

SEP 21 2009



COG Operating LLC

Eddy County, NM (NAN27 NME)

GJ West Coop Unit #201

GJ West Coop Unit #201

OH

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

SHL = 330' FNL & 600' FEL

BHL = 380' FNL & 380' FEL

Top of Paddock = 380' FNL & 380' FEL @ 3975' TVD

Standard Planning Report

18 September, 2009





Scientific Drilling
Planning Report



Database:	EDM 5000 1 Single User Db	Local Co-ordinate Reference:	Site GJ West Coop Unit #201
Company:	COG Operating LLC	TVD Reference:	Ground Elev @ 3562 00ft (Rig ?)
Project:	Eddy County, NM (NAN27 NME)	MD Reference:	Ground Elev @ 3562 00ft (Rig ?)
Site:	GJ West Coop Unit #201	North Reference:	Grid
Well:	GJ West Coop Unit #201	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 #201		
Site Position:		Northing:	669,706 10 ft
From:	Map	Easting:	580,044 20 ft
Position Uncertainty:	0 00 ft	Slot Radius:	0 "
		Latitude:	32° 50' 27 010 N
		Longitude:	104° 4' 21 777 W
		Grid Convergence:	0 14 °

Well	GJ West Coop Unit #201		
Well Position	+N/-S	0 00 ft	Northing: 669,706 10 ft
	+E/-W	0 00 ft	Easting: 580,044 20 ft
Position Uncertainty	0 00 ft	Wellhead Elevation:	Ground Level: 3,562 00 ft

Wellbore:	OH		
Magnetics:	Model/Name:	Sample Date:	Declination:
	IGRF200510	2009/09/18	8 06
			Dip Angle:
			60 73
			Field Strength:
			49,135

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
			Direction:
			102 44

Plan Sections:										
Measured:			Vertical:			Dogleg:	Build:	Turn:		
Depth:	Inclination:	Azimuth:	Depth:	+N/-S:	+E/-W/	Rate:	Rate:	Rate:	TFO:	Target:
(ft)	(°)	(°)	(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	
1,000 00	0 00	0 00	1,000 00	0 00	0 00	0 00	0 00	0 00	0 00	
1,234 92	4 70	102 44	1,234 65	-2 07	9 40	2 00	2 00	0 00	102 44	
3,749 06	4 70	102 44	3,740 35	-46 43	210 50	0 00	0 00	0 00	0 00	
3,983 97	0 00	0 00	3,975 00	-48 50	219 90	2 00	-2 00	0 00	180 00	TG1-GJWCU #201
5,608 97	0 00	0 00	5,600 00	-48 50	219 90	0 00	0 00	0 00	0 00	PBHL-GJWCU #201



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

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-GJWCU #201 - East HL-GJWCU #201									
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	102 44	1,099 98	-0 38	1 70	1 75	2 00	2 00	0 00
1,200 00	4 00	102 44	1,199 84	-1 50	6 81	6 98	2 00	2 00	0 00
1,234 92	4 70	102 44	1,234 65	-2 07	9 40	9 63	2 00	2 00	0 00
EOC hold 4.70°									
1,300 00	4 70	102 44	1,299 52	-3 22	14 61	14 96	0 00	0 00	0 00
1,400 00	4 70	102 44	1,399 18	-4 99	22 60	23 15	0 00	0 00	0 00
1,500 00	4 70	102 44	1,498 85	-6 75	30 60	31 34	0 00	0 00	0 00
1,600 00	4 70	102 44	1,598 51	-8 51	38 60	39 53	0 00	0 00	0 00
1,700 00	4 70	102 44	1,698 17	-10 28	46 60	47 72	0 00	0 00	0 00
1,800 00	4 70	102 44	1,797 84	-12 04	54 60	55 91	0 00	0 00	0 00
1,900 00	4 70	102 44	1,897 50	-13 81	62 60	64 10	0 00	0 00	0 00
2,000 00	4 70	102 44	1,997 17	-15 57	70 60	72 29	0 00	0 00	0 00
2,100 00	4 70	102 44	2,096 83	-17 33	78 60	80 48	0 00	0 00	0 00
2,200 00	4 70	102 44	2,196 49	-19 10	86 59	88 68	0 00	0 00	0 00
2,300 00	4 70	102 44	2,296 16	-20 86	94 59	96 87	0 00	0 00	0 00
2,400 00	4 70	102 44	2,395 82	-22 63	102 59	105 06	0 00	0 00	0 00
2,500 00	4 70	102 44	2,495 49	-24 39	110 59	113 25	0 00	0 00	0 00
2,600 00	4 70	102 44	2,595 15	-26 16	118 59	121 44	0 00	0 00	0 00
2,700 00	4 70	102 44	2,694 81	-27 92	126 59	129 63	0 00	0 00	0 00
2,800 00	4 70	102 44	2,794 48	-29 68	134 59	137 82	0 00	0 00	0 00
2,900 00	4 70	102 44	2,894 14	-31 45	142 59	146 01	0 00	0 00	0 00
3,000 00	4 70	102 44	2,993 81	-33 21	150 58	154 20	0 00	0 00	0 00
3,100 00	4 70	102 44	3,093 47	-34 98	158 58	162 39	0 00	0 00	0 00
3,200 00	4 70	102 44	3,193 13	-36 74	166 58	170 59	0 00	0 00	0 00
3,300 00	4 70	102 44	3,292 80	-38 50	174 58	178 78	0 00	0 00	0 00
3,400 00	4 70	102 44	3,392 46	-40 27	182 58	186 97	0 00	0 00	0 00
3,500 00	4 70	102 44	3,492 13	-42 03	190 58	195 16	0 00	0 00	0 00
3,600 00	4 70	102 44	3,591 79	-43 80	198 58	203 35	0 00	0 00	0 00
3,700 00	4 70	102 44	3,691 45	-45 56	206 58	211 54	0 00	0 00	0 00
3,749 06	4 70	102 44	3,740 35	-46 43	210 50	215 56	0 00	0 00	0 00
Start Drop 2.00°/100'									
3,800 00	3 68	102 44	3,791 15	-47 23	214 13	219 28	2 00	-2 00	0 00
3,900 00	1 68	102 44	3,891 04	-48 23	218 70	223 95	2 00	-2 00	0 00
3,983 97	0 00	0 00	3,975 00	-48 50	219 90	225 18	2 00	-2 00	0 00
EOC hold 0.00° - TG1-GJWCU #201									
5,608 97	0 00	0 00	5,600 00	-48 50	219 90	225 18	0 00	0 00	0 00
PBHL-GJWCU #201									



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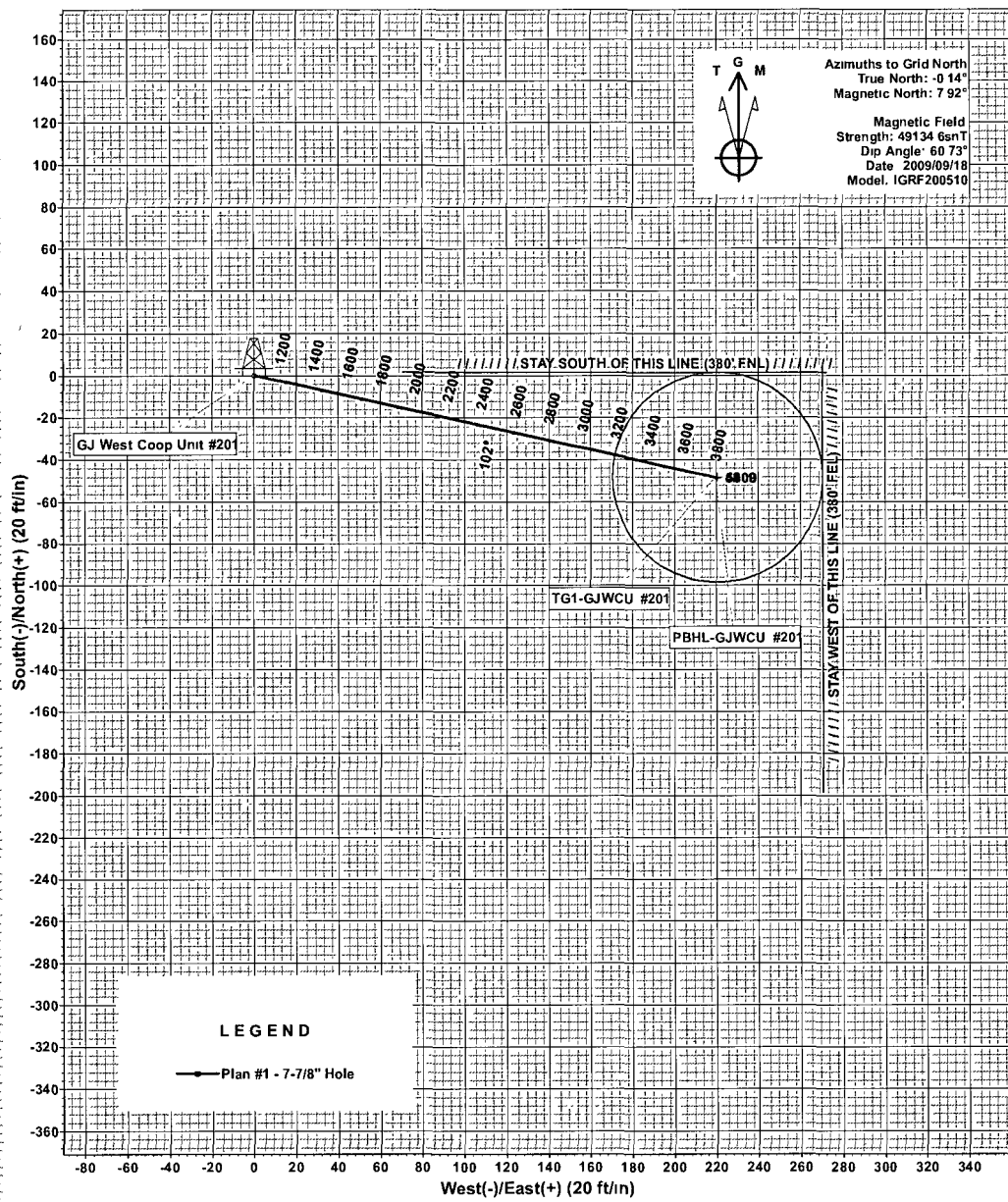
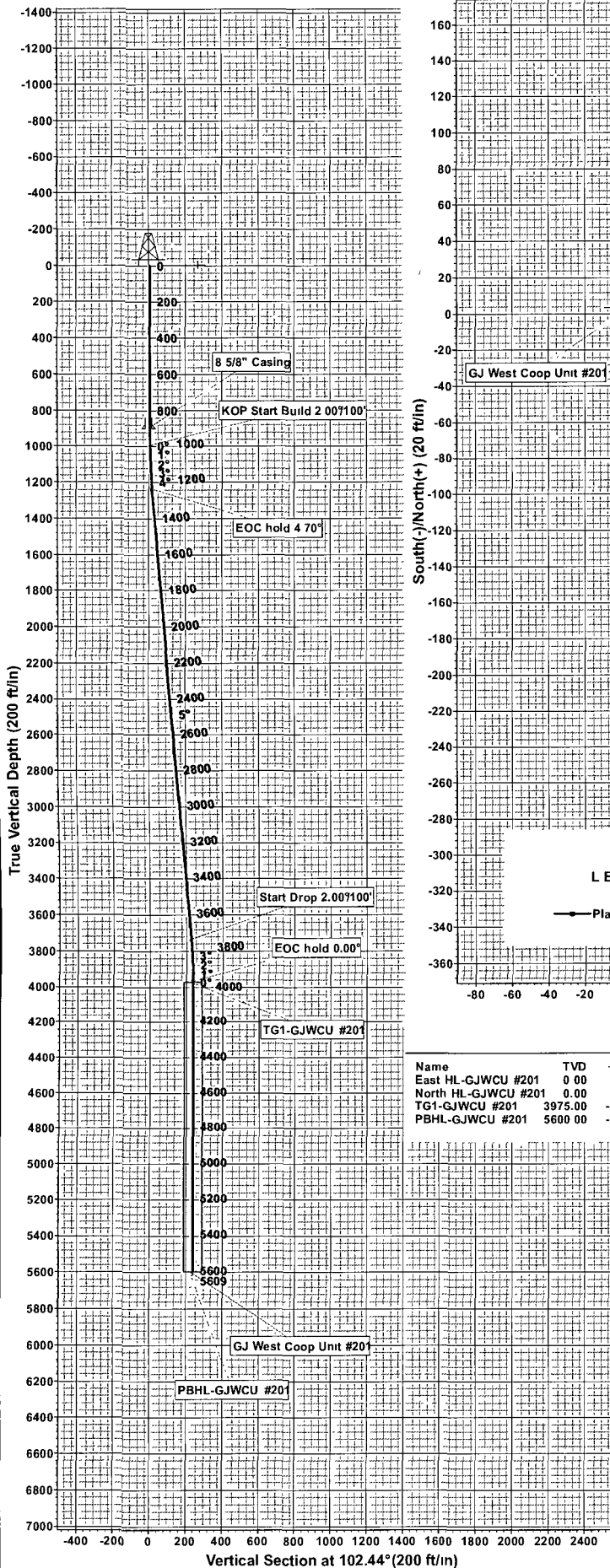
Design Targets									
Target Name: - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
North HL-GJWCU #201 - plan misses target center by 269 90ft at 0 00ft MD (0 00 TVD, 0 00 N, 0 00 E) - Rectangle (sides W200 00 H0 00 D0 00)	0 00	0 01	0 00	1 50	269 90	669,707 60	580,314 10	32° 50' 27 018 N	104° 4' 18 614 W
East HL-GJWCU #201 - plan misses target center by 269 90ft at 0 00ft MD (0 00 TVD, 0 00 N, 0 00 E) - Rectangle (sides W0 00 H200 00 D0 00)	0 00	0 01	0 00	1 50	269 90	669,707 60	580,314 10	32° 50' 27 018 N	104° 4' 18 614 W
TG1-GJWCU #201 - plan hits target center - Circle (radius 50 00)	0 00	0 01	3,975 00	-48 50	219 90	669,657 60	580,264 10	32° 50' 26 525 N	104° 4' 19 201 W
PBHL-GJWCU #201 - plan hits target center - Circle (radius 50 00)	0 00	0 01	5,600 00	-48 50	219 90	669,657 60	580,264 10	32° 50' 26 525 N	104° 4' 19 201 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		Comment
		+N/-S (ft)	+E/-W (ft)	
1,000 00	1,000 00	0 00	0 00	KOP Start Build 2 00°/100'
1,234 92	1,234 65	-2 07	9 40	EOC hold 4 70°
3,749 06	3,740 35	-46 43	210 50	Start Drop 2 00°/100'
3,983 97	3,975 00	-48 50	219 90	EOC hold 0 00°



Scientific Drilling for COG Operating LLC
Site: Eddy County, NM (NAN27 NME)
Well: GJ West Coop Unit #201
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	
East HL-GJWCU #201	0.00	1.50	269.90	669707.60	580314.10	32°50'27.018 N	104°4'18.614 W	Rectangle (Sides: L2 00.00 W0 00)	
North HL-GJWCU #201	0.00	1.50	269.90	669707.60	580314.10	32°50'27.018 N	104°4'18.614 W	Rectangle (Sides: L 0 00 W200.00)	
TG1-GJWCU #201	3975.00	-48.50	219.90	669657.60	580264.10	32°50'26.525 N	104°4'19.201 W	Circle (Radius: 50.00)	
PBHL-GJWCU #201	5600.00	-48.50	219.90	669657.60	580264.10	32°50'26.525 N	104°4'19.201 W	Circle (Radius: 50.00)	

SECTION DETAILS									
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect 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	1234.92	4.70	102.44	1234.65	-2.07	9.40	2.00	102.44	9.63
4	3749.06	4.70	102.44	3740.35	-46.43	210.50	0.00	0.00	215.56
5	3983.97	0.00	0.00	3975.00	-48.50	219.90	2.00	180.00	225.18 TG1-GJWCU #201
6	5608.97	0.00	0.00	5600.00	-48.50	219.90	0.00	0.00	225.18 PBHL-GJWCU #201

WELL DETAILS: GJ West Coop Unit #201									
				Ground Level:	3562.00				
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot			
0.00	0.00	669706.10	580044.20	32°50'27.010 N	104°4'2.177 W				

PROJECT DETAILS. Eddy County, NM (NAN27 NME)		Plan: Plan #1 - 7-7/8" Hole (GJ West Coop Unit #201/0H)	
Geodetic System	US State Plane 1927 (Exact solution)	Created By: Julio Pina	Date: 18-Sep-09
Datum:	NAD 1927 (NADCON CONUS)		
Ellipsoid	Clarke 1866	Checked: _____	Date: _____
Zone	New Mexico East 3001		
		Reviewed: _____	Date: _____
System Datum:	Mean Sea Level		
		Approved: _____	Date: _____