30-025-42202

MARSHALL & WINSTON

Gamma Ridge (NAD27)
Lea County, NM (Grid North)
Slick Mesa 27 State #2H
VH - Job #320215-KW-0120

Survey: Gyro

Regulatory Report (Grid North)

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

Notarized this date 23rd of February, 2015.

Notary Signature
County of Midland
State of Texas

CARRIE REED
My Commission Expires
October 4, 2015

Regulatory Report (Grid North)

Company:	MARSHALL & WINSTON	Local Co-ordinate Reference:	Well Slick Mesa 27 State #2H
Project:	Gamma Ridge (NAD27)	TVD Reference:	Mean Sea Level (System)
Site:	Lea County, NM (Grid North)	MD Reference:	Mean Sea Level (System)
Well:	Slick Mesa 27 State #2H	North Reference:	Grid
Wellbore:	VH - Job #320215-KW-0120	Survey Calculation Method:	Minimum Curvature
Design:	VH - Job #320215-KW-0120	Database:	MID_Regulatory

Project Gamma Ridge (NAD27)

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 Lea County, NM (Grid North)

Site Position:		Northing:	526,476.03 usft	Latitude:	32° 26' 39.707 N
From:	Lat/Long	Easting:	769,600.80 usft	Longitude:	103° 27' 33.883 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16"	Grid Convergence:	0.47 °

Well Slick Mesa 27 State #2H, Horizontal

Well Position	+N/-S	0.0 usft	Northing:	526,333.93 usft	Latitude:	32° 26' 38.407 N
	+E/-W	0.0 usft	Easting:	768,282.70 usft	Longitude:	103° 27' 49.277 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	0.0 usft	Ground Level:	0.0 usft

Wellbore VH - Job #320215-KW-0120

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	2/7/2015	7.10	60.32	48,420

Design VH - Job #320215-KW-0120

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	359.51

Survey Program Date 2/14/2015

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
100.0	10,600.0	Gyro (VH - Job #320215-KW-0120)	KSRG	Keeper Gyro

Survey

MD (usft)	Inc (°)	Azi (grid_north_azim	TVD (usft)	N/S (usft)	E/W (usft)	Closure Azimuth (°)	Closure Distance (usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.0
100.0	0.83	166.22	100.0	-0.7	0.2	166.22	0.7
200.0	0.80	180.69	200.0	-2.1	0.3	170.91	2.1
300.0	0.75	179.73	300.0	-3.5	0.3	174.53	3.5
400.0	0.69	173.46	400.0	-4.7	0.4	175.11	4.7
500.0	0.73	179.66	500.0	-5.9	0.5	175.43	6.0
600.0	0.78	183.00	600.0	-7.3	0.4	176.51	7.3
700.0	0.88	182.70	699.9	-8.7	0.4	177.56	8.7
800.0	0.82	178.58	799.9	-10.2	0.4	178.01	10.2
900.0	0.80	180.81	899.9	-11.6	0.4	178.22	11.6
1,000.0	0.75	184.29	999.9	-13.0	0.3	178.66	13.0
1,100.0	0.75	181.87	1,099.9	-14.3	0.2	179.07	14.3

Regulatory Report (Grid North)

Company:	MARSHALL & WINSTON	Local Co-ordinate Reference:	Well Slick Mesa 27 State #2H
Project:	Gamma Ridge (NAD27)	TVD Reference:	Mean Sea Level (System)
Site:	Lea County, NM (Grid North)	MD Reference:	Mean Sea Level (System)
Well:	Slick Mesa 27 State #2H	North Reference:	Grid
Wellbore:	VH - Job #320215-KW-0120	Survey Calculation Method:	Minimum Curvature
Design:	VH - Job #320215-KW-0120	Database:	MID_Regulatory

Survey

MD (usft)	Inc (°)	Azi (grid_north_azim	TVD (usft)	N/S (usft)	E/W (usft)	Closure Azimuth (°)	Closure Distance (usft)
1,200.0	0.76	180.58	1,199.9	-15.6	0.2	179.25	15.6
1,300.0	0.81	176.98	1,299.9	-16.9	0.2	179.21	17.0
1,400.0	0.91	173.26	1,399.9	-18.4	0.4	178.87	18.4
1,500.0	0.95	167.86	1,499.9	-20.0	0.6	178.19	20.1
1,600.0	0.98	168.22	1,599.8	-21.7	1.0	177.41	21.7
1,700.0	1.04	167.42	1,699.8	-23.4	1.4	176.69	23.5
1,800.0	0.98	166.00	1,799.8	-25.1	1.8	176.00	25.2
1,900.0	0.85	161.09	1,899.8	-26.7	2.2	175.27	26.8
2,000.0	1.41	101.11	1,999.8	-27.6	3.7	172.46	27.8
2,100.0	1.42	104.02	2,099.8	-28.1	6.1	167.84	28.8
2,200.0	1.14	105.17	2,199.7	-28.7	8.2	164.01	29.9
2,300.0	0.88	114.19	2,299.7	-29.3	9.9	161.36	30.9
2,400.0	0.79	114.63	2,399.7	-29.9	11.2	159.47	31.9
2,500.0	0.72	113.44	2,499.7	-30.4	12.4	157.83	32.8
2,600.0	0.90	90.95	2,599.7	-30.7	13.7	155.85	33.6
2,700.0	1.13	78.95	2,699.7	-30.5	15.5	153.05	34.2
2,800.0	1.27	80.50	2,799.6	-30.1	17.6	149.75	34.9
2,900.0	1.30	79.03	2,899.6	-29.7	19.8	146.37	35.7
3,000.0	2.44	66.47	2,999.6	-28.6	22.8	141.44	36.6
3,100.0	4.04	70.22	3,099.4	-26.6	28.1	133.44	38.7
3,200.0	4.56	75.97	3,199.1	-24.4	35.3	124.73	42.9
3,300.0	4.65	78.04	3,298.8	-22.6	43.1	117.72	48.7
3,400.0	4.69	78.47	3,398.5	-21.0	51.1	112.34	55.2
3,500.0	4.71	78.61	3,498.1	-19.4	59.1	108.14	62.2
3,600.0	4.62	80.13	3,597.8	-17.9	67.1	104.91	69.4
3,700.0	4.58	80.56	3,697.5	-16.5	75.0	102.42	76.8
3,800.0	3.13	76.98	3,797.2	-15.2	81.6	100.58	83.0
3,900.0	2.07	70.72	3,897.1	-14.0	86.0	99.27	87.1
4,000.0	1.35	64.05	3,997.1	-12.9	88.7	98.29	89.7
4,100.0	1.03	61.37	4,097.1	-12.0	90.6	97.53	91.4
4,200.0	0.78	60.84	4,197.1	-11.2	92.0	96.95	92.6
4,300.0	0.58	57.41	4,297.1	-10.6	93.0	96.51	93.6
4,400.0	0.32	50.29	4,397.0	-10.2	93.6	96.19	94.2
4,500.0	0.31	50.32	4,497.0	-9.8	94.0	95.95	94.5
4,600.0	0.35	42.78	4,597.0	-9.4	94.5	95.69	94.9
4,700.0	0.34	50.77	4,697.0	-9.0	94.9	95.42	95.3
4,800.0	0.25	37.76	4,797.0	-8.6	95.3	95.18	95.6
4,900.0	0.23	12.49	4,897.0	-8.3	95.4	94.95	95.8
5,000.0	0.27	11.05	4,997.0	-7.8	95.5	94.69	95.8
5,100.0	0.32	348.22	5,097.0	-7.3	95.5	94.39	95.8
5,200.0	0.25	342.42	5,197.0	-6.9	95.4	94.11	95.6
5,300.0	0.26	348.74	5,297.0	-6.4	95.3	93.86	95.5
5,400.0	0.25	344.40	5,397.0	-6.0	95.2	93.60	95.4
5,500.0	0.40	342.36	5,497.0	-5.4	95.0	93.28	95.2

Regulatory Report (Grid North)

Company:	MARSHALL & WINSTON	Local Co-ordinate Reference:	Well Slick Mesa 27 State #2H
Project:	Gamma Ridge (NAD27)	TVD Reference:	Mean Sea Level (System)
Site:	Lea County, NM (Grid North)	MD Reference:	Mean Sea Level (System)
Well:	Slick Mesa 27 State #2H	North Reference:	Grid
Wellbore:	VH - Job #320215-KW-0120	Survey Calculation Method:	Minimum Curvature
Design:	VH - Job #320215-KW-0120	Database:	MID_Regulatory

Survey

MD (usft)	Inc (°)	Azi (grid_north_azim	TVD (usft)	N/S (usft)	E/W (usft)	Closure Azimuth (°)	Closure Distance (usft)
5,600.0	0.65	337.89	5,597.0	-4.6	94.7	92.78	94.8
5,700.0	0.60	339.56	5,697.0	-3.6	94.3	92.17	94.4
5,800.0	0.44	344.15	5,797.0	-2.7	94.0	91.65	94.0
5,900.0	0.26	315.69	5,897.0	-2.2	93.7	91.33	93.8
6,000.0	0.40	332.82	5,997.0	-1.7	93.4	91.05	93.4
6,100.0	0.41	331.85	6,097.0	-1.1	93.1	90.67	93.1
6,200.0	0.60	337.29	6,197.0	-0.3	92.7	90.18	92.7
6,300.0	0.73	346.19	6,297.0	0.8	92.4	89.49	92.4
6,400.0	0.63	343.18	6,397.0	2.0	92.1	88.78	92.1
6,500.0	0.53	353.28	6,497.0	2.9	91.8	88.16	91.9
6,600.0	0.37	36.73	6,597.0	3.7	92.0	87.72	92.1
6,700.0	0.35	342.21	6,697.0	4.2	92.1	87.38	92.2
6,800.0	0.26	37.27	6,797.0	4.7	92.1	87.09	92.2
6,900.0	0.14	81.97	6,897.0	4.9	92.4	86.97	92.5
7,000.0	0.14	108.57	6,997.0	4.9	92.6	87.00	92.7
7,100.0	0.08	93.37	7,097.0	4.8	92.8	87.03	92.9
7,200.0	0.06	120.92	7,197.0	4.8	92.9	87.05	93.0
7,300.0	0.34	136.43	7,297.0	4.5	93.2	87.21	93.3
7,400.0	0.35	138.61	7,397.0	4.1	93.6	87.49	93.7
7,500.0	0.47	147.37	7,497.0	3.5	94.0	87.85	94.1
7,600.0	0.34	147.88	7,597.0	2.9	94.4	88.22	94.4
7,700.0	0.31	176.46	7,697.0	2.4	94.6	88.54	94.6
7,800.0	0.26	177.17	7,797.0	1.9	94.6	88.84	94.6
7,900.0	0.20	187.40	7,897.0	1.5	94.6	89.08	94.6
8,000.0	0.18	223.55	7,997.0	1.2	94.4	89.26	94.4
8,100.0	0.24	231.67	8,097.0	1.0	94.2	89.40	94.2
8,200.0	0.27	248.73	8,197.0	0.8	93.8	89.53	93.8
8,300.0	0.29	271.23	8,297.0	0.7	93.3	89.58	93.3
8,400.0	0.24	209.71	8,397.0	0.5	93.0	89.69	93.0
8,500.0	0.18	171.64	8,497.0	0.2	92.9	89.89	92.9
8,600.0	1.85	113.69	8,596.9	-0.6	94.2	90.34	94.2
8,700.0	2.74	122.26	8,696.9	-2.4	97.6	91.42	97.6
8,800.0	2.44	118.72	8,796.8	-4.7	101.4	92.66	101.6
8,900.0	2.17	117.32	8,896.7	-6.6	105.0	93.60	105.2
9,000.0	2.03	121.47	8,996.6	-8.4	108.2	94.44	108.5
9,100.0	2.37	110.87	9,096.5	-10.1	111.6	95.15	112.1
9,200.0	2.83	109.33	9,196.4	-11.6	115.9	95.72	116.5
9,300.0	2.33	120.33	9,296.3	-13.5	120.0	96.40	120.7
9,400.0	2.62	125.19	9,396.2	-15.8	123.6	97.29	124.6
9,500.0	3.06	126.95	9,496.1	-18.7	127.6	98.35	129.0
9,600.0	3.27	124.43	9,596.0	-21.9	132.1	99.43	133.9
9,700.0	3.32	120.93	9,695.8	-25.0	136.9	100.36	139.2
9,800.0	3.42	122.40	9,795.6	-28.1	141.9	101.21	144.7
9,900.0	3.44	125.56	9,895.5	-31.5	146.9	102.09	150.2

Regulatory Report (Grid North)

Company:	MARSHALL & WINSTON	**Local Co-ordinate Reference:**	Well Slick Mesa 27 State #2H
Project:	Gamma Ridge (NAD27)	**TVD Reference:**	Mean Sea Level (System)
Site:	Lea County, NM (Grid North)	**MD Reference:**	Mean Sea Level (System)
Well:	Slick Mesa 27 State #2H	**North Reference:**	Grid
Wellbore:	VH - Job #320215-KW-0120	**Survey Calculation Method:**	Minimum Curvature
Design:	VH - Job #320215-KW-0120	**Database:**	MID_Regulatory

Survey

MD (usft)	Inc (°)	Azi (grid_north_azim	TVD (usft)	N/S (usft)	E/W (usft)	Closure Azimuth (°)	Closure Distance (usft)
10,000.0	3.56	126.65	9,995.3	-35.1	151.8	103.01	155.8
10,100.0	3.40	126.19	10,095.1	-38.7	156.7	103.86	161.4
10,200.0	3.38	126.70	10,194.9	-42.2	161.5	104.64	166.9
10,300.0	3.67	126.94	10,294.7	-45.9	166.4	105.41	172.6
10,400.0	3.90	125.11	10,394.5	-49.8	171.7	106.16	178.8
10,500.0	3.53	123.36	10,494.3	-53.4	177.1	106.78	184.9
10,600.0	3.15	120.66	10,594.1	-56.5	182.0	107.24	190.6

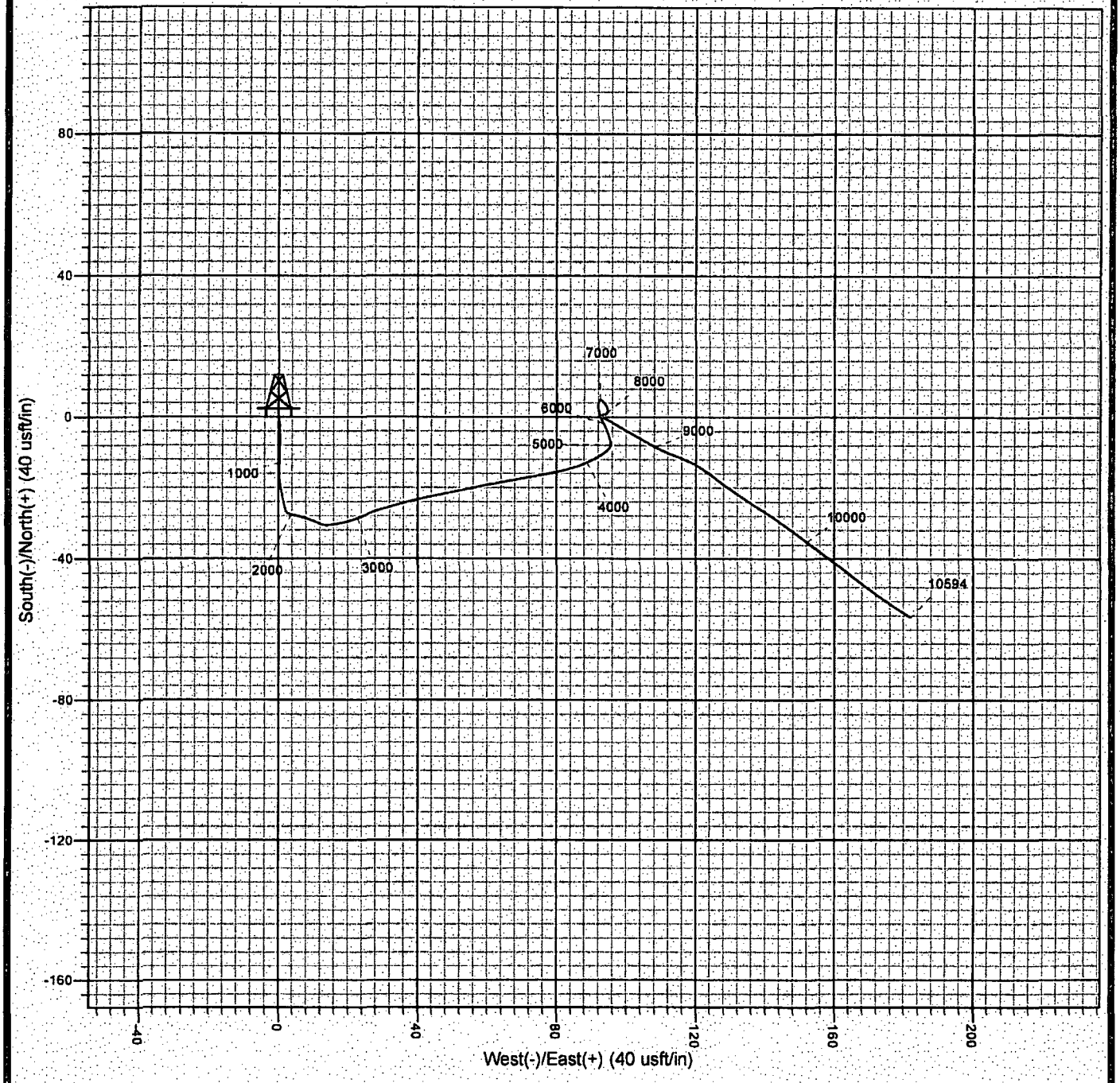
Checked By: _____ Approved By: _____ Date: _____

Scientific Drilling

Project: Gamma Ridge (NAD27)
Lea County, NM (Grid North)
Well: Slick Mesa 27 State #2H
Wellbore: VH - Job #320215-KW-0120
Design: VH - Job #320215-KW-0120

WELL DETAILS: Slick Mesa 27 State #2H
Mean Sea Level (System)
Ground Level: 0.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	526333.93	768282.70	32° 26' 38.407 N	103° 27' 49.277 W	



PROJECT DETAILS: Gamma Ridge (NAD27)
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: Lea County, NM (Grid North)
Site Centre Latitude: 32° 26' 39.707 N
Longitude: 103° 27' 33.883 W
Positional Uncertainity: 0.0
Convergence: 0.47
Local North: Grid

Marshall & Winston, Inc.

Marshall & Winston, Inc.

Lea County, NM (NAD27 NME)
Slick Mesa State 27
#2H

WB1 / Job #1512712

Survey: Phoenix MWD Surveys

Standard Survey Report

23 February, 2015

PHOENIX
TECHNOLOGY SERVICES

Marshall & Winston, Inc.

Survey Report

PHOENIX TECHNOLOGY SERVICES

Company:	Marshall & Winston, Inc.	Local Co-ordinate Reference:	Well #2H
Project:	Lea County, NM (NAD27 NME)	TVD Reference:	KB @ 3734.00usft (McVay 10)
Site:	Slick Mesa State 27	MD Reference:	KB @ 3734.00usft (McVay 10)
Well:	#2H	North Reference:	Grid
Wellbore:	WB1 / Job #1512712	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (McVay 10)	Database:	Compass 5000 GCR

Project Lea County, NM (NAD27 NME)

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 Slick Mesa State 27

Site Position:		Northing:	525,967.90 usft	Latitude:	32° 26' 34.66155 N
From:	Map	Easting:	769,815.50 usft	Longitude:	103° 27' 31.42654 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.47 °

Well #2H

Well Position	+N/-S	0.00 usft	Northing:	526,333.90 usft	Latitude:	32° 26' 38.40693 N
	+E/-W	0.00 usft	Easting:	768,282.80 usft	Longitude:	103° 27' 49.27561 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	3,716.00 usft

Wellbore WB1 / Job #1512712

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	2/7/2015	7.17	60.31	48,322

Design Surveys (McVay 10)

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	359.51

Survey Program Date 2/23/2015

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
100.00	10,600.00	Scientific Gyro Surveys (WB1 / Job #1512	NS-GYRO-MS	North sensing gyrocompassing m/s
10,682.00	15,554.00	Phoenix MWD Surveys (WB1 / Job #1512	PHX+MWD+IGRF	PHX+OWSG MWD + IGRF or WMM

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)
10,600.00	3.15	120.66	10,594.14	-56.53	182.02	-58.08	0.00	0.00	0.00
Tie-In Scientific Gyros									
10,682.00	2.50	116.60	10,676.04	-58.48	185.56	-60.06	0.83	-0.79	-4.95
First Phoenix Survey									
10,712.00	2.90	115.80	10,706.01	-59.10	186.83	-60.70	1.34	1.33	-2.67
10,744.00	2.60	103.80	10,737.97	-59.63	188.26	-61.24	2.02	-0.94	-37.50
10,776.00	1.80	57.20	10,769.95	-59.53	189.39	-61.15	5.90	-2.50	-145.63
10,807.00	3.80	342.40	10,800.92	-58.29	189.49	-59.90	12.11	6.45	-241.29
10,839.00	8.30	327.70	10,832.73	-55.32	187.93	-56.93	14.76	14.06	-45.94

Company:	Marshall & Winston, Inc.	Local Co-ordinate Reference:	Well #2H
Project:	Lea County, NM (NAD27 NME)	TVD Reference:	KB @ 3734.00usft (McVay 10)
Site:	Slick Mesa State 27	MD Reference:	KB @ 3734.00usft (McVay 10)
Well:	#2H	North Reference:	Grid
Wellbore:	WB1 / Job #15127.12	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (McVay 10)	Database:	Compass 5000 GCR

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)
10,871.00	12.60	329.40	10,864.20	-50.36	184.92	-51.94	13.47	13.44	5.31
10,902.00	16.80	331.70	10,894.18	-43.50	181.07	-45.05	13.68	13.55	7.42
10,933.00	20.70	333.70	10,923.52	-34.64	176.52	-36.15	12.75	12.58	6.45
10,965.00	24.50	335.90	10,953.06	-23.51	171.30	-24.98	12.16	11.88	6.88
10,997.00	29.30	338.30	10,981.59	-10.17	165.69	-11.59	15.38	15.00	7.50
11,028.00	33.60	339.50	11,008.03	4.92	159.88	3.55	14.02	13.87	3.87
11,060.00	37.70	341.80	11,034.03	22.51	153.72	21.20	13.48	12.81	7.19
11,091.00	41.70	344.30	11,057.88	41.45	147.97	40.19	13.89	12.90	8.06
11,123.00	45.30	344.60	11,081.09	62.67	142.07	61.45	11.27	11.25	0.94
11,155.00	49.00	345.40	11,102.85	85.33	136.00	84.16	11.71	11.56	2.50
11,186.00	53.10	345.90	11,122.33	108.68	130.03	107.56	13.29	13.23	1.61
11,218.00	56.90	347.60	11,140.68	134.19	124.03	133.13	12.65	11.88	5.31
11,249.00	59.60	349.00	11,156.99	160.00	118.69	158.98	9.52	8.71	4.52
11,281.00	62.10	349.80	11,172.58	187.47	113.55	186.49	8.11	7.81	2.50
11,313.00	64.10	350.10	11,187.06	215.57	108.57	214.63	6.31	6.25	0.94
11,345.00	65.80	350.60	11,200.61	244.15	103.71	243.25	5.50	5.31	1.56
11,376.00	67.20	351.60	11,212.97	272.23	99.32	271.37	5.40	4.52	3.23
11,408.00	69.20	352.00	11,224.85	301.64	95.08	300.82	6.36	6.25	1.25
11,440.00	71.30	352.10	11,235.66	331.47	90.92	330.68	6.57	6.56	0.31
11,471.00	73.80	352.70	11,244.96	360.78	87.01	360.02	8.27	8.06	1.94
11,503.00	76.80	352.90	11,253.08	391.48	83.13	390.76	9.39	9.38	0.63
11,534.00	81.80	352.50	11,258.83	421.69	79.26	420.99	16.18	16.13	-1.29
11,566.00	87.40	352.10	11,261.84	453.24	74.99	452.59	17.54	17.50	-1.25
11,676.00	87.20	350.20	11,267.02	561.81	58.09	561.29	1.73	-0.18	-1.73
11,740.00	88.10	349.70	11,269.65	624.77	46.93	624.35	1.61	1.41	-0.78
11,836.00	87.50	349.20	11,273.33	719.08	29.36	718.80	0.81	-0.63	-0.52
11,932.00	90.90	351.50	11,274.67	813.69	13.28	813.55	4.28	3.54	2.40
12,028.00	91.40	349.80	11,272.75	908.39	-2.32	908.38	1.85	0.52	-1.77
12,124.00	91.30	348.20	11,270.49	1,002.60	-20.63	1,002.74	1.67	-0.10	-1.67
12,220.00	92.50	352.90	11,267.30	1,097.22	-36.38	1,097.49	5.05	1.25	4.90
12,315.00	92.80	357.00	11,262.91	1,191.73	-44.73	1,192.07	4.32	0.32	4.32
12,411.00	90.40	358.90	11,260.23	1,287.62	-48.16	1,287.98	3.19	-2.50	1.98
12,507.00	90.10	0.20	11,259.81	1,383.61	-48.92	1,383.98	1.39	-0.31	1.35
12,603.00	88.60	1.70	11,260.90	1,479.59	-47.32	1,479.94	2.21	-1.56	1.56
12,699.00	88.40	1.50	11,263.41	1,575.52	-44.64	1,575.84	0.29	-0.21	-0.21
12,795.00	86.90	359.70	11,267.35	1,671.42	-43.64	1,671.74	2.44	-1.56	-1.88
12,890.00	91.20	358.90	11,268.92	1,766.38	-44.80	1,766.70	4.60	4.53	-0.84
12,987.00	91.40	358.60	11,266.72	1,863.33	-46.92	1,863.67	0.37	0.21	-0.31
13,083.00	91.80	358.40	11,264.04	1,959.26	-49.43	1,959.61	0.47	0.42	-0.21
13,178.00	92.30	359.20	11,260.64	2,054.18	-51.42	2,054.54	0.99	0.53	0.84
13,274.00	92.10	0.50	11,256.96	2,150.11	-51.67	2,150.47	1.37	-0.21	1.35
13,370.00	93.50	0.70	11,252.27	2,245.98	-50.66	2,246.33	1.47	1.46	0.21
13,465.00	91.40	1.50	11,248.21	2,340.87	-48.84	2,341.21	2.37	-2.21	0.84

Company:	Marshall & Winston, Inc.	**Local Co-ordinate Reference:**	Well #2H
Project:	Lea County, NM (NAD27 NME)	**TVD Reference:**	KB @ 3734.00usft (McVay 10)
Site:	Slick Mesa State 27	**MD Reference:**	KB @ 3734.00usft (McVay 10)
Well:	#2H	**North Reference:**	Grid
Wellbore:	WB1 / Job #1512712	**Survey Calculation Method:**	Minimum Curvature
Design:	Surveys (McVay 10)	**Database:**	Compass 5000 GCR

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)
13,561.00	90.60	2.60	11,246.53	2,436.79	-45.41	2,437.09	1.42	-0.83	1.15
13,657.00	91.20	3.60	11,245.02	2,532.64	-40.22	2,532.89	1.21	0.63	1.04
13,753.00	92.10	6.00	11,242.26	2,628.26	-32.19	2,628.44	2.67	0.94	2.50
13,849.00	89.60	6.30	11,240.83	2,723.69	-21.90	2,723.77	2.62	-2.60	0.31
13,944.00	88.80	6.40	11,242.16	2,818.09	-11.40	2,818.09	0.85	-0.84	0.11
14,040.00	89.10	6.40	11,243.92	2,913.48	-0.70	2,913.38	0.31	0.31	0.00
14,136.00	89.40	5.90	11,245.18	3,008.92	9.58	3,008.73	0.61	0.31	-0.52
14,232.00	90.30	5.90	11,245.43	3,104.41	19.45	3,104.13	0.94	0.94	0.00
14,327.00	88.80	5.80	11,246.17	3,198.91	29.13	3,198.54	1.58	-1.58	-0.11
14,423.00	88.70	6.30	11,248.27	3,294.35	39.25	3,293.89	0.53	-0.10	0.52
14,519.00	89.40	5.80	11,249.86	3,389.80	49.37	3,389.25	0.90	0.73	-0.52
14,615.00	88.30	6.40	11,251.79	3,485.24	59.57	3,484.60	1.31	-1.15	0.63
14,710.00	89.50	5.70	11,253.61	3,579.69	69.58	3,578.96	1.46	1.26	-0.74
14,806.00	90.00	6.60	11,254.03	3,675.13	79.86	3,674.32	1.07	0.52	0.94
14,902.00	87.70	7.00	11,255.95	3,770.43	91.22	3,769.51	2.43	-2.40	0.42
14,998.00	88.20	6.90	11,259.39	3,865.66	102.83	3,864.64	0.53	0.52	-0.10
15,094.00	88.90	7.60	11,261.82	3,960.87	114.94	3,959.74	1.03	0.73	0.73
15,190.00	91.30	7.10	11,261.65	4,056.07	127.22	4,054.83	2.55	2.50	-0.52
15,286.00	89.50	7.10	11,260.98	4,151.33	139.09	4,149.99	1.88	-1.88	0.00
15,382.00	88.10	5.40	11,262.99	4,246.73	149.54	4,245.30	2.29	-1.46	-1.77
15,478.00	87.50	5.90	11,266.68	4,342.19	158.98	4,340.67	0.81	-0.63	0.52
Final Phoenix Survey									
15,554.00	87.50	5.90	11,269.99	4,417.72	166.79	4,416.13	0.00	0.00	0.00
Projection to TD									

Survey Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
10,600.00	10,594.14	-56.53	182.02	Tie-in Scientific Gyros
10,682.00	10,676.04	-58.48	185.56	First Phoenix Survey
15,478.00	11,266.68	4,342.19	158.98	Final Phoenix Survey
15,554.00	11,269.99	4,417.72	166.79	Projection to TD

Checked By: _____ Approved By: _____ Date: _____

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Rd., Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals & Natural Resources

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-104
Revised August 1, 2011

Submit one copy to appropriate District Office

☐ AMENDED REPORT

I. REQUEST FOR ALLOWABLE AND AUTHORIZATION TO TRANSPORT

[1] Operator name and Address	[2] OGRID Number
Marshall & Winston, Inc. P. O. Box 50880 Midland, TX 79710-0880	14187
	[3] Reason for Filing Code/ Effective Date RT/April 2015/7500 bbls

[4] API Number	[5] Pool Name	[6] Pool Code
30 – 025-42202	Grama Ridge; Bone Spring, NE	28435
[7] Property Code	**[8] Property**	**[9] Well Number**
313327	Slick Mesa 27 State	2H

II. [10] Surface Location

Ul or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South Line	Feet from the	East/West line	County
M	27	21S	34E		531	South	660	West	Lea

[11] Bottom Hole Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
D	27	21S	34E		332.6	North	826.8	West	Lea

[12] Lse Code	[13] Producing Method Code	[14] Gas Connection Date	[15] C-129 Permit Number	[16] C-129 Effective Date	[17] C-129 Expiration Date
S	F				

III. Oil and Gas Transporters

[18] Transporter OGRID	[19] Transporter Name and Address	[20] O/G/W
5108	Sentinel Transportation LLC 4001 E. 42nd Street, Suite 307 Odessa, Texas 79762	O

HOBBS OCD

MAR 3 1 2015

RECEIVED

IV. Well Completion Data

[21] Spud Date	[22] Ready Date	[23] TD	[24] PBTD	[25] Perforations	[26] DHC, MC
01/11/15	03/25/15	15554'	15490'	15215-15418'	

[27] Hole Size	[28] Casing & Tubing Size	[29] Depth Set	[30] Sacks Cement
17 ½"	13 3/8"	1850'	1964 sx
12 ¼"	9 5/8"	5474'	2200 sx
8 ¾"	7"	11616'	2300 sx
6 1/8"	4 ½"	15554'	407 sx

V. Well Test Data

[31] Date New Oil	[32] Gas Delivery Date	[33] Test Date	[34] Test Length	[35] Tbg. Pressure	[36] Csg. Pressure
[37] Choke Size	**[38] Oil**	**[39] Water**	**[40] Gas**		**[41] Test Method**

[42] I hereby certify that the rules of the Oil Conservation Division have been complied with and that the information given above is true and complete to the best of my knowledge and belief.

Signature: Sherry Roberts

Printed name: Sherry Roberts

Title: Operations Secretary

E-mail Address: sroberts@mar-win.com

Date: 03/30/2015

Phone: 432-684-6373

OIL CONSERVATION DIVISION

Approved by:

Title:

Approval Date: