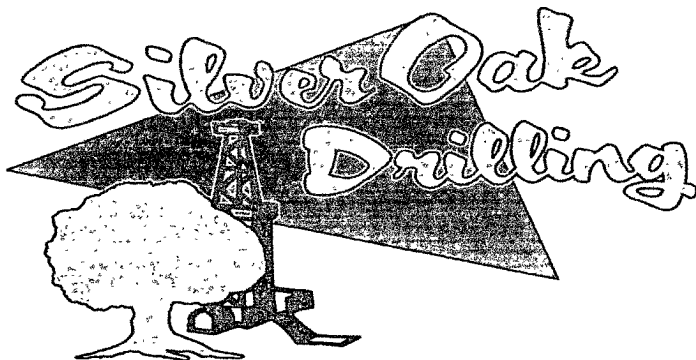




PO Box 1370
Artesia, NM 88211-1370
(575) 748-1288

RECEIVED

JUL 31 2009

HOBBSOCD

June 30, 2009

COG, LLC
Fasken Center, Tower II
550 West Texas Ave, Suite 1300
Midland, TX 79701

RE: BC Federal #28
690' FNL & 280' FEL
Sec. 20, T17S, R32E
Lea County, New Mexico

Dear Sir,

The attached is the Deviation Survey for the above captioned well.

Very truly yours,

A handwritten signature in cursive script, appearing to read "Eddie C. LaRue".

Eddie C. LaRue
Operations Manager

SUR: A-20-17s-32e, 690/N & 280/E
BHL: A-20-17s-32e, 998/N & 345/E
API # 30-025-38746

State of New Mexico }
County of Eddy }

The foregoing was acknowledged before me this 30th day of June, 2009.

A handwritten signature in cursive script, appearing to read "Regina L. Garner".

Notary Public

OFFICIAL SEAL
REGINIA L. GARNER
NOTARY PUBLIC - STATE OF NEW MEXICO

My commission expires Aug. 30, 2012

Date	Depth	Dev	Dir	TVD
06/14/2009	179.00	0.50	0.00	0.00
06/14/2009	331.00	1.00	0.00	0.00
06/15/2009	548.00	1.00	0.00	0.00
06/15/2009	717.00	1.00	0.00	0.00
06/16/2009	905.00	1.25	0.00	0.00
06/16/2009	1282.00	1.00	0.00	1322.00
06/17/2009	1724.00	0.50	0.00	0.00
06/17/2009	2148.00	0.25	0.00	0.00
06/19/2009	2256.00	0.35	230.40	0.00
06/19/2009	2351.00	0.93	217.40	0.00
06/19/2009	2540.00	5.32	204.40	0.00
06/19/2009	2611.00	6.00	187.50	2609.76
06/19/2009	2801.00	4.38	196.20	2798.98
06/19/2009	2989.00	4.28	187.80	2986.45
06/19/2009	3179.00	5.23	193.00	3175.79
06/20/2009	3367.00	5.97	195.80	3352.89
06/20/2009	3555.00	5.01	204.70	3550.03
06/20/2009	3680.00	6.29	192.10	3674.43
06/20/2009	3870.00	6.24	182.10	3863.30
06/21/2009	4058.00	5.54	184.10	4050.30
06/21/2009	4248.00	5.02	184.80	4239.50
06/21/2009	4437.00	5.69	192.40	4427.67
06/21/2009	4627.00	4.53	193.40	4616.91
06/21/2009	4817.00	6.06	192.60	4806.10
06/22/2009	5006.00	6.11	191.20	4994.03
06/22/2009	5101.00	6.08	186.40	5088.50
06/22/2009	5198.00	3.65	199.10	5183.15
06/22/2009	5293.00	1.52	183.00	0.00
06/22/2009	5385.00	0.22	276.30	5373.04
06/23/2009	5681.00	0.50	0.00	5753.00
06/24/2009	6155.00	0.50	0.00	6225.00
06/24/2009	6658.00	0.50	0.00	6730.00
06/25/2009	7033.00	0.25	0.00	0.00
# EOF				



COG Operating LLC

Lea County, NM (NAD27 NME)

BC Federal #28

BC Federal #28

OH

SUR: A-20-17s-32e, 690/N & 280/E
BHL: A-20-17s-32e, 998/N & 345/E
API # 30-025-38746

Design: Actual

Standard Survey Report

23 June, 2009





Scientific Drilling
Survey Report



Company:	COG Operating LLC	Local Co-ordinate Reference:	Site BC Federal #28
Project:	Lea County, NM (NAD27 NME)	TVD Reference:	WELL @ 4041 00ft (Rig ?)
Site:	BC Federal #28	MD Reference:	WELL @ 4041 00ft (Rig ?)
Well:	BC Federal #28	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Actual	Database:	EDM 5000 1 Single User Db

Project	Lea County, NM (NAD27 NME)		
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	BC Federal #28		
Site Position:		Northing:	664,431 90 ft
From:	Map	Easting:	669,842 20 ft
Position Uncertainty:	0 00 ft	Slot Radius:	0 "
		Latitude:	32° 49' 31.401 N
		Longitude:	103° 46' 49 582 W
		Grid Convergence:	0 30 °

Well	BC Federal #28		
Well Position	+N/-S	0 00 ft	Northing:
	+E/-W	0 00 ft	Easting:
Position Uncertainty	0 00 ft	Wellhead Elevation:	ft
		Latitude:	32° 49' 31.401 N
		Longitude:	103° 46' 49 582 W
		Ground Level:	4,041 00 ft

Wellbore:	OH		
Magnetics:	Model Name	Sample Date	Declination
	IGRF200510	2009/06/23	(°)
			7 95
			Dip Angle
			(°)
			60 77
			Field Strength
			(nT)
			49,178

Design	Actual		
Audit Notes:			
Version:	1 0	Phase:	ACTUAL
		Tie On Depth:	0 00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(ft)	(ft)	(ft)
	0 00	0 00	0.00
			Direction
			(°)
			191 69

Survey Program	Date: 2009/06/23		
From	To	Survey (Wellbore)	Tool Name
(ft)	(ft)		
100 00	2,120 00	Gyro Survey (OH)	Keeper
2,202 00	5,439 00	MWD (OH)	MWD
			Description
			Standard Wireline Keeper ver 1 0 2
			MWD - Standard

Survey									
Measured	Inclination	Azimuth	Vertical	+N/-S	+E/-W	Vertical	Dogleg	Build	Turn
Depth	(°)	(°)	Depth	(ft)	(ft)	Section	Rate	Rate	Rate
(ft)			(ft)			(ft)	(°/100ft)	(°/100ft)	(°/100ft)
0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00
100 00	0 28	178 59	100 00	-0 24	0 01	0 24	0 28	0 28	0 00
200 00	0 40	203 32	200 00	-0 81	-0 13	0 82	0 19	0 12	24 73
300 00	0 73	188 36	299 99	-1 76	-0 36	1 80	0 36	0 33	-14 96
400 00	0 79	182 00	399 98	-3 08	-0 47	3 11	0 10	0 06	-6 36
500 00	0 80	180 62	499 97	-4 47	-0 51	4 48	0 02	0 01	-1 38
600 00	0 99	175 67	599 96	-6 03	-0 45	5 99	0 20	0 19	-4 95
700 00	1 17	167 46	699 94	-7 88	-0 16	7 75	0 24	0 18	-8 21
800 00	1 12	173 71	799 92	-9 85	0 17	9 61	0 13	-0 05	6 25
900 00	1 06	193 00	899 91	-11 72	0 07	11 47	0 37	-0 06	19 29



Scientific Drilling
Survey Report



Company:	COG Operating LLC	Local Co-ordinate Reference:	Site BC Federal #28
Project:	Lea County, NM (NAD27 NME)	TVD Reference:	WELL @ 4041 00ft (Rig ?)
Site:	BC Federal #28	MD Reference:	WELL @ 4041 00ft (Rig ?)
Well:	BC Federal #28	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Actual	Database:	EDM 5000 1 Single User Db

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)
1,000 00	1 15	190 19	999 89	-13 61	-0 32	13 40	0 11	0 09	-2 81
1,100 00	1 04	193 82	1,099 87	-15 48	-0 71	15 31	0 13	-0 11	3 63
1,200 00	1 01	194 10	1,199 85	-17 22	-1 14	17 09	0 03	-0 03	0 28
1,300 00	0 96	197 02	1,299 84	-18 87	-1 60	18 81	0 07	-0 05	2 92
1,400 00	1 04	194 77	1,399 82	-20 55	-2 08	20 55	0 09	0 08	-2 25
1,500 00	0 76	182 41	1,499 81	-22 09	-2 34	22 11	0 34	-0 28	-12 36
1,600 00	0 59	179 01	1,599 80	-23 27	-2 36	23 27	0 17	-0 17	-3 40
1,700 00	0 28	185 08	1,699 80	-24 03	-2 37	24 01	0 31	-0 31	6 07
1,800 00	0 16	150 76	1,799 80	-24 39	-2 33	24 36	0 17	-0 12	-34 32
1,900 00	0 11	114 94	1,899 80	-24 56	-2 17	24 49	0 10	-0 05	-35 82
2,000 00	0 16	168 24	1,999 80	-24 73	-2 05	24 64	0 13	0 05	53 30
2,100 00	0 30	169 39	2,099 80	-25 13	-1 98	25 01	0 14	0 14	1 15
2,120 00	0 12	187 50	2,119 80	-25 20	-1 97	25 08	0 95	-0 90	90 55
Gyro Tie-in									
2,202 00	0 35	230 41	2,201 80	-25 44	-2 18	25 36	0 33	0 28	52 33
2,297 00	0 93	217 41	2,296 79	-26 24	-2 87	26 28	0 63	0 61	-13 68
2,392 00	4 16	209 74	2,391 69	-29 85	-5 05	30 25	3 41	3 40	-8 07
2,486 00	5 32	204 47	2,485 36	-36 77	-8 54	37 74	1 32	1 23	-5 61
2,611 00	6 00	187 51	2,609 76	-48 53	-11 80	49 91	1 44	0 54	-13 57
2,801 00	4 38	196 25	2,798 98	-65 34	-15 12	67 05	0 95	-0 85	4 60
2,989 00	4 28	187 85	2,986 45	-79 18	-18 09	81 20	0 34	-0 05	-4 47
3,179 00	5 23	193 09	3,175 79	-94 64	-21 02	96 93	0 55	0 50	2 76
3,367 00	5 97	195 81	3,362 89	-112 39	-25 63	115 25	0 42	0 39	1 45
3,555 00	5 01	204 71	3,550 03	-129 26	-31 72	133 00	0 68	-0 51	4 73
3,680 00	6 29	192 15	3,674 43	-140 91	-35 44	145 17	1 42	1 02	-10 05
3,870 00	6 24	182 11	3,863 30	-161 40	-38 02	165 76	0 58	-0 03	-5 28
4,058 00	5 54	184 16	4,050 30	-180 67	-39 05	184 83	0 39	-0 37	1 09
4,248 00	5 02	184 85	4,239 50	-198 10	-40 42	202 18	0 28	-0 27	0 36
4,437 00	5 69	192 41	4,427 67	-215 49	-43 13	219 76	0 51	0 35	4 00
4,627 00	4 53	193 48	4,616 91	-231 98	-46 90	236 67	0 61	-0 61	0 56
4,817 00	6 06	192 68	4,806 10	-249 06	-50 85	254 20	0 81	0 81	-0 42
5,006 00	6 11	191 29	4,994 03	-268 66	-55 01	274 23	0 08	0 03	-0 74
5,101 00	6 08	186 44	5,088 50	-278 62	-56 57	284 30	0 54	-0 03	-5 11
5,196 00	3 65	199 12	5,183 15	-286 48	-58 12	292 31	2 78	-2 56	13 35
5,291 00	1 56	183 05	5,278 05	-290 62	-59 18	296 59	2 31	-2 20	-16 92
5,386 00	0 22	276 37	5,373 04	-291 90	-59 43	297 88	1 67	-1 41	98 23
MWD Survey									
5,439 00	0 22	276 37	5,426 04	-291 87	-59 63	297 90	0 00	0 00	0 00
Projection to Bit									



Scientific Drilling
Survey Report



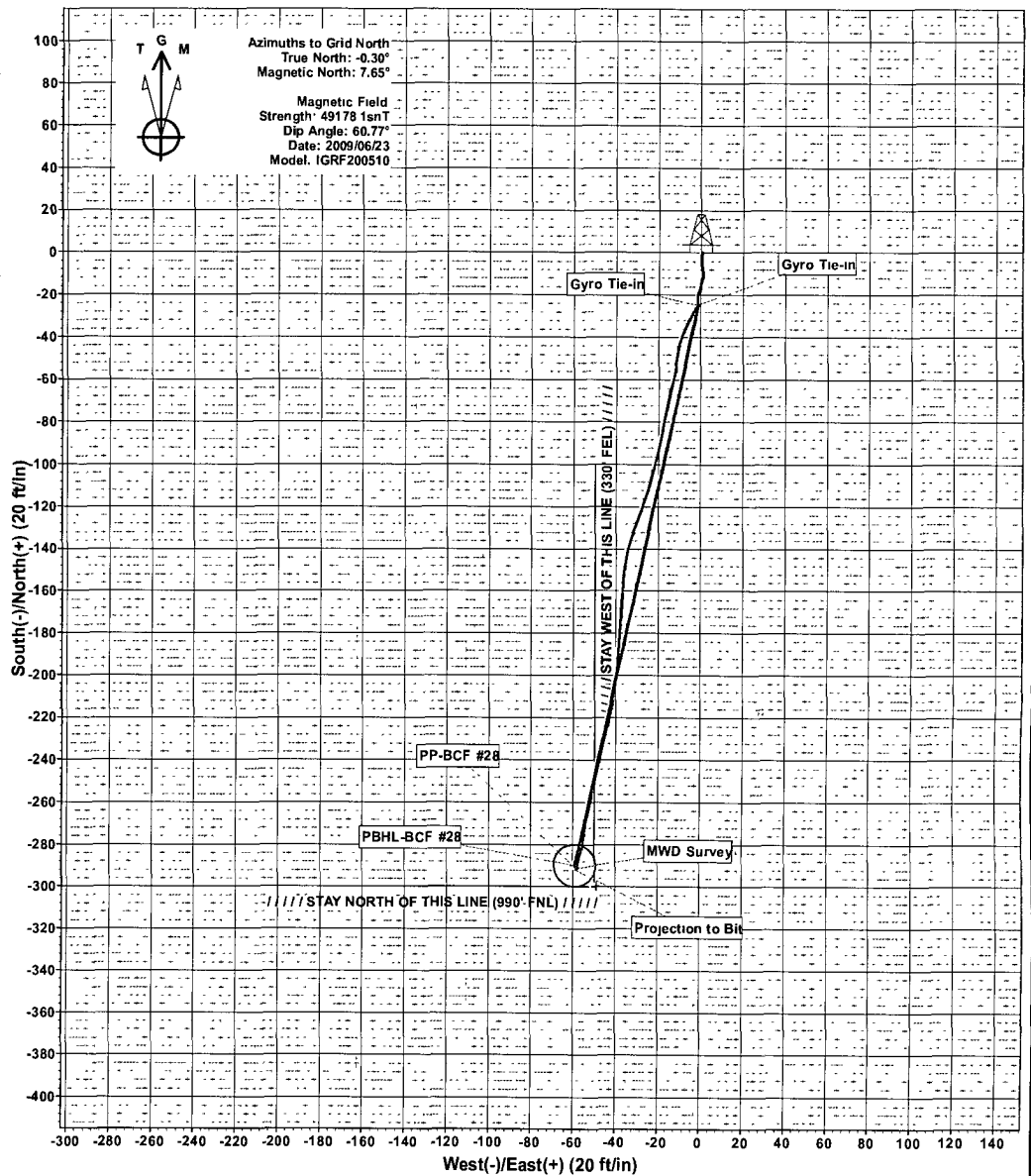
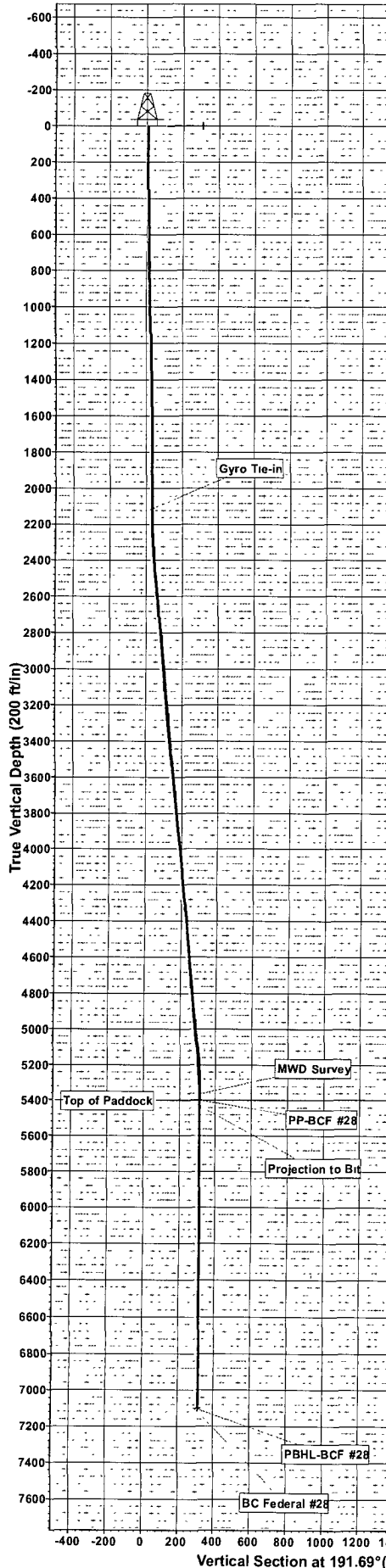
Company:	COG Operating LLC	Local Co-ordinate Reference:	Site BC Federal #28
Project:	Lea County, NM (NAD27 NME)	TVD Reference:	WELL @ 4041.00ft (Rig ?)
Site:	BC Federal #28	MD Reference:	WELL @ 4041 00ft (Rig ?)
Well:	BC Federal #28	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Actual	Database:	EDM 5000 1 Single User Db

Design Annotations:				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
2,120 00	2,119 80	-25 20	-1 97	Gyro Tie-in
5,386 00	5,373 04	-291 90	-59 43	MWD Survey
5,439 00	5,426 04	-291 87	-59 63	Projection to Bit

Checked By: _____	Approved By: _____	Date: _____
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Scientific Drilling for COG Operating LLC
Site: Lea County, NM (NAD27 NME)
Well: BC Federal #28
Wellbore: OH
Design: Plan #2 vs Actual - 7-7/8" Hole



Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
East HL-BCF #28	0 00	-300.00	-50.00	664131.90	669792.20	32°49' 28.435 N	103°46' 50.186 W	Rectangle (Sides L -200.00 W0 00)
North HL-BCF #28	0 00	-300 00	-50.00	664131.90	669792.20	32°49' 28 435 N	103°46' 50.186 W	Rectangle (Sides' L0.00 W-100 00)
PP-BCF #28	5400 00	-290 00	-60.00	664141.90	669782.20	32°49' 28 534 N	103°46' 50 303 W	Point
PBHL-BCF #28	7100 00	-290.00	-60 00	664141 90	669782 20	32°49' 28.534 N	103°46' 50 303 W	Circle (Radius 10 00)

AZIMUTH CORRECTIONS
ALL AZIMUTHS MUST BE CORRECTED TO GRID
GRID CORRECTIONS MUST BE APPLIED BEFORE PLOTTING
To convert a Magnetic Direction to a Grid Direction, Add 7.65°
To convert a True Direction to a Grid Direction, Subtract 0.30°

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSeet	Target
1	2120 00	0.12	187.50	2119.80	-25.20	-1.97	0 00	0 00	25 08	
2	2200.00	0.12	187 50	2199.80	-25.37	-1.99	0.00	0.00	25 24	
3	2457 00	5.26	192.37	2456.43	-37 15	-4.55	2 00	4.98	37.30	
4	5149.29	5.26	192.37	5137 39	-278.22	-57 42	0 00	0 00	284.08	
5	5412 27	0.00	0 00	5400.00	-290.00	-60 00	2 00	180 00	296 14	PP-BCF #28
6	7112.27	0.00	0 00	7100.00	-290 00	-60 00	0 00	0 00	296.14	PBHL-BCF #28

WELL DETAILS: BC Federal #28

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Spot
0 00	0 00	664431 90	669842.20	32°49' 31.401 N	103°46' 49.582 W	

PROJECT DETAILS: Lea County, NM (NAD27 NME) Plan: Plan #2 - 7-7/8" Hole (BC Federal #28/OH)

Geodetic System	US State Plane 1927 (Exact solution)	Created By:	Julio Pina	Date:	23-Jun-09
Datum:	NAD 1927 (NADCON CONUS)	Checked:		Date:	
Ellipsoid:	Clarke 1866	Reviewed:		Date:	
Zone:	New Mexico East 3001	Approved:		Date:	
System Datum:	Mean Sea Level				