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Cimarex Energy Co.

Eddy County (NM83E)

Sec 14-T25S-R26E

White City 14 Federal #8

Wellbore #1

Survey: MWD

Standard Survey Report

10 December, 2009

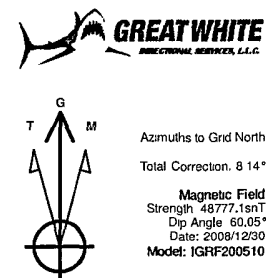
MZ

Cimarex Energy Co.

Project Eddy County (NM83E)
Site Sec 14-T25S-R26E
Well White City 14 Federal #8
Wellbore Wellbore #1
Design Plan #2

WELL DETAILS: White City 14 Federal #8

+N/-S 0.0 +E/-W 0.0 Northing 410644.04 Easting 561282.04 Latitude 32° 7' 44.123 N Longitude 104° 16' 8.052 W
SHL: 2310' FSL / 990' FWL
BHL: 330' FSL / 990' FWL



WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting
PBHL White City 14 Federal #8	3050.0	-1980.0	-25.5	408664.05	561256.56

PLAN DETAILS

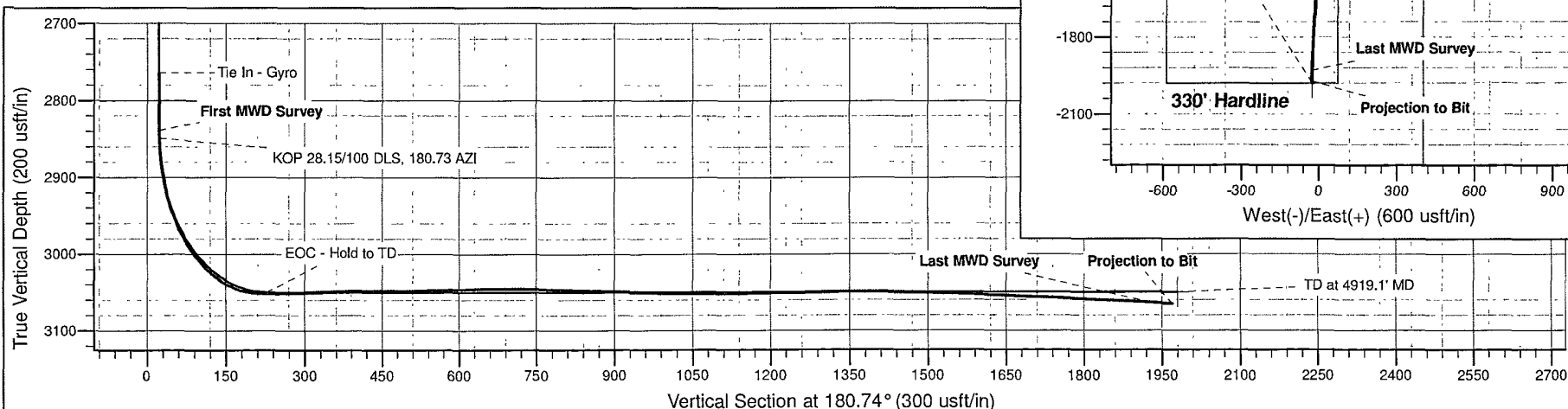
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Target
2765.0	0.82	147.67	2763.9	-23.8	47.0	0.00	0.00	23.2	
2850.0	0.82	147.67	2848.9	-24.8	47.7	0.00	0.00	24.2	
3167.2	90.00	182.19	3050.0	-228.2	41.6	28.16	34.52	227.7	
4920.3	90.00	182.19	3050.0	-1980.0	-25.5	0.00	90.00	1980.2	PBHL White City 14 Federal #8

ANNOTATIONS

TVD	MD	Inc	Azi	+N/-S	+E/-W	Vsect	Departure	Annotation
2763.9	2765.0	0.82	147.67	-23.8	47.0	23.2	0.0	Tie In - Gyro
2848.9	2850.0	0.82	147.67	-24.8	47.7	24.2	1.2	KOP 28.15/100 DLS, 180.73 AZI
3050.0	3167.3	90.00	182.19	-228.2	41.6	227.7	204.7	EOC - Hold to TD
3050.0	4919.1	90.00	182.19	-1978.7	-25.4	1978.9	1956.5	TD at 4919.1' MD

FORMATION TOP DETAILS

TVDPath	MDPath	Formation	DipAngle
1078.0	1078.0	Top Salt	0.00
1685.0	1685.6	Base Salt	0.00
1885.0	1885.9	Bell Canyon	0.00
2866.0	2867.1	Cherry Canyon	0.00
2935.0	2939.1	Cherry Canyon M	0.00
3001.0	3023.0	Cherry Canyon M3	0.00
3041.0	3106.5	M3 TVD Target	0.00



Great White Directional Services

Survey Report

Company:	Cimarex Energy Co.	Local Co-ordinate Reference:	Well White City 14 Federal #8
Project:	Eddy County (NM83E)	TVD Reference:	WELL @ 0.0usft (Original Well Elev)
Site:	Sec 14-T25S-R26E	MD Reference:	WELL @ 0.0usft (Original Well Elev)
Well:	White City 14 Federal #8	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Single User Db

Project	Eddy County (NM83E)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	Sec 14-T25S-R26E		
Site Position:	Northing:	410,644.04 usft	Latitude: 32° 7' 44.123 N
From: Map	Easting:	561,282.05 usft	Longitude: 104° 16' 8.052 W
Position Uncertainty: 0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence: 0.03 °

Well	White City 14 Federal #8		
Well Position	+N/-S	0.0 usft	Latitude: 32° 7' 44.123 N
	+E/-W	0.0 usft	Longitude: 104° 16' 8.052 W
Position Uncertainty	0.0 usft	Wellhead Elevation:	usft
			Ground Level: 0.0 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	2008/12/30	8.18	60.05	48,777

Design	Wellbore #1			
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	182.19

Survey Program		Date 2009/12/10		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
100.0	2,765.0	Gyro (Wellbore #1)	MWD	MWD - Standard
2,840.0	4,915.0	MWD (Wellbore #1)	MWD	MWD - Standard

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
2,765.0	0.82	147.67	2,763.9	-23.8	47.0	22.0	0.00	0.00	0.00	
2,840.0	0.30	190.70	2,838.9	-24.4	47.3	22.6	0.85	-0.69	57.37	
First MWD Survey										
2,872.0	7.20	173.10	2,870.8	-26.5	47.5	24.7	21.61	21.56	-55.00	
2,882.0	9.80	171.40	2,880.7	-28.0	47.7	26.1	26.12	26.00	-17.00	
2,892.0	12.20	169.20	2,890.5	-29.9	48.1	28.0	24.36	24.00	-22.00	
2,904.0	15.50	166.70	2,902.2	-32.7	48.7	30.8	27.94	27.50	-20.83	
2,914.0	18.10	167.90	2,911.8	-35.5	49.3	33.6	26.23	26.00	12.00	
2,924.0	20.80	168.10	2,921.2	-38.7	50.0	36.8	27.01	27.00	2.00	
2,935.0	23.20	170.50	2,931.4	-42.8	50.7	40.8	23.29	21.82	21.82	

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Site:	Sec 14-T25S-R26E	MD Reference:	WELL @ 0.0usft (Original Well Elev)
Well:	White City 14 Federal #8	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000:1 Single User Db

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
2,966.0	30.60	176.60	2,959.0	-56.7	52.2	54.7	25.45	23.87	19.68
2,976.0	33.90	177.20	2,967.5	-62.0	52.5	60.0	33.15	33.00	6.00
2,986.0	36.90	178.20	2,975.6	-67.8	52.7	65.8	30.55	30.00	10.00
2,998.0	40.40	179.10	2,985.0	-75.3	52.9	73.2	29.54	29.17	7.50
3,008.0	43.70	180.20	2,992.4	-82.0	53.0	79.9	33.81	33.00	11.00
3,018.0	46.50	180.70	2,999.5	-89.1	52.9	87.0	28.22	28.00	5.00
3,029.0	49.60	181.20	3,006.8	-97.3	52.8	95.2	28.38	28.18	4.55
3,061.0	59.20	183.00	3,025.4	-123.2	51.8	121.2	30.34	30.00	5.63
3,093.0	68.90	183.20	3,039.4	-151.9	50.2	149.9	30.32	30.31	0.63
3,125.0	79.20	183.80	3,048.2	-182.6	48.3	180.6	32.24	32.19	1.88
3,156.0	88.70	184.00	3,051.5	-213.3	46.3	211.4	30.65	30.65	0.65
3,187.0	90.60	184.00	3,051.7	-244.2	44.1	242.4	6.13	6.13	0.00
3,219.0	90.90	184.00	3,051.2	-276.2	41.9	274.4	0.94	0.94	0.00
3,286.0	91.30	184.30	3,050.0	-343.0	37.0	341.3	0.75	0.60	0.45
3,346.0	91.40	184.40	3,048.5	-402.8	32.5	401.3	0.24	0.17	0.17
3,409.0	88.90	183.30	3,048.4	-465.6	28.2	464.2	4.34	-3.97	-1.75
3,472.0	91.00	182.90	3,048.4	-528.5	24.8	527.2	3.39	3.33	-0.63
3,534.0	91.20	182.50	3,047.2	-590.5	21.9	589.2	0.72	0.32	-0.65
3,597.0	91.10	182.30	3,046.0	-653.4	19.3	652.2	0.35	-0.16	-0.32
3,661.0	89.20	182.30	3,045.8	-717.3	16.7	716.2	2.97	-2.97	0.00
3,724.0	88.90	181.50	3,046.9	-780.3	14.6	779.2	1.36	-0.48	-1.27
3,787.0	88.50	181.40	3,048.3	-843.3	13.0	842.1	0.65	-0.63	-0.16
3,850.0	89.30	181.60	3,049.5	-906.2	11.4	905.1	1.31	1.27	0.32
3,913.0	88.20	181.50	3,050.9	-969.2	9.7	968.1	1.75	-1.75	-0.16
3,975.0	89.40	182.00	3,052.2	-1,031.1	7.8	1,030.1	2.10	1.94	0.81
4,038.0	90.40	182.00	3,052.3	-1,094.1	5.6	1,093.1	1.59	1.59	0.00
4,163.0	90.70	181.00	3,051.1	-1,219.1	2.3	1,218.1	0.84	0.24	-0.80
4,194.0	90.50	181.90	3,050.7	-1,250.0	1.5	1,249.1	2.97	-0.65	2.90
4,257.0	90.50	180.20	3,050.2	-1,313.0	0.4	1,312.1	2.70	0.00	-2.70
4,289.0	90.60	180.10	3,049.9	-1,345.0	0.3	1,344.0	0.44	0.31	-0.31
4,353.0	89.50	180.90	3,049.8	-1,409.0	-0.3	1,408.0	2.13	-1.72	1.25
4,416.0	89.20	182.10	3,050.6	-1,472.0	-1.9	1,471.0	1.96	-0.48	1.90
4,480.0	88.50	181.70	3,051.8	-1,535.9	-4.1	1,535.0	1.26	-1.09	-0.63
4,543.0	88.80	183.50	3,053.3	-1,598.9	-6.9	1,598.0	2.90	0.48	2.86
4,607.0	87.80	183.40	3,055.2	-1,662.7	-10.8	1,661.9	1.57	-1.56	-0.16
4,669.0	88.90	183.30	3,057.0	-1,724.6	-14.4	1,723.9	1.78	1.77	-0.16
4,731.0	87.60	183.40	3,058.9	-1,786.4	-18.0	1,785.8	2.10	-2.10	0.16
4,795.0	88.60	183.00	3,061.0	-1,850.3	-21.6	1,849.8	1.68	1.56	-0.63
4,858.0	87.70	183.10	3,063.1	-1,913.2	-24.9	1,912.7	1.44	-1.43	0.16
4,875.0	87.30	183.00	3,063.8	-1,930.1	-25.8	1,929.7	2.43	-2.35	-0.59
Last MWD Survey									
4,915.0	87.30	183.00	3,065.7	-1,970.0	-27.9	1,969.7	0.00	0.00	0.00
Projection to Bit - PBHL White City 14 Federal #8									

Great White Directional Services

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Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Single User Db

Survey Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
2,840.0	2,838.9	-24.4	47.3	First MWD Survey
4,875.0	3,063.8	-1,930.1	-25.8	Last MWD Survey
4,915.0	3,065.7	-1,970.0	-27.9	Projection to Bit

Checked By: _____ Approved By: _____ Date: _____