Results of Directional Survey

DD

API number:	30-025-40151			
OGRID:		Operator:	COG OPERATING LLC	
		Property:	GC FEDERAL	# 58

surface	ULSTR:	I	19	T	17S	R	32E
				2370	FSL	590	FEL

BH Loc	ULSTR:	I	19	T	17S	R	32E
7042	MD	7031.1	TVD	2285	FSL	342	FEL

Top Perf/OH	ULSTR:	I	19	T	17S	R	32E
5320	MD	5309.1	TVD	2302	FSL	340	FEL

Bot Perf/OH	ULSTR:	I	19	T	17S	R	32E
6700	MD	6689.1	TVD	2288	FSL	342	FEL

	MD	N/S	E/W	VD
	5296	-68.20	250.00	5285.1
TOP PERFS/OH	**5320**	-68.44	250.20	5309.10
	5357	-68.80	250.50	5346.10
	5513	-70.10	250.60	5502.10
BOT PERFS/OH	**6700**	-81.97	248.23	6689.10
	5563	-70.60	250.50	5552.10

NEXT TO LAST	5513	-70.10	250.60	5502.10
LAST READING	5563	-70.60	250.50	5552.10
TD	**7042**	-85.39	247.54	7031.10

Surface Location	2370	FS	590	FE
Projected BHL	2285	FS	342	FE
Location of				
Top Perfs/OH	2302	FS	340	FE
Bottom Perfs/OH	2288	FS	342	FE

SUMMARY of Subsurface Locations

Surface Location	I-19-17S-32E	2370	FS	590	FE	Vert. Depth
Top Perfs/OH	I-19-17S-32E	2302	FS	340	FE	5309.10
Bottom Perfs/OH	I-19-17S-32E	2288	FS	342	FE	6689.10
Projected TD	I-19-17S-32E	2285	FS	342	FE	7031.10

******NOTE this well was pemitted as a directional drill well. Directional drill survey was not run**

TO TD AS REQUIRED FOR DIRECTIONAL DRILLED WELLS.

APR 23 2012

CONCHO

COG OPERATING LLC

Lea County, NM (NAD27 NME)
GC Federal #58
GC Federal #58
OH - Job #32D0112002

SUR: I-19-17s-32e, 2370/S & 590/E
BHL: I-19s-17s-32e, 2285/S & 342/E
API # 30-025-40151

Survey: MWD Survey

SDI Standard Survey Report

This survey is correct to the best of my knowledge and is supported by actual field data.

Notarized this date 17th of February, 2012.

Notary Signature
County of Midland
State of Texas

NOTARY PUBLIC STATE OF TEXAS
CARRIE REED
My Commission Expires
October 4, 2015

Scientific Drilling
Directional Drilling Operations

Company:	COG OPERATING LLC	**Local Co-ordinate Reference:**	Well GC Federal #58
Project:	Lea County, NM (NAD27 NME)	**TVD Reference:**	RF @ 3960 0usft (JW #4)
Site:	GC Federal #58	**MD Reference:**	RF @ 3960 0usft (JW #4)
Well:	GC Federal #58	**North Reference:**	Grid
Wellbore:	OH - Job #32D0112002	**Survey Calculation Method:**	Minimum Curvature
Design:	Actual	**Database:**	EDM-Regulatory

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	GC Federal #58				
Site Position:		**Northing:**	662,186 00 usft	**Latitude:**	32° 49' 9 461 N
From:	Map	**Easting:**	664,270 60 usft	**Longitude:**	103° 47' 55 007 W
Position Uncertainty:	0 0 usft	**Slot Radius:**	13-3/16"	**Grid Convergence:**	0 29 °

Well	GC Federal #58					
Well Position	**+N/-S**	0 0 usft	**Northing:**	662,186 00 usft	**Latitude:**	32° 49' 9 461 N
	+E/-W	0 0 usft	**Easting:**	664,270 60 usft	**Longitude:**	103° 47' 55 007 W
Position Uncertainty		0 0 usft	**Wellhead Elevation:**	usft	**Ground Level:**	3,947 0 usft

Wellbore	OH - Job #32D0112002				
Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	IGRF2010	1/3/2012	7 67	60 68	48,891

Design	Actual				
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	105 42	

Survey Program **Date** 2/15/2012

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
100 0	2,010 0	Gyro Survey (OH - Job #32D0112002)	Keeper	Standard Wireline Keeper ver 1 0 2
2,118 0	5,563 0	MWD Survey (OH - Job #32D0112002)	MWD	MWD - Standard

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	True Vertical Depth	North/South (usft)	East/West (usft)	Closure Azimuth (°)	Closure Distance (usft)
0 0	0 00	0 00	0 0	0 0	0 0	0 00	0 0
100 0	0 41	291 38	100 0	0 1	-0 3	291 38	0 4
200 0	0 42	253 45	200 0	0 2	-1 0	278 74	1 0
300 0	0 43	250 68	300 0	-0 1	-1 7	267 60	1 7
400 0	0 58	235 42	400 0	-0 5	-2 5	259 03	2 5
500 0	0 51	205 69	500 0	-1 2	-3 1	249 32	3 3
600 0	0 42	200 23	600 0	-1 9	-3 4	240 75	3 9
700 0	0 39	202 27	700 0	-2 6	-3 7	235 00	4 5
800 0	0 42	167 96	800 0	-3 2	-3 7	228 95	4 9
900 0	0 59	163 45	900 0	-4 1	-3 5	220 55	5 4
1,000 0	0 28	170 55	1,000 0	-4 8	-3 3	214 49	5 9

Company:	COG OPERATING LLC	**Local Co-ordinate Reference:**	Well GC Federal #58
Project:	Lea County, NM (NAD27 NME)	**TVD Reference:**	RF @ 3960 0usft (JW #4)
Site:	GC Federal #58	**MD Reference:**	RF @ 3960 0usft (JW #4)
Well:	GC Federal #58	**North Reference:**	Grid
Wellbore:	OH - Job #32D0112002	**Survey Calculation Method:**	Minimum Curvature
Design:	Actual	**Database:**	EDM-Regulatory

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	True Vertical Depth	North/South (usft)	East/West (usft)	Closure Azimuth (°)	Closure Distance (usft)
1,100 0	0 45	164 33	1,100 0	-5 5	-3 2	210 21	6 3
1,200 0	0 47	143 44	1,200 0	-6 2	-2 8	204 63	6 8
1,300 0	0 46	138 45	1,300 0	-6 8	-2 3	198 82	7 2
1,400 0	0 38	124 24	1,400 0	-7 3	-1 8	193 70	7 5
1,500 0	0 69	95 79	1,500 0	-7 5	-0 9	186 83	7 6
1,600 0	1 22	80 88	1,599 9	-7 4	0 7	174 23	7 5
1,700 0	1 30	64 82	1,699 9	-6 8	2 8	157 33	7 3
1,800 0	1 45	65 74	1,799 9	-5 8	5 0	139 02	7 6
1,900 0	1 05	69 83	1,899 9	-4 9	7 0	125 07	8 6
2,000 0	0 99	61 52	1,999 8	-4 2	8 6	115 93	9 6
2,010 0	0 87	76 45	2,009 8	-4 1	8 8	115 23	9 7

Company:	COG OPERATING LLC	**Local Co-ordinate Reference:**	Well GC Federal #58
Project:	Lea County, NM (NAD27 NME)	**TVD Reference:**	RF @ 3960 0usft (JW #4)
Site:	GC Federal #58	**MD Reference:**	RF @ 3960 0usft (JW #4)
Well:	GC Federal #58	**North Reference:**	Grid
Wellbore:	OH - Job #32D0112002	**Survey Calculation Method:**	Minimum Curvature
Design:	Actual	**Database:**	EDM-Regulatory

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 GC Federal #58

Site Position:		**Northing:**	662,186 00 usft	**Latitude:**	32° 49' 9 461 N
From:	Map	**Easting:**	664,270 60 usft	**Longitude:**	103° 47' 55 007 W
Position Uncertainty:	0 0 usft	**Slot Radius:**	13-3/16"	**Grid Convergence:**	0 29 °

Well GC Federal #58

Well Position	**+N/-S**	0 0 usft	**Northing:**	662,186 00 usft	**Latitude:**	32° 49' 9 461 N
	+E/-W	0 0 usft	**Easting:**	664,270 60 usft	**Longitude:**	103° 47' 55 007 W
Position Uncertainty		0 0 usft	**Wellhead Elevation:**	usft	**Ground Level:**	3,947 0 usft

Wellbore OH - Job #32D0112002

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	1/3/2012	7 67	60 68	48,891

Design Actual

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	105 42

Survey Program **Date** 2/15/2012

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
100 0	2,010 0	Gyro Survey (OH - Job #32D0112002)	Keeper	Standard Wireline Keeper ver 1 0 2
2,118 0	5,563 0	MWD Survey (OH - Job #32D0112002)	MWD	MWD - Standard

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	True Vertical Depth	North/South (usft)	East/West (usft)	Closure Azimuth (°)	Closure Distance (usft)
2,010 0	0 87	76 45	2,009 8	-4 1	8 8	115 23	9 7
Gyro Tie-in							
2,118 0	0 78	73 74	2,117 8	-3 7	10 3	109 99	11 0
2,180 0	0 81	87 00	2,179 8	-3 6	11 1	107 93	11 7
2,242 0	1 23	89 87	2,241 8	-3.6	12 2	106 30	12 8
2,304 0	1 45	102 34	2,303 8	-3 7	13 7	105 32	14 2
2,367 0	1 80	106 03	2,366 8	-4 2	15 4	105 21	16 0
2,429 0	2 75	109 13	2,428 7	-4 9	17 7	105 57	18 4
2,491 0	3 03	103 42	2,490 6	-5 8	20 7	105 66	21 5
2,554 0	3 10	95 43	2,553 6	-6 4	24 1	104 81	24 9
2,616 0	3 17	94 47	2,615 5	-6 7	27 4	103 63	28 2

Company:	COG OPERATING LLC	**Local Co-ordinate Reference:**	Well GC Federal #58
Project:	Lea County, NM (NAD27 NME)	**TVD Reference:**	RF @ 3960 0usft (JW #4)
Site:	GC Federal #58	**MD Reference:**	RF @ 3960 0usft (JW #4)
Well:	GC Federal #58	**North Reference:**	Grid
Wellbore:	OH - Job #32D0112002	**Survey Calculation Method:**	Minimum Curvature
Design:	Actual	**Database:**	EDM-Regulatory

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	True Vertical Depth	North/South (usft)	East/West (usft)	Closure Azimuth (°)	Closure Distance (usft)
2,678 0	3 85	105 99	2,677 4	-7 4	31 1	103 29	32 0
2,740 0	4 80	109 99	2,739 2	-8 8	35 6	103 92	36 7
2,835 0	4 48	114 46	2,833 9	-11 7	42 7	105 34	44 3
2,927 0	4 82	114 14	2,925 6	-14 8	49 5	106 63	51 7
3,021 0	6 11	109 73	3,019 1	-18 1	57 8	107 37	60 6
3,115 0	5 55	111 61	3,112 6	-21 4	66 7	107 82	70 1
3,209 0	5 19	108 54	3,206 2	-24 5	75 0	108 07	78 9
3,302 0	5 31	106 58	3,298 8	-27 0	83 1	108 02	87 4
3,396 0	5 87	101 04	3,392 4	-29 2	92 0	107 61	96 5
3,489 0	5 72	101 90	3,484 9	-31 1	101 2	107 07	105 9
3,581 0	5 52	102 90	3,576 5	-33 0	110 0	106 70	114 8
3,675 0	5 57	101 50	3,670 0	-34 9	118 9	106 37	123 9
3,767 0	5 45	101 33	3,761 6	-36 7	127 5	106 04	132 7
3,859 0	5 45	100 23	3,853 2	-38 3	136 1	105 72	141 4
3,953 0	5 40	102 30	3,946 8	-40 0	144 8	105 45	150 3
4,047 0	5 29	102 42	4,040 4	-41 9	153 4	105 28	159 0
4,140 0	5 30	104 39	4,133 0	-43 9	161 7	105 19	167 6
4,234 0	5 36	104 48	4,226 6	-46 1	170 2	105 15	176 3
4,327 0	5 22	107 38	4,319 2	-48 4	178 4	105 19	184 9
4,421 0	5 41	108 27	4,412 8	-51 1	186 7	105 30	193 6
4,515 0	5 17	108 56	4,506 4	-53 8	194 9	105 44	202 2
4,609 0	5 10	112 05	4,600 0	-56 7	202 8	105 63	210 6
4,702 0	5 42	107 92	4,692 6	-59 7	210 8	105 80	219 1
4,796 0	5 32	102 58	4,786 2	-62 0	219 3	105 78	227 9
4,889 0	4 61	101 82	4,878 8	-63 7	227 2	105 66	235 9
4,983 0	4 48	102 76	4,972 5	-65 3	234 5	105 55	243 4
5,108 0	3 30	96 34	5,097 2	-66 7	242 8	105 37	251 8
5,171 0	2 58	97 57	5,160 2	-67 1	246 0	105 26	255 0
5,233 0	2 09	105 70	5,222 1	-67 6	248 5	105 22	257 5
5,296 0	0 94	122 44	5,285 1	-68 2	250 0	105 26	259 2
5,357 0	0 59	168 35	5,346 1	-68 8	250 5	105 35	259 8
5,420 0	0 44	173 82	5,409 1	-69 3	250 6	105 46	260 0
5,513 0	0 56	188 85	5,502 1	-70 1	250 6	105 64	260 2
Last MWD Survey							
5,563 0	0 56	188 85	5,552 1	-70 6	250 5	105 74	260 3
Projection to Bit							

Survey Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
2,010 0	2,009 8	-4 1	8 8	Gyro Tie-in
5,513 0	5,502 1	-70 1	250 6	Last MWD Survey
5,563 0	5,552 1	-70 6	250 5	Projection to Bit

CONCHO

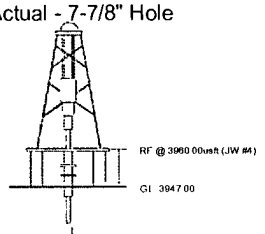
Scientific Drilling
Directional Drilling Operations

Azimuths to Grid North
True North -0 29°
Magnetic North 7 38°
Magnetic Field
Strength 48890 7snT
Dip Angle 60 68°
Date 2012/01/03
Model IGRF2010

To convert a Magnetic Direction to a Grid Direction Add 7 38°
To convert a True Direction to a Grid Direction Subtract 0 29°

GC Federal #58

Lea County, NM (NAD27 NME)
Northing: (Y) 662186 00
Easting: (X) 664270.60
Plan #2 vs Actual - 7-7/8" Hole



WELL DETAILS. GC Federal #58

Ground Level 3947 00

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0 00	0 00	662186 00	664270 60	32° 49' 9 461 N	103° 47' 55 007 W	

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	2010 00	0 87	76 45	2009 85	-4 14	8 79	0 00	0 00	9 57	
2	2200 00	0 87	76 45	2199 83	-3 47	11 59	0 00	0 00	12 10	
3	2410 53	4 95	105 54	2410 04	-5 53	21 90	2 00	34 84	22 58	
4	5033 09	4 95	105 54	5027 83	-66 14	239 91	0 00	0 00	248 86	
5	5280 57	0 00	0 00	5270 00	-69 00	250 20	2 00	180 00	259 54	TG1-GC Fed #58
6	7010 57	0 00	0 00	7000 00	-69 00	250 20	0 00	0 00	259 54	PBHL-GC Fed #58

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
East HL-GC Fed #58	-1 00	-59 00	260 20	662127 00	664530 80	32° 49' 8 865 N	103° 47' 51 962 W	Rectangle (Sides L100 00 W0 00)
- plan misses target center by 2027 25usft at 7010 00usft MD (2009 85 TVD -4 14 N 8 79 E)								
North HL-GC Fed #58	-1 00	-59 00	260 20	662127 00	664530 80	32° 49' 8 865 N	103° 47' 51 962 W	Rectangle (Sides L0 00 W150 00)
- plan misses target center by 2027 25usft at 7010 00usft MD (2009 85 TVD -4 14 N 8 79 E)								
TG1-GC Fed #58	5270 00	-69 00	250 20	662117 00	664520 80	32° 49' 8 766 N	103° 47' 52 080 W	Point
- plan hits target center								
PBHL-GC Fed #58	7000 00	-69 00	250 20	662117 00	664520 80	32° 49' 8 766 N	103° 47' 52 080 W	Circle (Radius 10 00)
- plan hits target center								

SITE DETAILS GC Federal #58

Site Centre Northing 662186 00
Easting 664270 60

Positional Uncertainty 0 00
Convergence 0 29
Local North Grid

PROJECT DETAILS Lea County, NM (NAD27 NME)

Geodetic System US State Plane 1927 (Exact solution)
Datum NAD 1927 (NADCON CONUS)
Ellipsoid Clarke 1866
Zone New Mexico East 3001

System Datum Mean Sea Level

FORMATION TOP DETAILS

TVDPath	MDPath	Formation	DipAngle	DipDir
5270 00	5280 57	Top of Paddock	0 00	

Map System US State Plane 1927 (Exact solution)
Datum NAD 1927 (NADCON CONUS)
Ellipsoid Clarke 1866
Zone Name New Mexico East 3001

Local Origin Well GC Federal #58 Grid North

Latitude 32° 49' 9 461 N
Longitude 103° 47' 55 007 W

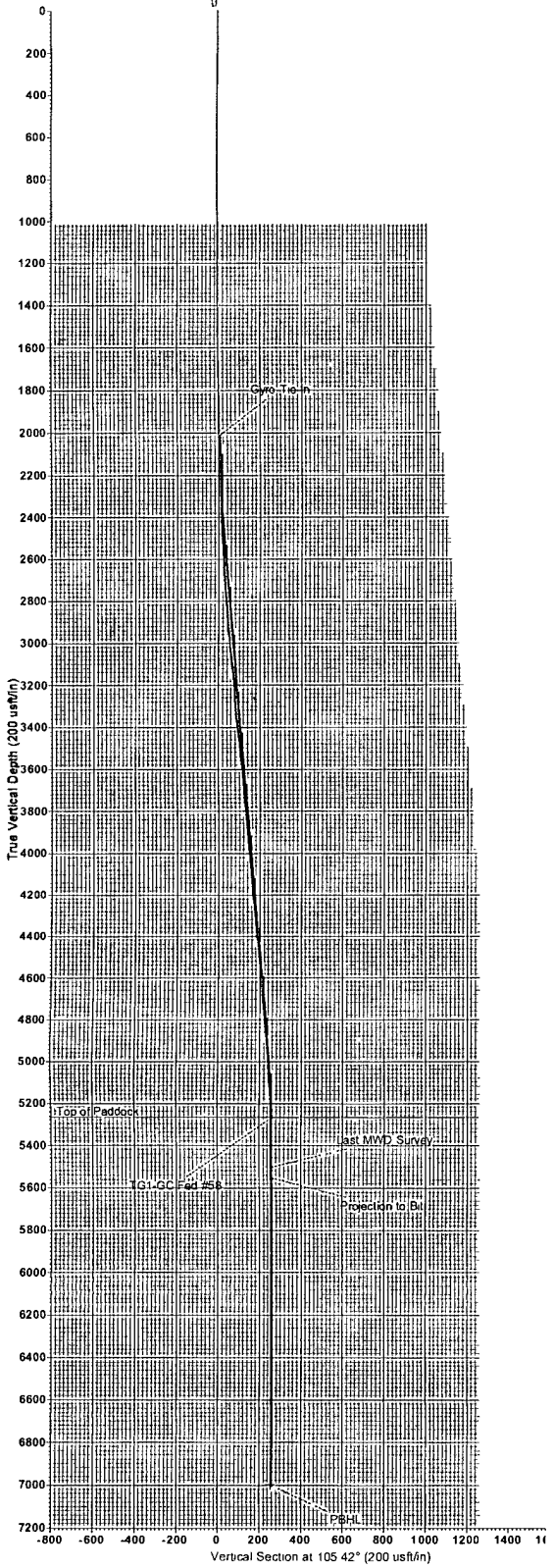
Grid East 664270 60
Grid North 662186 00
Scale Factor 1 000

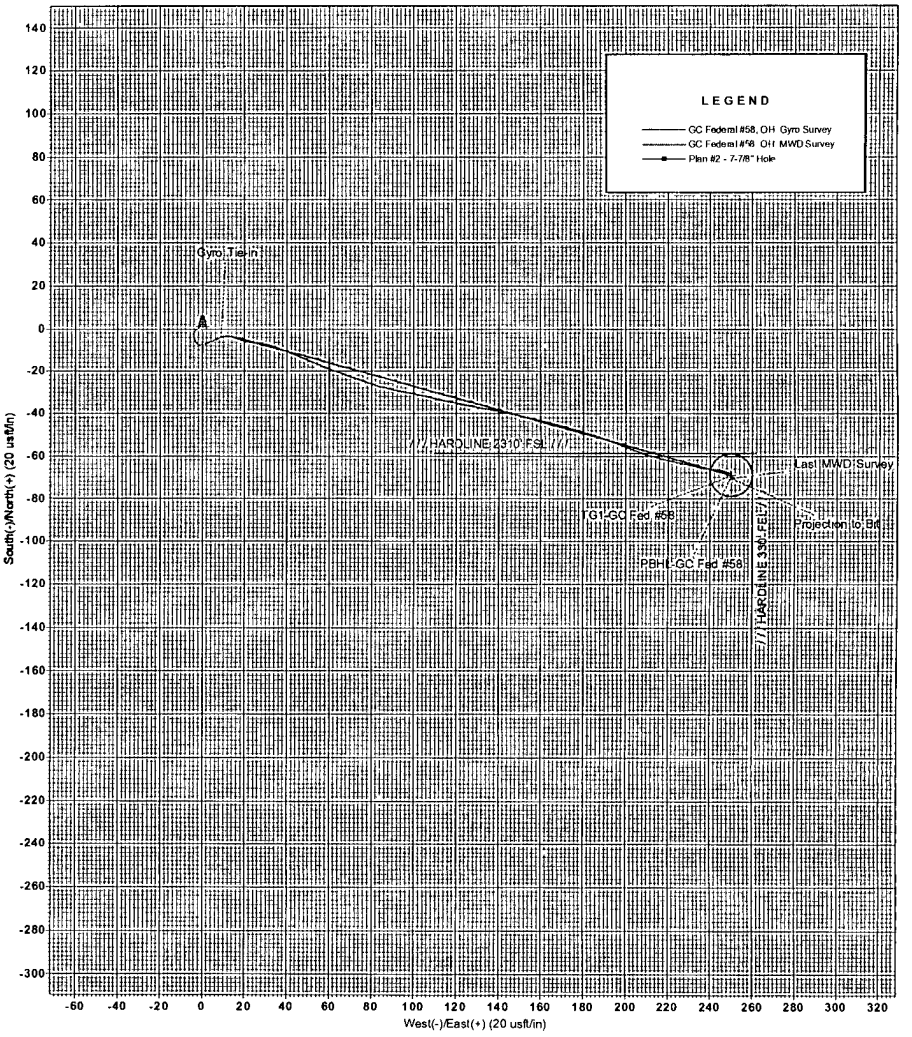
Geomagnetic Model IGRF2010
Sample Date 03-Jan-12
Magnetic Declination 7 67°
Dip Angle from Horizontal 60 68°
Magnetic Field Strength 48891

To convert a Magnetic Direction to a Grid Direction Add 7 38°
To convert a Magnetic Direction to a True Direction Add 7 67° East
To convert a True Direction to a Grid Direction Subtract 0 29°

CASING DETAILS

TVD	MD	Name	Size
2100 00	2100 16	8-5/8" Casing	8 5/8





JW DRILLING INC. Oil Well Drilling Contractor

Post Office Box 160 Artesia, New Mexico 88211-0160 Office (575) 748-8704 Fax (575) 748-8719

January 13, 2012

COG Operating LLC
550 W. Texas, Suite 1300
Midland, Texas 79701

Re: GC Federal # 58
Sec. 19, T-17-S, R-32-E
Lea County, New Mexico

Attn: John Coffman

The following is a Deviation Survey on the referenced well in Lea County, New Mexico:

209' - 0.75°
497' - 0.75°
710' - 0.25°
935' - 0.5°
1405' - 1°
1798' - 1.25°
2034' - 1°

Sincerely,

Gary W. Chappell
Contracts Manager

STATE OF NEW MEXICO)
)
COUNTY OF EDDY)

The foregoing was acknowledged before me this 13th day of January , 2012 by Gary W. Chappell.

Cheryl A Bartlett
NOTARY PUBLIC

OFFICIAL SEAL
CHERYL A. BARTLETT
NOTARY PUBLIC STATE OF NEW MEXICO

My commission expires: 4-29-12