

DISTRICT I
1625 N. FRENCH DR., HOBBS, NM 88240
Phone: (505) 383-6181 Fax: (505) 383-0720

DISTRICT II
811 S. FIRST ST., ARTESIA, NM 88210
Phone: (505) 748-1253 Fax: (505) 748-9720

DISTRICT III
1000 RIO BRAZOS RD., AZTEC, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170

DISTRICT IV
1229 S. ST. FRANCIS DR., SANTA FE, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION

1220 SOUTH ST. FRANCIS DR.
Santa Fe, New Mexico 87505

EMNRD-OCD ARTESIA
REC'D: 7/7/2020 amended

Form C-102
Revised August 1, 2011
Submit one copy to appropriate
District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-005-64343	Pool Code 52770	Pool Name Roundtank - San Andres
Property Code 325167	Property Name HI BOB FEDERAL COM	Well Number 4H
OGRID No. 14187	Operator Name MARSHALL & WINSTON INC.	Elevation 3817.3'

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
P	8	15-S	29-E		517	SOUTH	765	EAST	CHAVES

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
P	17	15-S	29-E		41	SOUTH	415	EAST	CHAVES

Dedicated Acres 200	Joint or Infill	Consolidation Code	Order No.
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NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED
OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

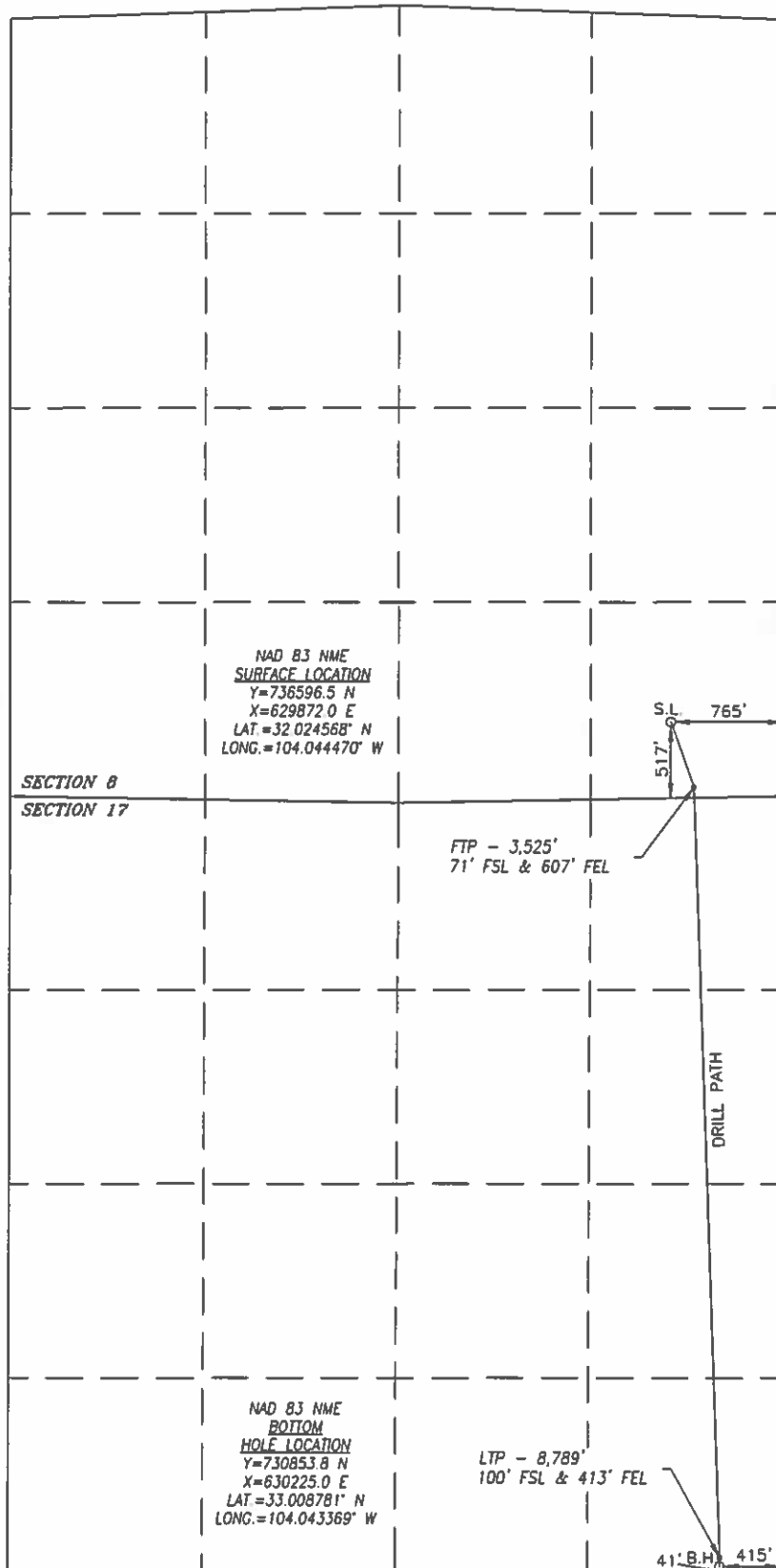
SEE PAGE 2

PAGE 1 OF 2

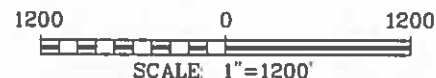
W.O. #20-669

DRAWN BY: WN

Property Code 325167	Property Name HI BOB FEDERAL COM	Well Number 4H
OGRID No. 14187	Operator Name MARSHALL & WINSTON INC.	Elevation 3817.3'



SURFACE INFO AND BOREPATH SHOWN HEREON IS BASED ON DIRECTIONAL SURVEY REPORT PROVIDED BY MARSHALL & WINSTON INC. FOR THE HI BOB FEDERAL 4H SUPPLIED TO HARCROW SURVEYING, LLC ON MAY 4, 2020



OPERATOR CERTIFICATION

I hereby certify that the information herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

[Signature] 05/05/20
Signature Date

Todd Passmore

Printed Name

tpassmore@mar-win.com

E-mail Address

SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

JULY 30, 2019/FEB. 7, 2020

Date of Survey/Date of Geographic Survey

Signature & Seal of Professional Surveyor



[Signature] 5/4/20
Certificate No. CHAD HARCROW 17777

Marshall & Winston, Inc.

Hi Bob Federal #4H
Chaves County, New Mexico
Job No: WT-20-010
Rlg: Stoneham 5



SECTION DETAILS									
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect
1	8791.00	90.15	181.87	3271.04	-5685.72	354.76	0.000	0.00	5696.78
2	8848.00	90.15	181.87	3270.89	-5742.69	352.90	0.000	0.00	5753.52
									Annotation
									Last Aim Svy
									Projection to BHIL

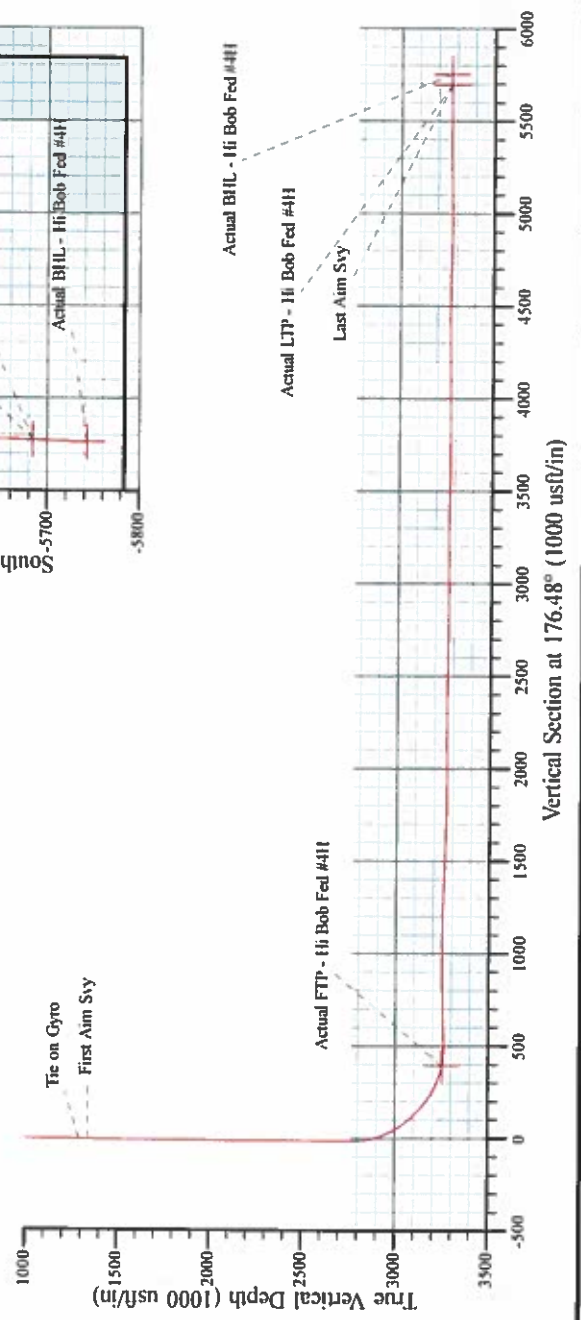
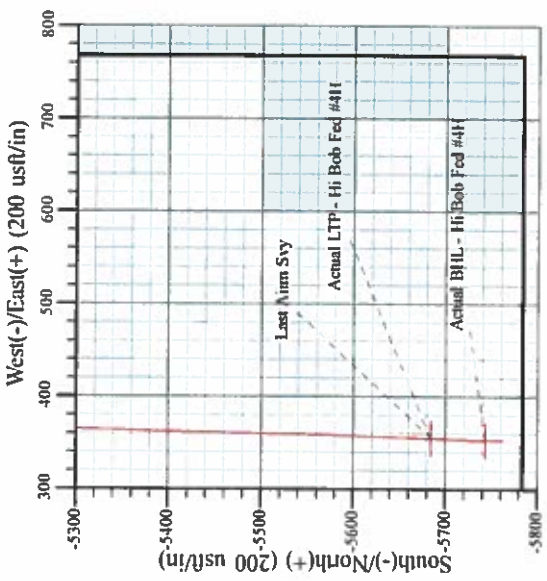
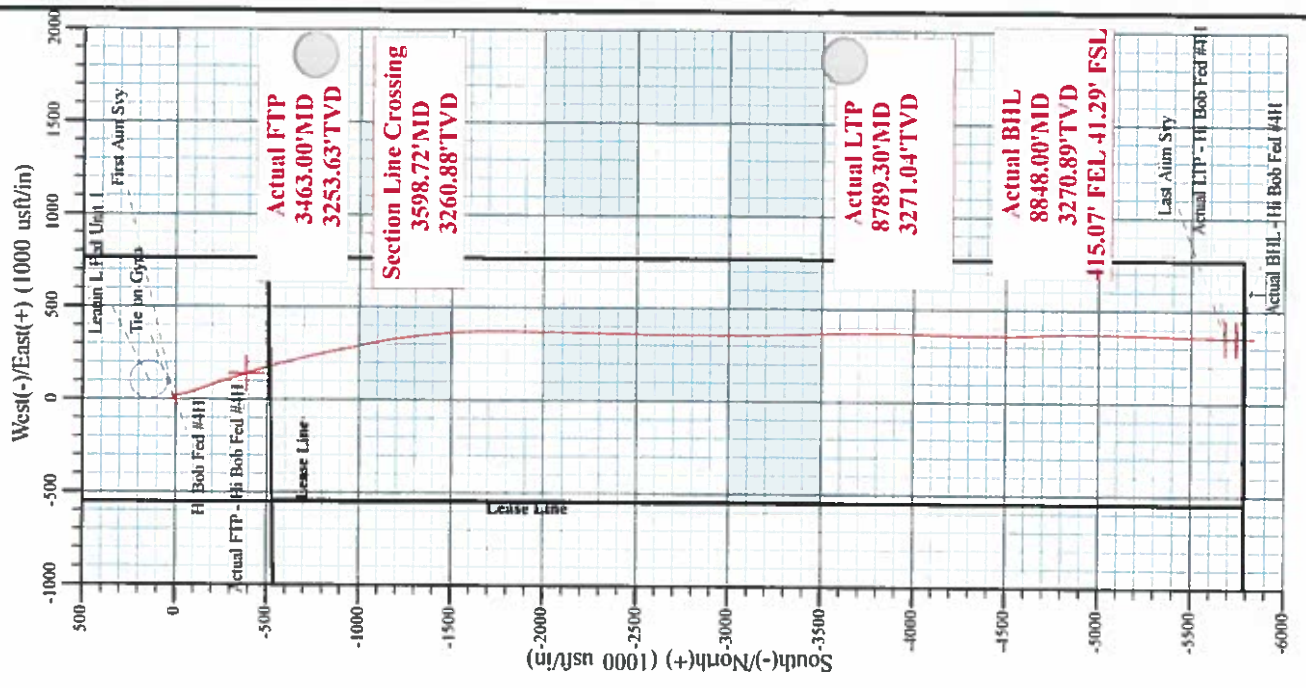
DESIGN TARGET DETAILS						
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude
Actual FTP - Hi Bob Fed #4H	3253.63	-384.64	140.31	736211.86	630012.31	33° 1' 24.634 N 104° 2' 38.454 W
Actual BHIL - Hi Bob Fed #4H	3270.89	-5742.69	352.90	730853.81	630224.90	33° 0' 31.612 N 104° 2' 36.131 W
Actual LTP - Hi Bob Fed #4H	3271.04	-5684.02	354.82	730912.48	630226.82	33° 0' 32.193 N 104° 2' 36.106 W

PROJECT DETAILS: Chaves County, New Mexico
Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: New Mexico Eastern Zone
System Datum: Mean Sea Level

SITE DETAILS: Hi Bob Federal #4H
Site Centre Northing: 736596.50
Easting: 629872.00
Positional Uncertainty: 0.00
Convergence: 0.16
Local North: Grid

Azimuths to Grid North
True North: -0.16°
Magnetic North: 7.14°
Magnetic Field Strength: 48100.0nT
Dip Angle: 60.65°
Date: 1/30/2020
Model: MVHD

Drawn By: PBR
Date Created: 05/28/19
Date Revised: 2/10/2020
File: Marshall & Winston - Hi Bob Federal #4H - As Drilled L1r6.wpc



Survey Report

Company:	Marshall & Winston, Inc.	Local Co-ordinate Reference:	Site Hi Bob Federal #4H
Project:	Chaves County, New Mexico	TVD Reference:	Well @ 3834.30usft (Stoneham 5)
Site:	Hi Bob Federal #4H	MD Reference:	Well @ 3834.30usft (Stoneham 5)
Well:	Hi Bob Fed #4H	North Reference:	Grid
Wellbore:	Drilling	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	EDMRESTORED

Project	Chaves County, New Mexico		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	Hi Bob Federal #4H			
Site Position:		Northing:	736,596.50 usft	Latitude: 33° 1' 28.444 N
From:	Map	Easting:	629,872.00 usft	Longitude: 104° 2' 40.090 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence: 0.16 °

Well	Hi Bob Fed #4H			
Well Position	+N/-S	0.00 usft	Northing:	736,596.50 usft
	+E/-W	0.00 usft	Easting:	629,872.00 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:	usft	Ground Level: 3,817.30 usft

Wellbore	Drilling				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	MVHD	1/30/2020	7.30	60.65	48,100.001

Design	Surveys				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.00	0.00	0.00	176.35	

Survey Program	Date 2/7/2020			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
100.00	1,292.00	Gyro Svys (Drilling)	GYRO-NS-CT	OWSG XYZ Accel with XY Static and Continuous
1,343.00	8,848.00	Aim MWD Svys (Drilling)	MWD+HDGM	OWSG MWD + HDGM

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)	
1,292.00	0.60	17.44	1,291.84	9.30	1.42	-9.19	0.000	0.000	0.000	
Tie on Gyro										
1,343.00	0.84	40.01	1,342.83	9.84	1.74	-9.71	0.720	0.471	44.255	
First Aim Svy										
1,406.00	0.70	34.91	1,405.83	10.51	2.26	-10.34	0.247	-0.222	-8.095	
1,469.00	0.66	29.38	1,468.82	11.14	2.66	-10.95	0.122	-0.063	-8.778	
1,532.00	0.66	39.22	1,531.82	11.73	3.06	-11.52	0.180	0.000	15.619	
1,595.00	0.66	49.24	1,594.81	12.25	3.57	-12.00	0.183	0.000	15.905	
1,659.00	0.84	63.57	1,658.81	12.70	4.27	-12.40	0.404	0.281	22.391	

Survey Report

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Project:	Chaves County, New Mexico	TVD Reference:	Well @ 3834.30usft (Stoneham 5)
Site:	HI Bob Federal #4H	MD Reference:	Well @ 3834.30usft (Stoneham 5)
Well:	HI Bob Fed #4H	North Reference:	Grid
Wellbore:	Drilling	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	EDMRESTORED

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)	
1,722.00	0.79	67.08	1,721.80	13.08	5.08	-12.73	0.112	-0.079	5.571	
1,785.00	0.70	70.42	1,784.80	13.38	5.84	-12.98	0.159	-0.143	5.302	
1,848.00	0.62	73.32	1,847.79	13.60	6.53	-13.16	0.138	-0.127	4.603	
1,911.00	0.53	74.38	1,910.79	13.78	7.14	-13.30	0.144	-0.143	1.683	
1,974.00	0.53	78.86	1,973.79	13.91	7.71	-13.39	0.066	0.000	7.111	
2,037.00	0.48	74.20	2,036.78	14.04	8.25	-13.49	0.103	-0.079	-7.397	
2,100.00	0.66	79.21	2,099.78	14.18	8.86	-13.59	0.296	0.286	7.952	
2,163.00	0.66	65.32	2,162.78	14.40	9.54	-13.76	0.253	0.000	-22.048	
2,226.00	0.70	65.24	2,225.77	14.71	10.22	-14.03	0.064	0.063	-0.127	
2,289.00	0.62	65.85	2,288.77	15.01	10.88	-14.29	0.127	-0.127	0.968	
2,353.00	0.70	65.32	2,352.76	15.32	11.55	-14.55	0.125	0.125	-0.828	
2,416.00	0.53	61.19	2,415.76	15.62	12.16	-14.81	0.279	-0.270	-6.556	
2,479.00	0.57	57.06	2,478.76	15.93	12.68	-15.09	0.089	0.063	-6.556	
2,542.00	0.53	59.26	2,541.75	16.25	13.19	-15.38	0.072	-0.063	3.492	
2,606.00	0.57	60.93	2,605.75	16.56	13.72	-15.65	0.067	0.062	2.609	
2,669.00	0.66	57.85	2,668.75	16.90	14.30	-15.96	0.152	0.143	-4.889	
2,736.00	0.66	58.64	2,735.74	17.31	14.96	-16.32	0.014	0.000	1.179	
2,799.00	2.86	161.83	2,798.72	16.00	15.76	-14.97	4.886	3.492	163.793	
2,831.00	6.90	167.54	2,830.59	13.37	16.42	-12.29	12.700	12.625	17.844	
2,862.00	11.34	168.95	2,861.19	8.55	17.41	-7.43	14.340	14.323	4.548	
2,894.00	16.09	170.27	2,892.27	1.09	18.76	0.11	14.875	14.844	4.125	
2,926.00	20.79	169.83	2,922.62	-8.87	20.52	10.16	14.694	14.687	-1.375	
2,957.00	24.53	169.47	2,951.22	-20.62	22.66	22.02	12.073	12.064	-1.161	
2,989.00	28.44	167.98	2,979.86	-34.61	25.47	36.16	12.393	12.219	-4.656	
3,020.00	32.26	166.05	3,006.61	-49.87	29.00	51.61	12.716	12.323	-6.226	
3,052.00	35.30	163.67	3,033.20	-67.03	33.66	69.04	10.359	9.500	-7.437	
3,084.00	38.64	161.39	3,058.77	-85.38	39.45	87.72	11.281	10.437	-7.125	
3,115.00	41.85	160.33	3,082.43	-104.29	46.02	107.01	10.588	10.355	-3.419	
3,147.00	45.01	160.42	3,105.66	-125.01	53.41	128.16	9.877	9.875	0.281	
3,178.00	47.96	160.86	3,127.00	-146.22	60.86	149.80	9.572	9.516	1.419	
3,210.00	51.16	160.95	3,147.76	-169.23	68.82	173.27	10.002	10.000	0.281	
3,241.00	54.64	161.21	3,166.46	-192.62	76.84	197.12	11.246	11.226	0.839	
3,273.00	58.11	161.74	3,184.17	-217.88	85.30	222.87	10.931	10.844	1.656	
3,304.00	60.75	162.18	3,199.94	-243.26	93.56	248.72	8.603	8.516	1.419	
3,336.00	64.40	162.09	3,214.67	-270.29	102.28	276.25	11.409	11.406	-0.281	
3,367.00	68.44	161.83	3,227.07	-297.30	111.07	303.76	13.055	13.032	-0.839	
3,399.00	72.26	161.74	3,237.83	-325.92	120.49	332.93	11.940	11.937	-0.281	
3,430.00	75.52	161.30	3,246.43	-354.16	129.93	361.71	10.604	10.516	-1.419	
3,462.00	79.16	161.12	3,253.44	-383.71	139.99	391.85	11.388	11.375	-0.562	
3,493.00	83.21	161.56	3,258.19	-412.73	149.79	421.43	13.140	13.064	1.419	
3,525.00	87.56	162.27	3,260.77	-443.04	159.68	452.31	13.772	13.594	2.219	
FTP - HI Bob Fed #4H - L1r5										
3,580.00	91.30	164.20	3,261.32	-495.69	175.54	505.86	7.652	6.800	3.509	
3,643.00	91.60	165.69	3,259.72	-556.51	191.90	567.60	2.412	0.476	2.365	

Survey Report

Company:	Marshall & Winston, Inc.	Local Co-ordinate Reference:	Site Hi Bob Federal #4H
Project:	Chaves County, New Mexico	TVD Reference:	Well @ 3834.30usft (Stoneham 5)
Site:	Hi Bob Federal #4H	MD Reference:	Well @ 3834.30usft (Stoneham 5)
Well:	Hi Bob Fed #4H	North Reference:	Grid
Wellbore:	Drilling	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	EDMRESTORED

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)
3,707.00	91.56	165.26	3,257.96	-618.44	207.95	630.42	0.675	-0.062	-0.672
3,770.00	91.52	166.75	3,256.26	-679.54	223.18	692.37	2.365	-0.063	2.365
3,833.00	90.86	167.10	3,254.95	-740.90	237.43	754.51	1.186	-1.048	0.556
3,896.00	91.34	168.33	3,253.75	-802.44	250.83	816.78	2.095	0.762	1.952
3,960.00	91.56	167.89	3,252.13	-865.05	264.01	880.10	0.768	0.344	-0.687
4,023.00	90.33	168.33	3,251.09	-926.69	276.99	942.44	2.074	-1.952	0.698
4,086.00	90.51	168.68	3,250.62	-988.42	289.54	1,004.85	0.625	0.286	0.556
4,127.00	90.73	168.51	3,250.18	-1,028.61	297.65	1,045.47	0.678	0.537	-0.415
4,191.00	89.41	169.12	3,250.10	-1,091.39	310.06	1,108.92	2.272	-2.062	0.953
4,254.00	89.10	169.74	3,250.92	-1,153.32	321.62	1,171.45	1.100	-0.492	0.984
4,380.00	87.03	173.08	3,255.18	-1,277.81	340.43	1,296.89	3.117	-1.643	2.651
4,444.00	87.69	173.60	3,258.13	-1,341.31	347.84	1,360.73	1.312	1.031	0.812
4,507.00	88.62	174.57	3,260.15	-1,403.94	354.33	1,423.65	2.132	1.476	1.540
4,606.00	88.26	175.80	3,262.85	-1,502.55	362.64	1,522.59	1.294	-0.364	1.242
4,669.00	88.66	175.98	3,264.54	-1,565.37	367.15	1,585.56	0.696	0.635	0.286
4,732.00	88.26	177.12	3,266.24	-1,628.23	370.94	1,648.54	1.917	-0.635	1.810
4,796.00	88.31	178.79	3,268.15	-1,692.16	373.22	1,712.48	2.609	0.078	2.609
4,859.00	88.31	179.93	3,270.01	-1,755.12	373.93	1,775.37	1.809	0.000	1.810
4,923.00	89.36	180.64	3,271.31	-1,819.11	373.61	1,839.20	1.980	1.641	1.109
4,986.00	90.20	180.81	3,271.55	-1,882.10	372.81	1,902.02	1.360	1.333	0.270
5,050.00	90.64	180.90	3,271.08	-1,946.09	371.86	1,965.82	0.702	0.687	0.141
5,113.00	91.12	181.51	3,270.12	-2,009.07	370.53	2,028.59	1.232	0.762	0.968
5,176.00	90.95	181.78	3,268.98	-2,072.04	368.72	2,091.31	0.506	-0.270	0.429
5,240.00	90.64	181.51	3,268.09	-2,136.00	366.89	2,155.03	0.642	-0.484	-0.422
5,303.00	89.58	180.99	3,267.97	-2,198.99	365.51	2,217.80	1.874	-1.683	-0.825
5,366.00	90.02	181.60	3,268.19	-2,261.97	364.09	2,280.56	1.194	0.698	0.968
5,429.00	89.32	181.16	3,268.55	-2,324.95	362.57	2,343.32	1.312	-1.111	-0.698
5,492.00	89.10	181.25	3,269.42	-2,387.93	361.25	2,406.08	0.377	-0.349	0.143
5,556.00	89.19	180.90	3,270.37	-2,451.91	360.05	2,469.86	0.565	0.141	-0.547
5,619.00	89.41	180.81	3,271.14	-2,514.90	359.11	2,532.66	0.377	0.349	-0.143
5,682.00	89.49	180.64	3,271.75	-2,577.89	358.31	2,595.47	0.298	0.127	-0.270
5,746.00	89.23	179.85	3,272.46	-2,641.89	358.04	2,659.32	1.299	-0.406	-1.234
5,809.00	89.49	180.72	3,273.17	-2,704.88	357.72	2,722.17	1.441	0.413	1.381
5,872.00	89.58	180.72	3,273.68	-2,767.87	356.93	2,784.98	0.143	0.143	0.000
5,936.00	89.54	180.02	3,274.17	-2,831.87	356.52	2,848.82	1.095	-0.062	-1.094
5,999.00	89.85	179.41	3,274.51	-2,894.87	356.83	2,911.71	1.086	0.492	-0.968
6,062.00	90.20	180.37	3,274.48	-2,957.87	356.95	2,974.59	1.622	0.556	1.524
6,125.00	90.15	180.28	3,274.29	-3,020.87	356.59	3,037.44	0.163	-0.079	-0.143
6,189.00	90.20	178.61	3,274.09	-3,084.86	357.21	3,101.34	2.611	0.078	-2.609
6,252.00	90.95	179.41	3,273.46	-3,147.85	358.30	3,164.27	1.741	1.190	1.270
6,315.00	90.33	178.53	3,272.75	-3,210.83	359.43	3,227.20	1.709	-0.984	-1.397
6,379.00	89.41	178.09	3,272.90	-3,274.80	361.32	3,291.16	1.593	-1.437	-0.687
6,442.00	89.32	177.91	3,273.60	-3,337.76	363.52	3,354.13	0.319	-0.143	-0.286

Survey Report

Company:	Marshall & Winston, Inc.	Local Co-ordinate Reference:	Site Hi Bob Federal #4H
Project:	Chaves County, New Mexico	TVD Reference:	Well @ 3834 30usft (Stoneham 5)
Site:	Hi Bob Federal #4H	MD Reference:	Well @ 3834 30usft (Stoneham 5)
Well:	Hi Bob Fed #4H	North Reference:	Grid
Wellbore:	Drilling	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	EDMRESTORED

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)	
6,512.00	89.49	177.38	3,274.32	-3,407.70	366.40	3,424.11	0.795	0.243	-0.757	
6,575.00	89.58	178.00	3,274.84	-3,470.64	368.94	3,487.09	0.994	0.143	0.984	
6,639.00	89.76	179.05	3,275.20	-3,534.62	370.58	3,551.04	1.665	0.281	1.641	
6,702.00	89.32	178.79	3,275.71	-3,597.61	371.77	3,613.98	0.811	-0.698	-0.413	
6,766.00	89.41	179.23	3,276.42	-3,661.59	372.88	3,677.90	0.702	0.141	0.687	
6,829.00	89.93	180.02	3,276.78	-3,724.59	373.29	3,740.80	1.501	0.825	1.254	
6,892.00	90.15	180.46	3,276.74	-3,787.59	373.02	3,803.65	0.781	0.349	0.698	
6,955.00	90.20	180.72	3,276.55	-3,850.59	372.38	3,866.48	0.420	0.079	0.413	
7,018.00	89.98	180.81	3,276.45	-3,913.58	371.54	3,929.30	0.377	-0.349	0.143	
7,081.00	90.37	181.34	3,276.25	-3,976.57	370.35	3,992.08	1.044	0.619	0.841	
7,144.00	90.86	181.60	3,275.58	-4,039.54	368.74	4,054.83	0.880	0.778	0.413	
7,208.00	90.86	181.95	3,274.62	-4,103.51	366.75	4,118.53	0.547	0.000	0.547	
7,270.00	90.81	181.87	3,273.71	-4,165.47	364.69	4,180.23	0.152	-0.081	-0.129	
7,334.00	90.68	182.04	3,272.88	-4,229.42	362.51	4,243.92	0.334	-0.203	0.266	
7,397.00	90.73	181.34	3,272.11	-4,292.39	360.65	4,306.64	1.114	0.079	-1.111	
7,460.00	90.59	180.46	3,271.38	-4,355.38	359.66	4,369.44	1.414	-0.222	-1.397	
7,523.00	90.64	180.28	3,270.71	-4,418.37	359.25	4,432.28	0.297	0.079	-0.286	
7,587.00	89.41	179.14	3,270.68	-4,482.37	359.58	4,496.17	2.620	-1.922	-1.781	
7,650.00	88.75	177.65	3,271.69	-4,545.33	361.34	4,559.12	2.586	-1.048	-2.365	
7,714.00	88.75	177.65	3,273.09	-4,609.27	363.96	4,623.09	0.000	0.000	0.000	
7,777.00	88.57	177.74	3,274.56	-4,672.20	366.50	4,686.05	0.319	-0.286	0.143	
7,840.00	88.79	177.91	3,276.01	-4,735.14	368.89	4,749.01	0.441	0.349	0.270	
7,903.00	88.97	178.70	3,277.24	-4,798.10	370.75	4,811.97	1.286	0.286	1.254	
7,966.00	89.45	179.67	3,278.11	-4,861.08	371.65	4,874.88	1.718	0.762	1.540	
8,030.00	89.85	179.32	3,278.50	-4,925.08	372.21	4,938.78	0.830	0.625	-0.547	
8,093.00	90.07	179.32	3,278.54	-4,988.07	372.96	5,001.70	0.349	0.349	0.000	
8,157.00	90.68	180.72	3,278.13	-5,052.07	372.94	5,065.56	2.386	0.953	2.187	
8,220.00	91.21	181.51	3,277.09	-5,115.05	371.71	5,128.34	1.510	0.841	1.254	
8,283.00	91.60	182.57	3,275.54	-5,177.99	369.47	5,191.01	1.792	0.619	1.683	
8,347.00	91.38	182.39	3,273.88	-5,241.91	366.70	5,254.62	0.444	-0.344	-0.281	
8,410.00	90.86	181.60	3,272.65	-5,304.86	364.51	5,317.30	1.501	-0.825	-1.254	
8,474.00	90.51	181.52	3,271.88	-5,368.83	362.76	5,381.03	0.561	-0.547	-0.125	
8,537.00	89.93	180.72	3,271.64	-5,431.81	361.53	5,443.81	1.568	-0.921	-1.270	
8,600.00	90.33	181.78	3,271.50	-5,494.80	360.16	5,506.58	1.798	0.635	1.683	
8,664.00	90.15	181.34	3,271.23	-5,558.77	358.42	5,570.32	0.743	-0.281	-0.687	
8,727.00	90.02	181.69	3,271.13	-5,621.75	356.75	5,633.06	0.593	-0.206	0.556	
8,788.89	90.15	181.86	3,271.05	-5,683.61	354.83	5,694.67	0.347	0.203	0.281	
LTP - HI Bob Fed #4H - L1r5										
8,791.00	90.15	181.87	3,271.04	-5,685.72	354.76	5,696.77	0.347	0.203	0.281	
Last Alm Svy										
8,828.81	90.15	181.87	3,270.94	-5,723.51	353.53	5,734.40	0.000	0.000	0.000	
TD @ 60' FSL - HI Bob Fed #4H - L1r5										
8,848.00	90.15	181.87	3,270.89	-5,742.69	352.90	5,753.51	0.000	0.000	0.000	
Projection to BHL - TD @ 40' FSL - HI Bob Fed #4H - L1r5 - PBHL - HI Bob Fed #4H - L1r5										

Survey Report

Company:	Marshall & Winston, Inc.	Local Co-ordinate Reference:	Site Hi Bob Federal #4H
Project:	Chaves County, New Mexico	TVD Reference:	Well @ 3834.30usft (Stoneham 5)
Site:	Hi Bob Federal #4H	MD Reference:	Well @ 3834.30usft (Stoneham 5)
Well:	Hi Bob Fed #4H	North Reference:	Grid
Wellbore:	Drilling	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	EDMRESTORED

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)
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Survey Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
1,292.00	1,291.84	9.30	1.42	Tie on Gyro
1,343.00	1,342.83	9.84	1.74	First Aim Svy
8,791.00	3,271.04	-5,685.72	354.76	Last Aim Svy
8,848.00	3,270.89	-5,742.69	352.90	Projection to BHL

Checked By: _____ Approved By: _____ Date: _____