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COG Operating LLC

Eddy County, NM (NAN27 NME)

GJ West Coop Unit #303

GJ West #303

OH

Plan: Plan #1 - 7-7/8" Hole

SHL = 1255' FNL & 475' FWL

BHL = 980' FNL & 430' FWL

Top of Paddock = 980' FNL & 430' FWL @ 3975' TVD

Standard Planning Report

27 January, 2010



Scientific Drilling



Scientific Drilling
Planning Report



Database:	EDM 5000 1 Single User Db	Local Co-ordinate Reference:	Site GJ West Coop Unit #303
Company:	COG Operating LLC	TVD Reference:	GL Elev @ 3551 00ft (Rig ?)
Project:	Eddy County, NM (NAN27 NME)	MD Reference:	GL Elev @ 3551 00ft (Rig ?)
Site:	GJ West Coop Unit #303	North Reference:	Grid
Well:	GJ West #303	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1 - 7-7/8" Hole		

Project	Eddy County, NM (NAN27 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	GJ West Coop Unit #303		
Site Position:	Map	From:	
From:	Map	Position Uncertainty:	
Position Uncertainty:	0 00 ft	Slot Radius:	0 "
Northing:	663,500 90 ft	Latitude:	32° 49' 25 581 N
Easting:	581,137 80 ft	Longitude:	104° 4' 9 141 W
Grid Convergence:	0 14 °		

Well	GJ West #303		
Well Position	+N/-S	0 00 ft	Northing:
	+E/-W	0 00 ft	Easting:
Position Uncertainty	0 00 ft	Wellhead Elevation:	Ground Level:
			3,551 00 ft

Wellbore	OH		
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Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
	IGRF200510	2010/01/27	8 01	60 71	49,090

Design	Plan #1 - 7-7/8" Hole		
Audit Notes:			
Version:	Phase:	PLAN	Tie On Depth:
			0 00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(ft)	(ft)	(ft)
	0 00	0 00	0 00
			350 50

Plan Sections										
Measured	Inclination	Azimuth	Vertical	+N/-S	+E/-W	Dogleg	Build	Turn	TFO	Target
Depth	(°)	(°)	Depth	(ft)	(ft)	Rate	Rate	Rate	(°)	
(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	
1,000 00	0 00	0 00	1,000 00	0 00	0 00	0 00	0 00	0 00	0 00	
1,297 26	5 95	350 50	1,296 72	15 20	-2 54	2 00	2 00	0 00	350 50	
3,691 69	5 95	350 50	3,678 28	259 80	-43 46	0 00	0 00	0 00	0 00	
3,988 94	0 00	0 00	3,975 00	275 00	-46 00	2 00	-2 00	0 00	180 00	PP-GJ West #303
5,613 94	0 00	0 00	5,600 00	275 00	-46 00	0 00	0 00	0 00	0 00	PBHL-GJ West #303



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Planned Survey

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)
0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00
North HL-GJ West #303									
900 00	0 00	0 00	900 00	0 00	0 00	0 00	0 00	0 00	0 00
8-5/8" Casing									
1,000 00	0 00	0 00	1,000 00	0 00	0 00	0 00	0 00	0 00	0 00
KOP Start Build 2.00°/100'									
1,100 00	2 00	350 50	1,099 98	1 72	-0 29	1 75	2 00	2 00	0 00
1,200 00	4 00	350 50	1,199 84	6 88	-1 15	6 98	2 00	2 00	0 00
1,297 26	5 95	350 50	1,296 72	15 20	-2 54	15 41	2 00	2 00	0 00
EOC hold 5.55°									
1,300 00	5 95	350 50	1,299 45	15 48	-2 59	15 69	0 00	0 00	0 00
1,400 00	5 95	350 50	1,398 91	25 69	-4 30	26 05	0 00	0 00	0 00
1,500 00	5 95	350 50	1,498 38	35 91	-6 01	36 41	0 00	0 00	0 00
1,600 00	5 95	350 50	1,597 84	46 12	-7 72	46 76	0 00	0 00	0 00
1,700 00	5 95	350 50	1,697 30	56 34	-9 42	57 12	0 00	0 00	0 00
1,800 00	5 95	350 50	1,796 76	66 56	-11 13	67 48	0 00	0 00	0 00
1,900 00	5 95	350 50	1,896 23	76 77	-12 84	77 84	0 00	0 00	0 00
2,000 00	5 95	350 50	1,995 69	86 99	-14 55	88 20	0 00	0 00	0 00
2,100 00	5 95	350 50	2,095 15	97 20	-16 26	98 55	0 00	0 00	0 00
2,200 00	5 95	350 50	2,194 61	107 42	-17 97	108 91	0 00	0 00	0 00
2,300 00	5 95	350 50	2,294 07	117 63	-19 68	119 27	0 00	0 00	0 00
2,400 00	5 95	350 50	2,393 54	127 85	-21 39	129 63	0 00	0 00	0 00
2,500 00	5 95	350 50	2,493 00	138 06	-23 09	139 98	0 00	0 00	0 00
2,600 00	5 95	350 50	2,592 46	148 28	-24 80	150 34	0 00	0 00	0 00
2,700 00	5 95	350 50	2,691 92	158 50	-26 51	160 70	0 00	0 00	0 00
2,800 00	5 95	350 50	2,791 38	168 71	-28 22	171 06	0 00	0 00	0 00
2,900 00	5 95	350 50	2,890 85	178 93	-29 93	181 41	0 00	0 00	0 00
3,000 00	5 95	350 50	2,990 31	189 14	-31 64	191 77	0 00	0 00	0 00
3,100 00	5 95	350 50	3,089 77	199 36	-33 35	202 13	0 00	0 00	0 00
3,200 00	5 95	350 50	3,189 23	209 57	-35 06	212 49	0 00	0 00	0 00
3,300 00	5 95	350 50	3,288 70	219 79	-36 76	222 84	0 00	0 00	0 00
3,400 00	5 95	350 50	3,388 16	230 01	-38 47	233 20	0 00	0 00	0 00
3,500 00	5 95	350 50	3,487 62	240 22	-40 18	243 56	0 00	0 00	0 00
3,600 00	5 95	350 50	3,587 08	250 44	-41 89	253 92	0 00	0 00	0 00
3,691 69	5 95	350 50	3,678 28	259 80	-43 46	263 41	0 00	0 00	0 00
Start Drop 2.00°/100'									
3,700 00	5 78	350 50	3,686 55	260 64	-43 60	264 26	2 00	-2 00	0 00
3,800 00	3 78	350 50	3,786 19	268 86	-44 97	272 59	2 00	-2 00	0 00
3,900 00	1 78	350 50	3,886 07	273 64	-45 77	277 44	2 00	-2 00	0 00
3,988 94	0 00	0 00	3,975 00	275 00	-46 00	278 82	2 00	-2 00	0 00
EOC hold 0.00° - PP-GJ West #303									
5,613 94	0 00	0 00	5,600 00	275 00	-46 00	278 82	0 00	0 00	0 00
PBHL-GJ West #303									



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Design:	Plan #1 - 7-7/8" Hole		

Design Targets

Target Name - hit/miss target Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
North HL-GJ West #303 - plan misses target center by 268 96ft at 0 00ft MD (0 00 TVD, 0 00 N, 0 00 E) - Rectangle (sides W200 00 H0 00 D0 00)	0 00	0 00	0 00	265 00	-46 00	663,765 90	581,091 80	32° 49' 28 204 N	104° 4' 9 672 W
PP-GJ West #303 - plan hits target center - Circle (radius 10 00)	0 00	0 00	3,975 00	275 00	-46 00	663,775 90	581,091 80	32° 49' 28 303 N	104° 4' 9 672 W
PBHL-GJ West #303 - plan hits target center - Circle (radius 10 00)	0 00	0 00	5,600 00	275 00	-46 00	663,775 90	581,091 80	32° 49' 28 303 N	104° 4' 9 672 W

Casing Points

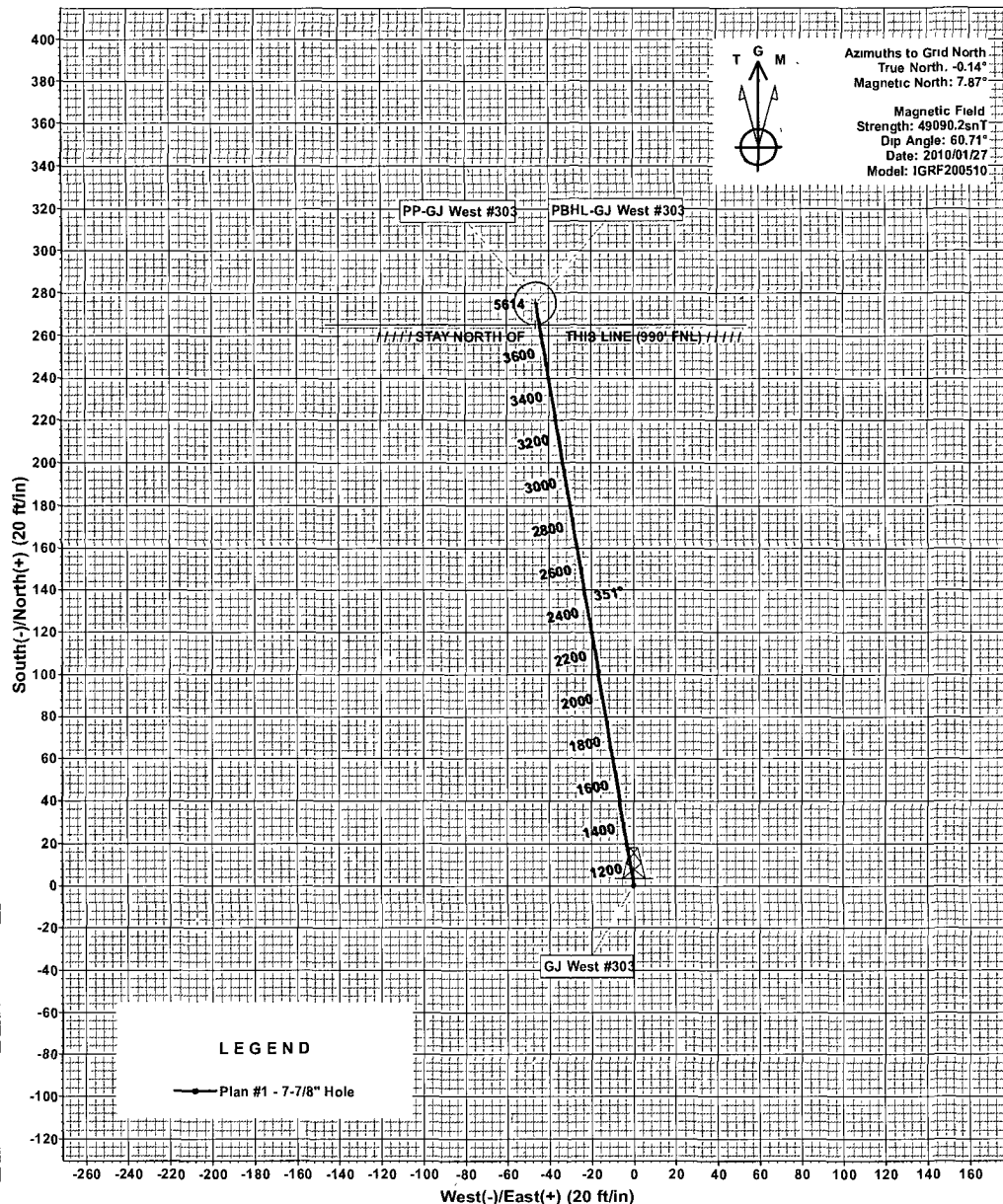
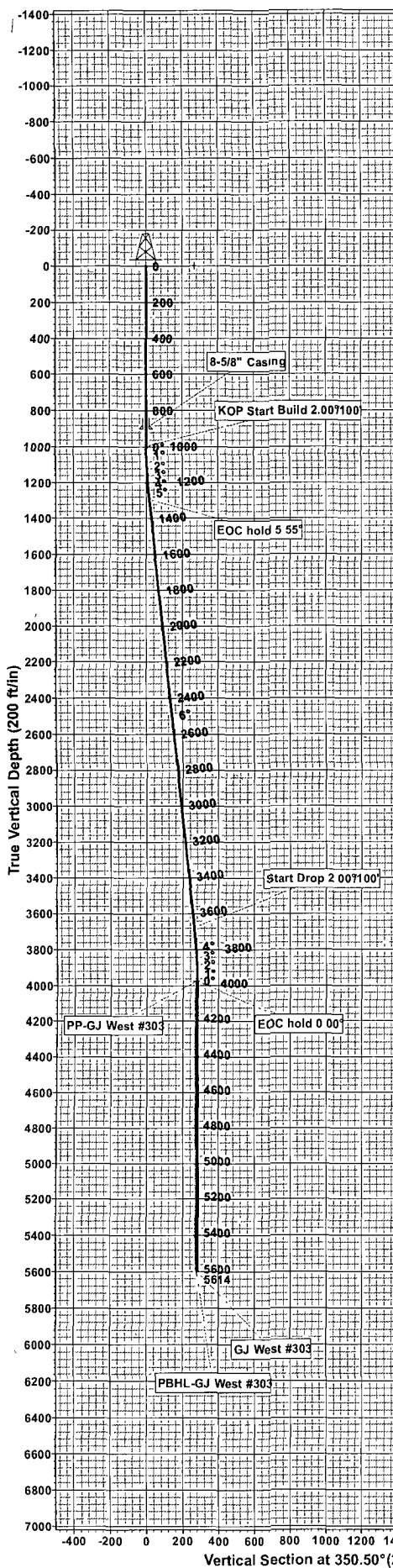
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
900 00	900 00	8-5/8" Casing	8-5/8	12-1/4

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	+E/-W (ft)	Comment
1,000 00	1,000 00	0 00	0 00	KOP Start Build 2 00°/100'
1,297 26	1,296 72	15 20	-2 54	EOC hold 5 55°
3,691 69	3,678 28	259 80	-43 46	Start Drop 2 00°/100'
3,988 94	3,975 00	275 00	-46 00	EOC hold 0 00°



Scientific Drilling for COG Operating LLC
Site: Eddy County, NM (NAN27 NME)
Well: GJ West #303
Wellbore: OH
Design: Plan #1 - 7-7/8" Hole



WELLBORE TARGET DETAILS (MAP CO-ORDINATES)									
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape	
North HL-GJ West #303	0.00	265.00	-46.00	663765.90	581091.80	32°49'28.204 N	104°4'9.672 W	Rectangle (Sides : L0.00 W200.00)	
PP-GJ West #303	3975.00	275.00	-46.00	663775.90	581091.80	32°49'28.303 N	104°4'9.672 W	Circle (Radius: 10.00)	
PBHL-GJ West #303	5600.00	275.00	-46.00	663775.90	581091.80	32°49'28.303 N	104°4'9.672 W	Circle (Radius: 1.00)	

SECTION DETAILS									
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSeet Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	1000.00	0.00	0.00	1000.00	0.00	0.00	0.00	0.00	0.00
3	1297.26	5.95	350.50	1296.72	15.20	-2.54	2.00	350.50	15.41
4	3691.69	5.95	350.50	3678.28	259.80	-43.46	0.00	0.00	263.41
5	3988.94	0.00	0.00	3975.00	275.00	-46.00	2.00	180.00	278.82 PP-GJ West #303
6	5613.94	0.00	0.00	5600.00	275.00	-46.00	0.00	0.00	278.82 PBHL-GJ West #303

WELL DETAILS: GJ West #303

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	663500.90	581137.80	32°49'25.581 N	104°4'9.141 W

PROJECT DETAILS: Eddy County, NM (NAN27 NME)				Plan: Plan #1 - 7-7/8" Hole (GJ West #303/OH)	
Geodetic System:	US State Plane 1927 (Exact solution)	Created By:	Julio Pina	Date:	27-Jan-10
Datum:	NAD 1927 (NADCON CONUS)	Checked:		Date:	
Ellipsoid:	Clarke 1866	Reviewed:		Date:	
Zone:	New Mexico East 3001	Approved:		Date:	
System Datum:	Mean Sea Level				