200.00	0.22	210.97	200.00	-0.39	-0.26	-0.39	0.47	213.22	0.06
300.00	0.22	272.52	300.00	-0.54	-0.55	-0.54	0.77	225.26	0.23
400.00	0.30	253.08	400.00	-0.61	-1.00	-0.61	1.17	238.47	0.12
500.00	0.62	251.57	499.99	-0.86	-1.76	-0.86	1.96	243.99	0.31
600.00	0.84	246.85	599.99	-1.32	-2.95	-1.32	3.23	245.90	0.23
700.00	0.88	255.36	699.97	-1.80	-4.37	-1.80	4.72	247.58	0.13
800.00	0.73	239.06	799.97	-2.33	-5.66	-2.33	6.12	247.66	0.27
900.00	0.38	255.94	899.96	-2.74	-6.53	-2.74	7.08	247.28	0.38
1000.00	0.30	226.54	999.96	-3.00	-7.05	-3.00	7.66	246.95	0.19
1100.00	0.25	216.93	1099.96	-3.36	-7.38	-3.36	8.11	245.52	0.07
1200.00	0.18	54.06	1199.96	-3.44	-7.38	-3.44	8.14	245.00	0.43
1300.00	0.23	164.98	1299.96	-3.54	-7.20	-3.54	8.02	243.82	0.34
1400.00	0.27	98.97	1399.96	-3.77	-6.91	-3.77	7.87	241.40	0.28
1500.00	0.77	0.28	1499.95	-3.14	-6.67	-3.14	7.37	244.83	0.85
1600.00	0.98	293.26	1599.94	-2.13	-7.46	-2.13	7.75	254.08	0.98
1700.00	0.74	228.19	1699.93	-2.22	-8.72	-2.22	9.00	255.73	0.95
1800.00	0.59	132.82	1799.93	-3.00	-8.83	-3.00	9.32	251.24	0.99

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	0.61	74.23	1899.93	-3.20	-7.94	-3.20	8.56	248.02	0.59
2000.00	0.60	4.68	1999.92	-2.54	-7.39	-2.54	7.81	251.05	0.69
2100.00	0.79	299.06	2099.91	-1.68	-7.95	-1.68	8.12	258.09	0.77
2200.00	0.25	235.18	2199.91	-1.46	-8.73	-1.46	8.85	260.47	0.72
2300.00	0.23	216.30	2299.91	-1.75	-9.03	-1.75	9.20	259.03	0.08
2400.00	0.46	66.45	2399.91	-1.75	-8.77	-1.75	8.95	258.73	0.67
2500.00	0.56	34.34	2499.91	-1.19	-8.13	-1.19	8.22	261.70	0.30
2600.00	0.67	347.50	2599.90	-0.21	-7.98	-0.21	7.99	268.49	0.50
2700.00	0.57	310.49	2699.89	0.69	-8.49	0.69	8.52	274.63	0.41
2800.00	0.48	235.99	2799.89	0.78	-9.22	0.78	9.25	274.81	0.64
2900.00	0.42	184.32	2899.89	0.18	-9.59	0.18	9.60	271.05	0.40
3000.00	0.36	141.59	2999.89	-0.44	-9.43	-0.44	9.44	267.36	0.29
3100.00	0.37	127.23	3099.88	-0.87	-8.98	-0.87	9.02	264.44	0.09
3200.00	0.48	93.68	3199.88	-1.09	-8.31	-1.09	8.38	262.49	0.27
3300.00	0.83	33.25	3299.88	-0.52	-7.49	-0.52	7.51	266.05	0.72
3400.00	0.67	323.73	3399.87	0.56	-7.44	0.56	7.46	274.28	0.86
3500.00	0.33	278.37	3499.87	1.07	-8.07	1.07	8.14	277.53	0.49
3600.00	0.47	231.60	3599.86	0.85	-8.67	0.85	8.71	275.60	0.35
3700.00	0.52	172.62	3699.86	0.15	-8.94	0.15	8.94	270.93	0.49
3800.00	0.60	61.40	3799.86	-0.06	-8.43	-0.06	8.43	269.62	0.92
3900.00	0.66	14.13	3899.85	0.76	-7.83	0.76	7.86	275.51	0.51
4000.00	0.32	307.87	3999.85	1.49	-7.91	1.49	8.05	280.67	0.61
4100.00	0.17	246.25	4099.85	1.60	-8.26	1.60	8.42	280.98	0.28
4200.00	0.24	159.23	4199.85	1.34	-8.32	1.34	8.43	279.18	0.29
4300.00	0.63	137.78	4299.85	0.74	-7.88	0.74	7.91	275.36	0.41
4400.00	0.97	125.81	4399.84	-0.16	-6.82	-0.16	6.83	268.65	0.38
4500.00	0.63	128.91	4499.83	-1.00	-5.71	-1.00	5.80	260.04	0.34
4600.00	0.38	128.65	4599.82	-1.55	-5.02	-1.55	5.26	252.81	0.26
4700.00	0.42	130.89	4699.82	-2.00	-4.49	-2.00	4.92	246.03	0.04
4800.00	0.60	124.56	4799.82	-2.53	-3.79	-2.53	4.56	236.27	0.19
4900.00	0.98	132.00	4899.81	-3.40	-2.73	-3.40	4.36	218.77	0.39
5000.00	0.87	134.58	4999.79	-4.50	-1.56	-4.50	4.76	199.08	0.12
5100.00	0.84	138.42	5099.78	-5.57	-0.53	-5.57	5.60	185.45	0.07
5200.00	0.38	132.26	5199.78	-6.34	0.20	-6.34	6.34	178.23	0.46
5300.00	0.51	120.08	5299.77	-6.79	0.83	-6.79	6.84	173.04	0.17
5400.00	0.41	138.13	5399.77	-7.28	1.46	-7.28	7.42	168.69	0.18
5500.00	0.32	153.81	5499.77	-7.80	1.82	-7.80	8.01	166.87	0.14
5600.00	0.20	151.01	5599.77	-8.20	2.03	-8.20	8.45	166.12	0.12
5700.00	0.40	156.31	5699.76	-8.67	2.25	-8.67	8.96	165.45	0.20

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
5800.00	0.13	186.69	5799.76	-9.11	2.38	-9.11	9.41	165.37	0.29
5900.00	0.38	195.48	5899.76	-9.54	2.28	-9.54	9.81	166.59	0.25
6000.00	0.36	200.78	5999.76	-10.16	2.08	-10.16	10.37	168.45	0.04
6100.00	0.46	215.54	6099.76	-10.78	1.73	-10.78	10.92	170.87	0.14
6200.00	0.47	238.30	6199.75	-11.32	1.15	-11.32	11.37	174.18	0.18
6300.00	0.69	232.26	6299.75	-11.90	0.33	-11.90	11.90	178.42	0.23
6400.00	0.95	248.83	6399.74	-12.57	-0.92	-12.57	12.60	184.18	0.35
6500.00	0.92	245.27	6499.73	-13.20	-2.42	-13.20	13.42	190.40	0.06
6600.00	1.07	250.33	6599.71	-13.85	-4.03	-13.85	14.43	196.23	0.17
6700.00	1.31	242.02	6699.69	-14.70	-5.91	-14.70	15.85	201.91	0.29
6800.00	1.41	238.34	6799.66	-15.88	-7.97	-15.88	17.77	206.65	0.14
6900.00	1.34	240.82	6899.63	-17.10	-10.04	-17.10	19.83	210.42	0.10
7000.00	1.12	235.31	6999.61	-18.23	-11.86	-18.23	21.75	213.06	0.24
7100.00	1.15	230.62	7099.59	-19.42	-13.44	-19.42	23.62	214.69	0.10
7200.00	1.38	233.53	7199.57	-20.77	-15.18	-20.77	25.73	216.17	0.24
7300.00	1.67	232.50	7299.53	-22.37	-17.31	-22.37	28.29	217.73	0.30
7400.00	1.54	234.96	7399.49	-24.03	-19.57	-24.03	30.99	219.15	0.15
7500.00	1.49	229.42	7499.46	-25.65	-21.65	-25.65	33.56	220.17	0.15
7600.00	1.22	221.83	7599.43	-27.29	-23.35	-27.29	35.91	220.55	0.32
7700.00	1.24	221.83	7699.41	-28.89	-24.78	-28.89	38.06	220.62	0.01
7779.00	1.44	224.69	7778.38	-30.23	-26.05	-30.23	39.90	220.75	0.27



VES Survey International
Fort Worth, Texas
817-741-3610
Surveyor: Logan Henry
King Tut Federal 2H / API 30-025-41558



-W/+E
V.E.S. Survey Date: 11/5/2014



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COG Production LLC

Lea County, NM
King Tut Federal
#2H

OH

Survey: MWD #1

Survey Report - Geographic

20 November, 2014



Wellplanning Survey Report - Geographic

Company:	COG Production LLC	Local Co-ordinate Reference:	Well #2H
Project:	Lea County, NM	TVD Reference:	WELL @ 3572.9usft (Original Well Elev)
Site:	King Tut Federal	MD Reference:	WELL @ 3572.9usft (Original Well Elev)
Well:	#2H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.1 Single User Db

Project	Lea County, NM		
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		King Tut Federal			
Site Position:		Northing:	435,193.30 usft	Latitude:	32° 11' 41.864 N
From:	Map	Easting:	690,607.10 usft	Longitude:	103° 43' 1.772 W
Position Uncertainty:	2.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.33 °

Well	#2H					
Well Position	+N/-S	0.0 usft	Northing:	435,193.30 usft	Latitude:	32° 11' 41.864 N
	+E/-W	0.0 usft	Easting:	690,607.10 usft	Longitude:	103° 43' 1.772 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level:	3,542.9 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	8/19/2013	7.38	60.08	48,364

Design	OH				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.0	0.0	0.0		179.65

Survey Program	Date	11/20/2014			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
100.0	7,779.0	GYRO (OH)	MWD	MWD - Standard	
7,835.0	18,142.0	MWD #1 (OH)	MWD	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	
7,779.0	1.44	225.00	7,778.4	-30.1	-26.2	435,163.19	690,580.93	32° 11' 41.568 N	103° 43' 2.079 W	
7,835.0	4.00	206.70	7,834.3	-32.4	-27.5	435,160.94	690,579.56	32° 11' 41.545 N	103° 43' 2.095 W	
7,867.0	7.90	190.90	7,866.1	-35.5	-28.5	435,157.78	690,578.64	32° 11' 41.514 N	103° 43' 2.106 W	
7,898.0	12.30	188.50	7,896.7	-40.9	-29.3	435,152.42	690,577.75	32° 11' 41.461 N	103° 43' 2.117 W	
7,929.0	16.00	189.20	7,926.7	-48.4	-30.5	435,144.94	690,576.58	32° 11' 41.387 N	103° 43' 2.131 W	
7,961.0	18.80	192.30	7,957.2	-57.8	-32.3	435,135.54	690,574.77	32° 11' 41.294 N	103° 43' 2.152 W	
7,992.0	20.10	191.60	7,986.5	-67.9	-34.5	435,125.45	690,572.64	32° 11' 41.195 N	103° 43' 2.178 W	
8,023.0	21.80	186.30	8,015.4	-78.8	-36.2	435,114.50	690,570.93	32° 11' 41.086 N	103° 43' 2.198 W	
8,055.0	25.90	181.40	8,044.7	-91.7	-37.0	435,101.61	690,570.11	32° 11' 40.959 N	103° 43' 2.209 W	
8,086.0	29.70	177.90	8,072.1	-106.1	-36.9	435,087.16	690,570.23	32° 11' 40.816 N	103° 43' 2.209 W	
8,117.0	33.30	175.10	8,098.5	-122.3	-35.9	435,071.00	690,571.24	32° 11' 40.656 N	103° 43' 2.198 W	



Wellplanning
Survey Report - Geographic

Company:	COG Production LLC	Local Co-ordinate Reference:	Well #2H
Project:	Lea County, NM	TVD Reference:	WELL @ 3572.9usft (Original Well Elev)
Site:	King Tut Federal	MD Reference:	WELL @ 3572.9usft (Original Well Elev)
Well:	#2H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.1 Single User Db

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
8,149.0	36.60	174.40	8,124.8	-140.6	-34.2	435,052.75	690,572.92	32° 11' 40.475 N	103° 43' 2.180 W
8,180.0	39.20	172.60	8,149.2	-159.5	-32.0	435,033.83	690,575.08	32° 11' 40.288 N	103° 43' 2.156 W
8,211.0	41.00	171.60	8,172.9	-179.2	-29.3	435,014.05	690,577.83	32° 11' 40.092 N	103° 43' 2.125 W
8,243.0	43.50	171.20	8,196.6	-200.5	-26.0	434,992.78	690,581.05	32° 11' 39.881 N	103° 43' 2.089 W
8,274.0	45.70	171.20	8,218.7	-222.0	-22.7	434,971.27	690,584.38	32° 11' 39.668 N	103° 43' 2.052 W
8,306.0	48.40	171.20	8,240.5	-245.2	-19.1	434,948.13	690,587.96	32° 11' 39.439 N	103° 43' 2.011 W
8,337.0	51.70	171.20	8,260.4	-268.7	-15.5	434,924.65	690,591.60	32° 11' 39.206 N	103° 43' 1.971 W
8,368.0	54.40	171.60	8,279.0	-293.1	-11.8	434,900.15	690,595.30	32° 11' 38.964 N	103° 43' 1.929 W
8,400.0	54.70	174.00	8,297.6	-319.0	-8.5	434,874.29	690,598.56	32° 11' 38.708 N	103° 43' 1.893 W
8,431.0	56.30	173.30	8,315.1	-344.4	-5.7	434,848.90	690,601.39	32° 11' 38.456 N	103° 43' 1.862 W
8,463.0	59.30	173.30	8,332.2	-371.3	-2.5	434,822.01	690,604.55	32° 11' 38.190 N	103° 43' 1.827 W
8,494.0	61.40	174.00	8,347.5	-398.1	0.4	434,795.24	690,607.53	32° 11' 37.925 N	103° 43' 1.794 W
8,525.0	63.70	174.40	8,361.8	-425.4	3.2	434,767.87	690,610.31	32° 11' 37.654 N	103° 43' 1.763 W
8,557.0	66.70	175.10	8,375.2	-454.4	5.9	434,738.95	690,612.96	32° 11' 37.368 N	103° 43' 1.734 W
8,588.0	70.60	174.00	8,386.5	-483.1	8.6	434,710.21	690,615.71	32° 11' 37.083 N	103° 43' 1.704 W
8,615.0	74.10	173.70	8,394.7	-508.7	11.4	434,684.64	690,618.46	32° 11' 36.830 N	103° 43' 1.674 W
8,647.0	77.20	173.30	8,402.6	-539.5	14.9	434,653.84	690,621.97	32° 11' 36.525 N	103° 43' 1.635 W
8,678.0	79.50	173.00	8,408.9	-569.6	18.5	434,623.69	690,625.60	32° 11' 36.226 N	103° 43' 1.595 W
8,710.0	80.90	173.30	8,414.3	-600.9	22.3	434,592.39	690,629.36	32° 11' 35.916 N	103° 43' 1.553 W
8,741.0	81.50	174.00	8,419.1	-631.4	25.6	434,561.94	690,632.74	32° 11' 35.615 N	103° 43' 1.516 W
8,772.0	82.20	175.10	8,423.5	-661.9	28.6	434,531.39	690,635.66	32° 11' 35.312 N	103° 43' 1.484 W
8,804.0	83.20	176.20	8,427.5	-693.6	31.0	434,499.74	690,638.07	32° 11' 34.999 N	103° 43' 1.458 W
8,835.0	83.90	176.20	8,431.0	-724.3	33.0	434,469.01	690,640.11	32° 11' 34.695 N	103° 43' 1.437 W
8,866.0	86.70	176.50	8,433.6	-755.1	35.0	434,438.18	690,642.07	32° 11' 34.390 N	103° 43' 1.416 W
8,898.0	89.90	176.90	8,434.5	-787.0	36.8	434,406.25	690,643.91	32° 11' 34.073 N	103° 43' 1.396 W
8,992.0	91.10	178.60	8,433.7	-881.0	40.5	434,312.33	690,647.60	32° 11' 33.144 N	103° 43' 1.360 W
9,086.0	90.30	178.30	8,432.6	-974.9	43.1	434,218.37	690,650.15	32° 11' 32.214 N	103° 43' 1.336 W
9,180.0	89.40	178.60	8,432.8	-1,068.9	45.6	434,124.41	690,652.69	32° 11' 31.284 N	103° 43' 1.313 W
9,274.0	90.80	178.60	8,432.6	-1,162.9	47.9	434,030.44	690,654.99	32° 11' 30.354 N	103° 43' 1.293 W
9,368.0	90.40	177.90	8,431.6	-1,256.8	50.8	433,936.49	690,657.86	32° 11' 29.424 N	103° 43' 1.266 W
9,462.0	91.00	177.90	8,430.5	-1,350.7	54.2	433,842.56	690,661.30	32° 11' 28.494 N	103° 43' 1.232 W
9,556.0	91.00	176.90	8,428.9	-1,444.6	58.5	433,748.67	690,665.56	32° 11' 27.565 N	103° 43' 1.188 W
9,650.0	89.40	177.20	8,428.5	-1,538.5	63.3	433,654.80	690,670.40	32° 11' 26.636 N	103° 43' 1.138 W
9,745.0	88.90	176.50	8,429.9	-1,633.3	68.5	433,559.96	690,675.62	32° 11' 25.697 N	103° 43' 1.084 W
9,839.0	90.30	177.60	8,430.6	-1,727.2	73.4	433,466.09	690,680.46	32° 11' 24.768 N	103° 43' 1.034 W
9,857.8	90.22	177.66	8,430.5	-1,746.0	74.1	433,447.31	690,681.24	32° 11' 24.582 N	103° 43' 1.026 W
Turquoise 30 Federal #1									
9,933.0	89.90	177.90	8,430.4	-1,821.1	77.1	433,372.16	690,684.15	32° 11' 23.838 N	103° 43' 0.997 W
10,027.0	91.00	181.10	8,429.7	-1,915.1	77.9	433,278.18	690,684.97	32° 11' 22.908 N	103° 43' 0.994 W
10,121.0	91.10	180.70	8,428.0	-2,009.1	76.4	433,184.21	690,683.49	32° 11' 21.978 N	103° 43' 1.017 W
10,215.0	89.90	180.00	8,427.2	-2,103.1	75.8	433,090.21	690,682.92	32° 11' 21.048 N	103° 43' 1.030 W
10,309.0	89.70	181.10	8,427.5	-2,197.1	74.9	432,996.22	690,682.02	32° 11' 20.118 N	103° 43' 1.047 W
10,403.0	90.10	181.10	8,427.6	-2,291.1	73.1	432,902.24	690,680.21	32° 11' 19.188 N	103° 43' 1.074 W
10,498.0	91.70	181.10	8,426.2	-2,386.0	71.3	432,807.27	690,678.39	32° 11' 18.248 N	103° 43' 1.102 W
10,592.0	90.10	180.70	8,424.7	-2,480.0	69.8	432,713.30	690,676.91	32° 11' 17.318 N	103° 43' 1.125 W
10,687.0	89.40	180.70	8,425.1	-2,575.0	68.7	432,618.31	690,675.75	32° 11' 16.378 N	103° 43' 1.145 W
10,781.0	89.90	180.40	8,425.7	-2,669.0	67.8	432,524.31	690,674.85	32° 11' 15.448 N	103° 43' 1.162 W
10,875.0	89.90	180.00	8,425.8	-2,763.0	67.4	432,430.31	690,674.52	32° 11' 14.518 N	103° 43' 1.172 W
10,969.0	91.10	179.70	8,425.0	-2,857.0	67.7	432,336.32	690,674.77	32° 11' 13.588 N	103° 43' 1.175 W
11,063.0	89.90	179.30	8,424.2	-2,951.0	68.5	432,242.33	690,675.59	32° 11' 12.658 N	103° 43' 1.172 W
11,157.0	91.00	179.00	8,423.5	-3,045.0	69.9	432,148.34	690,676.98	32° 11' 11.728 N	103° 43' 1.162 W
11,251.0	90.60	178.30	8,422.1	-3,138.9	72.1	432,054.38	690,679.20	32° 11' 10.798 N	103° 43' 1.143 W
11,345.0	89.60	178.60	8,422.0	-3,232.9	74.6	431,960.41	690,681.74	32° 11' 9.868 N	103° 43' 1.119 W
11,439.0	90.10	180.00	8,422.2	-3,326.9	75.8	431,866.42	690,682.89	32° 11' 8.937 N	103° 43' 1.112 W
11,533.0	88.70	181.40	8,423.2	-3,420.9	74.6	431,772.44	690,681.74	32° 11' 8.008 N	103° 43' 1.132 W



Wellplanning
Survey Report - Geographic

Company:	COG Production LLC	Local Co-ordinate Reference:	Well #2H
Project:	Lea County, NM	TVD Reference:	WELL @ 3572.9usft (Original Well Elev)
Site:	King Tut Federal	MD Reference:	WELL @ 3572.9usft (Original Well Elev)
Well:	#2H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.1 Single User Db

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N-S (usft)	+E-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
11,627.0	89.40	181.40	8,424.8	-3,514.8	72.3	431,678.48	690,679.44	32° 11' 7.078 N	103° 43' 1.165 W
11,721.0	91.30	181.10	8,424.2	-3,608.8	70.3	431,584.51	690,677.39	32° 11' 6.148 N	103° 43' 1.195 W
11,815.0	89.40	181.10	8,423.6	-3,702.8	68.5	431,490.53	690,675.59	32° 11' 5.218 N	103° 43' 1.222 W
11,909.0	89.90	181.10	8,424.2	-3,796.7	66.7	431,396.55	690,673.78	32° 11' 4.288 N	103° 43' 1.250 W
12,003.0	91.30	181.10	8,423.2	-3,890.7	64.9	431,302.58	690,671.98	32° 11' 3.358 N	103° 43' 1.277 W
12,097.0	89.70	181.10	8,422.4	-3,984.7	63.1	431,208.60	690,670.17	32° 11' 2.428 N	103° 43' 1.304 W
12,192.0	90.10	180.40	8,422.5	-4,079.7	61.8	431,113.61	690,668.93	32° 11' 1.489 N	103° 43' 1.325 W
12,286.0	88.70	180.00	8,423.5	-4,173.7	61.5	431,019.62	690,668.60	32° 11' 0.558 N	103° 43' 1.335 W
12,380.0	90.30	180.00	8,424.4	-4,267.7	61.5	430,925.63	690,668.60	32° 10' 59.628 N	103° 43' 1.341 W
12,474.0	91.00	179.70	8,423.3	-4,361.7	61.8	430,831.63	690,668.85	32° 10' 58.698 N	103° 43' 1.345 W
12,568.0	89.40	179.70	8,423.0	-4,455.7	62.2	430,737.64	690,669.34	32° 10' 57.768 N	103° 43' 1.345 W
12,662.0	90.80	180.00	8,422.8	-4,549.7	62.5	430,643.64	690,669.59	32° 10' 56.838 N	103° 43' 1.349 W
12,756.0	88.20	180.00	8,423.6	-4,643.6	62.5	430,549.65	690,669.59	32° 10' 55.908 N	103° 43' 1.355 W
12,850.0	88.50	180.00	8,426.3	-4,737.6	62.5	430,455.69	690,669.59	32° 10' 54.978 N	103° 43' 1.361 W
12,944.0	91.70	180.40	8,426.2	-4,831.6	62.2	430,361.71	690,669.26	32° 10' 54.048 N	103° 43' 1.371 W
13,037.0	90.10	180.00	8,424.7	-4,924.6	61.8	430,268.72	690,668.94	32° 10' 53.128 N	103° 43' 1.381 W
13,131.0	91.00	180.00	8,423.8	-5,018.6	61.8	430,174.73	690,668.94	32° 10' 52.197 N	103° 43' 1.387 W
13,225.0	89.60	179.70	8,423.3	-5,112.6	62.1	430,080.73	690,669.18	32° 10' 51.267 N	103° 43' 1.391 W
13,319.0	91.30	179.00	8,422.6	-5,206.6	63.2	429,986.74	690,670.25	32° 10' 50.337 N	103° 43' 1.385 W
13,413.0	89.70	179.30	8,421.7	-5,300.5	64.5	429,892.76	690,671.64	32° 10' 49.407 N	103° 43' 1.375 W
13,507.0	89.20	180.70	8,422.6	-5,394.5	64.5	429,798.77	690,671.64	32° 10' 48.477 N	103° 43' 1.381 W
13,601.0	91.00	180.40	8,422.5	-5,488.5	63.6	429,704.78	690,670.74	32° 10' 47.547 N	103° 43' 1.398 W
13,695.0	89.70	180.00	8,421.9	-5,582.5	63.3	429,610.78	690,670.41	32° 10' 46.617 N	103° 43' 1.408 W
13,790.0	90.10	179.30	8,422.1	-5,677.5	63.9	429,515.78	690,670.99	32° 10' 45.677 N	103° 43' 1.407 W
13,884.0	90.30	180.00	8,421.7	-5,771.5	64.5	429,421.79	690,671.57	32° 10' 44.746 N	103° 43' 1.407 W
13,978.0	91.10	179.70	8,420.6	-5,865.5	64.7	429,327.79	690,671.81	32° 10' 43.816 N	103° 43' 1.410 W
14,072.0	89.90	179.70	8,419.8	-5,959.5	65.2	429,233.80	690,672.30	32° 10' 42.886 N	103° 43' 1.411 W
14,165.0	91.30	179.30	8,418.8	-6,052.5	66.0	429,140.81	690,673.12	32° 10' 41.966 N	103° 43' 1.408 W
14,260.0	89.20	179.00	8,418.4	-6,147.5	67.4	429,045.83	690,674.52	32° 10' 41.026 N	103° 43' 1.398 W
14,354.0	91.10	179.30	8,418.1	-6,241.5	68.8	428,951.84	690,675.92	32° 10' 40.096 N	103° 43' 1.388 W
14,448.0	88.30	179.30	8,418.6	-6,335.4	70.0	428,857.86	690,677.07	32° 10' 39.165 N	103° 43' 1.381 W
14,542.0	91.00	179.70	8,419.2	-6,429.4	70.8	428,763.88	690,677.89	32° 10' 38.235 N	103° 43' 1.377 W
14,636.0	89.70	180.40	8,418.6	-6,523.4	70.7	428,669.88	690,677.81	32° 10' 37.305 N	103° 43' 1.385 W
14,730.0	91.00	179.70	8,418.1	-6,617.4	70.6	428,575.88	690,677.72	32° 10' 36.375 N	103° 43' 1.392 W
14,824.0	88.50	179.30	8,418.5	-6,711.4	71.4	428,481.90	690,678.54	32° 10' 35.445 N	103° 43' 1.388 W
14,918.0	91.10	179.70	8,418.8	-6,805.4	72.3	428,387.91	690,679.36	32° 10' 34.515 N	103° 43' 1.385 W
15,012.0	88.90	180.00	8,418.8	-6,899.4	72.5	428,293.92	690,679.61	32° 10' 33.585 N	103° 43' 1.389 W
15,106.0	90.60	180.70	8,419.2	-6,993.4	71.9	428,199.92	690,679.04	32° 10' 32.654 N	103° 43' 1.402 W
15,199.0	91.10	180.00	8,417.8	-7,086.4	71.4	428,106.93	690,678.47	32° 10' 31.734 N	103° 43' 1.414 W
15,293.0	87.30	180.00	8,419.1	-7,180.3	71.4	428,012.96	690,678.47	32° 10' 30.804 N	103° 43' 1.421 W
15,388.0	88.20	180.40	8,422.9	-7,275.3	71.0	427,918.04	690,678.14	32° 10' 29.865 N	103° 43' 1.431 W
15,482.0	88.50	180.00	8,425.6	-7,369.2	70.7	427,824.08	690,677.81	32° 10' 28.935 N	103° 43' 1.441 W
15,576.0	88.50	179.00	8,428.0	-7,463.2	71.5	427,730.11	690,678.63	32° 10' 28.005 N	103° 43' 1.438 W
15,670.0	89.00	179.00	8,430.1	-7,557.1	73.2	427,636.15	690,680.27	32° 10' 27.075 N	103° 43' 1.425 W
15,764.0	91.70	180.00	8,429.5	-7,651.1	74.0	427,542.17	690,681.09	32° 10' 26.145 N	103° 43' 1.421 W
15,858.0	92.00	179.30	8,426.5	-7,745.1	74.6	427,448.22	690,681.66	32° 10' 25.215 N	103° 43' 1.421 W
15,952.0	92.40	179.00	8,422.9	-7,839.0	76.0	427,354.30	690,683.06	32° 10' 24.286 N	103° 43' 1.411 W
16,046.0	91.30	179.70	8,419.8	-7,932.9	77.0	427,260.35	690,684.12	32° 10' 23.356 N	103° 43' 1.405 W
16,140.0	89.90	178.60	8,418.9	-8,026.9	78.4	427,166.37	690,685.52	32° 10' 22.426 N	103° 43' 1.395 W
16,234.0	88.50	177.60	8,420.2	-8,120.9	81.5	427,072.44	690,688.63	32° 10' 21.496 N	103° 43' 1.365 W
16,328.0	89.40	179.00	8,421.9	-8,214.8	84.3	426,978.50	690,691.42	32° 10' 20.567 N	103° 43' 1.339 W
16,422.0	91.50	179.00	8,421.2	-8,308.8	86.0	426,884.52	690,693.06	32° 10' 19.637 N	103° 43' 1.326 W
16,516.0	91.70	180.40	8,418.5	-8,402.7	86.5	426,790.56	690,693.55	32° 10' 18.707 N	103° 43' 1.327 W
16,610.0	90.30	181.10	8,416.9	-8,496.7	85.2	426,696.59	690,692.32	32° 10' 17.777 N	103° 43' 1.347 W
16,704.0	90.60	180.40	8,416.1	-8,590.7	84.0	426,602.60	690,691.09	32° 10' 16.847 N	103° 43' 1.368 W



Wellplanning
Survey Report - Geographic

Company:	COG Production LLC	Local Co-ordinate Reference:	Well #2H
Project:	Lea County, NM	TVD Reference:	WELL @ 3572.9usft (Original Well Elev)
Site:	King Tut Federal	MD Reference:	WELL @ 3572.9usft (Original Well Elev)
Well:	#2H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.1 Single User Db

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
16,798.0	90.30	179.70	8,415.4	-8,684.7	83.9	426,508.60	690,691.01	32° 10' 15.917 N	103° 43' 1.375 W
16,892.0	89.40	180.40	8,415.7	-8,778.7	83.8	426,414.60	690,690.93	32° 10' 14.986 N	103° 43' 1.382 W
16,986.0	90.30	181.80	8,415.9	-8,872.7	82.0	426,320.62	690,689.12	32° 10' 14.057 N	103° 43' 1.409 W
17,080.0	89.70	181.80	8,415.9	-8,966.6	79.1	426,226.67	690,686.17	32° 10' 13.127 N	103° 43' 1.450 W
17,174.0	90.30	181.40	8,415.9	-9,060.6	76.5	426,132.71	690,683.55	32° 10' 12.197 N	103° 43' 1.487 W
17,268.0	91.10	181.10	8,414.8	-9,154.6	74.4	426,038.74	690,681.50	32° 10' 11.267 N	103° 43' 1.517 W
17,362.0	89.00	181.10	8,414.7	-9,248.5	72.6	425,944.76	690,679.69	32° 10' 10.338 N	103° 43' 1.544 W
17,456.0	88.90	181.10	8,416.4	-9,342.5	70.8	425,850.79	690,677.89	32° 10' 9.408 N	103° 43' 1.571 W
17,551.0	90.30	181.10	8,417.1	-9,437.5	69.0	425,755.82	690,676.06	32° 10' 8.468 N	103° 43' 1.599 W
17,644.0	89.90	180.70	8,416.9	-9,530.5	67.5	425,662.83	690,674.60	32° 10' 7.548 N	103° 43' 1.622 W
17,738.0	89.90	180.00	8,417.1	-9,624.5	66.9	425,568.83	690,674.03	32° 10' 6.618 N	103° 43' 1.635 W
17,832.0	90.30	179.70	8,416.9	-9,718.5	67.2	425,474.83	690,674.27	32° 10' 5.688 N	103° 43' 1.638 W
17,926.0	90.60	177.90	8,416.2	-9,812.4	69.1	425,380.86	690,676.24	32° 10' 4.757 N	103° 43' 1.622 W
18,020.0	90.80	177.20	8,415.0	-9,906.3	73.2	425,286.95	690,680.26	32° 10' 3.828 N	103° 43' 1.581 W
18,092.0	89.40	177.20	8,414.9	-9,978.3	76.7	425,215.04	690,683.78	32° 10' 3.116 N	103° 43' 1.545 W
18,142.0	89.40	177.20	8,415.4	-10,028.2	79.1	425,165.10	690,686.22	32° 10' 2.622 N	103° 43' 1.520 W
PBHL(KT#2H)									

Checked By: _____	Approved By: _____	Date: _____
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