



HOBBS OCD

OCT 10 2014

RECEIVED

July 15, 2014

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

Attn: Kanicia Castillo

RE: Flat Head Federal Com No. 006H

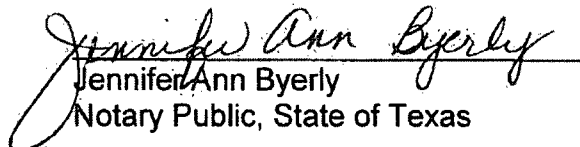
Please find enclosed a copy of the survey from 0.00' to 4,825.00' ran on the above referenced well.

Sincerely,

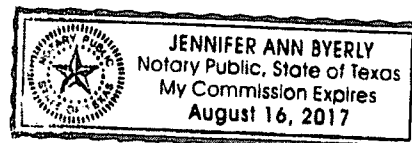

Keith Havelka
Operations

STATE OF TEXAS §
 §
COUNTY OF NUECES §

This instrument was acknowledged before me on the 15 day of July, A.D., 2014, by Keith Havelka.


Jennifer Ann Byerly
Notary Public, State of Texas

VES Survey International
P.O. Box 261021 Corpus Christi, TX 78426
T (361) 767-0602 F (361) 767-0612
www.vessurvey.com



OCT 27 2014

HOBBS OCD

OCT 10 2014

1 of 2

WELL NAME AND NUMBER Flat Head Fed Com No. 6 H
 LOCATION Section 14, T17S, R32E, Unit B, 1115 FNL, 1650 FEL, Lea 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
.6° @ 300'
.6° @ 600'
.5° @ 880'
.7° @ 1140'
.9° @ 1546'
1.4° @ 1942'
.9° @ 2340'
.6° @ 2776'
.9° @ 3029'
1.2° @ 3281'
1.5° @ 3598'
1.9° @ 3918'
1.2° @ 4200'
1.1° @ 4448'
1.4° @ 4764'
1.1° @ 5082'
1.1° @ 5239'
1.1° @ 5270'

Degrees @ Depth
2.9° @ 5302'
5.8° @ 5333'
9.0° @ 5365'
13.0° @ 5397'
16.9° @ 5428'
20.1° @ 5460'
22.9° @ 5492'
25.3° @ 5523'
27.8° @ 5554'
31.3° @ 5586'
34.1° @ 5618'
38.7° @ 5681'
47.3° @ 5712'
43.6° @ 5744'
46.5° @ 5755'
49.8° @ 5807'
52.4° @ 5838'
55.1° @ 5870'

Degrees @ Depth
61.1° @ 5933'
63.2° @ 5964'
65.6° @ 5996'
68.1° @ 6028'
71.3° @ 6059'
74.8° @ 6091'
77.1° @ 6122'
79.9° @ 6154'
82.7° @ 6185'
84.6° @ 6217'
87.4° @ 6248'
91.0° @ 6629'
91.7° @ 6724'
92.0° @ 6819'
92.4° @ 6913'
91.8° @ 7291'
91.3° @ 7386'
91.0° @ 7481'

Drilling Contractor- UNITED DRILLING, INC.

By: Luisa Noriega
 (Luisa Noriega)

Title: Asst. Office Manager

Subscribed and sworn to before me this 15th day of July, 2014.

Carlene Martin
 Notary Public

Chavez New Mexico
 County State

My Commission Expires: 10/8/16



Company: COG Operating, LLC (Concho)
 Lease/Well: Flat Head Federal Com/No. 006H
 Location: S14 T17-5 R32-E
 Rig Name: United #43
 State/County: New Mexico/Lea
 Latitude: 32.84, Longitude: -103.73
 GRID North is 0.33 Degrees East of True North
 VS-Azi: 0.00 Degrees



Depth Reference : R.K.B. = 15ft

DRILLOG HA GYRO SURVEY CALCULATIONS

Filename: gyro survey.ut

Minimum Curvature Method

Report Date/Time: 7/15/2014 / 10:12

VES Survey International

Midland, TX

432-563-5444

Surveyor: Cody Johnson

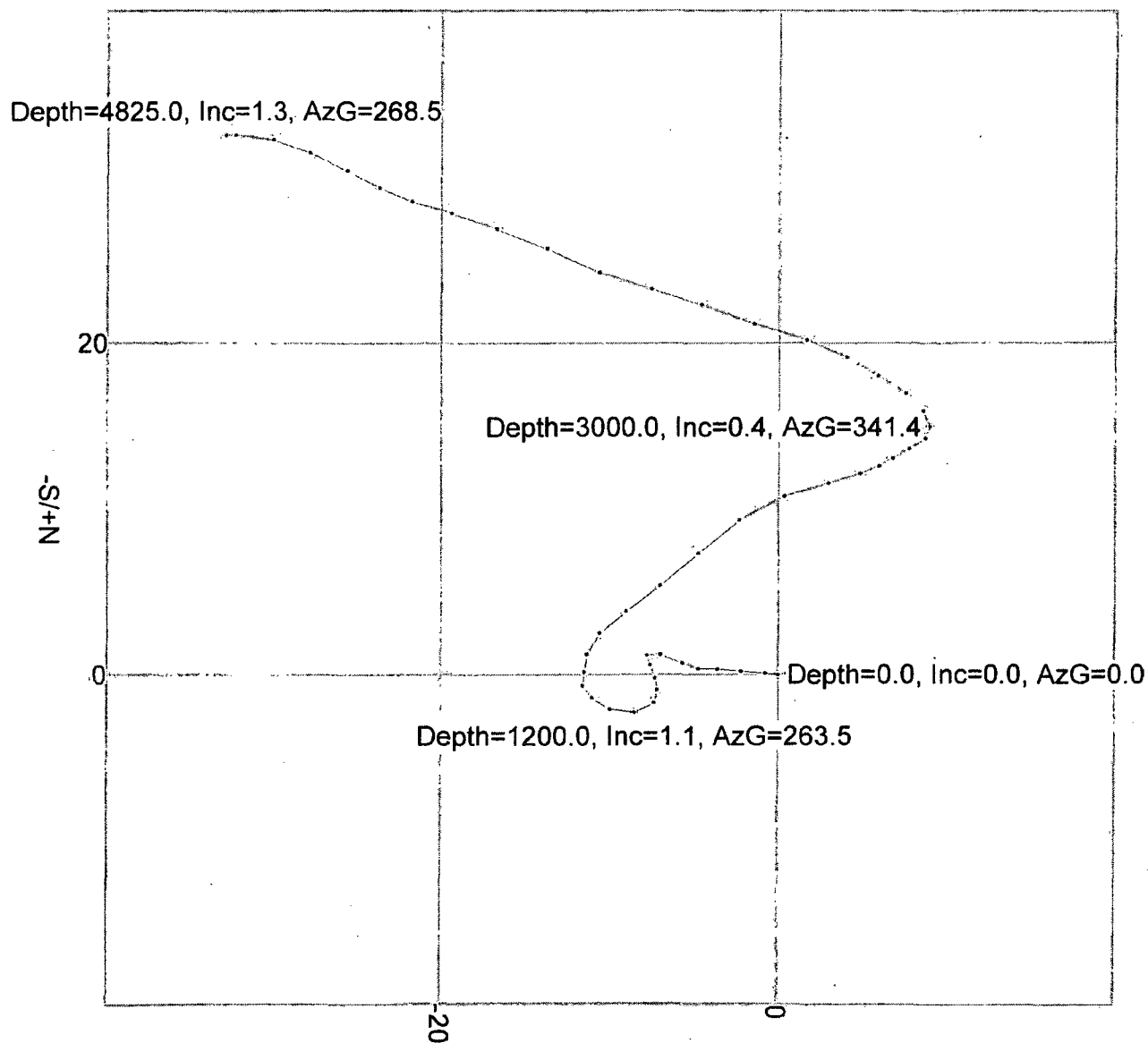
Flat Head Federal Com No. 006H / API 30-025-41759

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	0.88	276.16	100.00	0.08	-0.77	0.08	0.77	276.16	0.88
200.00	0.74	274.19	199.99	0.21	-2.18	0.21	2.19	275.58	0.15
300.00	0.87	275.81	299.98	0.34	-3.58	0.34	3.59	275.38	0.14
400.00	0.43	261.27	399.97	0.36	-4.71	0.36	4.72	274.33	0.47
500.00	0.76	304.86	499.96	0.68	-5.62	0.68	5.66	276.86	0.53
600.00	0.91	280.00	599.95	1.19	-6.94	1.19	7.04	279.73	0.39
700.00	0.22	185.83	699.95	1.14	-7.74	1.14	7.82	278.36	0.95
800.00	0.51	152.20	799.95	0.56	-7.55	0.56	7.57	274.21	0.35
900.00	0.46	168.73	899.94	-0.23	-7.27	-0.23	7.27	268.22	0.15
1000.00	0.37	173.29	999.94	-0.94	-7.15	-0.94	7.21	262.51	0.09
1100.00	0.57	204.59	1099.94	-1.72	-7.32	-1.72	7.52	256.77	0.32
1200.00	1.13	263.50	1199.93	-2.29	-8.51	-2.29	8.81	254.95	0.96
1300.00	0.68	302.48	1299.92	-2.08	-9.99	-2.08	10.20	258.24	0.73
1400.00	0.72	302.56	1399.91	-1.42	-11.02	-1.42	11.11	262.65	0.04
1500.00	0.46	357.08	1499.90	-0.68	-11.57	-0.68	11.59	266.65	0.59
1600.00	0.49	15.31	1599.90	0.14	-11.48	0.14	11.48	270.70	0.15
1700.00	0.74	4.02	1699.90	1.20	-11.32	1.20	11.38	276.06	0.28
1800.00	1.07	46.38	1799.88	2.49	-10.60	2.49	10.89	283.24	0.72

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	1.31	53.82	1899.86	3.81	-9.00	3.81	9.77	292.96	0.28
2000.00	1.59	50.61	1999.83	5.37	-7.00	5.37	8.82	307.48	0.30
2100.00	1.84	49.13	2099.78	7.30	-4.71	7.30	8.69	327.17	0.25
2200.00	1.78	51.94	2199.73	9.32	-2.27	9.32	9.59	346.30	0.11
2300.00	1.69	71.64	2299.69	10.74	0.36	10.74	10.75	1.91	0.60
2400.00	1.41	74.92	2399.65	11.53	2.95	11.53	11.90	14.35	0.30
2500.00	0.86	70.93	2499.63	12.09	4.85	12.09	13.03	21.84	0.56
2600.00	0.53	62.90	2599.63	12.55	5.96	12.55	13.89	25.42	0.34
2700.00	0.56	54.98	2699.62	13.04	6.77	13.04	14.69	27.45	0.08
2800.00	0.73	65.64	2799.61	13.58	7.76	13.58	15.64	29.73	0.21
2900.00	0.60	44.58	2899.61	14.22	8.71	14.22	16.68	31.49	0.28
3000.00	0.40	341.42	2999.60	14.93	8.97	14.93	17.41	31.00	0.55
3100.00	0.78	335.91	3099.60	15.88	8.58	15.88	18.05	28.39	0.39
3200.00	1.03	299.81	3199.59	16.95	7.52	16.95	18.54	23.93	0.61
3300.00	1.20	304.94	3299.57	17.99	5.88	17.99	18.93	18.11	0.19
3400.00	1.27	298.09	3399.55	19.11	4.05	19.11	19.54	11.95	0.16
3500.00	1.75	290.43	3499.51	20.17	1.64	20.17	20.24	4.64	0.52
3600.00	1.95	284.22	3599.46	21.12	-1.44	21.12	21.17	356.09	0.28
3700.00	1.87	296.58	3699.40	22.27	-4.55	22.27	22.73	348.45	0.42
3800.00	1.79	278.43	3799.35	23.23	-7.56	23.23	24.43	341.97	0.58
3900.00	1.97	296.14	3899.30	24.22	-10.65	24.22	26.45	336.27	0.60
4000.00	1.98	292.37	3999.24	25.63	-13.78	25.63	29.10	331.73	0.13
4100.00	1.72	291.88	4099.19	26.84	-16.77	26.84	31.65	328.01	0.26
4200.00	1.50	286.49	4199.15	27.77	-19.42	27.77	33.89	325.04	0.26
4300.00	1.27	287.96	4299.12	28.49	-21.73	28.49	35.83	322.66	0.24
4400.00	1.17	298.32	4399.10	29.31	-23.68	29.31	37.69	321.06	0.24
4500.00	1.37	297.26	4499.07	30.35	-25.65	30.35	39.73	319.80	0.20
4600.00	1.43	294.84	4599.04	31.42	-27.84	31.42	41.98	318.45	0.08
4700.00	1.28	283.65	4699.01	32.21	-30.06	32.21	44.06	316.97	0.30
4800.00	1.39	271.72	4798.99	32.51	-32.36	32.51	45.87	315.13	0.30
4825.00	1.34	268.50	4823.98	32.51	-32.96	32.51	46.29	314.61	0.37



VES Survey International
Midland, TX
432-563-5444
Surveyor: Cody Johnson
Flat Head Federal Com No. 006H / API 30-025-41759



-W/+E
V.E.S. Survey Date: 07/01/2014

OCT 10 2014

RECEIVED

2 of 2

WELL NAME AND NUMBER Flat Head Fed Com No. 6 HLOCATION Section 14, T17S, R32E, Unit B, 1115 FNL, 1650 FEL, Lea CountyOPERATOR COG Operating LLCDRILLING 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
91.1° @ 7575'	91.0° @ 9373'	90.4° @ 11076'
91.0° @ 7670'	91.3° @ 9467'	91.3° @ 11170'
91.5° @ 7764'	91.7° @ 9561'	89.9° @ 11265'
89.7° @ 7859'	91.7° @ 9659'	89.0° @ 11359'
89.7° @ 7953'	90.6° @ 9751'	90.6° @ 11454'
90.1° @ 8048'	90.6° @ 9846'	90.6° @ 11549'
90.3° @ 8142'	91.0° @ 9940'	
90.6° @ 8237'	91.1° @ 10035'	
91.1° @ 8331'	91.3° @ 10130'	
89.4° @ 8426'	92.0° @ 10225'	
89.0° @ 8520'	91.8° @ 10319'	
89.2° @ 8615'	92.2° @ 10414'	
91.1° @ 8710'	90.1° @ 10508'	
91.3° @ 8899'	90.6° @ 10603'	
91.0° @ 8994'	91.0° @ 10697'	
91.3° @ 9088'	90.6° @ 10792'	
91.5° @ 9183'	90.8° @ 10887'	
92.0° @ 9278'	91.3° @ 10981'	

Drilling Contractor- UNITED DRILLING, INC.By: Luisa Noriega
(Luisa Noriega)Title: Asst. Office ManagerSubscribed and sworn to before me this 15th day of July, 2014.Carlene Martin
Notary PublicChavez New Mexico
County StateMy Commission Expires: 10/8/16



COG Operating LLC

Well: Flat Head Fed Com Well No. 6H
Site: Flat Head Fed Com
Project: Lea County, New Mexico
Design: rev1
Rig: United #43

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Annotation
1	4825.00	1.34	268.50	4823.98	32.48	-32.97	0.00	0.00	32.68	Survey @ 4825.00 MD
2	5379.17	1.34	268.50	5378.00	32.14	-45.93	0.00	0.00	32.43	KOP Begin 11°/100' build/turn
3	6206.79	91.00	0.19	5899.00	562.12	-56.57	11.00	91.67	562.47	Begin 91.00° lateral
4	11712.53	91.00	0.19	5803.00	6067.00	-38.40	0.00	0.00	6067.12	PBHL/TD

ANNOTATIONS

TVD	MD	Inc	Azi	+N/-S	+E/-W	VSect	Departure	Annotation
100.00	100.00	0.88	276.18	0.08	-0.76	0.09	0.77	Gyro
5237.89	5239.00	1.10	294.20	33.98	-41.43	34.24	99.00	MWD surveys
5782.17	5882.00	56.26	359.58	321.94	-41.80	322.20	387.48	330 Hard line intercept @ 5882 MD
5805.41	11612.00	90.60	359.30	6027.78	-37.89	6027.90	6093.88	Survey projected to 11612.00 MD

Surface Location: RKB=4092+12.5 @ 4104.50usft (United #43)

US State Plane 1927 (Exact solution)

New Mexico East 3001

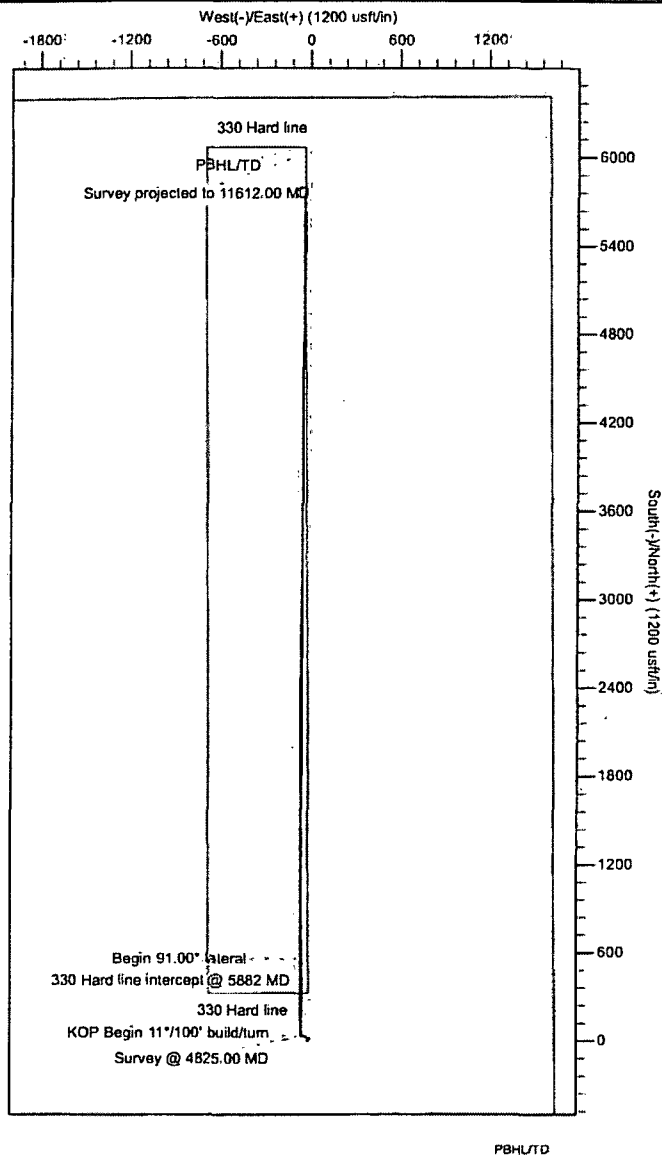
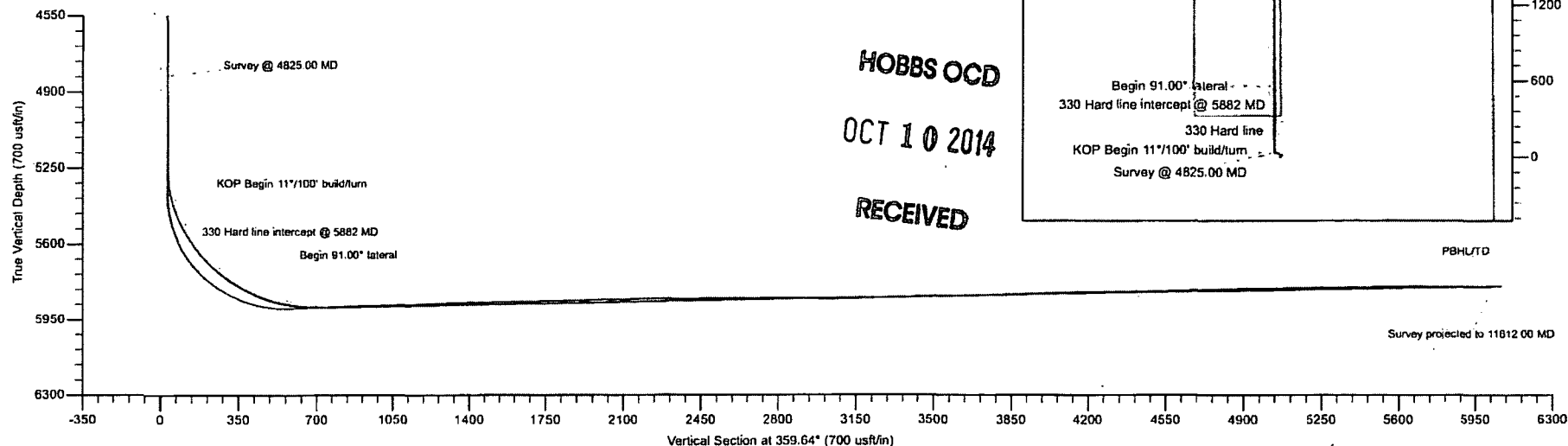
Northing 669324.90 Easting 684275.70 Latitude 32.83862156 Longitude -103.73336520
Total Correction (M => G) To convert a Magnetic Direction to a Grid Direction, Add 7.01°



Azimuths to Grid North
True North: -0.33°
Magnetic North: 7.01°

Magnetic Field
Strength: 48661.1nT
Dip Angle: 60.65°
Date: 6/20/2014
Model: IGRF2010

N-ONE





Company:	COG Operating LLC	Local Co-ordinate Reference:	Well: Flat Head Fed Com Well No. 6H
Project:	Lea County, New Mexico	TVD Reference:	RKB=4092+12.5' @ 4104.50usft (United #43)
Site:	Flat Head Fed Com	MD Reference:	RKB=4092+12.5' @ 4104.50usft (United #43)
Well:	Flat Head Fed Com Well No. 6H	North Reference:	Grid
Wellbore:	Original hole	Survey Calculation Method:	Minimum Curvature
Design:	Surveys Original hole	Database:	EDM 5000.1 Database

Project:	Lea 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:		Flat Head Fed Com					
Site Position:		Northing:	669,324.90	usft	Latitude:	32.83862156	
From:	Map	Easting:	684,275.70	usft	Longitude:	-103.73336520	
Position Uncertainty:	0.00	usft	Slot Radius:	13-3/16	"	Grid Convergence:	0.33
							"

Well	Flat Head Fed Com Well No. 6H/ Surf Loc 1115 FNL 1650 FEL Sect 14					
Well Position	+N/-S	0.00 usft	Northing:	669,324.90 usft	Latitude:	32.83862156
	+E/-W	0.00 usft	Easting:	684,275.70 usft	Longitude:	-103.73336520
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	4,092.00 usft

Wellbore	Original hole				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	6/20/2014	7.33	60.65	48,661

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	359.64



Standard_report



Company:	COG Operating LLC	Local Co-ordinate Reference:	Well Flat Head Fed Com Well No. 6H
Project:	Lea County, New Mexico	TVD Reference:	RKB=4092+12.5 @ 4104.50usft (United #43)
Site:	Flat Head Fed Com	MD Reference:	RKB=4092+12.5 @ 4104.50usft (United #43)
Well:	Flat Head Fed Com Well No. 6H	North Reference:	Grid
Wellbore:	Original hole	Survey Calculation Method:	Minimum Curvature
Design:	Surveys Original hole	Database:	EDM 5000.1 Database

Survey Program	Date	7/9/2014			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
100.00	4,825.00	Gyro (Original hole)	NS-GYRO-MS	North sensing gyrocompassing m/s	
5,239.00	11,612.00	MWD (Original hole)	MWD	MWD - Standard	

Survey	MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	DLeg (°/100ft)	V. Sec (usft)	Northing (usft)	Easting (usft)
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	669,324.90	684,275.70
	100.00	0.88	276.16	100.00	0.08	-0.76	0.88	0.09	669,324.98	684,274.94
Gyro	200.00	0.74	274.19	199.99	0.21	-2.17	0.14	0.23	669,325.11	684,273.53
	300.00	0.87	275.81	299.98	0.34	-3.57	0.13	0.36	669,325.24	684,272.13
	400.00	0.43	261.27	399.97	0.36	-4.70	0.47	0.39	669,325.26	684,271.00
	500.00	0.76	304.86	499.96	0.68	-5.61	0.54	0.71	669,325.58	684,270.09
	600.00	0.91	280.00	599.95	1.20	-6.94	0.39	1.24	669,326.10	684,268.76
	700.00	0.22	185.83	699.95	1.14	-7.74	0.95	1.19	669,326.04	684,267.96
	800.00	0.51	152.20	799.95	0.56	-7.55	0.35	0.60	669,325.46	684,268.15
	900.00	0.46	168.73	899.94	-0.23	-7.27	0.15	-0.18	669,324.67	684,268.43
	1,000.00	0.37	173.29	999.94	-0.94	-7.15	0.10	-0.90	669,323.95	684,268.55
	1,100.00	0.57	204.59	1,099.94	-1.72	-7.32	0.32	-1.67	669,323.18	684,268.38
	1,200.00	1.13	263.50	1,199.93	-2.28	-8.51	0.97	-2.23	669,322.62	684,267.19
	1,300.00	0.68	302.48	1,299.92	-2.07	-9.99	0.74	-2.01	669,322.83	684,265.71
	1,400.00	0.72	302.56	1,399.91	-1.42	-11.02	0.04	-1.35	669,323.48	684,264.68
	1,500.00	0.46	357.08	1,499.90	-0.68	-11.57	0.59	-0.61	669,324.22	684,264.13
	1,600.00	0.49	15.31	1,599.90	0.13	-11.47	0.15	0.21	669,325.03	684,264.23
	1,700.00	0.74	4.02	1,699.90	1.19	-11.31	0.28	1.26	669,326.09	684,264.39
	1,800.00	1.07	46.38	1,799.88	2.48	-10.59	0.72	2.55	669,327.38	684,265.11
	1,900.00	1.31	53.82	1,899.86	3.80	-9.00	0.28	3.86	669,328.70	684,266.70



Standard_report



Company: COG Operating LLC
Project: Lea County, New Mexico
Site: Flat Head Fed.Com
Well: Flat Head Fed.Com Well No. 6H
Wellbore: Original hole
Design: Surveys Original hole

Local Co-ordinate Reference:
TVD Reference:
MD Reference:
North Reference:
Survey Calculation Method:
Database:

Well Flat Head Fed.Com Well No. 6H
RKB=4092+12.5 @ 4104.50usft (United #43)
RKB=4092+12.5 @ 4104.50usft (United #43)
Grid
Minimum Curvature
EDM 5000.1 Database

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	DLeg (°/100ft)	V. Sec (usft)	Northing (usft)	Easting (usft)
2,000.00	1.59	50.61	1,999.83	5.35	-7.00	0.29	5.40	669,330.25	684,268.70
2,100.00	1.84	49.13	2,099.79	7.28	-4.71	0.25	7.31	669,332.18	684,270.99
2,200.00	1.78	51.94	2,199.74	9.29	-2.28	0.11	9.31	669,334.19	684,273.42
2,300.00	1.69	71.64	2,299.69	10.71	0.35	0.60	10.71	669,335.61	684,276.05
2,400.00	1.41	74.92	2,399.65	11.50	2.93	0.29	11.48	669,336.40	684,278.63
2,500.00	0.86	70.93	2,499.63	12.06	4.83	0.56	12.03	669,336.96	684,280.53
2,600.00	0.53	62.90	2,599.63	12.52	5.95	0.34	12.48	669,337.42	684,281.65
2,700.00	0.56	54.98	2,699.62	13.01	6.76	0.08	12.97	669,337.91	684,282.46
2,800.00	0.73	65.64	2,799.62	13.55	7.74	0.21	13.51	669,338.45	684,283.44
2,900.00	0.60	44.58	2,899.61	14.19	8.69	0.27	14.14	669,339.09	684,284.39
3,000.00	0.40	341.42	2,999.61	14.89	8.95	0.55	14.84	669,339.79	684,284.65
3,100.00	0.78	335.91	3,099.60	15.85	8.56	0.38	15.79	669,340.75	684,284.26
3,200.00	1.03	299.81	3,199.59	16.91	7.50	0.61	16.87	669,341.81	684,283.20
3,300.00	1.20	304.94	3,299.57	17.96	5.86	0.20	17.92	669,342.86	684,281.56
3,400.00	1.27	298.09	3,399.55	19.08	4.03	0.16	19.06	669,343.98	684,279.73
3,500.00	1.75	290.43	3,499.51	20.14	1.62	0.52	20.13	669,345.04	684,277.32
3,600.00	1.95	284.22	3,599.46	21.09	-1.46	0.28	21.10	669,345.99	684,274.24
3,700.00	1.87	296.58	3,699.40	22.24	-4.57	0.42	22.26	669,347.14	684,271.13
3,800.00	1.79	278.43	3,799.35	23.20	-7.57	0.58	23.24	669,348.10	684,268.13
3,900.00	1.97	296.14	3,899.30	24.18	-10.66	0.61	24.25	669,349.08	684,265.04
4,000.00	1.98	292.37	3,999.24	25.60	-13.80	0.13	25.68	669,350.50	684,261.90
4,100.00	1.72	291.88	4,099.19	26.81	-16.79	0.26	26.92	669,351.71	684,258.91
4,200.00	1.50	286.49	4,199.15	27.74	-19.44	0.27	27.87	669,352.64	684,256.26
4,300.00	1.27	287.96	4,299.12	28.46	-21.75	0.23	28.59	669,353.36	684,253.95
4,400.00	1.17	298.32	4,399.10	29.28	-23.70	0.24	29.43	669,354.18	684,252.00
4,500.00	1.37	297.26	4,499.07	30.32	-25.66	0.20	30.48	669,355.22	684,250.04
4,600.00	1.43	294.84	4,599.04	31.39	-27.86	0.08	31.56	669,356.29	684,247.84



Company:	COG Operating LLC	Local Co-ordinate Reference:	Well: Flat Head Fed Com Well No. 6H
Project:	Lea County, New Mexico	TVD Reference:	RKB=4092+12.5 @ 4104:50usft (United #43)
Site:	Flat Head Fed Com	MD Reference:	RKB=4092+12.5 @ 4104:50usft (United #43)
Well:	Flat Head Fed Com Well No. 6H	North Reference:	Grid
Wellbore:	Original hole	Survey Calculation Method:	Minimum Curvature
Design:	Surveys Original hole	Database:	EDM 5000.1 Ddatabase

Survey										
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	DLeg (°/100ft)	V. Sec (usft)	Northing (usft)	Easting (usft)	
4,700.00	1.28	283.65	4,699.02	32.17	-30.08	0.30	32.36	669,357.07	684,245.62	
4,800.00	1.39	271.72	4,798.99	32.47	-32.37	0.30	32.68	669,357.37	684,243.33	
4,825.00	1.34	268.50	4,823.98	32.48	-32.97	0.37	32.68	669,357.38	684,242.73	
5,239.00	1.10	294.20	5,237.89	33.98	-41.43	0.14	34.24	669,358.88	684,234.27	
MWD surveys										
5,270.00	1.10	322.00	5,268.89	34.33	-41.89	1.70	34.60	669,359.23	684,233.81	
5,302.00	3.00	348.00	5,300.86	35.40	-42.25	6.46	35.66	669,360.30	684,233.45	
5,333.00	5.80	356.10	5,331.77	37.75	-42.53	9.23	38.02	669,362.65	684,233.17	
5,365.00	9.10	357.50	5,363.50	41.90	-42.75	10.33	42.16	669,366.80	684,232.95	
5,397.00	13.00	358.90	5,394.90	48.02	-42.93	12.22	48.29	669,372.92	684,232.77	
5,428.00	16.90	359.30	5,424.84	56.02	-43.05	12.58	56.29	669,380.92	684,232.65	
5,460.00	20.10	359.30	5,455.18	66.17	-43.17	10.00	66.44	669,391.07	684,232.53	
5,492.00	22.90	358.90	5,484.95	77.90	-43.36	8.76	78.17	669,402.80	684,232.34	
5,523.00	25.30	359.30	5,513.25	90.55	-43.56	7.76	90.82	669,415.45	684,232.14	
5,554.00	27.80	0.30	5,540.98	104.41	-43.60	8.19	104.68	669,429.31	684,232.10	
5,586.00	31.30	1.40	5,568.81	120.18	-43.36	11.07	120.45	669,445.08	684,232.34	
5,618.00	34.10	2.10	5,595.74	137.46	-42.83	8.83	137.73	669,462.36	684,232.87	
5,649.00	36.40	2.40	5,621.05	155.34	-42.12	7.44	155.60	669,480.24	684,233.58	
5,681.00	38.70	1.70	5,646.42	174.83	-41.43	7.31	175.08	669,499.73	684,234.27	
5,712.00	41.30	0.70	5,670.17	194.75	-41.01	8.64	195.00	669,519.65	684,234.69	
5,744.00	43.60	0.30	5,693.78	216.34	-40.83	7.24	216.59	669,541.24	684,234.87	
5,775.00	46.50	0.00	5,715.67	238.28	-40.77	9.38	238.53	669,563.18	684,234.93	
5,807.00	49.80	359.30	5,737.02	262.11	-40.92	10.44	262.36	669,587.01	684,234.78	
5,838.00	52.40	358.90	5,756.49	286.23	-41.30	8.45	286.49	669,611.13	684,234.40	
5,870.00	55.10	359.30	5,775.41	312.03	-41.71	8.50	312.29	669,636.93	684,233.99	
5,882.00	56.26	359.58	5,782.17	321.94	-41.80	9.86	322.20	669,646.84	684,233.90	
330 Hard line Intercept @ 5882 MD										



Standard_report



Company:	COG Operating,LLC	Local Co-ordinate Reference:	Well:Flat Head Fed Com Well No: 6H
Project:	Lea County, New Mexico	TVD Reference:	RKB=4092+12.5 @ 4104.50usft (United #43)
Site:	Flat Head Fed Com	MD Reference:	RKB=4092+12.5 @ 4104.50usft (United #43)
Well:	Flat Head Fed Com Well No: 6H	North Reference:	Grid
Wellbore:	Original hole	Survey Calculation Method:	Minimum Curvature
Design:	Surveys Original hole	Database:	EDM 5000.1 Database

Survey										
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	D Leg (°/100ft)	V. Sec (usft)	Northing (usft)	Easting (usft)	
5,901.00	58.10	0.00	5,792.47	337.91	-41.86	9.86	338.17	669,662.81	684,233.84	
5,933.00	61.10	0.00	5,808.66	365.51	-41.86	9.37	365.76	669,690.41	684,233.84	
5,964.00	63.20	359.60	5,823.14	392.91	-41.96	8.87	393.17	669,717.81	684,233.74	
5,996.00	65.60	359.30	5,836.97	421.77	-42.24	7.55	422.03	669,746.67	684,233.46	
6,028.00	68.10	359.30	5,849.55	451.19	-42.59	7.81	451.45	669,776.09	684,233.11	
6,059.00	71.30	359.30	5,860.30	480.26	-42.95	10.32	480.52	669,805.16	684,232.75	
6,091.00	74.80	358.90	5,869.63	510.86	-43.43	11.00	511.12	669,835.76	684,232.27	
6,122.00	77.10	358.90	5,877.15	540.92	-44.01	7.42	541.19	669,865.82	684,231.69	
6,154.00	79.90	358.90	5,883.53	572.27	-44.61	8.75	572.54	669,897.17	684,231.09	
6,185.00	82.70	358.90	5,888.22	602.91	-45.20	9.03	603.18	669,927.81	684,230.50	
6,217.00	84.60	358.90	5,891.76	634.70	-45.81	5.94	634.98	669,959.60	684,229.89	
6,248.00	87.40	359.60	5,893.92	665.62	-46.21	9.31	665.90	669,990.52	684,229.49	
6,345.00	92.40	358.20	5,894.09	762.57	-48.08	5.35	762.86	670,087.47	684,227.62	
6,440.00	91.70	359.60	5,890.69	857.49	-49.90	1.65	857.78	670,182.39	684,225.80	
6,535.00	92.00	0.00	5,887.63	952.44	-50.23	0.53	952.73	670,277.34	684,225.47	
6,629.00	91.00	0.00	5,885.17	1,046.40	-50.23	1.06	1,046.70	670,371.30	684,225.47	
6,724.00	91.70	359.60	5,882.93	1,141.38	-50.56	0.85	1,141.67	670,466.28	684,225.14	
6,819.00	92.00	359.60	5,879.86	1,236.32	-51.22	0.32	1,236.62	670,561.22	684,224.48	
6,913.00	92.40	359.60	5,876.25	1,330.25	-51.88	0.43	1,330.55	670,655.15	684,223.82	
7,008.00	90.60	359.30	5,873.77	1,425.21	-52.79	1.92	1,425.52	670,750.11	684,222.91	
7,102.00	90.80	359.30	5,872.62	1,519.20	-53.94	0.21	1,519.51	670,844.10	684,221.76	
7,197.00	91.10	357.90	5,871.04	1,614.15	-56.26	1.51	1,614.48	670,939.05	684,219.44	
7,291.00	91.80	358.20	5,868.66	1,708.07	-59.46	0.81	1,708.41	671,032.97	684,216.24	
7,386.00	91.30	359.30	5,866.10	1,803.01	-61.53	1.27	1,803.36	671,127.91	684,214.17	
7,481.00	91.00	0.30	5,864.19	1,897.99	-61.86	1.10	1,898.34	671,222.89	684,213.84	
7,575.00	91.00	0.00	5,862.55	1,991.97	-61.61	0.32	1,992.32	671,316.87	684,214.09	
7,670.00	91.00	359.60	5,860.89	2,086.96	-61.95	0.42	2,087.31	671,411.86	684,213.75	



Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well: Flat Head Fed' Com' Well No.: 6H
Project:	Lea County, New Mexico	TVD Reference:	RKB=4092+12.5 @ 4104:50usft (United #43)
Site:	Flat Head Fed' Com'	MD Reference:	RKB=4092+12.5 @ 4104:50usft (United #43)
Well:	Flat Head Fed' Com' Well No. 6H	North Reference:	Grid
Wellbore:	Original hole	Survey Calculation Method:	Minimum Curvature
Design:	Surveys Original hole	Database:	EDM: 5000.1 Database

Survey										
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	DLeg (°/100ft)	V. Sec (usft)	Northing (usft)	Easting (usft)	
7,764.00	91.50	359.60	5,858.84	2,180.93	-62.60	0.53	2,181.28	671,505.83	684,213.10	
7,859.00	89.70	1.00	5,857.84	2,275.92	-62.10	2.40	2,276.27	671,600.82	684,213.60	
7,953.00	89.70	0.70	5,858.34	2,369.91	-60.71	0.32	2,370.24	671,694.81	684,214.99	
8,048.00	90.10	0.70	5,858.50	2,464.90	-59.55	0.42	2,465.23	671,789.80	684,216.15	
8,142.00	90.30	0.70	5,858.17	2,558.89	-58.40	0.21	2,559.21	671,883.79	684,217.30	
8,237.00	90.60	0.70	5,857.43	2,653.88	-57.24	0.32	2,654.19	671,978.78	684,218.46	
8,331.00	91.10	0.70	5,856.03	2,747.87	-56.09	0.53	2,748.16	672,072.77	684,219.61	
8,426.00	89.40	1.00	5,855.62	2,842.85	-54.68	1.82	2,843.14	672,167.75	684,221.02	
8,520.00	89.00	1.00	5,856.93	2,936.83	-53.04	0.43	2,937.10	672,261.73	684,222.66	
8,615.00	89.20	0.70	5,858.42	3,031.81	-51.63	0.38	3,032.07	672,356.71	684,224.07	
8,710.00	91.10	1.40	5,858.18	3,126.78	-49.89	2.13	3,127.04	672,451.68	684,225.81	
8,805.00	91.70	1.00	5,855.85	3,221.73	-47.90	0.76	3,221.97	672,546.63	684,227.80	
8,899.00	91.30	0.70	5,853.39	3,315.69	-46.51	0.53	3,315.92	672,640.59	684,229.19	
8,994.00	91.00	359.30	5,851.49	3,410.67	-46.51	1.51	3,410.89	672,735.57	684,229.19	
9,088.00	91.30	359.30	5,849.60	3,504.64	-47.66	0.32	3,504.87	672,829.54	684,228.04	
9,183.00	91.50	359.60	5,847.28	3,599.61	-48.57	0.38	3,599.85	672,924.51	684,227.13	
9,278.00	92.00	359.60	5,844.38	3,694.56	-49.23	0.53	3,694.80	673,019.46	684,226.47	
9,373.00	91.00	0.00	5,841.89	3,789.53	-49.56	1.13	3,789.77	673,114.43	684,226.14	
9,467.00	91.30	0.30	5,840.00	3,883.51	-49.32	0.45	3,883.74	673,208.41	684,226.38	
9,561.00	91.70	0.00	5,837.54	3,977.48	-49.07	0.53	3,977.71	673,302.38	684,226.63	
9,656.00	91.70	359.60	5,834.73	4,072.43	-49.40	0.42	4,072.66	673,397.33	684,226.30	
9,751.00	90.60	0.30	5,832.82	4,167.41	-49.49	1.37	4,167.64	673,492.31	684,226.21	
9,846.00	90.60	0.00	5,831.82	4,262.41	-49.24	0.32	4,262.63	673,587.31	684,226.46	
9,940.00	91.00	0.30	5,830.51	4,356.40	-48.99	0.53	4,356.62	673,681.30	684,226.71	
10,035.00	91.10	0.70	5,828.77	4,451.38	-48.16	0.43	4,451.59	673,776.28	684,227.54	
10,130.00	91.30	0.70	5,826.78	4,546.35	-47.00	0.21	4,546.56	673,871.25	684,228.70	
10,225.00	92.00	1.00	5,824.05	4,641.30	-45.59	0.80	4,641.49	673,966.20	684,230.11	



Standard_report



Company:	COG Operating LLC	Local Co-ordinate Reference:	Well Flat Head Fed Com Well No. 6H
Project:	Lea County, New Mexico	TVD Reference:	RKB=4092+12.5 @ 4104.50usft (United #43)
Site:	Flat Head Fed Com	MD Reference:	RKB=4092+12.5 @ 4104.50usft (United #43)
Well:	Flat Head Fed Com Well No. 6H	North Reference:	Grid:
Wellbore:	Original hole	Survey Calculation Method:	Minimum Curvature
Design:	Surveys Original hole	Database:	EDM 5000.1' Ddatabase

Survey										
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	DLeg (°/100ft)	V. Sec (usft)	Northing (usft)	Easting (usft)	
10,319.00	91.80	1.70	5,820.93	4,735.22	-43.38	0.77	4,735.40	674,060.12	684,232.32	
10,414.00	92.20	1.40	5,817.61	4,830.13	-40.81	0.53	4,830.29	674,155.03	684,234.89	
10,508.00	90.10	1.00	5,815.73	4,924.08	-38.84	2.27	4,924.23	674,248.98	684,236.86	
10,603.00	90.60	1.40	5,815.15	5,019.06	-36.85	0.67	5,019.19	674,343.96	684,238.85	
10,697.00	91.00	1.40	5,813.83	5,113.02	-34.56	0.43	5,113.14	674,437.92	684,241.14	
10,792.00	90.60	1.00	5,812.51	5,207.99	-32.57	0.60	5,208.09	674,532.89	684,243.13	
10,887.00	90.80	0.30	5,811.35	5,302.98	-31.49	0.77	5,303.07	674,627.88	684,244.21	
10,981.00	91.30	0.70	5,809.63	5,396.96	-30.67	0.68	5,397.04	674,721.86	684,245.03	
11,076.00	90.40	0.00	5,808.22	5,491.95	-30.09	1.20	5,492.03	674,816.85	684,245.61	
11,170.00	91.30	0.70	5,806.82	5,585.93	-29.52	1.21	5,586.01	674,910.83	684,246.18	
11,265.00	89.90	359.60	5,805.83	5,680.92	-29.27	1.87	5,680.99	675,005.82	684,246.43	
11,359.00	89.00	357.90	5,806.73	5,774.89	-31.32	2.05	5,774.97	675,099.79	684,244.38	
11,454.00	90.60	357.90	5,807.06	5,869.82	-34.80	1.68	5,869.93	675,194.72	684,240.90	
11,549.00	90.60	359.30	5,806.07	5,964.79	-37.12	1.47	5,964.90	675,289.69	684,238.58	
11,612.00	90.60	359.30	5,805.41	6,027.78	-37.89	0.00	6,027.90	675,352.68	684,237.81	
Survey projected to 11612.00 MD										

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
100.00	100.00	0.08	-0.76	Gyro
5,239.00	5,237.89	33.98	-41.43	MWD surveys
5,882.00	5,782.17	321.94	-41.80	330 Hard line intercept @ 5882 MD
11,612.00	5,805.41	6,027.78	-37.89	Survey projected to 11612.00 MD