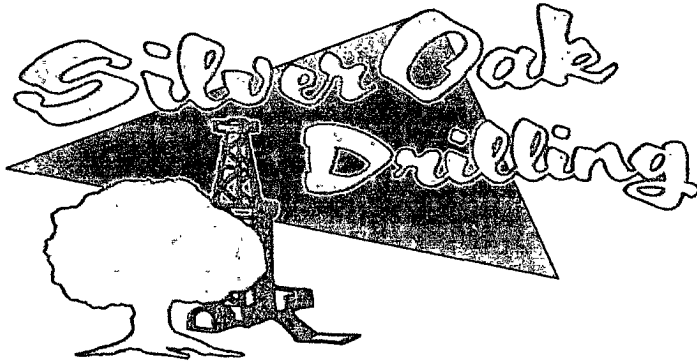
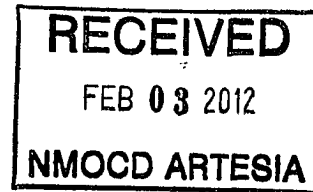




PO Box 1370
Artesia, NM 88211-1370
(575) 748-1288



October 10, 2011

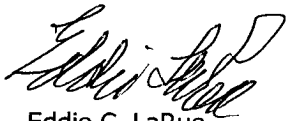
Cimarex Energy Co.
Attn: Jim Evans
600 N. Marienfeld, Suite 600
Midland, TX 79701

RE: Pere Marquette 18 Federal #9
2030' FNL & 330' FWL
Sec. 18, T17S, R29E
Eddy County, New Mexico

Dear Sir,

The attached is the Deviation Survey for the above captioned well.

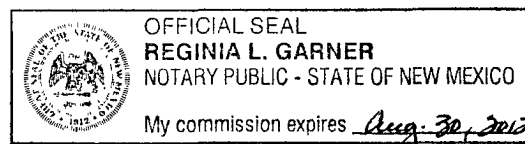
Very truly yours,


Eddie C. LaRue
Operations Manager

State of New Mexico }
County of Eddy }

The foregoing was acknowledged before me this 10th day of October, 2011.


Notary Public



Pason DataHub Deviation Survey

Well Dossier 3225559 - PERE MARQUETTE 18 FED # 9

#

# Date	Depth	Deviation	Direction
10/3/2011	196	0.00	0.00
10/3/2011	442	0.30	0.00
10/3/2011	717	0.30	0.00
10/3/2011	1153	1.80	19.50
10/4/2011	1247	2.30	1.10
10/4/2011	1341	5.20	20.30
10/4/2011	1435	5.60	17.10
10/4/2011	1530	6.80	6.20
10/4/2011	1624	6.20	7.60
10/4/2011	1719	6.10	6.50
10/4/2011	1876	5.60	8.10
10/4/2011	1909	6.20	358.30
10/4/2011	2098	6.40	357.70
10/4/2011	2192	5.80	355.70
10/4/2011	2287	6.10	358.50
10/4/2011	2382	6.10	357.00
10/5/2011	2478	6.10	353.00
10/5/2011	2573	5.80	352.50
10/5/2011	2667	6.50	355.10
10/5/2011	2761	6.20	355.00
10/5/2011	2855	6.00	359.60
10/5/2011	2950	6.10	1.60
10/5/2011	3044	6.80	358.50
10/5/2011	3139	6.80	357.00
10/6/2011	3233	6.80	353.60
10/6/2011	3327	6.80	354.30
10/6/2011	3421	6.40	353.70
10/6/2011	3517	6.50	351.40
10/6/2011	3612	6.40	351.70
10/6/2011	3707	6.20	350.40
10/7/2011	3800	6.00	350.10
10/7/2011	3895	6.00	358.50
10/7/2011	3989	6.00	1.40
10/7/2011	4084	6.00	2.10
10/7/2011	4179	6.00	359.30
10/8/2011	4282	5.80	358.20
10/8/2011	4377	5.70	1.20
10/8/2011	4471	5.50	0.90
10/8/2011	4566	5.40	359.60
10/8/2011	4660	6.30	1.30
10/8/2011	4754	6.00	1.10
10/9/2011	4775	5.80	359.60

EOF

30-015-39055

CIMAREX ENERGY

Empire

Eddy County, NM

Pere Marquette 18 Federal #9H

VH - Job #32K1011948

Survey: Actual

SDI Standard Survey Report

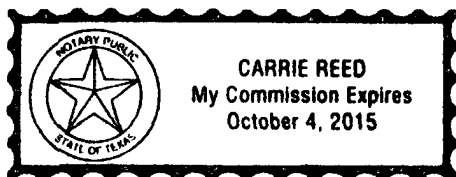
This survey is correct to the best of my knowledge and is supported by actual field data.

K. L. Hart

Notarized this date 15th of November, 2011.

Carrie Reed

Notary Signature
County of Midland
State of Texas



Scientific Drilling International, Inc.
SDI Standard Survey Report



Company:	CIMAREX ENERGY	Local Co-ordinate Reference:	Well Pere Marquette 18 Federal #9H
Project:	Empire	TVD Reference:	WELL @ 0 0usft (Original Well Elev)
Site:	Eddy County, NM	MD Reference:	WELL @ 0 0usft (Original Well Elev)
Well:	Pere Marquette 18 Federal #9H	North Reference:	Grid
Wellbore:	VH - Job #32K1011948	Survey Calculation Method:	Minimum Curvature
Design:	VH - Job #32K1011948	Database:	EDM-Regulatory

Project		Empire	
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		Eddy County, NM			
Site Position:		Northing:	673,477 15 usft	Latitude:	32° 51' 4 550 N
From:	Lat/Long	Easting:	570,262.08 usft	Longitude:	104° 6' 16 340 W
Position Uncertainty:	0 0 usft	Slot Radius:	0"	Grid Convergence:	0 12 °

Well	Pere Marquette 18 Federal #9H, Directional (Great White)					
Well Position	+N/-S	0 0 usft	Northing:	668,005 47 usft	Latitude:	32° 50' 10 506 N
	+E/-W	0 0 usft	Easting:	565,430 50 usft	Longitude:	104° 7' 13 108 W
Position Uncertainty		0 0 usft	Wellhead Elevation:	usft	Ground Level:	0 0 usft

Wellbore	VH - Job #32K1011948				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	10/3/2011	7 85	60 65	48,919

Design		VH - Job #32K1011948			
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	0 11

Survey Program		Date	11/14/2011		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
74 2	1,036 3	Actual (VH - Job #32K1011948)	Keeper	Keeper Gyro	

Survey							
Measured Depth (usft)	Inclination (°)	Azimuth (°)	True Vertical Depth	North/South (usft)	East/West (usft)	Closure Azimuth (°)	Closure Distance (usft)
0 0	0 00	0 00	0 0	0 0	0 0	0 00	0 0
74 2	0 25	268 38	74 2	0 0	-0 2	268 38	0 2
104 8	0 17	51 99	104 8	0 0	-0 2	276 36	0 2
197 1	0 34	169 17	197 1	-0 2	0 0	191 58	0 2
287 5	0 53	249 25	287 5	-0 6	-0 4	213 05	0 7
381 0	0 56	244 03	381 0	-0 9	-1 2	232 03	1 5
473 1	0 45	158 48	473 1	-1 5	-1 5	224 99	2 1
565 1	0 82	137 41	565 1	-2 3	-0 9	201 15	2 4
656 3	1 27	132 71	656 3	-3 4	0 3	175 01	3 5
756 6	1 20	132 64	756 5	-4 9	1 9	158 96	5 3
848 8	1 05	137 01	848 7	-6 2	3 2	152 82	7 0
941 3	0 98	134 65	941 2	-7 4	4 3	149 61	8 5

Scientific Drilling International, Inc.
SDI Standard Survey Report



Company:	CIMAREX ENERGY	Local Co-ordinate Reference:	Well Pere Marquette 18 Federal #9H
Project:	Empire	TVD Reference:	WELL @ 0 0usft (Original Well Elev)
Site:	Eddy County, NM	MD Reference:	WELL @ 0 0usft (Original Well Elev)
Well:	Pere Marquette 18 Federal #9H	North Reference:	Grid
Wellbore:	VH - Job #32K1011948	Survey Calculation Method:	Minimum Curvature
Design:	VH - Job #32K1011948	Database:	EDM-Regulatory

Survey							
Measured Depth (usft)	Inclination (°)	Azimuth (°)	True Vertical Depth	North/South (usft)	East/West (usft)	Closure Azimuth (°)	Closure Distance (usft)
1,036 3	0 59	184 63	1,036 2	-8 4	4 9	150 03	9 7



Scientific Drilling
Directional Drilling Operations

Project: Empire
Eddy County, NM
Well: Pere Marquette 18 Federal #9H
Wellbore: VH - Job #32K1011948
Design: VH - Job #32K1011948



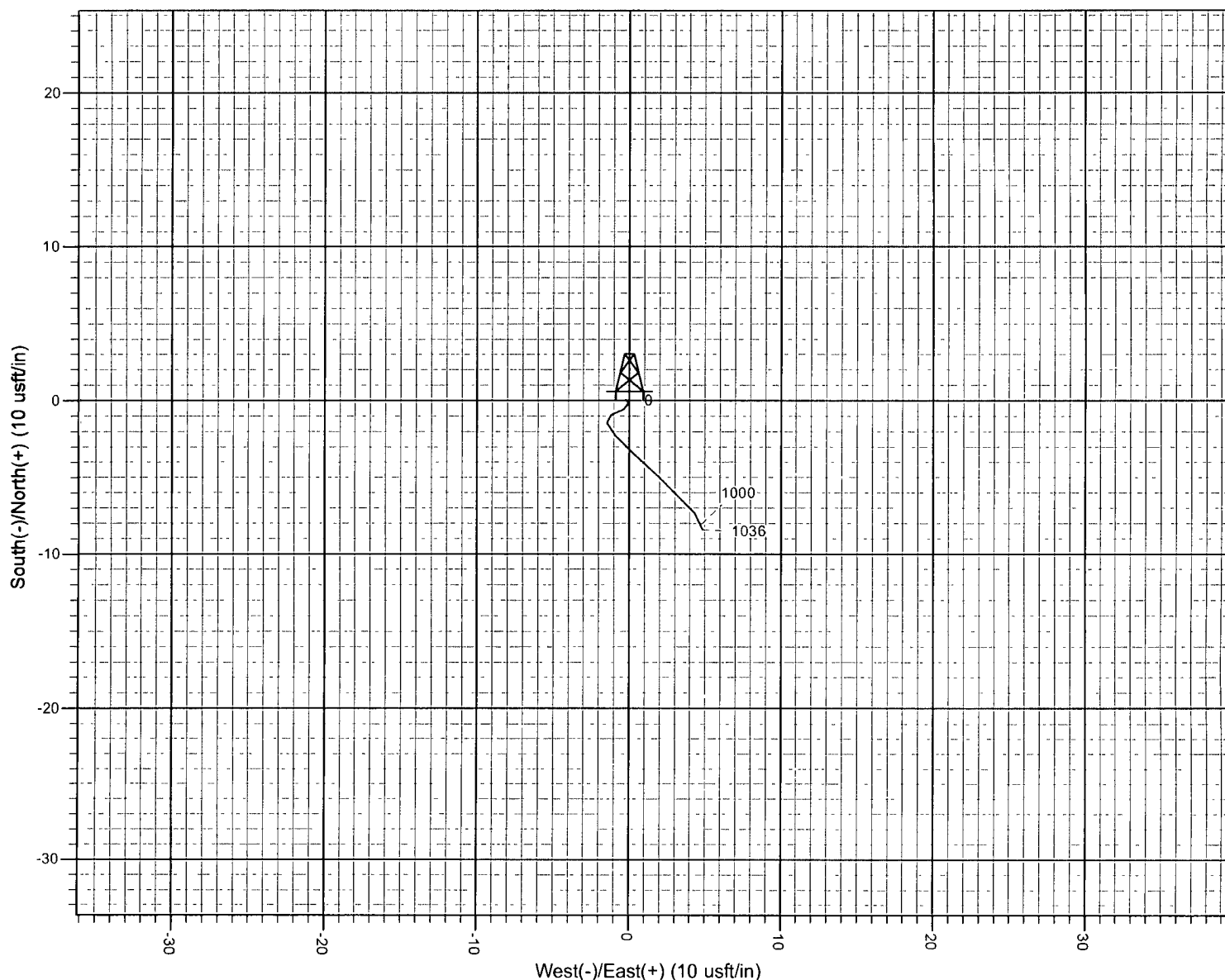
Azimuths to Grid North
True North -0 12°
Magnetic North 7 74°
Magnetic Field
Strength 48919 5snT
Dip Angle 60 65°
Date 10/3/2011
Model IGRF2010

WELL DETAILS: Pere Marquette 18 Federal #9H

WELL @ 0.0usft (Original Well Elev)

Ground Level: 0.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	668005.47	565430.50	32° 50' 10.506 N	104° 7' 13.108 W	



PROJECT DETAILS Empire
Geodetic System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone: New Mexico East 3001
System Datum: Mean Sea Level

SITE DETAILS: Eddy County, NM
Site Centre Latitude: 32° 51' 4 550 N
Longitude: 104° 6' 16.340 W
Positional Uncertainty: 0.0
Convergence: 0.12
Local North: Grid

End of Well Recap FOR

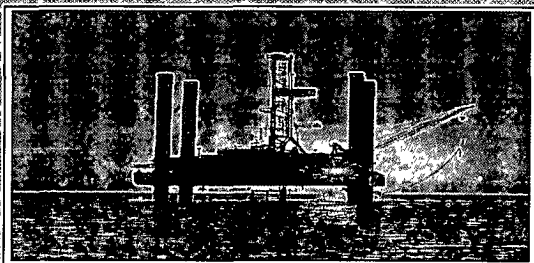
Cimarex Energy
Pere Marquette 18 Fed #9
Eddy Co., NM

Proposal No. 03170-433-21

Presented By:

Terry Morgan
Regional Manager

Mirenda Morgan
Well Planner





Overlay Well & Survey Report

CIMAREX

Project: Eddy County (NM83E)
 Site: Sec 18-T17S-R29E
 Well: Pere Marquette 18 Fed #9
 Wellbore: Wellbore #1
 Design: Design #1

WELL DETAILS: Pere Marquette 18 Fed #9

+N/-S	+E/-W	Northing	Ground Level:	0.0	Latitude	Longitude	Slot
0.0	0.0	668027.30	Easting	606766.60	32° 50' 10.506 N	104° 7' 13.108 W	



Azimuths to Grid North
 True North -0.12°
 Total Correction/Magnetic North 7.75°
 Magnetic Field
 Strength: 48930 1nT
 Dip Angle: 60.65°
 Date: 08/25/2011
 Model: IGRF2010

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
PM #9 PBHL	4850.0	379.6	0.7	668406.86	606767.33	32° 50' 14.262 N	104° 7' 13.090 W	Circle (Radius: 25.0)

- plan hits target center

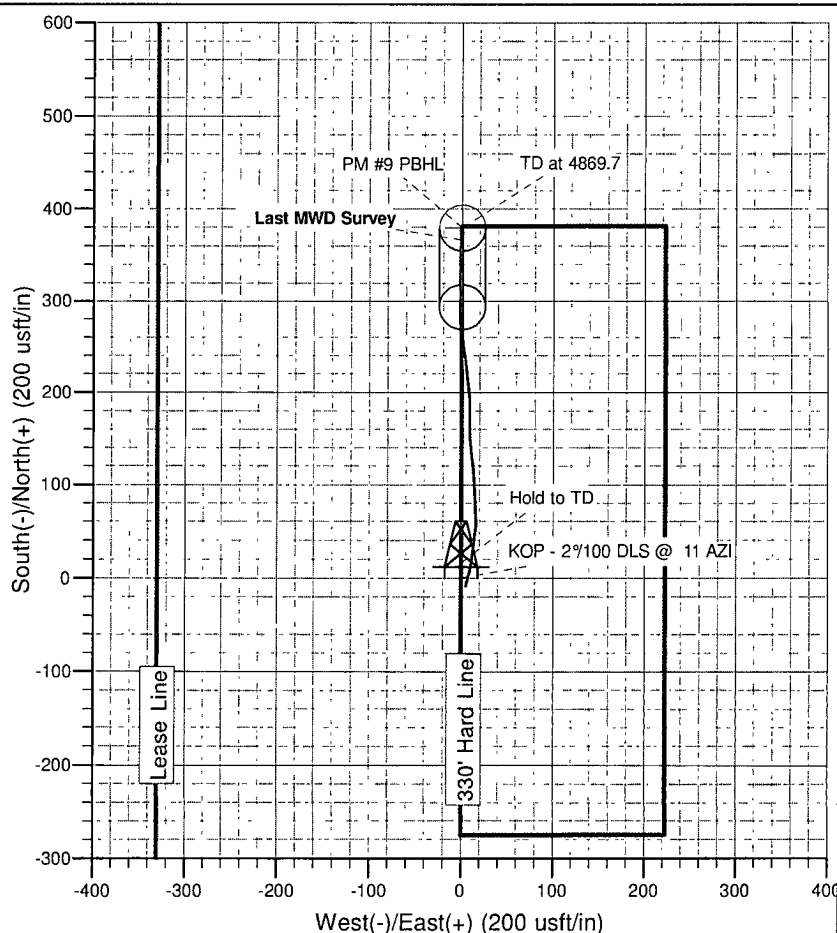
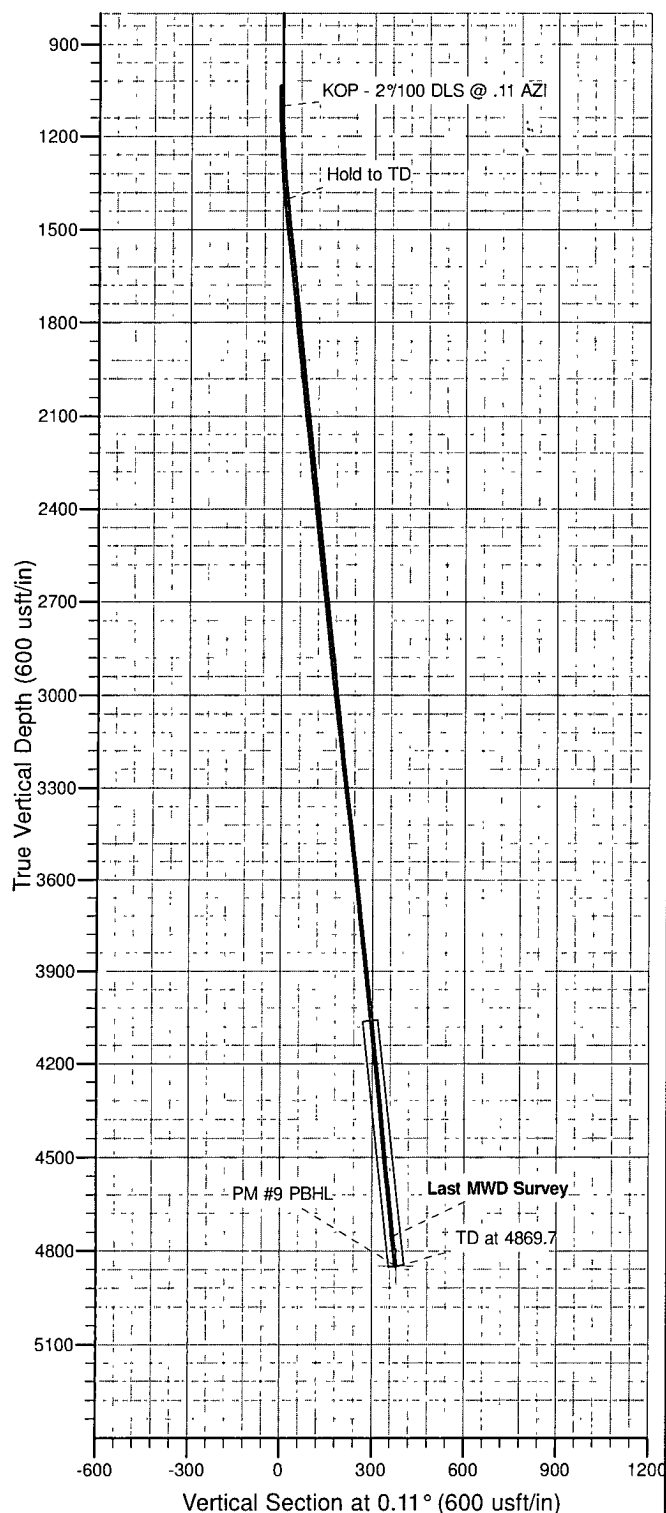
SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
1100.0	0.00	0.00	1100.0	0.0	0.0	0.00	0.00	0.0	
1401.0	6.02	0.11	1400.4	15.8	0.0	2.00	0.11	15.8	
4869.7	6.02	0.11	4850.0	379.6	0.7	0.00	0.00	379.6	PM #9 PBHL

ANNOTATIONS

TVD	MD	Inc	Azi	+N/-S	+E/-W	Vsect	Departure	Annotation
1100.0	1100.0	0.00	0.00	0.0	0.0	0.0	0.0	KOP - 2°/100 DLS @ 11 AZI
1400.4	1401.0	6.02	0.11	15.8	0.0	15.8	15.8	Hold to TD
4850.0	4869.7	6.02	0.11	379.6	0.7	379.6	379.6	TD at 4869.7

25' Target Radius



Cimarex Energy Co. (Midland)

Eddy County (NM83E)

Sec 18-T17S-R29E

Pere Marquette 18 Fed #9

Wellbore #1

Survey: Survey #1

Standard Survey Report

11 October, 2011

Great White Directional Services

Survey Report

Company:	Cimarex Energy Co. (Midland)	Local Co-ordinate Reference:	Well Pere-Marquette 18 Fed #9
Project:	Eddy County (NM83E)	TVD Reference:	WELL @ 0.0usft (Original Well Elev)
Site:	Sec 18-T17S-R29E	MD Reference:	WELL @ 0.0usft (Original Well Elev)
Well:	Pere-Marquette 18 Fed #9	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 18-T17S-R29E		
Site Position:	Map	Northing:	669,464.80 usft
From:		Easting:	607,648.10 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 50' 24.712 N
		Longitude:	104° 7' 13.108 W
		Grid Convergence:	0.12 °

Well:	Pere-Marquette 18 Fed #9		
Well Position	+N/-S	0.0 usft	Northing:
	+E/-W	0.0 usft	Easting:
Position Uncertainty	0.0 usft	Wellhead Elevation:	usft
		Latitude:	32° 50' 10.506 N
		Longitude:	104° 7' 13.108 W
		Ground Level:	0.0 usft

Wellbore:	Wellbore #1		
Magnetics	Model Name	Sample Date	Declination
			(°)
	IGRF2010	08/25/11	7.86
			Dip Angle
			(°)
			Field Strength
			(nT)
			60.65
			48,930

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
			(°)
			0.00

Survey Program	Date 10/11/11		
From	To	Survey (Wellbore)	Tool Name
(usft)	(usft)		
1,036.3	4,869.0	Survey #1 (Wellbore #1)	MWD
			Description
			MWD - Standard

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)
1,036.3	0.59	184.63	1,036.2	-8.4	4.9	-8.4	0.00	0.00	0.00
1,153.0	1.80	19.50	1,152.9	-7.3	5.4	-7.3	2.04	1.04	-141.50
1,247.0	2.30	1.10	1,246.8	-4.0	6.0	-4.0	0.87	0.53	-19.57
1,341.0	5.20	20.30	1,340.6	1.9	7.5	1.9	3.32	3.09	20.43
1,530.0	6.80	6.20	1,528.6	21.0	11.6	21.0	1.15	0.85	-7.46
1,624.0	6.20	7.60	1,622.0	31.6	12.9	31.6	0.66	-0.64	1.49
1,719.0	6.10	6.50	1,716.4	41.7	14.2	41.7	0.16	-0.11	-1.16
1,814.0	5.60	8.10	1,810.9	51.3	15.4	51.3	0.55	-0.53	1.68
1,909.0	6.20	358.30	1,905.4	61.0	15.9	61.0	1.23	0.63	-10.32
2,002.0	5.80	356.90	1,997.9	70.7	15.5	70.7	0.46	-0.43	-1.51

Great White Directional Services

Survey Report

Company:	Cimarex Energy Co. (Midland)	Local Co-ordinate Reference:	Well: Pere Marquette 18 Fed #9
Project:	Eddy County (NM83E)	TVD Reference:	WELL @ 0.0usft (Original Well Elev)
Site:	Sec 18-T17S-R29E	MD Reference:	WELL @ 0.0usft (Original Well Elev)
Well:	Pere Marquette 18 Fed #9	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 (%/100usft)	Build Rate (%/100usft)	Turn Rate (%/100usft)	
2,098.0	6.40	357.70	2,093.4	80.9	15.0	80.9	0.63	0.63	0.83	
2,198.0	5.80	355.70	2,192.8	91.5	14.4	91.5	0.64	-0.60	-2.00	
2,287.0	6.10	358.50	2,281.3	100.8	14.0	100.8	0.47	0.34	3.15	
2,382.0	6.10	357.00	2,375.8	110.8	13.6	110.8	0.17	0.00	-1.58	
2,478.0	6.10	353.00	2,471.3	121.0	12.7	121.0	0.44	0.00	-4.17	
2,573.0	5.80	352.50	2,565.8	130.8	11.4	130.8	0.32	-0.32	-0.53	
2,667.0	6.50	355.10	2,659.2	140.8	10.4	140.8	0.80	0.74	2.77	
2,761.0	6.20	355.00	2,752.6	151.1	9.5	151.1	0.32	-0.32	-0.11	
2,855.0	6.00	359.60	2,846.1	161.1	9.0	161.1	0.56	-0.21	4.89	
2,950.0	6.10	1.60	2,940.6	171.1	9.1	171.1	0.25	0.11	2.11	
3,044.0	6.80	358.50	3,034.0	181.7	9.1	181.7	0.83	0.74	-3.30	
3,139.0	6.80	357.00	3,128.3	192.9	8.6	192.9	0.19	0.00	-1.58	
3,233.0	6.80	353.60	3,221.7	204.0	7.7	204.0	0.43	0.00	-3.62	
3,327.0	6.80	354.30	3,315.0	215.1	6.6	215.1	0.09	0.00	0.74	
3,421.0	6.40	353.70	3,408.4	225.8	5.4	225.8	0.43	-0.43	-0.64	
3,517.0	6.50	351.40	3,503.8	236.5	4.0	236.5	0.29	0.10	-2.40	
3,612.0	6.40	351.70	3,598.2	247.1	2.5	247.1	0.11	-0.11	0.32	
3,762.0	6.20	350.40	3,747.3	263.3	-0.1	263.3	0.16	-0.13	-0.87	
3,800.0	6.00	350.10	3,785.0	267.3	-0.8	267.3	0.53	-0.53	-0.79	
3,895.0	6.00	358.50	3,879.5	277.1	-1.8	277.1	0.92	0.00	8.84	
3,984.0	6.00	1.40	3,968.0	286.4	-1.8	286.4	0.34	0.00	3.26	
4,084.0	6.00	2.10	4,067.5	296.9	-1.5	296.9	0.07	0.00	0.70	
4,179.0	6.00	359.30	4,162.0	306.8	-1.3	306.8	0.31	0.00	-2.95	
4,282.0	5.80	358.20	4,264.4	317.4	-1.6	317.4	0.22	-0.19	-1.07	
4,377.0	5.70	1.20	4,358.9	326.9	-1.6	326.9	0.33	-0.11	3.16	
4,471.0	5.50	0.90	4,452.5	336.1	-1.5	336.1	0.22	-0.21	-0.32	
4,566.0	5.40	359.60	4,547.1	345.1	-1.4	345.1	0.17	-0.11	-1.37	
4,660.0	6.30	1.30	4,640.6	354.7	-1.3	354.7	0.97	0.96	1.81	
4,754.0	6.00	1.10	4,734.0	364.8	-1.1	364.8	0.32	-0.32	-0.21	
4,775.0	5.80	359.60	4,754.9	366.9	-1.1	366.9	1.20	-0.95	-7.14	
Last MWD Survey										
4,869.0	5.80	359.60	4,848.4	376.4	-1.2	376.4	0.00	0.00	0.00	
Projection to Bit - PM #9 PBHL										

Survey Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N-S (usft)	+E-W (usft)	Comment
4,775.0	4,754.9	366.9	-1.1	Last MWD Survey
4,869.0	4,848.4	376.4	-1.2	Projection to Bit

Checked By: _____ Approved By: _____ Date: _____