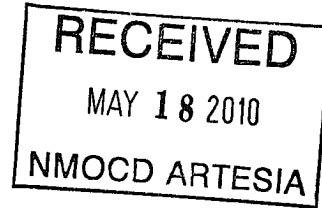


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RM



Cimarex Energy Co.

Eddy County (NM83E)

Sec 10 - T71S - R30E

Hydrus 10 Fed #8

Wellbore #1

Survey: MWD

Standard Survey Report

16 November, 2009

MR



Great White Directional Services

Survey Report

Company:	Cimarex Energy Co.	Local Co-ordinate Reference:	Well Hydrus 10 Fed #8
Project:	Eddy County (NM83E)	TVD Reference:	WELL @ 0.0usft (Original Well Elev)
Site:	Sec 10 - T71S - R30E	MD Reference:	WELL @ 0.0usft (Original Well Elev)
Well:	Hydrus 10 Fed #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 10 - T71S - R30E		
Site Position:		Northing:	670,879.30 usft
From:	Map	Easting:	657,054.40 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 50' 37.337 N
		Longitude:	103° 57' 23.575 W
		Grid Convergence:	0.20 °

Well	Hydrus 10 Fed #8		
Well Position	+N/-S	0.0 usft	Northing: 670,879.30 usft
	+E/-W	0.0 usft	Easting: 657,054.40 usft
Position Uncertainty	0.0 usft	Wellhead Elevation:	usft
		Latitude:	32° 50' 37.337 N
		Longitude:	103° 57' 23.575 W
		Ground Level:	0.0 usft

Wellbore	Wellbore #1		
Magnetics	Model Name	Sample Date	Declination
	IGRF200510	2009/10/23	(°)
			8.00
			Dip Angle
			(°)
			60.75
			Field Strength
			(nT)
			49,167

Design	Wellbore #1		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
		Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(usft)	(usft)	(usft)
	0.0	0.0	0.0
			Direction
			(°)
			240.94

Survey Program	Date 2009/11/16		
From	To	Survey (Wellbore)	Tool Name
(usft)	(usft)		
100.0	2,415.0	Gyro Surveys (Wellbore #1)	MWD
2,460.0	5,866.0	MWD (Wellbore #1)	MWD
			Description
			MWD - Standard
			MWD - Standard

Survey										
Measured Depth	Inclination	Azimuth	Vertical Depth	+N/-S	+E/-W	Vertical Section	Dogleg Rate	Build Rate	Turn Rate	
(usft)	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(°/100ft)	(°/100ft)	(°/100ft)	
2,415.0	10.71	112.16	2,408.9	-11.4	103.2	-84.6	0.00	0.00	0.00	
2,460.0	11.20	110.00	2,453.1	-14.5	111.2	-90.1	1.42	1.09	-4.80	
First MWD Survey										
2,491.0	11.60	111.90	2,483.5	-16.7	116.9	-94.1	1.77	1.29	6.13	
2,522.0	10.00	121.80	2,513.9	-19.3	122.1	-97.3	7.88	-5.16	31.94	
2,553.0	8.30	132.80	2,544.5	-22.2	126.0	-99.3	7.85	-5.48	35.48	
2,584.0	6.60	142.40	2,575.3	-25.1	128.7	-100.3	6.78	-5.48	30.97	
2,615.0	5.10	154.50	2,606.1	-27.8	130.4	-100.5	6.24	-4.84	39.03	
2,646.0	4.30	167.30	2,637.0	-30.2	131.2	-100.1	4.24	-2.58	41.29	
2,677.0	3.00	179.70	2,667.9	-32.1	131.5	-99.3	4.88	-4.19	40.00	

Great White Directional Services

Survey Report

Company:	Cimarex Energy Co.	Local Co-ordinate Reference:	Well Hydrus 10 Fed #8
Project:	Eddy County (NM83E)	TVD Reference:	WELL @ 0.0usft (Original Well Elev)
Site:	Sec 10 - T71S - R30E	MD Reference:	WELL @ 0.0usft (Original Well Elev)
Well:	Hydrus 10 Fed #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)	
2,709.0	2.70	196.10	2,699.9	-33.7	131.3	-98.4	2.70	-0.94	51.25	
2,740.0	3.80	202.50	2,730.9	-35.3	130.7	-97.1	3.73	3.55	20.65	
2,771.0	4.00	201.90	2,761.8	-37.3	129.9	-95.4	0.66	0.65	-1.94	
2,802.0	5.20	206.00	2,792.7	-39.6	128.9	-93.4	4.01	3.87	13.23	
2,833.0	5.20	204.50	2,823.6	-42.1	127.7	-91.2	0.44	0.00	-4.84	
2,864.0	5.10	203.90	2,854.4	-44.6	126.5	-88.9	0.37	-0.32	-1.94	
2,895.0	6.10	217.30	2,885.3	-47.2	125.0	-86.3	5.29	3.23	43.23	
2,927.0	7.10	220.70	2,917.1	-50.1	122.7	-82.9	3.35	3.13	10.63	
2,958.0	7.10	221.10	2,947.8	-53.0	120.2	-79.3	0.16	0.00	1.29	
2,989.0	9.00	222.00	2,978.5	-56.2	117.3	-75.2	6.14	6.13	2.90	
3,020.0	10.60	222.10	3,009.1	-60.1	113.7	-70.2	5.16	5.16	0.32	
3,051.0	11.50	223.00	3,039.5	-64.5	109.7	-64.6	2.96	2.90	2.90	
3,082.0	11.70	224.60	3,069.9	-69.0	105.4	-58.6	1.22	0.65	5.16	
3,113.0	11.70	225.50	3,100.2	-73.4	101.0	-52.6	0.59	0.00	2.90	
3,144.0	12.30	229.50	3,130.5	-77.8	96.2	-46.3	3.31	1.94	12.90	
3,176.0	12.10	231.00	3,161.8	-82.1	91.0	-39.7	1.17	-0.63	4.69	
3,207.0	12.50	237.30	3,192.1	-86.0	85.7	-33.1	4.51	1.29	20.32	
3,238.0	14.20	237.60	3,222.3	-89.8	79.6	-26.0	5.49	5.48	0.97	
3,269.0	15.30	239.00	3,252.2	-94.0	72.9	-18.1	3.73	3.55	4.52	
3,300.0	16.30	242.20	3,282.1	-98.1	65.6	-9.7	4.28	3.23	10.32	
3,331.0	17.70	242.50	3,311.7	-102.3	57.5	-0.6	4.52	4.52	0.97	
3,362.0	19.40	243.20	3,341.1	-106.8	48.8	9.3	5.53	5.48	2.26	
3,393.0	20.50	245.30	3,370.2	-111.4	39.2	19.8	4.23	3.55	6.77	
3,424.0	21.80	247.70	3,399.2	-115.8	29.0	30.9	5.04	4.19	7.74	
3,455.0	23.00	250.80	3,427.8	-120.0	17.9	42.6	5.43	3.87	10.00	
3,487.0	24.40	250.70	3,457.1	-124.3	5.8	55.3	4.38	4.38	-0.31	
3,517.0	24.50	250.50	3,484.4	-128.4	-5.9	67.5	0.43	0.33	-0.67	
3,549.0	25.00	250.00	3,513.5	-132.9	-18.5	80.8	1.69	1.56	-1.56	
3,580.0	24.80	249.70	3,541.6	-137.4	-30.8	93.7	0.76	-0.65	-0.97	
3,611.0	24.70	249.20	3,569.8	-142.0	-42.9	106.5	0.75	-0.32	-1.61	
3,643.0	24.60	248.30	3,598.8	-146.8	-55.4	119.7	1.21	-0.31	-2.81	
3,674.0	24.40	247.60	3,627.1	-151.6	-67.3	132.5	1.14	-0.65	-2.26	
3,705.0	24.20	247.40	3,655.3	-156.5	-79.1	145.1	0.70	-0.65	-0.65	
3,736.0	24.40	246.90	3,683.6	-161.5	-90.8	157.8	0.93	0.65	-1.61	
3,767.0	24.40	247.40	3,711.8	-166.4	-102.6	170.6	0.67	0.00	1.61	
3,798.0	24.80	250.00	3,740.0	-171.1	-114.7	183.3	3.72	1.29	8.39	
3,829.0	24.90	249.80	3,768.1	-175.6	-126.9	196.2	0.42	0.32	-0.65	
3,861.0	24.90	249.90	3,797.1	-180.2	-139.5	209.5	0.13	0.00	0.31	
3,892.0	23.70	253.10	3,825.4	-184.3	-151.6	222.1	5.75	-3.87	10.32	
3,954.0	24.10	252.10	3,882.1	-191.8	-175.6	246.7	0.92	0.65	-1.61	
3,985.0	24.10	252.20	3,910.4	-195.7	-187.7	259.1	0.13	0.00	0.32	
4,016.0	24.00	253.40	3,938.7	-199.4	-199.7	271.4	1.61	-0.32	3.87	
4,047.0	23.20	255.50	3,967.1	-202.7	-211.7	283.5	3.74	-2.58	6.77	

Great White Directional Services

Survey Report

Company:	Cimarex Energy Co.	Local Co-ordinate Reference:	Well Hydrus 10 Fed #8
Project:	Eddy County (NM83E)	TVD Reference:	WELL @ 0.0usft (Original Well Elev)
Site:	Sec 10 - T71S - R30E	MD Reference:	WELL @ 0.0usft (Original Well Elev)
Well:	Hydrus 10 Fed #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)	
4,079.0	23.30	255.40	3,996.5	-205.9	-223.9	295.7	0.34	0.31	-0.31	
4,110.0	23.60	255.00	4,024.9	-209.1	-235.8	307.7	1.10	0.97	-1.29	
4,141.0	23.40	256.00	4,053.4	-212.2	-247.8	319.7	1.44	-0.65	3.23	
4,172.0	23.10	255.90	4,081.8	-215.1	-259.7	331.5	0.98	-0.97	-0.32	
4,203.0	23.10	255.90	4,110.4	-218.1	-271.5	343.2	0.00	0.00	0.00	
4,234.0	23.10	255.90	4,138.9	-221.1	-283.3	355.0	0.00	0.00	0.00	
4,265.0	23.00	255.20	4,167.4	-224.1	-295.0	366.7	0.94	-0.32	-2.26	
4,296.0	23.50	252.80	4,195.9	-227.5	-306.8	378.6	3.46	1.61	-7.74	
4,327.0	23.30	252.50	4,224.3	-231.1	-318.5	390.7	0.75	-0.65	-0.97	
4,358.0	23.10	252.70	4,252.8	-234.8	-330.2	402.7	0.69	-0.65	0.65	
4,390.0	22.80	253.00	4,282.3	-238.5	-342.1	414.9	1.01	-0.94	0.94	
4,421.0	22.80	252.60	4,310.9	-242.0	-353.6	426.6	0.50	0.00	-1.29	
4,452.0	22.50	252.40	4,339.5	-245.6	-365.0	438.3	1.00	-0.97	-0.65	
4,483.0	22.70	252.70	4,368.1	-249.2	-376.3	450.0	0.74	0.65	0.97	
4,514.0	22.60	252.80	4,396.7	-252.7	-387.7	461.7	0.35	-0.32	0.32	
4,576.0	22.20	253.40	4,454.0	-259.6	-410.3	484.8	0.74	-0.65	0.97	
4,608.4	22.04	253.24	4,484.0	-263.1	-422.0	496.7	0.52	-0.48	-0.48	
Target 1										
4,638.0	21.90	253.10	4,511.5	-266.3	-432.6	507.5	0.52	-0.48	-0.49	
4,701.0	21.90	252.90	4,569.9	-273.2	-455.1	530.5	0.12	0.00	-0.32	
4,763.0	21.50	252.50	4,627.6	-280.0	-477.0	552.9	0.69	-0.65	-0.65	
4,825.0	21.10	250.70	4,685.3	-287.1	-498.3	575.1	1.24	-0.65	-2.90	
4,875.0	21.40	254.10	4,731.9	-292.6	-515.6	592.8	2.54	0.60	6.80	
4,937.0	17.70	247.60	4,790.3	-299.3	-535.2	613.2	6.91	-5.97	-10.48	
5,000.0	13.70	232.70	4,851.0	-307.4	-550.0	630.1	8.97	-6.35	-23.65	
5,062.0	12.20	227.40	4,911.4	-316.3	-560.7	643.7	3.08	-2.42	-8.55	
5,124.0	10.50	229.90	4,972.2	-324.4	-569.8	655.7	2.85	-2.74	4.03	
5,186.0	9.20	229.40	5,033.3	-331.3	-577.9	666.1	2.10	-2.10	-0.81	
5,249.0	7.30	237.50	5,095.6	-336.7	-585.1	675.0	3.53	-3.02	12.86	
5,311.0	7.20	239.80	5,157.2	-340.8	-591.8	682.8	0.50	-0.16	3.71	
5,373.0	6.20	240.00	5,218.7	-344.4	-598.0	690.0	1.61	-1.61	0.32	
5,435.0	5.80	230.90	5,280.4	-348.0	-603.4	696.5	1.66	-0.65	-14.68	
5,498.0	5.80	232.00	5,343.1	-352.0	-608.4	702.7	0.18	0.00	1.75	
5,560.0	5.80	230.20	5,404.7	-355.9	-613.2	708.9	0.29	0.00	-2.90	
5,684.0	5.90	230.30	5,528.1	-364.0	-623.0	721.3	0.08	0.08	0.08	
5,747.0	5.80	228.70	5,590.8	-368.2	-627.8	727.6	0.30	-0.16	-2.54	
5,809.0	4.80	241.90	5,652.5	-371.5	-632.5	733.3	2.53	-1.61	21.29	
5,825.0	4.63	239.47	5,668.5	-372.1	-633.6	734.6	1.63	-1.06	-15.16	
Last MWD Survey										
5,828.0	4.60	239.00	5,671.4	-372.2	-633.8	734.8	1.63	-1.03	-15.81	
5,866.0	4.60	239.00	5,709.3	-373.8	-636.4	737.9	0.00	0.00	0.00	
Projection to Bit - Hydrus #8 PBHL										

Great White Directional Services

Survey Report

Company:	Cimarex Energy Co.	Local Co-ordinate Reference:	Well Hydrus 10 Fed #8
Project:	Eddy County (NM83E)	TVD Reference:	WELL @ 0.0usft (Original Well Elev)
Site:	Sec 10 - T71S - R30E	MD Reference:	WELL @ 0.0usft (Original Well Elev)
Well:	Hydrus 10 Fed #8	North Reference:	Grid
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)	
2,460.0	2,453.1	-14.5	111.2	First MWD Survey
5,825.0	5,668.5	-372.1	-633.6	Last MWD Survey
5,866.0	5,709.3	-373.8	-636.4	Projection to Bit

Checked By: _____ Approved By: _____ Date: _____