

30-015-39602



COG Operating LLC

Eddy County(NM27E)

Sec 11-T17S-R29E

Dodd Federal 583

7-7/8" Hole

Plan: Dodd Federal 583 Plan 2

Standard Planning Report

19 May, 2012

Archer
The well company

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Dodd Federal 583
Company:	COG Operating LLC	TVD Reference:	WELL @ 3625.0usft (Original Well Elev)
Project:	Eddy County(NM27E)	MD Reference:	WELL @ 3625 0usft (Original Well Elev)
Site:	Sec 11-T17S-R29E	North Reference:	Grid
Well:	Dodd Federal 583	Survey Calculation Method:	Minimum Curvature
Wellbore:	7-7/8" Hole		
Design:	Dodd Federal 583 Plan 2		

Project	Eddy County(NM27E), Surface Location: 915'FSL & 400'FWL, Top of Paddock 4000'TVD		
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	Sec 11-T17S-R29E		
Site Position:	Map	Northing:	670,959 20 usft
From:	Map	Easting:	586,327 90 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 50' 39.251 N
		Longitude:	104° 3' 8.086 W
		Grid Convergence:	0.15 °

Well	Dodd Federal 583		
Well Position	+N/-S	0 0 usft	Northing:
	+E/-W	0 0 usft	Easting:
Position Uncertainty	0 0 usft	Wellhead Elevation:	Ground Level:
			3,625 0 usft

Wellbore	7-7/8" Hole		
Magnetics	Model Name	Sample Date	Declination
			(°)
	IGRF2010	2012/05/01	7 75
			Dip Angle
			(°)
			Field Strength
			(nT)
			60.66
			48,847

Design	Dodd Federal 583 Plan 2		
Audit Notes:			
Version:	Phase:	PROTOTYPE	Tie On Depth:
			1,070 0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(usft)	(usft)	(usft)
	0.0	0 0	0.0
			Direction
			(°)
			280.89

Plan Sections										
Measured	Inclination	Azimuth	Vertical	+N/-S	+E/-W	Dogleg	Build	Turn	TFO	Target
Depth	(°)	(°)	Depth	(usft)	(usft)	Rate	Rate	Rate	(°)	
(usft)			(usft)			(°/100usft)	(°/100usft)	(°/100usft)		
1,070 0	1.89	49.69	1,069 6	23.0	12.0	0.00	0 00	0 00	0 00	
1,133.0	0.00	0.00	1,132 6	23.6	12.8	3 00	-3.00	0.00	180 00	
1,150 4	0.00	0.00	1,150 0	23 6	12 8	0 00	0 00	0.00	0.00	
1,510.0	7.19	277 28	1,508 6	26.5	-9 5	2 00	2 00	0 00	277.28	
4,575 5	7.19	277 28	4,550 0	75.1	-390.2	0 00	0 00	0 00	0.00	Dodd Fed 583 PBHL



Great White Directional Services

Planning Report

Archer

The well company

Database:	EDM 5000 1 Single User Db	Local Co-ordinate Reference:	Well Dodd Federal 583
Company:	COG Operating LLC	TVD Reference:	WELL @ 3625 0usft (Original Well Elev)
Project:	Eddy County(NM27E)	MD Reference:	WELL @ 3625 0usft (Original Well Elev)
Site:	Sec 11-T17S-R29E	North Reference:	Grid
Well:	Dodd Federal 583	Survey Calculation Method:	Minimum Curvature
Wellbore:	7-7/8" Hole		
Design:	Dodd Federal 583 Plan 2		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0 0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.55	338.16	100.0	0.4	-0.2	0.3	0.55	0.55	0.00
200.0	1.13	343.00	200.0	1.8	-0.6	1.0	0.58	0.58	4.84
300.0	0.80	346.18	300.0	3.5	-1.1	1.7	0.33	-0.33	3.18
400.0	1.01	22.81	400.0	4.9	-0.9	1.8	0.60	0.21	36.63
500.0	1.39	25.72	499.9	6.9	-0.1	1.4	0.38	0.38	2.91
600.0	1.76	28.10	599.9	9.3	1.2	0.6	0.38	0.37	2.38
700.0	2.01	30.19	699.8	12.2	2.8	-0.4	0.26	0.25	2.09
800.0	2.29	35.92	799.8	15.3	4.9	-1.9	0.35	0.28	5.73
900.0	2.30	42.18	899.7	18.4	7.4	-3.8	0.25	0.01	6.26
1,000.0	2.27	46.09	999.6	21.3	10.1	-5.9	0.16	-0.03	3.91
1,070.0	1.89	49.69	1,069.6	23.0	12.0	-7.5	0.57	-0.54	5.14
Tie In Drop INC & AZI									
1,100.0	0.99	49.69	1,099.6	23.5	12.6	-7.9	3.00	-3.00	0.00
1,133.0	0.00	0.00	1,132.6	23.6	12.8	-8.1	3.00	-3.00	0.00
Hold to KOP									
1,150.4	0.00	0.00	1,150.0	23.6	12.8	-8.1	0.00	0.00	0.00
KOP Build 2°/100									
1,200.0	0.99	277.28	1,199.6	23.7	12.4	-7.7	2.00	2.00	0.00
1,300.0	2.99	277.28	1,299.5	24.1	8.9	-4.2	2.00	2.00	0.00
1,400.0	4.99	277.28	1,399.2	25.0	2.0	2.7	2.00	2.00	0.00
1,510.0	7.19	277.28	1,508.6	26.5	-9.5	14.4	2.00	2.00	0.00
Start Tangent Hold to TD									
1,600.0	7.19	277.28	1,597.9	27.9	-20.7	25.6	0.00	0.00	0.00
1,700.0	7.19	277.28	1,697.1	29.5	-33.1	38.1	0.00	0.00	0.00
1,800.0	7.19	277.28	1,796.3	31.1	-45.6	50.6	0.00	0.00	0.00
1,900.0	7.19	277.28	1,895.5	32.7	-58.0	63.1	0.00	0.00	0.00
2,000.0	7.19	277.28	1,994.8	34.3	-70.4	75.6	0.00	0.00	0.00
2,100.0	7.19	277.28	2,094.0	35.9	-82.8	88.1	0.00	0.00	0.00
2,200.0	7.19	277.28	2,193.2	37.4	-95.2	100.6	0.00	0.00	0.00
2,300.0	7.19	277.28	2,292.4	39.0	-107.6	113.1	0.00	0.00	0.00
2,400.0	7.19	277.28	2,391.6	40.6	-120.1	125.6	0.00	0.00	0.00
2,500.0	7.19	277.28	2,490.8	42.2	-132.5	138.1	0.00	0.00	0.00
2,600.0	7.19	277.28	2,590.0	43.8	-144.9	150.6	0.00	0.00	0.00
2,700.0	7.19	277.28	2,689.3	45.4	-157.3	163.0	0.00	0.00	0.00
2,800.0	7.19	277.28	2,788.5	47.0	-169.7	175.5	0.00	0.00	0.00
2,900.0	7.19	277.28	2,887.7	48.5	-182.1	188.0	0.00	0.00	0.00
3,000.0	7.19	277.28	2,986.9	50.1	-194.6	200.5	0.00	0.00	0.00
3,100.0	7.19	277.28	3,086.1	51.7	-207.0	213.0	0.00	0.00	0.00
3,200.0	7.19	277.28	3,185.3	53.3	-219.4	225.5	0.00	0.00	0.00
3,300.0	7.19	277.28	3,284.5	54.9	-231.8	238.0	0.00	0.00	0.00
3,400.0	7.19	277.28	3,383.7	56.5	-244.2	250.5	0.00	0.00	0.00
3,500.0	7.19	277.28	3,483.0	58.0	-256.7	263.0	0.00	0.00	0.00
3,600.0	7.19	277.28	3,582.2	59.6	-269.1	275.5	0.00	0.00	0.00
3,700.0	7.19	277.28	3,681.4	61.2	-281.5	288.0	0.00	0.00	0.00
3,800.0	7.19	277.28	3,780.6	62.8	-293.9	300.5	0.00	0.00	0.00
3,900.0	7.19	277.28	3,879.8	64.4	-306.3	313.0	0.00	0.00	0.00
4,000.0	7.19	277.28	3,979.0	66.0	-318.7	325.5	0.00	0.00	0.00
4,021.1	7.19	277.28	4,000.0	66.3	-321.4	328.1	0.00	0.00	0.00
Top of Paddock									
4,100.0	7.19	277.28	4,078.2	67.6	-331.2	338.0	0.00	0.00	0.00
4,200.0	7.19	277.28	4,177.5	69.1	-343.6	350.4	0.00	0.00	0.00
4,300.0	7.19	277.28	4,276.7	70.7	-356.0	362.9	0.00	0.00	0.00
4,400.0	7.19	277.28	4,375.9	72.3	-368.4	375.4	0.00	0.00	0.00

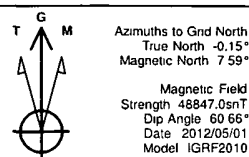
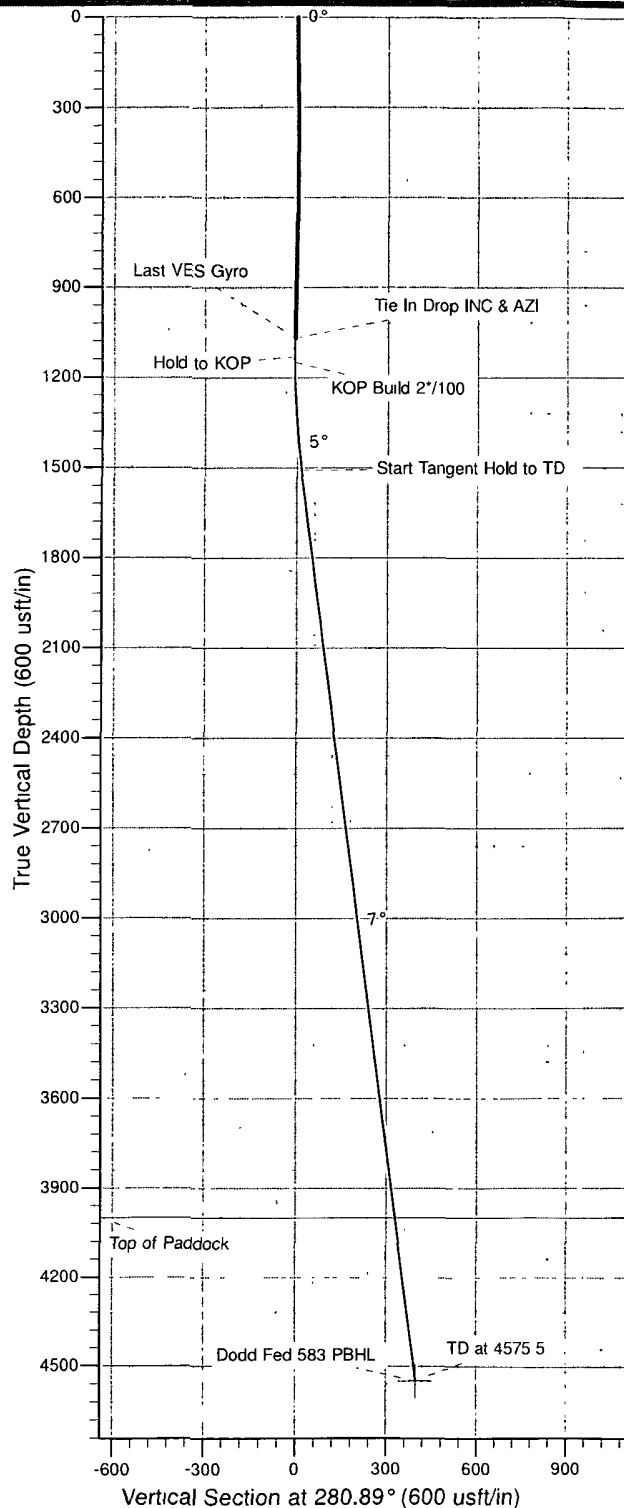
Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Dodd Federal 583
Company:	COG Operating LLC	TVD Reference:	WELL @ 3625.0usft (Original Well Elev)
Project:	Eddy County(NM27E)	MD Reference:	WELL @ 3625 0usft (Original Well Elev)
Site:	Sec 11-T17S-R29E	North Reference:	Grid
Well:	Dodd Federal 583	Survey Calculation Method:	Minimum Curvature
Wellbore:	7-7/8" Hole		
Design:	Dodd Federal 583 Plan 2		

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,500 0	7 19	277 28	4,475 1	73.9	-380.8	387.9	0.00	0.00	0.00
4,575 5	7.19	277 28	4,550 0	75 1	-390 2	397.4	0.00	0.00	0 00
TD at 4575.5									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
Dodd Fed 583 PBHL	0 00	0 00	4,550.0	75.1	-390.2	671,034.30	585,937.70	32° 50' 40 004 N	104° 3' 12.657 W
- plan hits target center									
- Circle (radius 10.0)									

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
4,021 1	4,000.0	Top of Paddock		0 00	

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
1,070 0	1,069.6	23 0	12 0	Tie In Drop INC & AZI
1,133.0	1,132.6	23 6	12.8	Hold to KOP
1,150 4	1,150 0	23 6	12.8	KOP Build 2°/100
1,510 0	1,508.6	26 5	-9 5	Start Tangent Hold to TD
4,575 5	4,550.0	75 1	-390 2	TD at 4575.5



Project Eddy County(NM27E)
Site: Sec 11-117S-R29E
Well: Dodd Federal 583
Wellbore 7-7/8" Hole
Design Dodd Federal 583 Plan 2

WELL DETAILS Dodd Federal 583

+N/-S	+E/-W	Northing	Ground Level	3625.0	Latitude	Longitude	Slot
0.0	0.0	670959.20	Easting	586327.90	32°50'39.251 N	104°3'8.086 W	

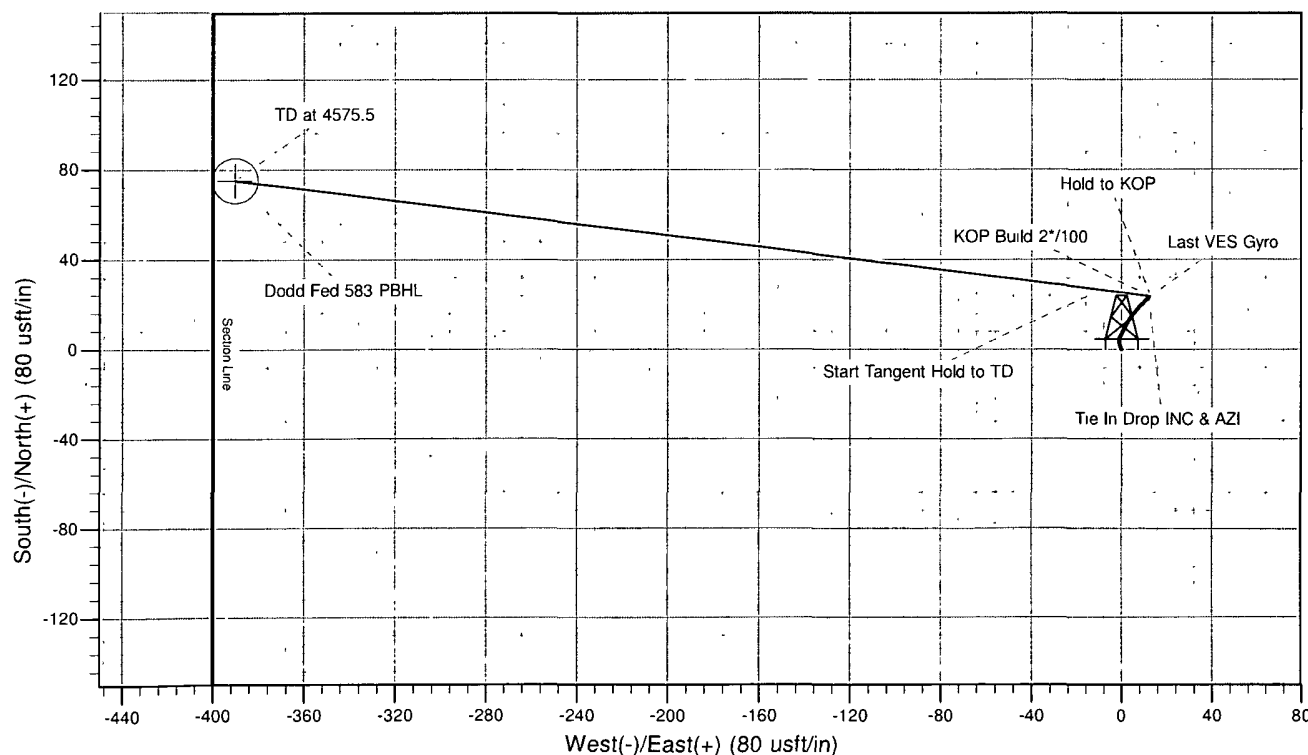
SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSeet	Target
1070.0	1.89	49.69	1069.6	23.0	12.0	0.00	0.00	-7.5	
2 1133.0	0.00	0.00	1132.6	23.6	12.8	3.00	180.00	-8.1	
3 1150.4	0.00	0.00	1150.0	23.6	12.8	0.00	0.00	-8.1	
4 1510.0	7.19	277.28	1508.6	26.5	-9.5	2.00	277.28	14.4	
5 4575.5	7.19	277.28	4550.0	75.1	-390.2	0.00	0.00	397.4	Dodd Fed 583 PBHL

ANNOTATIONS

TVD	MD	Inc	Azi	+N/-S	+E/-W	VSeet	Departure	Annotation
1069.6	1070.0	1.89	49.69	23.0	12.0	-7.5	0.0	Tie In Drop INC & AZI
1132.6	1133.0	0.00	0.00	23.6	12.8	-8.1	1.0	Hold to KOP
1150.0	1150.4	0.00	0.00	23.6	12.8	-8.1	1.0	KOP Build 2°/100
1508.6	1510.0	7.19	277.28	26.5	-9.5	14.4	23.6	Start Tangent Hold to TD
4550.0	4575.5	7.19	277.28	75.1	-390.2	397.4	407.3	TD at 4575.5

Surveys must be provided 3 times per day (6-7am) (3-4pm) (8-9pm). Halt drilling and call to discuss on ANY substantial doglegs greater than the 2°/100 MAX. Never exceed an inclination of 9.5°, follow plan inclinations. 60' to 90' survey course lengths (unless otherwise requested)



CONCHO
Archer
The well company