

30-015-38552



Marshall & Winston, Inc

Eddy County, NM
Sec 25, T19S, R25-E (NEW SHL)
Boothill 25 #1H

Wellbore #1

Survey: MWD

DDC Survey Report

17 January, 2012



Company:	Marshall & Winston, Inc	Local Co-ordinate Reference:	Well Boothill 25 #1H
Project:	Eddy County, NM	TVD Reference:	WELL @ 0 0usft (Original Well Elev)
Site:	Sec 25, T19S, R25-E (NEW SHL)	MD Reference:	WELL @ 0 0usft (Original Well Elev)
Well:	Boothill 25 #1H	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, R25-E (NEW SHL)
Site Position:	Northing: 593,384.50 usft Latitude: 32° 37' 52.590 N
From: Map	Easting: 468,342.30 usft Longitude: 104° 26' 10.203 W
Position Uncertainty: 0 0 usft	Slot Radius: 13-3/16 " Grid Convergence: -0.06 °

Well:	Boothill 25 #1H
Well Position	+N/-S 0.0 usft Northing: 593,384.50 usft Latitude: 32° 37' 52.590 N
	+E/-W 0.0 usft Easting: 468,342.30 usft Longitude: 104° 26' 10.203 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
	IGRF2010 11/22/2011 7.96 60.40 48,746

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 0 180.32

Survey Program	Date 12/28/2011
From To	Survey (Wellbore) Tool Name Description
(usft) (usft)	
2,331.0 4,892.0 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 @ 2300' MD / 2299.9' TVD - Tie In										
2,300.0	0.71	273.77	2,299.9	12.0	-0.1	-12.0	0.00	0.00	0.00	
2,331.0	0.90	271.30	2,330.9	12.0	-0.5	-12.0	0.62	0.61	-7.97	
2,359.0	0.80	287.80	2,358.9	12.1	-0.9	-12.1	0.94	-0.36	58.93	
2,390.0	1.10	217.90	2,389.9	11.9	-1.3	-11.9	3.60	0.97	-225.48	
2,421.0	4.60	190.30	2,420.9	10.5	-1.7	-10.5	11.81	11.29	-89.03	
2,452.0	9.00	185.00	2,451.7	6.8	-2.1	-6.8	14.32	14.19	-17.10	
2,484.0	13.50	182.70	2,483.1	0.6	-2.5	-0.6	14.13	14.06	-7.19	
2,515.0	17.70	179.90	2,512.9	-7.7	-2.7	7.7	13.76	13.55	-9.03	
2,546.0	22.00	177.80	2,542.1	-18.2	-2.5	18.3	14.06	13.87	-6.77	
2,578.0	26.90	178.40	2,571.2	-31.5	-2.0	31.5	15.33	15.31	1.88	

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Well:	Boothhill 25 #1H	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)
2,608.0	31.30	178.60	2,597.4	-46.1	-1.7	46.1	14.67	14.67	0.67
2,639.0	35.60	179.00	2,623.2	-63.1	-1.3	63.1	13.89	13.87	1.29
2,670.0	40.10	178.80	2,647.7	-82.2	-0.9	82.2	14.52	14.52	-0.65
2,701.0	44.00	178.90	2,670.7	-102.9	-0.5	102.9	12.58	12.58	0.32
2,731.0	48.00	179.00	2,691.6	-124.5	-0.1	124.5	13.34	13.33	0.33
2,762.0	52.20	179.70	2,711.4	-148.3	0.1	148.2	13.66	13.55	2.26
2,793.0	56.60	180.70	2,729.5	-173.5	0.1	173.4	14.43	14.19	3.23
2,824.0	60.90	181.70	2,745.6	-199.9	-0.5	199.9	14.14	13.87	3.23
2,855.0	65.40	181.50	2,759.6	-227.6	-1.3	227.6	14.53	14.52	-0.65
2,886.0	70.30	180.80	2,771.2	-256.3	-1.9	256.3	15.94	15.81	-2.26
Crossed Hard Line @ 2899.9' MD / 2775.7' TVD									
2,899.9	72.34	180.54	2,775.7	-269.4	-2.0	269.5	14.80	14.69	-1.90
Crossed Hard Line									
2,909.3	73.73	180.36	2,778.4	-278.5	-2.1	278.5	14.80	14.69	-1.87
2,918.0	75.00	180.20	2,780.8	-286.8	-2.1	286.8	14.80	14.69	-1.84
2,949.0	78.90	180.60	2,787.8	-317.0	-2.3	317.0	12.64	12.58	1.29
2,980.0	83.00	181.50	2,792.7	-347.6	-2.9	347.6	13.53	13.23	2.90
3,012.0	87.40	182.10	2,795.3	-379.5	-3.9	379.5	13.88	13.75	1.88
3,043.0	90.20	182.70	2,796.0	-410.4	-5.2	410.5	9.24	9.03	1.94
3,074.0	90.90	182.50	2,795.7	-441.4	-6.6	441.4	2.35	2.26	-0.65
3,106.0	89.70	181.70	2,795.5	-473.4	-7.8	473.4	4.51	-3.75	-2.50
3,136.0	87.70	181.30	2,796.2	-503.4	-8.6	503.4	6.80	-6.67	-1.33
3,168.0	85.70	181.30	2,798.0	-535.3	-9.3	535.3	6.25	-6.25	0.00
3,199.0	85.10	181.40	2,800.5	-566.2	-10.0	566.2	1.96	-1.94	0.32
3,230.0	85.10	181.30	2,803.2	-597.1	-10.7	597.1	0.32	0.00	-0.32
3,260.0	85.40	180.50	2,805.7	-627.0	-11.2	627.0	2.84	1.00	-2.67
3,291.0	85.90	179.80	2,808.0	-657.9	-11.3	657.9	2.77	1.61	-2.26
3,323.0	86.90	179.60	2,810.0	-689.8	-11.1	689.9	3.19	3.13	-0.63
3,355.0	88.60	179.90	2,811.3	-721.8	-11.0	721.8	5.39	5.31	0.94
3,386.0	90.40	179.40	2,811.5	-752.8	-10.8	752.8	6.03	5.81	-1.61
3,417.0	91.20	178.90	2,811.1	-783.8	-10.3	783.8	3.04	2.58	-1.61
3,448.0	91.50	178.70	2,810.4	-814.8	-9.7	814.8	1.16	0.97	-0.65
3,480.0	91.40	178.80	2,809.6	-846.7	-9.0	846.8	0.44	-0.31	0.31
3,511.0	91.10	179.20	2,808.9	-877.7	-8.4	877.8	1.61	-0.97	1.29
3,542.0	91.00	179.50	2,808.3	-908.7	-8.1	908.7	1.02	-0.32	0.97
3,572.0	91.10	179.30	2,807.8	-938.7	-7.8	938.7	0.75	0.33	-0.67
3,603.0	90.70	179.10	2,807.3	-969.7	-7.3	969.7	1.44	-1.29	-0.65
3,634.0	90.80	178.70	2,806.9	-1,000.7	-6.7	1,000.7	1.33	0.32	-1.29
3,665.0	90.20	178.50	2,806.6	-1,031.7	-6.0	1,031.7	2.04	-1.94	-0.65
3,697.0	89.10	178.60	2,806.8	-1,063.7	-5.2	1,063.7	3.45	-3.44	0.31
3,728.0	88.80	178.70	2,807.4	-1,094.7	-4.5	1,094.7	1.02	-0.97	0.32
3,758.0	88.70	178.70	2,808.0	-1,124.6	-3.8	1,124.6	0.33	-0.33	0.00
3,789.0	88.70	178.90	2,808.7	-1,155.6	-3.1	1,155.6	0.64	0.00	0.65

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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)	
3,820.0	89.10	179.80	2,809.3	-1,186.6	-2.8	1,186.6	3.18	1.29	2.90	
3,852.0	89.10	180.30	2,809.8	-1,218.6	-2.8	1,218.6	1.56	0.00	1.56	
3,883.0	89.20	180.50	2,810.3	-1,249.6	-3.0	1,249.6	0.72	0.32	0.65	
3,913.0	88.90	180.50	2,810.8	-1,279.6	-3.3	1,279.6	1.00	-1.00	0.00	
3,944.0	89.00	180.40	2,811.4	-1,310.6	-3.5	1,310.6	0.46	0.32	-0.32	
3,975.0	89.90	180.60	2,811.7	-1,341.6	-3.8	1,341.6	2.97	2.90	0.65	
4,006.0	90.30	180.80	2,811.6	-1,372.6	-4.2	1,372.6	1.44	1.29	0.65	
4,037.0	90.30	181.00	2,811.4	-1,403.6	-4.7	1,403.6	0.65	0.00	0.65	
4,068.0	90.50	180.90	2,811.2	-1,434.6	-5.2	1,434.6	0.72	0.65	-0.32	
4,099.0	90.50	181.10	2,811.0	-1,465.6	-5.7	1,465.6	0.65	0.00	0.65	
4,130.0	90.80	181.10	2,810.6	-1,496.6	-6.3	1,496.6	0.97	0.97	0.00	
4,160.0	90.90	181.20	2,810.2	-1,526.6	-6.9	1,526.6	0.47	0.33	0.33	
4,192.0	91.00	181.40	2,809.6	-1,558.6	-7.6	1,558.6	0.70	0.31	0.63	
4,222.0	91.20	181.50	2,809.1	-1,588.5	-8.4	1,588.6	0.75	0.67	0.33	
4,253.0	89.80	181.30	2,808.8	-1,619.5	-9.1	1,619.5	4.56	-4.52	-0.65	
4,284.0	89.20	181.10	2,809.1	-1,650.5	-9.8	1,650.5	2.04	-1.94	-0.65	
4,315.0	89.10	181.20	2,809.5	-1,681.5	-10.4	1,681.5	0.46	-0.32	0.32	
4,346.0	89.30	181.00	2,809.9	-1,712.5	-11.0	1,712.5	0.91	0.65	-0.65	
4,378.0	89.50	181.00	2,810.3	-1,744.5	-11.6	1,744.5	0.63	0.63	0.00	
4,409.0	89.90	180.80	2,810.4	-1,775.5	-12.1	1,775.5	1.44	1.29	-0.65	
4,440.0	90.10	180.60	2,810.4	-1,806.5	-12.4	1,806.5	0.91	0.65	-0.65	
4,471.0	90.30	180.80	2,810.3	-1,837.5	-12.8	1,837.5	0.91	0.65	0.65	
4,502.0	90.30	180.70	2,810.2	-1,868.5	-13.2	1,868.5	0.32	0.00	-0.32	
4,533.0	90.40	180.60	2,810.0	-1,899.5	-13.6	1,899.5	0.46	0.32	-0.32	
4,563.0	90.10	180.20	2,809.9	-1,929.5	-13.8	1,929.5	1.67	-1.00	-1.33	
4,595.0	90.30	179.80	2,809.7	-1,961.5	-13.8	1,961.5	1.40	0.63	-1.25	
4,625.0	90.40	179.80	2,809.6	-1,991.5	-13.7	1,991.5	0.33	0.33	0.00	
4,656.0	90.60	179.90	2,809.3	-2,022.5	-13.6	2,022.5	0.72	0.65	0.32	
4,687.0	90.60	179.70	2,809.0	-2,053.5	-13.5	2,053.5	0.65	0.00	-0.65	
4,719.0	90.80	179.70	2,808.6	-2,085.5	-13.3	2,085.5	0.63	0.63	0.00	
4,750.0	89.90	179.80	2,808.4	-2,116.5	-13.2	2,116.5	2.92	-2.90	0.32	
4,781.0	89.80	179.50	2,808.5	-2,147.5	-13.0	2,147.5	1.02	-0.32	-0.97	
4,812.0	89.70	179.70	2,808.6	-2,178.5	-12.8	2,178.5	0.72	-0.32	0.65	
4,835.0	89.60	179.80	2,808.7	-2,201.5	-12.7	2,201.5	0.61	-0.43	0.43	
TD @ 4892' MD / 2809.14' TVD - PBHL Boothill 25 #1H Design #2										
4,892.0	89.60	179.80	2,809.1	-2,258.5	-12.5	2,258.5	0.00	0.00	0.00	

Company: Marshall & Winston, Inc
Project: Eddy County, NM
Site: Sec 25, T19S, R25-E (NEW SHL)
Well: Boothill 25 #1H
Wellbore: Wellbore #1
Design: Wellbore #1

Local Co-ordinate Reference: Well Boothill 25 #1H
TVD Reference: WELL @ 0.0usft (Original Well Elev)
MD Reference: WELL @ 0.0usft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000 1 Single User Db

Survey Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
2,300.0	2,299.9	12.0	-0.1	Tie In @ 2300' MD / 2299.9' TVD
2,899.9	2,775.7	-269.4	-2.0	Crossed Hard Line @ 2899.9' MD / 2775.7' TVD
4,892.0	2,809.1	-2,258.5	-12.5	TD @ 4892' MD / 2809.1' TVD

Checked By: _____ Approved By: _____ Date: _____