



January 19, 2015

3001539949

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

Attn: Kanicia Castillo

RE: **Burkett 16 State 11H**

Please find enclosed a copy of the survey from 0' to 4560' ran on the above referenced well.

Sincerely,

Keith Havelka
Operations

NM OIL CONSERVATION
ARTESIA DISTRICT

MAR 30 2015

STATE OF TEXAS §
COUNTY OF NUECES §

RECEIVED

This instrument was acknowledged before me on the 19 day of January
A.D., 2015, by Keith Havelka.

Jennifer Ann Byerly
Jennifer Ann Byerly
Notary Public, State of Texas





Company: CONCHO
Lease/Well: BURKETT 16 STATE/11H

Rig Name: UNITED 43
State/County: NEW MEXICO/EDDY
Latitude: 32.84, Longitude: -103.88
GRID North is 0.25 Degrees East of True North
VS-Azi: 0.00 Degrees



Depth Reference : RKB: 12.5 FEET

DRILLOG HA GYRO SURVEY CALCULATIONS

Filename: gyro survey.ut
Minimum Curvature Method
Report Date/Time: 1/19/2015 / 12:13

VES Survey International
West Texas
(432) 563-5444

Surveyor: Jordan Shelleby
Burkett 16 State 11H / API 30-015-39949

NM OIL CONSERVATION
ARTESIA DISTRICT

MAR 30 2015

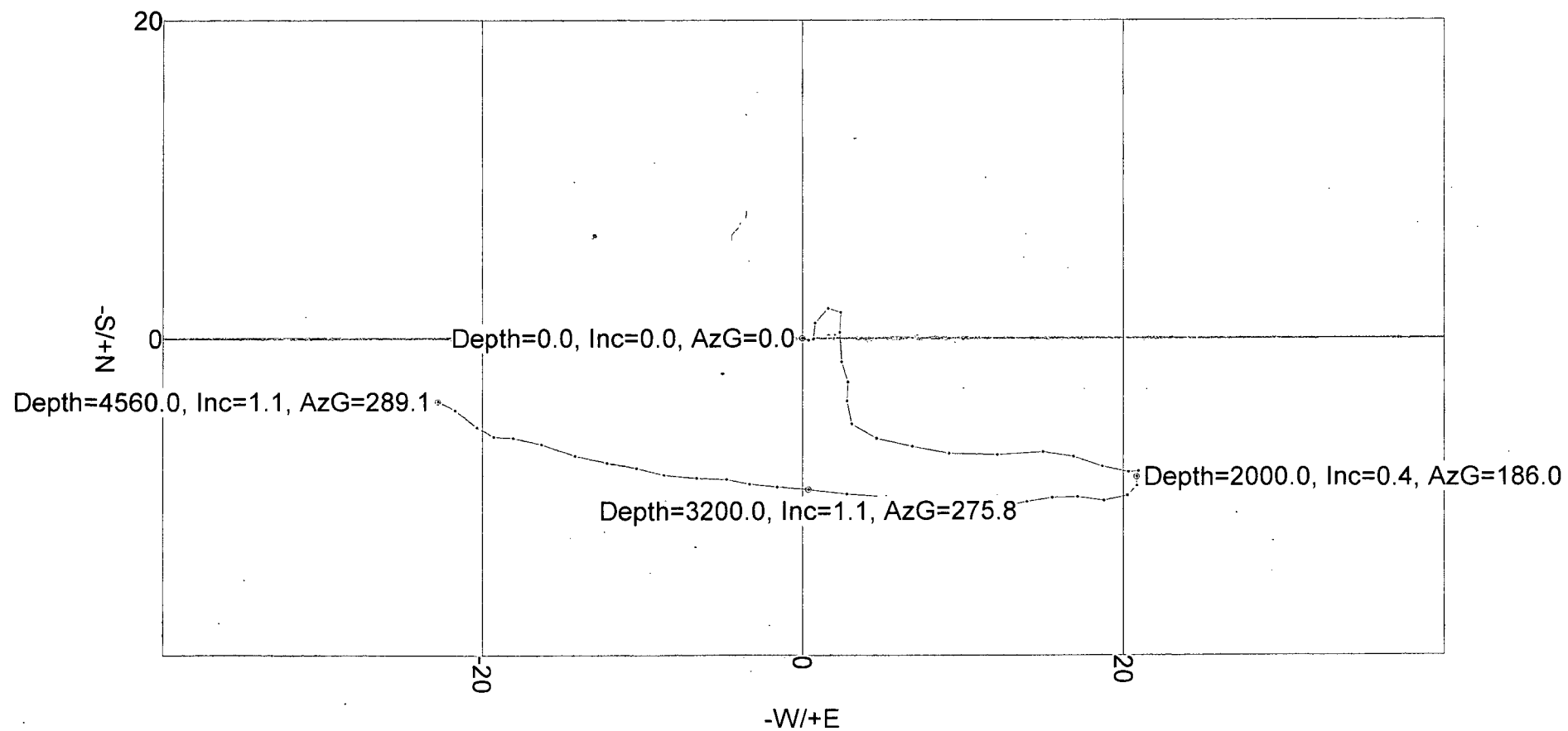
RECEIVED

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	0.45	110.20	100.00	-0.14	0.37	-0.14	0.40	110.20	0.45
200.00	0.25	343.36	200.00	-0.06	0.68	-0.06	0.68	95.08	0.64
300.00	0.93	10.77	299.99	0.95	0.77	0.95	1.22	38.92	0.71
400.00	0.78	79.26	399.98	1.87	1.58	1.87	2.45	40.23	0.97
500.00	0.47	160.12	499.98	1.62	2.39	1.62	2.88	55.92	0.84
600.00	1.02	194.02	599.97	0.37	2.31	0.37	2.34	80.96	0.69
700.00	1.22	161.01	699.95	-1.50	2.44	-1.50	2.86	121.61	0.66
800.00	0.31	171.38	799.94	-2.77	2.83	-2.77	3.96	134.43	0.92
900.00	1.07	185.45	899.93	-3.96	2.78	-3.96	4.84	144.97	0.77
1000.00	0.73	143.88	999.92	-5.41	3.07	-5.41	6.22	150.45	0.71
1100.00	1.42	108.42	1099.91	-6.31	4.62	-6.31	7.82	143.83	0.92
1200.00	1.20	96.29	1199.88	-6.82	6.83	-6.82	9.66	134.94	0.35
1300.00	1.47	105.30	1299.85	-7.27	9.12	-7.27	11.66	128.58	0.34
1400.00	2.08	81.57	1399.81	-7.35	12.15	-7.35	14.20	121.16	0.94
1500.00	1.21	95.41	1499.76	-7.18	15.00	-7.18	16.63	115.58	0.95
1600.00	0.98	102.95	1599.75	-7.47	16.89	-7.47	18.46	113.87	0.27
1700.00	1.21	114.58	1699.73	-8.10	18.68	-8.10	20.37	113.45	0.32
1800.00	0.78	82.79	1799.71	-8.46	20.32	-8.46	22.01	112.60	0.69

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	0.07	242.32	1899.71	-8.40	20.93	-8.40	22.55	111.87	0.84
2000.00	0.37	185.95	1999.71	-8.75	20.84	-8.75	22.60	112.77	0.33
2100.00	0.29	174.11	2099.71	-9.32	20.83	-9.32	22.82	114.09	0.10
2200.00	0.82	238.29	2199.70	-9.94	20.25	-9.94	22.56	116.14	0.74
2300.00	0.98	274.04	2299.69	-10.26	18.80	-10.26	21.41	118.62	0.57
2400.00	0.94	282.60	2399.68	-10.02	17.14	-10.02	19.85	120.30	0.15
2500.00	0.90	253.81	2499.66	-10.05	15.58	-10.05	18.54	122.83	0.46
2600.00	0.95	266.97	2599.65	-10.32	14.00	-10.32	17.39	126.38	0.22
2700.00	1.07	252.51	2699.64	-10.64	12.28	-10.64	16.25	130.90	0.28
2800.00	1.56	276.75	2799.61	-10.76	10.04	-10.76	14.72	137.01	0.73
2900.00	1.44	284.67	2899.58	-10.29	7.46	-10.29	12.71	144.03	0.24
3000.00	1.18	268.22	2999.55	-10.00	5.22	-10.00	11.28	152.44	0.46
3100.00	1.65	277.85	3099.52	-9.83	2.77	-9.83	10.22	164.30	0.53
3200.00	1.10	275.80	3199.49	-9.54	0.38	-9.54	9.55	177.72	0.55
3300.00	1.14	274.05	3299.47	-9.37	-1.57	-9.37	9.50	189.52	0.05
3400.00	0.83	279.28	3399.46	-9.18	-3.28	-9.18	9.75	199.66	0.32
3500.00	0.84	283.38	3499.45	-8.90	-4.71	-8.90	10.07	207.90	0.06
3600.00	1.36	265.67	3599.43	-8.82	-6.60	-8.82	11.02	216.83	0.61
3700.00	1.06	287.71	3699.41	-8.63	-8.66	-8.63	12.23	225.12	0.55
3800.00	0.94	280.91	3799.39	-8.19	-10.35	-8.19	13.20	231.64	0.17
3900.00	1.21	279.65	3899.37	-7.86	-12.19	-7.86	14.51	237.20	0.27
4000.00	1.14	285.51	3999.35	-7.42	-14.19	-7.42	16.01	242.41	0.14
4100.00	1.41	291.86	4099.33	-6.69	-16.30	-6.69	17.62	247.68	0.30
4200.00	0.71	264.83	4199.31	-6.29	-18.06	-6.29	19.12	250.80	0.85
4300.00	0.66	282.94	4299.30	-6.21	-19.23	-6.21	20.21	252.10	0.22
4400.00	0.81	311.71	4399.29	-5.62	-20.32	-5.62	21.08	254.55	0.39
4500.00	1.20	304.96	4499.28	-4.55	-21.70	-4.55	22.17	258.17	0.41
4560.00	1.12	289.14	4559.27	-3.99	-22.77	-3.99	23.12	260.06	0.55



VES Survey International
West Texas
(432) 563-5444
Surveyor: Jordan Shelleby
Burkett 16 State 11H / API 30-015-39949



MAR 30 2015

1 of 2

WELL NAME AND NUMBER Burkett 16 State No. 11H RECEIVED
LOCATION Section 16, T17S, R31E, Unit B, 330 FNL, 1650 FEL, Eddy County
OPERATOR COG Operating LLC
DRILLING CONTRACTOR United Drilling, Inc.

The undersigned hereby certifies that he is an authorized representative of the drilling contractor who drilled the above described well and had conducted deviation test and obtained the following results:

Degrees @ Depth	Degrees @ Depth	Degrees @ Depth
.4° @ 243'	6.0° @ 4692'	66.8° @ 5386'
.5° @ 421'	9.5° @ 4723'	74.2° @ 5449'
1.0° @ 703'	12.8° @ 4755'	78.2° @ 5481'
.8° @ 1018'	15.7° @ 4786'	82.6° @ 5512'
1.8° @ 1300'	17.9° @ 4818'	90.8° @ 5610'
1.0° @ 1615'	20.5° @ 4849'	92.2° @ 5705'
.7° @ 1723'	23.1° @ 4881'	92.6° @ 5894'
.7° @ 1805'	25.6° @ 4912'	92.2° @ 6020'
.6° @ 2450'	28.2° @ 4944'	91.8° @ 6115'
1.1° @ 2750'	31.2° @ 4976'	91.6° @ 6210'
1.2° @ 3050'	33.5° @ 5007'	91.2° @ 6304'
1.2° @ 3286'	35.6° @ 5039'	92.1° @ 6399'
1.2° @ 3569'	38.4° @ 5070'	91.8° @ 6493'
.8° @ 3886'	41.7° @ 5102'	91.2° @ 6588'
.8° @ 4201'	52.4° @ 5229'	90.7° @ 6682'
1.4° @ 4590'	59.9° @ 5260'	91.0° @ 6777'
.1° @ 4629'	56.6° @ 5323'	90.5° @ 6872'
2.7° @ 4660'	62.9° @ 5355'	90.9° @ 7092'

Drilling Contractor- UNITED DRILLING, INC.

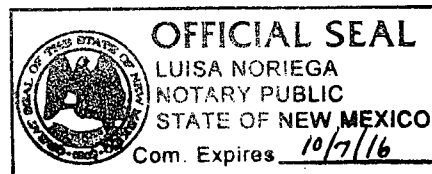
By: *Angel Salazar*
(Angel Salazar)

Title: Vice President

Subscribed and sworn to before me this 20th day of January 2015.

Luisa Noriega
Notary Public

My Commission Expires:



Chaves NM
County State

2 of 2

RECEIVED

DRILLING CONTRACTOR *United Drilling, Inc.*[illegible]

By: Angel Salazar
(Angel Salazar)

Subscribed and sworn to before me this 20th day of January 2015.

Notary Public

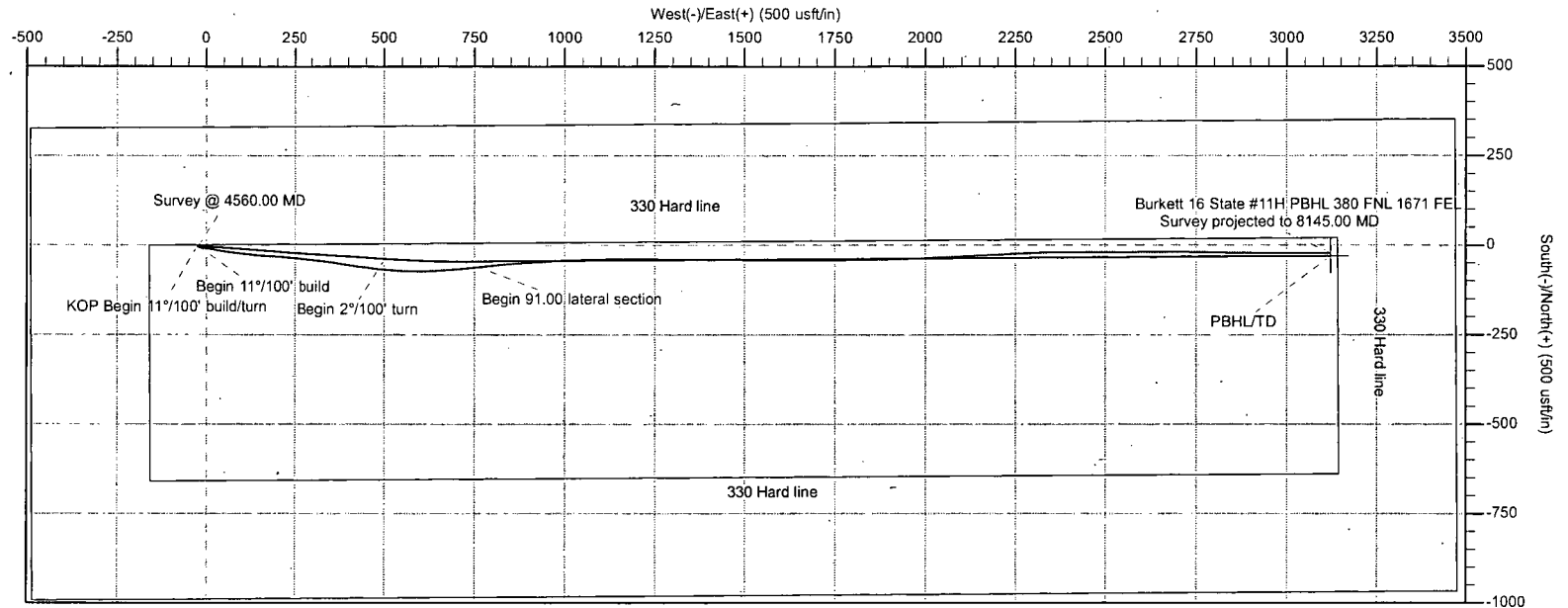
OFFICIAL SEAL
LUISA NORIEGA
NOTARY PUBLIC
STATE OF NEW MEXICO
 Com. Expires 10/7/16

County Chaves State NM

COG Operating LLC



Well: Burkett 16 State Well No. 11H
 Site: Burkett 16 State
 Project: Eddy County, New Mexico
 Design: rev2
 Rig: United 43



SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Annotation
1	4560.00	1.12	289.14	4559.27	-4.02	-22.76	0.00	0.00	-22.72	Survey @ 4560.00 MD
2	4720.36	1.12	289.14	4719.60	-2.99	-25.73	0.00	0.00	-25.70	KOP Begin 11°/100' build/turn
3	4775.71	5.00	93.90	4774.88	-2.98	-23.83	11.00	167.52	-23.80	Begin 11°/100' build
4	5557.52	91.00	93.90	5250.28	-38.89	502.93	11.00	0.00	503.28	Begin 2°/100' turn
5	5770.74	91.00	89.63	5246.56	-45.47	715.96	2.00	-90.02	716.37	Begin 91.00 lateral section
6	8176.47	91.00	89.63	5204.75	-30.14	3121.28	0.00	0.00	3121.43	PBHLTD

Surface Location: RKB=3792+14 @ 3806.00usft (United 43)
 US State Plane 1927 (Exact solution)
 New Mexico East 3001

Northing: 669885.70 Easting: 638872.50 Latitude: 32° 50' 26.823679 N Longitude: 103° 52' 52.238319 W
 Total Correction (M => G): To convert a Magnetic Direction to a Grid Direction, Add 7.09°

ANNOTATIONS

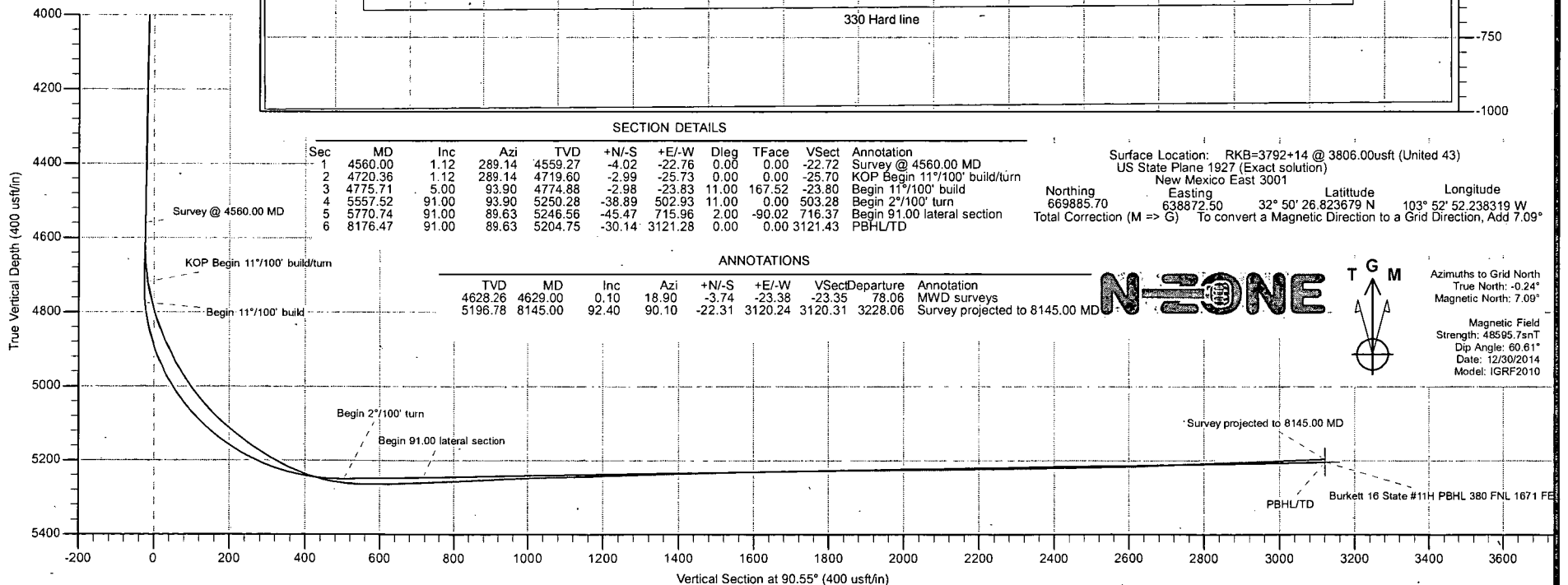
TVD	MD	Inc	Azi	+N/-S	+E/-W	Vsect	Departure	Annotation
4628.26	4629.00	0.10	18.90	-3.74	-23.38	-23.35	78.06	MWD surveys
5196.78	8145.00	92.40	90.10	-22.31	3120.24	3120.31	3228.06	Survey projected to 8145.00 MD

NEONE



Azimuths to Grid North
 True North: -0.24°
 Magnetic North: 7.09°

Magnetic Field
 Strength: 48595.7nT
 Dip Angle: 60.61°
 Date: 12/30/2014
 Model: IGRF2010





Company:	COG Operating LLC	Local Co-ordinate Reference:	Well, Burkett 16 State Well No. 11H
Project:	Eddy County, New Mexico	TVD Reference:	RKB=3792+14 @ 3806.00usft (United 43)
Site:	Burkett 16 State	MD Reference:	RKB=3792+14 @ 3806.00usft (United 43)
Well:	Burkett 16 State Well No. 11H	North Reference:	Grid
Wellbore:	Original hole	Survey Calculation Method:	Minimum Curvature
Design:	Surveys Original hole	Database:	Dbase Nov0914

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		Burkett, 16 State								
Site Position:		Northing:		669,885.70	usft	Latitude:		32° 50' 26.823679 N		
From:	Map	Easting:		638,872.50	usft	Longitude:		103° 52' 52.238319 W		
Position Uncertainty:		0.00 usft		Slot Radius:		13-3/16	"	Grid Convergence:		0.25 °

Well: Burkett 16 State Well No. 11H Surf Loc 330 FNL 490 FWL Sect 16						
Well Position	+N/-S	0.00 usft	Northing:	669,885.70 usft	Latitude:	32° 50' 26.823679 N
	+E/-W	0.00 usft	Easting:	638,872.50 usft	Longitude:	103° 52' 52.238319 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	3,792.00 usft

Wellbore	Original hole				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	12/30/2014	7.34	60.61	48,596

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		Direction			
		(usft)		(usft)		(usft)		(°)			
		0.00		-0.00		0.00		90.55			



Company:	COG Operating LLC	Local Co-ordinate Reference:	Well:Burkett,16 State Well.No: 11H
Project:	Eddy County,New Mexico	TVD Reference:	RKB=3792+14 @ 3806.00usft (United 43)
Site:	Burkett,16 State	MD Reference:	RKB=3792+14 @ 3806.00usft (United 43)
Well:	Burkett,16 State Well.No: 11H	North Reference:	Grid
Wellbore:	Original hole	Survey Calculation Method:	Minimum Curvature
Design:	Surveys Original hole	Database:	Dbase Nov0914

Survey Program		Date: 1/18/2015			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
100.00	4,560.00	Gyro (Original hole)	NS-GYRO-MS	North sensing gyrocompassing m/s	
4,629.00	8,145.00	MWD (Original hole)	MWD	MWD - Standard	

Survey										
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	DLeg (°/100usft)	V. Sec (usft)	Northing (usft)	Easting (usft)	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	669,885.70	638,872.50	
100.00	0.45	110.20	100.00	-0.14	0.37	0.45	0.37	669,885.56	638,872.87	
200.00	0.25	343.36	200.00	-0.06	0.67	0.63	0.68	669,885.64	638,873.17	
300.00	0.93	10.77	299.99	0.94	0.76	0.72	0.75	669,886.64	638,873.26	
400.00	0.78	79.26	399.98	1.87	1.58	0.97	1.57	669,887.57	638,874.08	
500.00	0.47	160.12	499.98	1.61	2.39	0.84	2.38	669,887.31	638,874.89	
600.00	1.02	194.02	599.97	0.36	2.32	0.68	2.31	669,886.06	638,874.82	
700.00	1.22	161.01	699.95	-1.51	2.45	0.66	2.46	669,884.19	638,874.95	
800.00	0.31	171.38	799.94	-2.78	2.83	0.92	2.86	669,882.92	638,875.33	
900.00	1.07	185.45	899.93	-3.98	2.79	0.77	2.82	669,881.72	638,875.29	
1,000.00	0.73	143.88	999.92	-5.43	3.07	0.71	3.12	669,880.27	638,875.57	
1,100.00	1.42	108.42	1,099.91	-6.33	4.62	0.93	4.68	669,879.37	638,877.12	
1,200.00	1.20	96.29	1,199.88	-6.84	6.84	0.35	6.91	669,878.86	638,879.34	
1,300.00	1.47	105.30	1,299.85	-7.29	9.12	0.34	9.19	669,878.41	638,881.62	
1,400.00	2.08	81.57	1,399.81	-7.36	12.15	0.94	12.22	669,878.34	638,884.65	
1,500.00	1.21	95.41	1,499.76	-7.20	15.00	0.95	15.07	669,878.50	638,887.50	
1,600.00	0.98	102.95	1,599.75	-7.49	16.88	0.27	16.95	669,878.21	638,889.38	
1,700.00	1.21	114.58	1,699.73	-8.12	18.68	0.32	18.75	669,877.58	638,891.18	
1,800.00	0.78	82.79	1,799.71	-8.47	20.31	0.68	20.39	669,877.23	638,892.81	
1,900.00	0.07	242.32	1,899.71	-8.42	20.93	0.85	21.01	669,877.28	638,893.43	
2,000.00	0.37	185.95	1,999.71	-8.77	20.84	0.34	20.93	669,876.93	638,893.34	



Company:	COG Operating LLC	Local Co-ordinate Reference:	Well Burkett 16 State Well No. 11H
Project:	Eddy County, New Mexico	TVD Reference:	RKB=3792+14' @ 3806.00usft (United 43)
Site:	Burkett 16 State	MD Reference:	RKB=3792+14' @ 3806.00usft (United 43)
Well:	Burkett 16 State Well No. 11H	North Reference:	Grid
Wellbore:	Original hole	Survey/Calculation Method:	Minimum Curvature
Design:	Surveys Original hole	Database:	Dbase Nov0914

Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	DLeg (°/100usft)	V Sec (usft)	Northing (usft)	Easting (usft)		
2,100.00	0.29	174.11	2,099.71	-9.34	20.84	0.10	20.93	669,876.36	638,893.34		
2,200.00	0.82	238.29	2,199.70	-9.97	20.25	0.74	20.35	669,875.73	638,892.75		
2,300.00	0.98	274.04	2,299.69	-10.28	18.79	0.57	18.89	669,875.42	638,891.29		
2,400.00	0.94	282.60	2,399.68	-10.04	17.14	0.15	17.23	669,875.66	638,889.64		
2,500.00	0.90	253.81	2,499.66	-10.08	15.58	0.46	15.68	669,875.62	638,888.08		
2,600.00	0.95	266.97	2,599.65	-10.35	14.00	0.22	14.10	669,875.35	638,886.50		
2,700.00	1.07	252.51	2,699.64	-10.67	12.28	0.28	12.39	669,875.03	638,884.78		
2,800.00	1.56	276.75	2,799.61	-10.79	10.04	0.73	10.14	669,874.91	638,882.54		
2,900.00	1.44	284.67	2,899.58	-10.31	7.47	0.24	7.57	669,875.39	638,879.97		
3,000.00	1.18	268.22	2,999.55	-10.03	5.23	0.45	5.33	669,875.67	638,877.73		
3,100.00	1.65	277.85	3,099.52	-9.86	2.77	0.53	2.87	669,875.84	638,875.27		
3,200.00	1.10	275.80	3,199.49	-9.57	0.39	0.55	0.48	669,876.13	638,872.89		
3,300.00	1.14	274.05	3,299.47	-9.40	-1.55	0.05	-1.46	669,876.30	638,870.95		
3,400.00	0.83	279.28	3,399.46	-9.21	-3.26	0.32	-3.17	669,876.49	638,869.24		
3,500.00	0.84	283.38	3,499.45	-8.93	-4.69	0.06	-4.60	669,876.77	638,867.81		
3,600.00	1.36	265.67	3,599.43	-8.85	-6.59	0.62	-6.50	669,876.85	638,865.91		
3,700.00	1.06	287.71	3,699.41	-8.66	-8.65	0.55	-8.57	669,877.04	638,863.85		
3,800.00	0.94	280.91	3,799.39	-8.22	-10.34	0.17	-10.26	669,877.48	638,862.16		
3,900.00	1.21	279.65	3,899.37	-7.89	-12.18	0.27	-12.11	669,877.81	638,860.32		
4,000.00	1.14	285.51	3,999.35	-7.44	-14.18	0.14	-14.11	669,878.26	638,858.32		
4,100.00	1.41	291.86	4,099.33	-6.72	-16.28	0.30	-16.22	669,878.98	638,856.22		
4,200.00	0.71	264.83	4,199.31	-6.32	-18.04	0.84	-17.98	669,879.38	638,854.46		
4,300.00	0.66	282.94	4,299.30	-6.24	-19.22	0.22	-19.16	669,879.46	638,853.28		
4,400.00	0.81	311.71	4,399.30	-5.64	-20.31	0.39	-20.25	669,880.06	638,852.19		
4,500.00	1.20	304.96	4,499.28	-4.57	-21.70	0.41	-21.65	669,881.13	638,850.80		
4,560.00	1.12	289.14	4,559.27	-4.02	-22.76	0.55	-22.72	669,881.68	638,849.74		



Company:	COG Operating LLC	Local Co-ordinate Reference:	Well Burkett 16 State Well No. 11H
Project:	Eddy County New Mexico	TVD Reference:	RKB=3792+14 @ 3806.00usft (United 43)
Site:	Burkett 16 State	MD Reference:	RKB=3792+14 @ 3806.00usft (United 43)
Well:	Burkett 16 State Well No. 11H	North Reference:	Grid
Wellbore:	Original hole	Survey Calculation Method:	Minimum Curvature
Design:	Surveys Original hole	Database:	Dbase Nov0914

Survey									
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	DLeg (°/100usft)	V. Sec (usft)	Northing (usft)	Easting (usft)
4,629.00	0.10	18.90	4,628.26	-3.74	-23.38	1.63	-23.35	669,881.96	638,849.12
MWD surveys									
4,660.00	2.70	108.90	4,659.25	-3.95	-22.68	8.72	-22.64	669,881.75	638,849.82
4,692.00	6.00	109.80	4,691.15	-4.77	-20.40	10.31	-20.35	669,880.93	638,852.10
4,723.00	9.50	105.70	4,721.87	-6.01	-16.41	11.42	-16.35	669,879.69	638,856.09
4,755.00	12.80	101.40	4,753.26	-7.42	-10.39	10.63	-10.32	669,878.28	638,862.11
4,786.00	15.70	98.50	4,783.30	-8.72	-2.87	9.63	-2.79	669,876.98	638,869.63
4,818.00	17.90	97.80	4,813.94	-10.03	6.28	6.90	6.38	669,875.67	638,878.78
4,849.00	20.50	98.50	4,843.21	-11.48	16.37	8.42	16.48	669,874.22	638,888.87
4,881.00	23.10	100.00	4,872.92	-13.40	28.10	8.31	28.23	669,872.30	638,900.60
4,912.00	25.60	100.20	4,901.16	-15.64	40.68	8.07	40.83	669,870.06	638,913.18
4,944.00	28.20	99.10	4,929.69	-18.06	54.95	8.27	55.13	669,867.64	638,927.45
4,976.00	31.20	97.30	4,957.49	-20.31	70.65	9.78	70.84	669,865.39	638,943.15
5,007.00	33.50	96.50	4,983.67	-22.30	87.11	7.55	87.32	669,863.40	638,959.61
5,039.00	35.60	96.20	5,010.03	-24.30	105.15	6.58	105.38	669,861.40	638,977.65
5,070.00	38.40	95.40	5,034.78	-26.19	123.71	9.16	123.95	669,859.51	638,996.21
5,102.00	41.70	94.80	5,059.28	-28.01	144.21	10.38	144.48	669,857.69	639,016.71
5,134.00	45.70	94.30	5,082.41	-29.76	166.25	12.55	166.53	669,855.94	639,038.75
5,165.00	48.10	94.30	5,103.59	-31.46	188.82	7.74	189.11	669,854.24	639,061.32
5,197.00	50.50	94.40	5,124.45	-33.30	213.01	7.50	213.32	669,852.40	639,085.51
5,229.00	52.40	95.30	5,144.39	-35.42	237.94	6.33	238.27	669,850.28	639,110.44
5,260.00	54.90	96.20	5,162.77	-37.92	262.78	8.40	263.13	669,847.78	639,135.28
5,292.00	56.60	96.70	5,180.78	-40.89	289.06	5.47	289.44	669,844.81	639,161.56
5,323.00	59.60	96.50	5,197.16	-43.92	315.20	9.69	315.61	669,841.78	639,187.70
5,355.00	62.90	97.30	5,212.54	-47.29	343.05	10.54	343.49	669,838.41	639,215.55
5,386.00	66.80	98.70	5,225.72	-51.20	370.83	13.23	371.31	669,834.50	639,243.33
5,418.00	69.90	98.70	5,237.52	-55.70	400.23	9.69	400.74	669,830.00	639,272.73



Company:	COG Operating LLC	Local Co-ordinate Reference:	Well: Burkett 16 State Well No. 11H
Project:	Eddy County, New Mexico	TVD Reference:	RKB=3792+14 @ 3806.00usft (United 43)
Site:	Burkett 16 State	MD Reference:	RKB=3792+14 @ 3806.00usft (United 43)
Well:	Burkett 16 State Well No. 11H	North Reference:	Grid
Wellbore:	Original hole	Survey Calculation Method:	Minimum Curvature
Design:	Surveys Original hole	Database:	Dbase: Nov0914

Survey										
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	DLeg (°/100usft)	V. Sec (usft)	Northing (usft)	Easting (usft)	
5,449.00	74.20	97.60	5,247.07	-59.88	429.41	14.28	429.97	669,825.82	639,301.91	
5,481.00	78.20	96.70	5,254.71	-63.74	460.24	12.79	460.83	669,821.96	639,332.74	
5,512.00	82.60	95.80	5,259.87	-67.07	490.62	14.48	491.24	669,818.63	639,363.12	
5,547.00	86.50	94.50	5,263.20	-70.19	525.31	11.74	525.96	669,815.51	639,397.81	
5,579.00	90.00	93.00	5,264.18	-72.28	557.22	11.90	557.89	669,813.42	639,429.72	
5,610.00	90.80	90.60	5,263.96	-73.26	588.21	8.16	588.88	669,812.44	639,460.71	
5,642.00	90.10	87.80	5,263.71	-72.81	620.20	9.02	620.87	669,812.89	639,492.70	
5,705.00	92.20	84.80	5,262.44	-68.75	683.04	5.81	683.67	669,816.95	639,555.54	
5,800.00	92.70	84.60	5,258.38	-59.98	777.55	0.57	778.09	669,825.72	639,650.05	
5,894.00	92.60	84.30	5,254.04	-50.90	871.01	0.34	871.46	669,834.80	639,743.51	
6,020.00	92.20	88.10	5,248.76	-42.56	996.60	3.03	996.96	669,843.14	639,869.10	
6,115.00	91.80	88.40	5,245.44	-39.66	1,091.50	0.53	1,091.83	669,846.04	639,964.00	
6,210.00	91.60	90.50	5,242.62	-38.75	1,186.44	2.22	1,186.76	669,846.95	640,058.94	
6,304.00	91.20	90.50	5,240.33	-39.57	1,280.41	0.43	1,280.73	669,846.13	640,152.91	
6,399.00	92.10	90.60	5,237.59	-40.48	1,375.37	0.95	1,375.69	669,845.22	640,247.87	
6,493.00	91.80	90.70	5,234.39	-41.54	1,469.31	0.34	1,469.64	669,844.16	640,341.81	
6,588.00	91.20	90.30	5,231.91	-42.37	1,564.27	0.76	1,564.61	669,843.33	640,436.77	
6,682.00	90.70	89.60	5,230.35	-42.29	1,658.26	0.92	1,658.59	669,843.41	640,530.76	
6,777.00	91.00	89.90	5,228.94	-41.88	1,753.25	0.45	1,753.57	669,843.82	640,625.75	
6,872.00	90.50	88.60	5,227.69	-40.63	1,848.23	1.47	1,848.53	669,845.07	640,720.73	
6,966.00	90.00	88.30	5,227.28	-38.09	1,942.19	0.62	1,942.47	669,847.61	640,814.69	
7,092.00	90.90	87.20	5,226.29	-33.14	2,068.09	1.13	2,068.31	669,852.56	640,940.59	
7,187.00	90.90	87.10	5,224.80	-28.42	2,162.96	0.11	2,163.13	669,857.28	641,035.46	
7,282.00	90.90	87.00	5,223.31	-23.53	2,257.82	0.11	2,257.94	669,862.17	641,130.32	
7,377.00	90.50	88.60	5,222.15	-19.88	2,352.74	1.74	2,352.82	669,865.82	641,225.24	
7,471.00	90.80	90.70	5,221.08	-19.31	2,446.73	2.26	2,446.80	669,866.39	641,319.23	
7,566.00	91.50	89.60	5,219.18	-19.56	2,541.70	1.37	2,541.78	669,866.14	641,414.20	



Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well Burkett 16 State Well No. 11H
Project:	Eddy County, New Mexico	TVD Reference:	RKB=3792+14 @ 3806.00usft. (United 43)
Site:	Burkett, 16 State	MD Reference:	RKB=3792+14 @ 3806.00usft. (United 43)
Well:	Burkett, 16 State Well No. 11H	North Reference:	Grid
Wellbore:	Original hole	Survey Calculation Method:	Minimum Curvature
Design:	Surveys Original hole	Database:	Dbase Nov0914

Survey										
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	DLeg (%/100usft)	V. Sec (usft)	Northing (usft)	Easting (usft)	
7,660.00	92.70	89.60	5,215.73	-18.90	2,635.64	1.28	2,635.70	669,866.80	641,508.14	
7,786.00	92.30	91.20	5,210.24	-19.78	2,761.51	1.31	2,761.57	669,865.92	641,634.01	
7,881.00	91.50	90.70	5,207.09	-21.36	2,856.44	0.99	2,856.52	669,864.34	641,728.94	
7,976.00	92.40	90.10	5,203.85	-22.02	2,951.39	1.14	2,951.46	669,863.68	641,823.89	
8,145.00	92.40	90.10	5,196.78	-22.31	3,120.24	0.00	3,120.31	669,863.39	641,992.74	
Survey projected to 8145.00 MD										

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		N/S (usft)	E/W (usft)	
4,629.00	4,628.26	-3.74	-23.38	MWD surveys
8,145.00	5,196.78	-22.31	3,120.24	Survey projected to 8145.00 MD