



30-015-38448

HOBBS OCD

SEP 20 2011

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Marshall & Winston, Inc

Eddy County, NM
Sec. 25, T19S, R25E
Peacemaker Federal 25 #2H

Wellbore #1

Survey: MWD

DDC Survey Report

31 May, 2011

CONFIDENTIAL



Company:	Marshall & Winston, Inc	Local Co-ordinate Reference:	Well Peacemaker Federal 25 #2H
Project:	Eddy County, NM	TVD Reference:	WELL @ 3426.0usft (Patterson #101)
Site:	Sec 25, T19S, R25E	MD Reference:	WELL @ 3426.0usft (Patterson #101)
Well:	Peacemaker Federal 25 #2H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Single User Db

Project:	Eddy County, NM		
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. 25, T19S, R25E				
Site Position:		Northing:	593,691 20 usft	Latitude:	32° 37' 55.596 N
From:	Map	Easting:	465,423.00 usft	Longitude:	104° 26' 44 345 W
Position Uncertainty:	0 0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	-0.06 °

Well	Peacemaker Federal 25 #2H					
Well Position	+N/-S	0.0 usft	Northing:	593,656 96 usft	Latitude:	32° 37' 55.272 N
	+E/-W	0.0 usft	Easting:	466,910 89 usft	Longitude:	104° 26' 26 945 W
Position Uncertainty	0.0 usft	Wellhead Elevation:	usft	Ground Level:	3,426.0 usft	

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	5/20/2011	8 02	60 41	48,771

Design:	Wellbore #1				
Audit Notes:					
Version:	1 0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction	
	(usft)	(usft)	(usft)	(°)	
	0.0	0.0	0.0	180.08	

Survey Program		Date: 5/31/2011		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
100.0	1,970.0	Gyro Survey (Wellbore #1)	Good_gyro	Good Gyro
2,027 0	4,940 0	MWD (Wellbore #1)	MWD default	MWD - Standard

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)
Tie-in to Gyro									
1,970 0	0 28	261.09	1,970 0	0 7	4.2	-0 7	0.00	0.00	0 00
2,027 0	0 30	241.50	2,027 0	0.6	3.9	-0.6	0.18	0.04	-34 37
2,058 0	0 30	270.50	2,058.0	0.5	3.8	-0 5	0 48	0.00	93 55
2,090.0	0.30	226 10	2,090.0	0 5	3.6	-0.5	0 71	0.00	-138.75
2,121 0	0.20	226 10	2,121 0	0 4	3.5	-0 4	0 32	-0.32	0 00
2,153 0	2 20	185 10	2,152.9	-0 3	3 5	0 3	6 42	6 25	-128 13
2,184 0	5.40	185 10	2,183 9	-2.3	3.3	2 3	10 32	10.32	0.00
2,216 0	9.10	183 70	2,215.6	-6 3	3 0	6 3	11 57	11 56	-4 38
2,247 0	12 40	183 00	2,246.1	-12 1	2 6	12 1	10 65	10 65	-2 26

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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)
2,279.0	15.60	182.10	2,277.1	-19.8	2.3	19.8	10.02	10.00	-2.81
2,310.0	18.60	182.80	2,306.7	-28.9	1.9	28.9	9.70	9.68	2.26
2,342.0	21.40	179.50	2,336.8	-39.9	1.7	39.9	9.43	8.75	-10.31
2,373.0	23.90	178.60	2,365.4	-51.8	1.9	51.8	8.14	8.06	-2.90
2,404.0	26.90	178.20	2,393.4	-65.1	2.3	65.1	9.69	9.68	-1.29
2,436.0	29.90	179.10	2,421.6	-80.3	2.6	80.3	9.47	9.38	2.81
2,467.0	32.60	180.70	2,448.1	-96.4	2.7	96.4	9.11	8.71	5.16
2,499.0	35.00	181.90	2,474.6	-114.2	2.2	114.2	7.78	7.50	3.75
2,530.0	37.50	182.40	2,499.6	-132.5	1.6	132.5	8.12	8.06	1.61
2,562.0	40.20	183.00	2,524.6	-152.6	0.6	152.6	8.52	8.44	1.88
2,594.0	42.70	183.20	2,548.5	-173.7	-0.5	173.7	7.82	7.81	0.63
2,625.0	45.30	183.00	2,570.8	-195.2	-1.7	195.2	8.40	8.39	-0.65
2,657.0	47.80	182.30	2,592.8	-218.4	-2.8	218.4	7.97	7.81	-2.19
2,688.0	50.10	181.60	2,613.2	-241.8	-3.6	241.8	7.61	7.42	-2.26
2,719.0	52.40	181.10	2,632.6	-265.9	-4.1	266.0	7.53	7.42	-1.61
2,751.0	54.50	180.40	2,651.7	-291.7	-4.5	291.7	6.79	6.56	-2.19
2,782.0	56.30	179.80	2,669.3	-317.2	-4.5	317.2	6.02	5.81	-1.94
2,814.0	59.40	179.30	2,686.3	-344.3	-4.3	344.3	9.78	9.69	-1.56
2,845.0	62.20	178.80	2,701.4	-371.3	-3.8	371.3	9.14	9.03	-1.61
2,877.0	65.10	178.60	2,715.6	-400.0	-3.2	400.0	9.08	9.06	-0.63
2,908.0	68.40	178.80	2,727.9	-428.4	-2.5	428.4	10.66	10.65	0.65
2,940.0	72.40	178.80	2,738.6	-458.6	-1.9	458.6	12.50	12.50	0.00
2,971.0	75.70	178.80	2,747.1	-488.4	-1.3	488.4	10.65	10.65	0.00
3,003.0	78.90	179.10	2,754.1	-519.6	-0.7	519.6	10.04	10.00	0.94
3,035.0	81.90	179.60	2,759.5	-551.1	-0.4	551.1	9.50	9.38	1.56
3,066.0	84.50	180.40	2,763.1	-581.9	-0.4	581.9	8.77	8.39	2.58
3,098.0	86.90	180.70	2,765.5	-613.8	-0.7	613.8	7.56	7.50	0.94
3,129.0	88.50	181.10	2,766.8	-644.8	-1.2	644.8	5.32	5.16	1.29
3,161.0	88.90	181.10	2,767.5	-676.8	-1.8	676.8	1.25	1.25	0.00
3,192.0	89.00	180.90	2,768.1	-707.8	-2.3	707.8	0.72	0.32	-0.65
3,224.0	89.00	180.90	2,768.6	-739.8	-2.8	739.8	0.00	0.00	0.00
3,255.0	89.20	181.10	2,769.1	-770.7	-3.4	770.7	0.91	0.65	0.65
3,287.0	89.20	180.50	2,769.6	-802.7	-3.8	802.7	1.87	0.00	-1.88
3,318.0	88.90	180.40	2,770.1	-833.7	-4.0	833.7	1.02	-0.97	-0.32
3,350.0	89.10	180.40	2,770.6	-865.7	-4.3	865.7	0.63	0.63	0.00
3,381.0	89.30	180.00	2,771.1	-896.7	-4.4	896.7	1.44	0.65	-1.29
3,413.0	89.20	180.40	2,771.5	-928.7	-4.5	928.7	1.29	-0.31	1.25
3,444.0	89.60	179.30	2,771.8	-959.7	-4.4	959.7	3.78	1.29	-3.55
3,476.0	90.50	178.80	2,771.8	-991.7	-3.9	991.7	3.22	2.81	-1.56
3,508.0	90.70	178.20	2,771.5	-1,023.7	-3.0	1,023.7	1.98	0.63	-1.88
3,539.0	90.80	178.40	2,771.1	-1,054.7	-2.1	1,054.7	0.72	0.32	0.65
3,571.0	90.50	178.20	2,770.7	-1,086.7	-1.2	1,086.7	1.13	-0.94	-0.63
3,602.0	90.90	178.40	2,770.3	-1,117.7	-0.3	1,117.7	1.44	1.29	0.65

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North Reference: Grid
Survey Calculation Method: Minimum Curvature
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)	
3,634.0	90.70	180.00	2,769.9	-1,149.6	0.2	1,149.6	5.04	-0.63	5.00	
3,665.0	90.90	180.50	2,769.4	-1,180.6	0.1	1,180.6	1.74	0.65	1.61	
3,697.0	90.80	180.40	2,769.0	-1,212.6	-0.2	1,212.6	0.44	-0.31	-0.31	
3,728.0	90.90	180.40	2,768.5	-1,243.6	-0.4	1,243.6	0.32	0.32	0.00	
3,760.0	89.50	179.80	2,768.4	-1,275.6	-0.5	1,275.6	4.76	-4.38	-1.88	
3,791.0	89.40	179.60	2,768.7	-1,306.6	-0.3	1,306.6	0.72	-0.32	-0.65	
3,823.0	89.50	179.60	2,769.0	-1,338.6	-0.1	1,338.6	0.31	0.31	0.00	
3,854.0	89.70	179.60	2,769.2	-1,369.6	0.1	1,369.6	0.65	0.65	0.00	
3,886.0	89.90	179.60	2,769.3	-1,401.6	0.4	1,401.6	0.63	0.63	0.00	
3,917.0	90.10	179.50	2,769.3	-1,432.6	0.6	1,432.6	0.72	0.65	-0.32	
3,949.0	90.10	179.60	2,769.3	-1,464.6	0.9	1,464.6	0.31	0.00	0.31	
3,980.0	90.30	179.60	2,769.2	-1,495.6	1.1	1,495.6	0.65	0.65	0.00	
4,012.0	90.60	179.50	2,768.9	-1,527.6	1.3	1,527.6	0.99	0.94	-0.31	
4,044.0	89.40	180.50	2,768.9	-1,559.6	1.3	1,559.6	4.88	-3.75	3.13	
4,075.0	89.40	180.40	2,769.2	-1,590.6	1.1	1,590.6	0.32	0.00	-0.32	
4,106.0	89.70	180.40	2,769.5	-1,621.6	0.9	1,621.6	0.97	0.97	0.00	
4,137.0	90.00	180.00	2,769.6	-1,652.6	0.8	1,652.6	1.61	0.97	-1.29	
4,169.0	89.90	180.20	2,769.6	-1,684.6	0.7	1,684.6	0.70	-0.31	0.63	
4,200.0	90.80	179.80	2,769.4	-1,715.6	0.7	1,715.6	3.18	2.90	-1.29	
4,231.0	91.10	179.60	2,768.9	-1,746.6	0.9	1,746.6	1.16	0.97	-0.65	
4,262.0	91.00	179.60	2,768.3	-1,777.6	1.1	1,777.6	0.32	-0.32	0.00	
4,293.0	90.50	180.50	2,767.9	-1,808.6	1.1	1,808.6	3.32	-1.61	2.90	
4,323.0	89.10	181.10	2,768.0	-1,838.6	0.6	1,838.6	5.08	-4.67	2.00	
4,356.0	89.00	180.90	2,768.6	-1,871.6	0.1	1,871.6	0.68	-0.30	-0.61	
4,387.0	89.30	180.90	2,769.0	-1,902.6	-0.4	1,902.6	0.97	0.97	0.00	
4,419.0	89.10	180.90	2,769.5	-1,934.6	-0.9	1,934.6	0.63	-0.63	0.00	
4,449.0	89.70	180.50	2,769.8	-1,964.6	-1.3	1,964.6	2.40	2.00	-1.33	
4,480.0	90.00	180.70	2,769.9	-1,995.6	-1.6	1,995.6	1.16	0.97	0.65	
4,512.0	90.40	181.10	2,769.7	-2,027.6	-2.1	2,027.6	1.77	1.25	1.25	
4,544.0	90.70	181.10	2,769.4	-2,059.6	-2.7	2,059.6	0.94	0.94	0.00	
4,574.0	89.80	180.20	2,769.3	-2,089.5	-3.1	2,089.5	4.24	-3.00	-3.00	
4,604.0	89.80	180.00	2,769.4	-2,119.5	-3.1	2,119.5	0.67	0.00	-0.67	
4,636.0	89.90	180.00	2,769.5	-2,151.5	-3.1	2,151.5	0.31	0.31	0.00	
4,668.0	90.20	180.00	2,769.5	-2,183.5	-3.1	2,183.5	0.94	0.94	0.00	
4,700.0	90.60	180.20	2,769.2	-2,215.5	-3.2	2,215.5	1.40	1.25	0.63	
4,732.0	90.80	180.40	2,768.9	-2,247.5	-3.4	2,247.5	0.88	0.63	0.63	
4,763.0	89.10	180.00	2,768.9	-2,278.5	-3.5	2,278.5	5.63	-5.48	-1.29	
4,794.0	89.10	180.40	2,769.4	-2,309.5	-3.6	2,309.5	1.29	0.00	1.29	
4,825.0	89.30	180.00	2,769.8	-2,340.5	-3.7	2,340.5	1.44	0.65	-1.29	
4,856.0	89.60	180.50	2,770.1	-2,371.5	-3.8	2,371.5	1.88	0.97	1.61	
4,898.0	90.00	180.20	2,770.2	-2,413.5	-4.1	2,413.5	1.19	0.95	-0.71	
Projection to Bit										
4,940.0	90.00	180.20	2,770.2	-2,455.5	-4.2	2,455.5	0.00	0.00	0.00	

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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)	
1,970 0	1,970 0	0 7	4 2	Tie-in to Gyro
4,940 0	2,770.2	-2,455 5	-4.2	Projection to Bit

Checked By: _____ Approved By: _____ Date: _____