

Marshall & Winston, Inc.

Loco Dinero 36 #2H
Lea County, New Mexico
Job No: WT-16-059
Rig: McVay #10

30-025-41856



SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VFace	Target	Annotation
1	15245.00	89.00	178.70	10919.80	-4558.01	136.93	0.00	0.00	-4558.93		Last Aim Svy
2	15307.00	89.00	178.70	10920.88	-4619.99	138.34	0.00	0.00	-4620.91		Projection to BHL

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
#2H Plat BHL	10874.00	-4621.70	35.30	520660.20	751201.40	32° 25' 43.598 N	103° 31' 9.094 W
#2H Lateral PBHL-Shifted East	10900.00	-4621.08	120.30	520660.82	751286.40	32° 25' 43.598 N	103° 31' 8.102 W
#2H Pilot PBHL	12300.00	0.00	0.00	525281.90	751166.10	32° 26' 29.333 N	103° 31' 9.094 W

SITE DETAILS: Loco Dinero 36 #2H

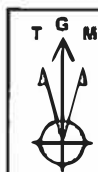
Site Centre Northing: 525281.90
Easting: 751166.10

Positional Uncertainty: 0.00
Convergence: 0.44
Local North: Grid

PROJECT DETAILS: Lea County, New Mexico

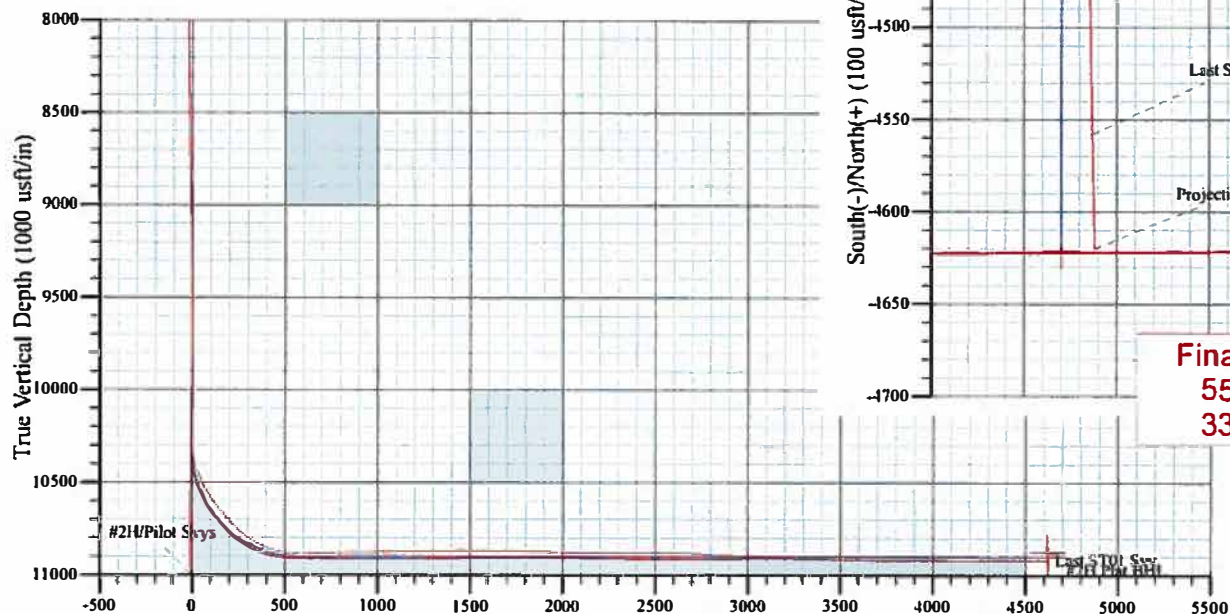
Geodetic System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone: New Mexico East 3001

System Datum: Mean Sea Level

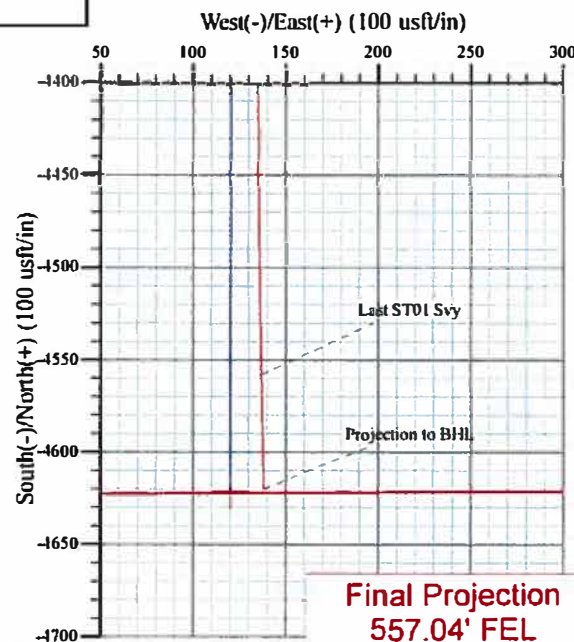


Azimuths to Grid North
True North: -0.44°
Magnetic North: 6.48°

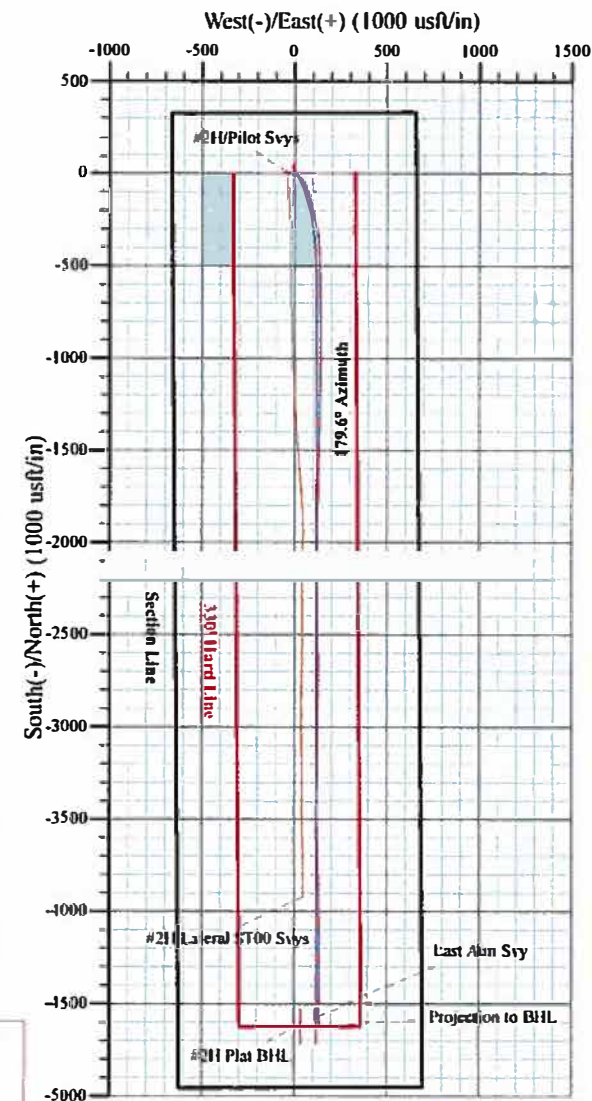
Magnetic Field
Strength: 48418.4snT
Dip Angle: 60.35°
Date: 8/11/2016
Model: HDGM



Vertical Section at 179.56° (1000 usf/in)



Final Projection
557.04' FEL
330.99' FSL



Aim Directional Services

Survey Report



Company:	Marshall & Winston, Inc.	Local Co-ordinate Reference:	Site Loco Dinero 36 #2H
Project:	Lea County, New Mexico	TVD Reference:	WELL @ 3662.00usft (Original Well Elev)
Site:	Loco Dinero 36 #2H	MD Reference:	WELL @ 3662.00usft (Original Well Elev)
Well:	#2H	North Reference:	Grid
Wellbore:	Lateral ST01	Survey Calculation Method:	Minimum Curvature
Design:	Lateral ST01	Database:	EDM 5000.1 Single User Db

Project	Lea County, New Mexico		
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		Loco Dinero 36 #2H			
Site Position:		Northing:	525,281.90 usft	Latitude:	32° 26' 29.333 N
From:	Map	Easting:	751,166.10 usft	Longitude:	103° 31' 9.094 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.44 °

Well	#2H					
Well Position	+N/-S	0.00 usft	Northing:	525,281.90 usft	Latitude:	32° 26' 29.333 N
	+E/-W	0.00 usft	Easting:	751,166.10 usft	Longitude:	103° 31' 9.094 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	3,644.00 usft

Wellbore	Lateral ST01				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	8/11/2016	6.92	60.35	48,418

Design	Lateral ST01				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	10,136.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.00	0.00	0.00	179.56	

Survey Program	Date 8/20/2016				
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
100.00	5,435.00	2nd Phoenix Gyro Svys (Pilot)	Gyroscope	Gyroscope	
5,633.00	10,136.00	2nd Aim MWD Pilot Svys (Pilot)	MWD+HDGM	OWSG MWD + HDGM	
10,234.00	15,307.00	Aim ST01 Svys (Lateral ST01)	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 (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
10,136.00	1.60	285.30	10,134.27	4.89	-28.14	-5.10	0.00	0.00	0.00	
Tie on Aim Pilot Svys										
10,234.00	2.80	94.50	10,232.24	5.06	-27.07	-5.27	4.47	1.22	172.65	
First ST01 Svy										
10,266.00	5.20	88.00	10,264.16	5.05	-24.84	-5.24	7.62	7.50	-20.31	
10,294.00	8.10	102.30	10,291.97	4.67	-21.65	-4.84	11.85	10.36	51.07	
10,329.00	11.90	104.80	10,326.43	3.23	-15.75	-3.35	10.93	10.86	7.14	
10,360.00	15.20	105.90	10,356.57	1.29	-8.75	-1.36	10.68	10.65	3.55	

Aim Directional Services

Survey Report



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Site:	Loco Dinero 36 #2H	MD Reference:	WELL @ 3662.00usft (Original Well Elev)
Well:	#2H	North Reference:	Grid
Wellbore:	Lateral ST01	Survey Calculation Method:	Minimum Curvature
Design:	Lateral ST01	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)
10,389.00	17.60	108.40	10,384.38	-1.13	-0.93	1.12	8.62	8.28	8.62
10,423.00	19.90	116.50	10,416.58	-5.34	9.13	5.41	10.20	6.76	23.82
10,455.00	21.80	123.60	10,446.49	-11.06	18.96	11.20	9.87	5.94	22.19
10,484.00	22.90	129.10	10,473.32	-17.60	27.82	17.81	8.14	3.79	18.97
10,534.00	25.10	139.70	10,519.01	-31.83	42.24	32.15	9.66	4.40	21.20
10,578.00	27.10	148.20	10,558.54	-47.47	53.56	47.88	9.63	4.55	19.32
10,628.00	30.70	156.30	10,602.32	-68.85	64.70	69.35	10.62	7.20	16.20
10,673.00	33.10	161.20	10,640.53	-91.01	73.28	91.57	7.84	5.33	10.89
10,723.00	37.30	162.90	10,681.38	-118.43	82.14	119.05	8.62	8.40	3.40
10,767.00	40.40	165.10	10,715.64	-144.96	89.73	145.64	7.71	7.05	5.00
10,801.00	43.00	165.60	10,741.02	-166.84	95.45	167.56	7.71	7.65	1.47
10,833.00	45.40	166.90	10,763.96	-188.50	100.74	189.27	8.02	7.50	4.06
10,853.00	47.50	167.90	10,777.74	-202.65	103.90	203.44	11.11	10.50	5.00
10,888.00	51.20	168.20	10,800.54	-228.63	109.40	229.46	10.59	10.57	0.86
10,919.00	54.90	168.20	10,819.17	-252.87	114.46	253.74	11.94	11.94	0.00
10,948.00	57.90	169.20	10,835.22	-276.56	119.19	277.46	10.74	10.34	3.45
10,982.00	62.80	170.80	10,852.03	-305.65	124.31	306.59	14.98	14.41	4.71
11,014.00	66.80	173.40	10,865.66	-334.32	128.28	335.29	14.50	12.50	8.13
11,043.00	70.20	175.20	10,876.28	-361.16	130.95	362.16	13.07	11.72	6.21
11,077.00	72.70	176.60	10,887.10	-393.31	133.25	394.32	8.32	7.35	4.12
#2H Pilot PBHL									
11,108.00	75.70	177.00	10,895.54	-423.09	134.92	424.11	9.76	9.68	1.29
11,137.00	79.30	177.60	10,901.82	-451.37	136.25	452.40	12.58	12.41	2.07
11,171.00	84.30	178.30	10,906.66	-484.99	137.45	486.03	14.85	14.71	2.06
11,200.00	89.00	178.80	10,908.36	-513.92	138.18	514.96	16.30	16.21	1.72
11,294.00	89.40	178.70	10,909.67	-607.89	140.24	608.95	0.44	0.43	-0.11
11,389.00	89.40	179.30	10,910.67	-702.87	141.89	703.94	0.63	0.00	0.63
11,483.00	90.00	180.40	10,911.16	-796.86	142.14	797.93	1.33	0.64	1.17
11,578.00	89.50	180.00	10,911.57	-891.86	141.81	892.92	0.67	-0.53	-0.42
11,673.00	89.60	180.20	10,912.32	-986.86	141.64	987.92	0.24	0.11	0.21
11,767.00	90.10	181.20	10,912.56	-1,080.85	140.49	1,081.90	1.19	0.53	1.06
11,862.00	90.20	180.70	10,912.32	-1,175.84	138.92	1,176.87	0.54	0.11	-0.53
11,956.00	90.90	180.70	10,911.41	-1,269.82	137.77	1,270.84	0.74	0.74	0.00
12,051.00	90.40	180.90	10,910.34	-1,364.81	136.44	1,365.82	0.57	-0.53	0.21
12,145.00	90.30	181.40	10,909.76	-1,458.79	134.56	1,459.78	0.54	-0.11	0.53
12,240.00	90.90	181.40	10,908.77	-1,553.75	132.24	1,554.72	0.63	0.63	0.00
12,334.00	90.90	181.60	10,907.29	-1,647.71	129.78	1,648.66	0.21	0.00	0.21
12,429.00	90.80	181.80	10,905.88	-1,742.66	126.96	1,743.58	0.24	-0.11	0.21
12,524.00	89.70	181.50	10,905.47	-1,837.61	124.22	1,838.51	1.20	-1.16	-0.32
12,618.00	89.80	180.90	10,905.88	-1,931.59	122.25	1,932.47	0.65	0.11	-0.64
12,713.00	89.20	179.90	10,906.71	-2,026.59	121.59	2,027.46	1.23	-0.63	-1.05
12,808.00	89.20	179.30	10,908.03	-2,121.57	122.25	2,122.45	0.63	0.00	-0.63
12,902.00	88.70	179.90	10,909.75	-2,215.55	122.91	2,216.43	0.83	-0.53	0.64
12,997.00	89.50	179.80	10,911.25	-2,310.54	123.16	2,311.42	0.85	0.84	-0.11

Aim Directional Services

Survey Report



Company:	Marshall & Winston, Inc.	Local Co-ordinate Reference:	Site Loco Dinero 36 #2H
Project:	Lea County, New Mexico	TVD Reference:	WELL @ 3662.00usft (Original Well Elev)
Site:	Loco Dinero 36 #2H	MD Reference:	WELL @ 3662.00usft (Original Well Elev)
Well:	#2H	North Reference:	Grid
Wellbore:	Lateral ST01	Survey Calculation Method:	Minimum Curvature
Design:	Lateral ST01	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)
13,091.00	89.50	179.40	10,912.07	-2,404.54	123.81	2,405.42	0.43	0.00	-0.43
13,186.00	89.00	178.70	10,913.31	-2,499.51	125.39	2,500.40	0.91	-0.53	-0.74
13,280.00	88.80	178.60	10,915.12	-2,593.47	127.60	2,594.37	0.24	-0.21	-0.11
13,375.00	90.50	180.20	10,915.70	-2,688.46	128.60	2,689.36	2.46	1.79	1.68
13,470.00	90.70	180.90	10,914.70	-2,783.45	127.69	2,784.34	0.77	0.21	0.74
13,564.00	90.90	180.40	10,913.39	-2,877.43	126.62	2,878.32	0.57	0.21	-0.53
13,659.00	91.00	180.10	10,911.81	-2,972.42	126.21	2,973.30	0.33	0.11	-0.32
13,753.00	91.20	181.30	10,910.01	-3,066.39	125.06	3,067.26	1.29	0.21	1.28
13,848.00	88.80	180.60	10,910.01	-3,161.37	123.48	3,162.22	2.63	-2.53	-0.74
13,942.00	89.30	180.60	10,911.57	-3,255.35	122.50	3,256.20	0.53	0.53	0.00
14,037.00	88.80	180.90	10,913.14	-3,350.33	121.26	3,351.16	0.61	-0.53	0.32
14,131.00	89.10	180.10	10,914.87	-3,444.31	120.44	3,445.13	0.91	0.32	-0.85
14,226.00	89.40	179.20	10,916.11	-3,539.30	121.02	3,540.12	1.00	0.32	-0.95
14,320.00	88.30	177.70	10,918.00	-3,633.24	123.56	3,634.08	1.98	-1.17	-1.60
14,415.00	89.40	178.00	10,919.90	-3,728.15	127.12	3,729.02	1.20	1.16	0.32
14,509.00	90.10	178.40	10,920.31	-3,822.11	130.07	3,822.99	0.86	0.74	0.43
14,604.00	90.50	178.30	10,919.81	-3,917.06	132.81	3,917.97	0.43	0.42	-0.11
14,698.00	89.80	179.60	10,919.57	-4,011.05	134.53	4,011.96	1.57	-0.74	1.38
14,793.00	89.50	180.10	10,920.15	-4,106.04	134.78	4,106.96	0.61	-0.32	0.53
14,887.00	90.20	180.20	10,920.39	-4,200.04	134.53	4,200.95	0.75	0.74	0.11
14,982.00	90.70	179.60	10,919.65	-4,295.04	134.70	4,295.95	0.82	0.53	-0.63
15,076.00	90.40	179.80	10,918.75	-4,389.03	135.19	4,389.94	0.38	-0.32	0.21
15,171.00	89.50	179.50	10,918.83	-4,484.03	135.77	4,484.94	1.00	-0.95	-0.32
15,245.00	89.00	178.70	10,919.80	-4,558.01	136.93	4,558.93	1.27	-0.68	-1.08
Last ST01 Svy									
15,305.56	89.00	178.70	10,920.85	-4,618.54	138.31	4,619.47	0.00	0.00	0.00
#2H Plat BHL									
15,307.00	89.00	178.70	10,920.88	-4,619.99	138.34	4,620.91	0.00	0.00	0.00
Projection to BHL - #2H Lateral PBHL-Shifted East									

Survey Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
10,136.00	10,134.27	4.89	-28.14	Tie on Aim Pilot Svys
10,234.00	10,232.24	5.06	-27.07	First ST01 Svy
15,245.00	10,919.80	-4,558.01	136.93	Last ST01 Svy
15,307.00	10,920.88	-4,619.99	138.34	Projection to BHL

Checked By: _____ Approved By: _____ Date: _____

Marshall & Winston, Inc.

Lea County, New Mexico

Loco Dinero 36 #2H

#2H

Lateral ST01

Design: Lateral ST01

Survey Report - Geographic

20 August, 2016



Aim Directional Services

Survey Report - Geographic



Company:	Marshall & Winston, Inc.	Local Co-ordinate Reference:	Site Loco Dinero 36 #2H
Project:	Lea County, New Mexico	TVD Reference:	WELL @ 3662.00usft (Original Well Elev)
Site:	Loco Dinero 36 #2H	MD Reference:	WELL @ 3662.00usft (Original Well Elev)
Well:	#2H	North Reference:	Grid
Wellbore:	Lateral ST01	Survey Calculation Method:	Minimum Curvature
Design:	Lateral ST01	Database:	EDM 5000.1 Single User Db

Project	Lea County, New Mexico		
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		Loco Dinero 36 #2H			
Site Position:		Northing:	525,281.90 usft	Latitude:	32° 26' 29.333 N
From:	Map	Easting:	751,166.10 usft	Longitude:	103° 31' 9.094 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.44 °

Well	#2H					
Well Position	+N/-S	0.00 usft	Northing:	525,281.90 usft	Latitude:	32° 26' 29.333 N
	+E/-W	0.00 usft	Easting:	751,166.10 usft	Longitude:	103° 31' 9.094 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	3,644.00 usft

Wellbore	Lateral ST01				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	8/11/2016	6.92	60.35	48,418

Design	Lateral ST01				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	10,136.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.00	0.00	0.00	179.56	

Survey Program	Date 8/20/2016			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
100.00	5,435.00	2nd Phoenix Gyro Svys (Pilot)	Gyroscope	Gyroscope
5,633.00	10,136.00	2nd Aim MWD Pilot Svys (Pilot)	MWD+HDGM	OWSG MWD + HDGM
10,234.00	15,307.00	Aim ST01 Svys (Lateral ST01)	MWD+HDGM	OWSG MWD + HDGM

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
0.00	0.00	0.00	0.00	0.00	0.00	525,281.90	751,166.10	32° 26' 29.333 N	103° 31' 9.094 W	
100.00	0.53	77.01	100.00	0.10	0.45	525,282.01	751,166.55	32° 26' 29.334 N	103° 31' 9.089 W	
200.00	0.64	122.30	199.99	-0.09	1.37	525,281.81	751,167.47	32° 26' 29.332 N	103° 31' 9.078 W	
300.00	0.41	161.88	299.99	-0.73	1.96	525,281.17	751,168.05	32° 26' 29.325 N	103° 31' 9.072 W	
400.00	0.44	167.69	399.99	-1.44	2.15	525,280.46	751,168.25	32° 26' 29.318 N	103° 31' 9.069 W	
500.00	0.54	208.65	499.98	-2.23	2.01	525,279.67	751,168.10	32° 26' 29.310 N	103° 31' 9.071 W	
600.00	0.66	197.21	599.98	-3.20	1.61	525,278.71	751,167.71	32° 26' 29.301 N	103° 31' 9.076 W	
700.00	0.63	193.36	699.97	-4.28	1.31	525,277.62	751,167.41	32° 26' 29.290 N	103° 31' 9.080 W	
800.00	0.63	198.54	799.97	-5.34	1.01	525,276.56	751,167.11	32° 26' 29.280 N	103° 31' 9.083 W	
900.00	0.69	206.00	899.96	-6.40	0.57	525,275.50	751,166.67	32° 26' 29.269 N	103° 31' 9.088 W	

Aim Directional Services

Survey Report - Geographic



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Project:	Lea County, New Mexico	TVD Reference:	WELL @ 3662.00usft (Original Well Elev)
Site:	Loco Dinero 36 #2H	MD Reference:	WELL @ 3662.00usft (Original Well Elev)
Well:	#2H	North Reference:	Grid
Wellbore:	Lateral ST01	Survey Calculation Method:	Minimum Curvature
Design:	Lateral ST01	Database:	EDM 5000.1 Single User Db

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
1,000.00	0.88	219.24	999.95	-7.54	-0.18	525,274.37	751,165.92	32° 26' 29.258 N	103° 31' 9.097 W
1,100.00	0.82	225.66	1,099.94	-8.63	-1.18	525,273.27	751,164.92	32° 26' 29.247 N	103° 31' 9.109 W
1,200.00	0.73	252.86	1,199.93	-9.32	-2.30	525,272.58	751,163.80	32° 26' 29.241 N	103° 31' 9.122 W
1,300.00	0.71	210.75	1,299.92	-10.04	-3.22	525,271.86	751,162.87	32° 26' 29.233 N	103° 31' 9.133 W
1,400.00	0.84	227.61	1,399.91	-11.07	-4.08	525,270.84	751,162.02	32° 26' 29.223 N	103° 31' 9.143 W
1,500.00	0.68	240.19	1,499.91	-11.85	-5.14	525,270.05	751,160.96	32° 26' 29.216 N	103° 31' 9.155 W
1,600.00	0.82	240.22	1,599.90	-12.51	-6.27	525,269.40	751,159.82	32° 26' 29.209 N	103° 31' 9.169 W
1,700.00	0.86	246.01	1,699.89	-13.17	-7.58	525,268.74	751,158.52	32° 26' 29.203 N	103° 31' 9.184 W
1,800.00	0.58	244.04	1,799.88	-13.69	-8.72	525,268.21	751,157.38	32° 26' 29.198 N	103° 31' 9.197 W
1,900.00	0.42	307.58	1,899.87	-13.69	-9.47	525,268.21	751,156.63	32° 26' 29.198 N	103° 31' 9.206 W
2,000.00	0.27	328.05	1,999.87	-13.27	-9.88	525,268.63	751,156.22	32° 26' 29.202 N	103° 31' 9.211 W
2,100.00	0.16	35.34	2,099.87	-12.95	-9.92	525,268.95	751,156.17	32° 26' 29.205 N	103° 31' 9.211 W
2,200.00	0.18	38.70	2,199.87	-12.72	-9.75	525,269.19	751,156.35	32° 26' 29.207 N	103° 31' 9.209 W
2,300.00	0.27	289.93	2,299.87	-12.51	-9.87	525,269.39	751,156.23	32° 26' 29.210 N	103° 31' 9.211 W
2,400.00	0.21	314.64	2,399.87	-12.30	-10.22	525,269.60	751,155.88	32° 26' 29.212 N	103° 31' 9.215 W
2,500.00	0.36	258.68	2,499.87	-12.24	-10.66	525,269.66	751,155.44	32° 26' 29.212 N	103° 31' 9.220 W
2,600.00	0.05	252.48	2,599.87	-12.31	-11.01	525,269.59	751,155.09	32° 26' 29.212 N	103° 31' 9.224 W
2,700.00	0.12	30.88	2,699.87	-12.24	-11.00	525,269.67	751,155.10	32° 26' 29.212 N	103° 31' 9.224 W
2,800.00	0.15	150.68	2,799.87	-12.26	-10.88	525,269.64	751,155.22	32° 26' 29.212 N	103° 31' 9.222 W
2,900.00	0.27	81.29	2,899.87	-12.34	-10.58	525,269.56	751,155.52	32° 26' 29.211 N	103° 31' 9.219 W
3,000.00	0.74	43.96	2,999.86	-11.84	-9.90	525,270.06	751,156.20	32° 26' 29.216 N	103° 31' 9.211 W
3,100.00	1.16	50.25	3,099.85	-10.73	-8.67	525,271.18	751,157.42	32° 26' 29.227 N	103° 31' 9.197 W
3,200.00	1.61	61.04	3,199.82	-9.40	-6.67	525,272.50	751,159.43	32° 26' 29.240 N	103° 31' 9.173 W
3,300.00	1.60	64.55	3,299.78	-8.12	-4.18	525,273.78	751,161.92	32° 26' 29.253 N	103° 31' 9.144 W
3,400.00	1.58	56.52	3,399.74	-6.76	-1.77	525,275.14	751,164.33	32° 26' 29.266 N	103° 31' 9.116 W
3,500.00	1.39	43.16	3,499.71	-5.11	0.21	525,276.79	751,166.31	32° 26' 29.282 N	103° 31' 9.092 W
3,600.00	1.58	50.52	3,599.68	-3.35	2.11	525,278.55	751,168.20	32° 26' 29.299 N	103° 31' 9.070 W
3,700.00	0.96	9.13	3,699.65	-1.65	3.30	525,280.25	751,169.40	32° 26' 29.316 N	103° 31' 9.056 W
3,800.00	1.00	343.87	3,799.64	0.02	3.19	525,281.92	751,169.29	32° 26' 29.333 N	103° 31' 9.057 W
3,900.00	1.12	346.81	3,899.62	1.81	2.73	525,283.71	751,168.83	32° 26' 29.350 N	103° 31' 9.062 W
4,000.00	1.26	343.50	3,999.60	3.81	2.19	525,285.72	751,168.29	32° 26' 29.370 N	103° 31' 9.069 W
4,100.00	1.25	341.70	4,099.58	5.90	1.54	525,287.80	751,167.64	32° 26' 29.391 N	103° 31' 9.076 W
4,200.00	1.33	340.77	4,199.55	8.03	0.81	525,289.94	751,166.91	32° 26' 29.412 N	103° 31' 9.084 W
4,300.00	1.80	328.99	4,299.51	10.48	-0.38	525,292.38	751,165.72	32° 26' 29.436 N	103° 31' 9.098 W
4,400.00	1.98	331.62	4,399.46	13.34	-2.01	525,295.24	751,164.09	32° 26' 29.465 N	103° 31' 9.117 W
4,500.00	2.01	336.80	4,499.40	16.47	-3.52	525,298.38	751,162.58	32° 26' 29.496 N	103° 31' 9.134 W
4,600.00	1.89	335.79	4,599.34	19.59	-4.89	525,301.49	751,161.21	32° 26' 29.527 N	103° 31' 9.150 W
4,700.00	1.93	333.83	4,699.29	22.61	-6.31	525,304.51	751,159.79	32° 26' 29.557 N	103° 31' 9.166 W
4,800.00	1.49	333.79	4,799.24	25.28	-7.62	525,307.18	751,158.47	32° 26' 29.583 N	103° 31' 9.181 W
4,900.00	1.75	322.44	4,899.20	27.66	-9.13	525,309.56	751,156.97	32° 26' 29.607 N	103° 31' 9.198 W
5,000.00	1.54	328.83	4,999.16	30.02	-10.75	525,311.92	751,155.34	32° 26' 29.630 N	103° 31' 9.217 W
5,100.00	1.31	340.00	5,099.13	32.24	-11.84	525,314.15	751,154.26	32° 26' 29.653 N	103° 31' 9.230 W
5,200.00	1.13	342.83	5,199.11	34.26	-12.52	525,316.16	751,153.57	32° 26' 29.673 N	103° 31' 9.238 W
5,300.00	0.94	343.36	5,299.09	35.99	-13.05	525,317.89	751,153.05	32° 26' 29.690 N	103° 31' 9.243 W
5,400.00	0.80	348.25	5,399.08	37.46	-13.42	525,319.36	751,152.67	32° 26' 29.704 N	103° 31' 9.248 W
5,435.00	0.67	6.00	5,434.08	37.90	-13.45	525,319.80	751,152.64	32° 26' 29.709 N	103° 31' 9.248 W
5,633.00	0.80	45.10	5,632.06	40.03	-12.35	525,321.93	751,153.74	32° 26' 29.730 N	103° 31' 9.235 W
5,788.00	0.80	55.70	5,787.05	41.40	-10.69	525,323.30	751,155.40	32° 26' 29.743 N	103° 31' 9.216 W
5,882.00	0.80	37.30	5,881.04	42.29	-9.75	525,324.19	751,156.34	32° 26' 29.752 N	103° 31' 9.204 W
6,071.00	0.70	47.00	6,070.02	44.13	-8.11	525,326.03	751,157.99	32° 26' 29.770 N	103° 31' 9.185 W
6,260.00	0.80	48.10	6,259.00	45.80	-6.28	525,327.70	751,159.81	32° 26' 29.786 N	103° 31' 9.164 W
6,355.00	0.70	139.30	6,354.00	45.80	-5.41	525,327.70	751,160.69	32° 26' 29.786 N	103° 31' 9.154 W
6,449.00	0.70	169.30	6,447.99	44.80	-4.93	525,326.70	751,161.17	32° 26' 29.776 N	103° 31' 9.148 W
6,544.00	0.90	153.30	6,542.98	43.57	-4.49	525,325.47	751,161.61	32° 26' 29.764 N	103° 31' 9.143 W
6,638.00	0.60	175.10	6,636.97	42.42	-4.11	525,324.32	751,161.98	32° 26' 29.753 N	103° 31' 9.139 W

Aim Directional Services

Survey Report - Geographic



Company:	Marshall & Winston, Inc.	Local Co-ordinate Reference:	Site Loco Dinero 36 #2H
Project:	Lea County, New Mexico	TVD Reference:	WELL @ 3662.00usft (Original Well Elev)
Site:	Loco Dinero 36 #2H	MD Reference:	WELL @ 3662.00usft (Original Well Elev)
Well:	#2H	North Reference:	Grid
Wellbore:	Lateral ST01	Survey Calculation Method:	Minimum Curvature
Design:	Lateral ST01	Database:	EDM 5000.1 Single User Db

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
6,733.00	0.80	166.20	6,731.97	41.28	-3.91	525,323.18	751,162.18	32° 26' 29.741 N	103° 31' 9.136 W
6,922.00	0.70	161.00	6,920.95	38.90	-3.22	525,320.80	751,162.88	32° 26' 29.718 N	103° 31' 9.129 W
7,111.00	0.70	161.20	7,109.94	36.72	-2.47	525,318.62	751,163.62	32° 26' 29.696 N	103° 31' 9.120 W
7,300.00	1.10	162.50	7,298.91	33.89	-1.56	525,315.80	751,164.54	32° 26' 29.668 N	103° 31' 9.110 W
7,489.00	1.10	166.90	7,487.88	30.40	-0.60	525,312.30	751,165.50	32° 26' 29.633 N	103° 31' 9.099 W
7,678.00	0.90	174.10	7,676.85	27.15	-0.04	525,309.06	751,166.06	32° 26' 29.601 N	103° 31' 9.092 W
7,867.00	1.10	159.60	7,865.82	23.98	0.75	525,305.88	751,166.85	32° 26' 29.570 N	103° 31' 9.084 W
8,057.00	1.00	178.30	8,055.79	20.61	1.43	525,302.51	751,167.53	32° 26' 29.536 N	103° 31' 9.076 W
8,246.00	0.80	171.80	8,244.77	17.66	1.67	525,299.56	751,167.77	32° 26' 29.507 N	103° 31' 9.073 W
8,435.00	0.80	188.90	8,433.75	15.05	1.66	525,296.95	751,167.75	32° 26' 29.481 N	103° 31' 9.074 W
8,624.00	0.90	184.70	8,622.73	12.26	1.33	525,294.17	751,167.43	32° 26' 29.454 N	103° 31' 9.078 W
8,813.00	1.00	208.70	8,811.70	9.34	0.42	525,291.24	751,166.51	32° 26' 29.425 N	103° 31' 9.089 W
9,002.00	1.10	216.90	9,000.67	6.44	-1.47	525,288.34	751,164.63	32° 26' 29.396 N	103° 31' 9.111 W
9,191.00	1.30	237.30	9,189.63	3.83	-4.36	525,285.73	751,161.74	32° 26' 29.371 N	103° 31' 9.145 W
9,380.00	1.50	235.30	9,378.57	1.27	-8.20	525,283.17	751,157.90	32° 26' 29.346 N	103° 31' 9.190 W
9,569.00	1.90	267.10	9,567.49	-0.30	-13.36	525,281.60	751,152.74	32° 26' 29.331 N	103° 31' 9.250 W
9,758.00	1.30	298.10	9,756.42	0.55	-18.38	525,282.45	751,147.72	32° 26' 29.339 N	103° 31' 9.309 W
9,947.00	1.80	296.30	9,945.35	2.87	-22.93	525,284.78	751,143.16	32° 26' 29.363 N	103° 31' 9.362 W
10,136.00	1.60	285.30	10,134.27	4.89	-28.14	525,286.79	751,137.96	32° 26' 29.383 N	103° 31' 9.422 W
Tie on Aim Pilot Svcs									
10,234.00	2.80	94.50	10,232.24	5.06	-27.07	525,286.96	751,139.03	32° 26' 29.385 N	103° 31' 9.410 W
First ST01 Svy									
10,266.00	5.20	88.00	10,264.16	5.05	-24.84	525,286.95	751,141.25	32° 26' 29.384 N	103° 31' 9.384 W
10,294.00	8.10	102.30	10,291.97	4.67	-21.65	525,286.57	751,144.45	32° 26' 29.380 N	103° 31' 9.347 W
10,329.00	11.90	104.80	10,326.43	3.23	-15.75	525,285.13	751,150.35	32° 26' 29.366 N	103° 31' 9.278 W
10,360.00	15.20	105.90	10,356.57	1.29	-8.75	525,283.20	751,157.35	32° 26' 29.346 N	103° 31' 9.196 W
10,389.00	17.60	108.40	10,384.38	-1.13	-0.93	525,280.77	751,165.17	32° 26' 29.321 N	103° 31' 9.105 W
10,423.00	19.90	116.50	10,416.58	-5.34	9.13	525,276.56	751,175.23	32° 26' 29.279 N	103° 31' 8.988 W
10,455.00	21.80	123.60	10,446.49	-11.06	18.96	525,270.85	751,185.05	32° 26' 29.222 N	103° 31' 8.874 W
10,484.00	22.90	129.10	10,473.32	-17.60	27.82	525,264.31	751,193.92	32° 26' 29.156 N	103° 31' 8.771 W
10,534.00	25.10	139.70	10,519.01	-31.83	42.24	525,250.07	751,208.34	32° 26' 29.014 N	103° 31' 8.604 W
10,578.00	27.10	148.20	10,558.54	-47.47	53.56	525,234.43	751,219.66	32° 26' 28.859 N	103° 31' 8.474 W
10,628.00	30.70	156.30	10,602.32	-68.85	64.70	525,213.05	751,230.80	32° 26' 28.646 N	103° 31' 8.346 W
10,673.00	33.10	161.20	10,640.53	-91.01	73.28	525,190.89	751,239.38	32° 26' 28.427 N	103° 31' 8.247 W
10,723.00	37.30	162.90	10,681.38	-118.43	82.14	525,163.48	751,248.24	32° 26' 28.155 N	103° 31' 8.147 W
10,767.00	40.40	165.10	10,715.64	-144.96	89.73	525,136.95	751,255.82	32° 26' 27.891 N	103° 31' 8.060 W
10,801.00	43.00	165.60	10,741.02	-166.84	95.45	525,115.07	751,261.54	32° 26' 27.675 N	103° 31' 7.996 W
10,833.00	45.40	166.90	10,763.96	-188.50	100.74	525,093.40	751,266.84	32° 26' 27.460 N	103° 31' 7.936 W
10,853.00	47.50	167.90	10,777.74	-202.65	103.90	525,079.25	751,270.00	32° 26' 27.320 N	103° 31' 7.900 W
10,888.00	51.20	168.20	10,800.54	-228.63	109.40	525,053.28	751,275.49	32° 26' 27.062 N	103° 31' 7.838 W
10,919.00	54.90	168.20	10,819.17	-252.87	114.46	525,029.03	751,280.56	32° 26' 26.822 N	103° 31' 7.781 W
10,948.00	57.90	169.20	10,835.22	-276.56	119.19	525,005.35	751,285.29	32° 26' 26.587 N	103° 31' 7.728 W
10,982.00	62.80	170.80	10,852.03	-305.65	124.31	524,976.26	751,290.41	32° 26' 26.299 N	103° 31' 7.671 W
11,014.00	66.80	173.40	10,865.66	-334.32	128.28	524,947.58	751,294.37	32° 26' 26.015 N	103° 31' 7.627 W
11,043.00	70.20	175.20	10,876.28	-361.16	130.95	524,920.74	751,297.05	32° 26' 25.749 N	103° 31' 7.599 W
11,077.00	72.70	176.60	10,887.10	-393.31	133.25	524,888.59	751,299.35	32° 26' 25.431 N	103° 31' 7.575 W
#2H Pilot PBHL									
11,108.00	75.70	177.00	10,895.54	-423.09	134.92	524,858.81	751,301.01	32° 26' 25.136 N	103° 31' 7.558 W
11,137.00	79.30	177.60	10,901.82	-451.37	136.25	524,830.54	751,302.35	32° 26' 24.856 N	103° 31' 7.545 W
11,171.00	84.30	178.30	10,906.66	-484.99	137.45	524,796.92	751,303.55	32° 26' 24.523 N	103° 31' 7.534 W
11,200.00	89.00	178.80	10,908.36	-513.92	138.18	524,767.98	751,304.28	32° 26' 24.237 N	103° 31' 7.528 W
11,294.00	89.40	178.70	10,909.67	-607.89	140.24	524,674.02	751,306.33	32° 26' 23.307 N	103° 31' 7.512 W
11,389.00	89.40	179.30	10,910.67	-702.87	141.89	524,579.04	751,307.99	32° 26' 22.367 N	103° 31' 7.501 W
11,483.00	90.00	180.40	10,911.16	-796.86	142.14	524,485.04	751,308.24	32° 26' 21.437 N	103° 31' 7.507 W
11,578.00	89.50	180.00	10,911.57	-891.86	141.81	524,390.04	751,307.90	32° 26' 20.497 N	103° 31' 7.519 W

Aim Directional Services

Survey Report - Geographic



Company:	Marshall & Winston, Inc.	Local Co-ordinate Reference:	Site Loco Dinero 36 #2H
Project:	Lea County, New Mexico	TVD Reference:	WELL @ 3662.00usft (Original Well Elev)
Site:	Loco Dinero 36 #2H	MD Reference:	WELL @ 3662.00usft (Original Well Elev)
Well:	#2H	North Reference:	Grid
Wellbore:	Lateral ST01	Survey Calculation Method:	Minimum Curvature
Design:	Lateral ST01	Database:	EDM 5000.1 Single User Db

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
11,673.00	89.60	180.20	10,912.32	-986.86	141.64	524,295.04	751,307.74	32° 26' 19.557 N	103° 31' 7.530 W
11,767.00	90.10	181.20	10,912.56	-1,080.85	140.49	524,201.05	751,306.59	32° 26' 18.627 N	103° 31' 7.551 W
11,862.00	90.20	180.70	10,912.32	-1,175.84	138.92	524,106.07	751,305.01	32° 26' 17.687 N	103° 31' 7.578 W
11,956.00	90.90	180.70	10,911.41	-1,269.82	137.77	524,012.08	751,303.87	32° 26' 16.757 N	103° 31' 7.600 W
12,051.00	90.40	180.90	10,910.34	-1,364.81	136.44	523,917.09	751,302.54	32° 26' 15.817 N	103° 31' 7.624 W
12,145.00	90.30	181.40	10,909.76	-1,458.79	134.56	523,823.12	751,300.65	32° 26' 14.888 N	103° 31' 7.654 W
12,240.00	90.90	181.40	10,908.77	-1,553.75	132.24	523,728.15	751,298.33	32° 26' 13.948 N	103° 31' 7.690 W
12,334.00	90.90	181.60	10,907.29	-1,647.71	129.78	523,634.19	751,295.87	32° 26' 13.019 N	103° 31' 7.727 W
12,429.00	90.80	181.80	10,905.88	-1,742.66	126.96	523,539.25	751,293.05	32° 26' 12.079 N	103° 31' 7.768 W
12,524.00	89.70	181.50	10,905.47	-1,837.61	124.22	523,444.29	751,290.32	32° 26' 11.140 N	103° 31' 7.809 W
12,618.00	89.80	180.90	10,905.88	-1,931.59	122.25	523,350.31	751,288.35	32° 26' 10.210 N	103° 31' 7.840 W
12,713.00	89.20	179.90	10,906.71	-2,026.59	121.59	523,255.32	751,287.69	32° 26' 9.270 N	103° 31' 7.856 W
12,808.00	89.20	179.30	10,908.03	-2,121.57	122.25	523,160.33	751,288.35	32° 26' 8.330 N	103° 31' 7.857 W
12,902.00	88.70	179.90	10,909.75	-2,215.55	122.91	523,066.35	751,289.01	32° 26' 7.400 N	103° 31' 7.857 W
12,997.00	89.50	179.80	10,911.25	-2,310.54	123.16	522,971.36	751,289.26	32° 26' 6.460 N	103° 31' 7.863 W
13,091.00	89.50	179.40	10,912.07	-2,404.54	123.81	522,877.37	751,289.91	32° 26' 5.530 N	103° 31' 7.864 W
13,186.00	89.00	178.70	10,913.31	-2,499.51	125.39	522,782.39	751,291.49	32° 26' 4.590 N	103° 31' 7.854 W
13,280.00	88.80	178.60	10,915.12	-2,593.47	127.60	522,688.43	751,293.70	32° 26' 3.660 N	103° 31' 7.836 W
13,375.00	90.50	180.20	10,915.70	-2,688.46	128.60	522,593.45	751,294.70	32° 26' 2.721 N	103° 31' 7.833 W
13,470.00	90.70	180.90	10,914.70	-2,783.45	127.69	522,498.46	751,293.78	32° 26' 1.781 N	103° 31' 7.852 W
13,564.00	90.90	180.40	10,913.39	-2,877.43	126.62	522,404.47	751,292.72	32° 26' 0.851 N	103° 31' 7.873 W
13,659.00	91.00	180.10	10,911.81	-2,972.42	126.21	522,309.49	751,292.30	32° 25' 59.911 N	103° 31' 7.886 W
13,753.00	91.20	181.30	10,910.01	-3,066.39	125.06	522,215.51	751,291.15	32° 25' 58.981 N	103° 31' 7.908 W
13,848.00	88.80	180.60	10,910.01	-3,161.37	123.48	522,120.53	751,289.58	32° 25' 58.041 N	103° 31' 7.935 W
13,942.00	89.30	180.60	10,911.57	-3,255.35	122.50	522,026.55	751,288.60	32° 25' 57.112 N	103° 31' 7.955 W
14,037.00	88.80	180.90	10,913.14	-3,350.33	121.26	521,931.57	751,287.35	32° 25' 56.172 N	103° 31' 7.978 W
14,131.00	89.10	180.10	10,914.87	-3,444.31	120.44	521,837.59	751,286.53	32° 25' 55.242 N	103° 31' 7.996 W
14,226.00	89.40	179.20	10,916.11	-3,539.30	121.02	521,742.60	751,287.11	32° 25' 54.302 N	103° 31' 7.997 W
14,320.00	88.30	177.70	10,918.00	-3,633.24	123.56	521,648.66	751,289.65	32° 25' 53.372 N	103° 31' 7.976 W
14,415.00	89.40	178.00	10,919.90	-3,728.15	127.12	521,553.75	751,293.22	32° 25' 52.433 N	103° 31' 7.943 W
14,509.00	90.10	178.40	10,920.31	-3,822.11	130.07	521,459.80	751,296.17	32° 25' 51.503 N	103° 31' 7.917 W
14,604.00	90.50	178.30	10,919.81	-3,917.06	132.81	521,364.84	751,298.91	32° 25' 50.563 N	103° 31' 7.893 W
14,698.00	89.80	179.60	10,919.57	-4,011.05	134.53	521,270.86	751,300.63	32° 25' 49.633 N	103° 31' 7.882 W
14,793.00	89.50	180.10	10,920.15	-4,106.04	134.78	521,175.86	751,300.88	32° 25' 48.693 N	103° 31' 7.887 W
14,887.00	90.20	180.20	10,920.39	-4,200.04	134.53	521,081.86	751,300.63	32° 25' 47.763 N	103° 31' 7.898 W
14,982.00	90.70	179.60	10,919.65	-4,295.04	134.70	520,986.86	751,300.80	32° 25' 46.823 N	103° 31' 7.905 W
15,076.00	90.40	179.80	10,918.75	-4,389.03	135.19	520,892.87	751,301.29	32° 25' 45.893 N	103° 31' 7.907 W
15,171.00	89.50	179.50	10,918.83	-4,484.03	135.77	520,797.87	751,301.87	32° 25' 44.953 N	103° 31' 7.909 W
15,245.00	89.00	178.70	10,919.80	-4,558.01	136.93	520,723.89	751,303.03	32° 25' 44.221 N	103° 31' 7.902 W
Last ST01 Svy									
15,305.56	89.00	178.70	10,920.85	-4,618.54	138.31	520,663.36	751,304.40	32° 25' 43.621 N	103° 31' 7.892 W
#2H Plat BHL									
15,307.00	89.00	178.70	10,920.88	-4,619.99	138.34	520,661.91	751,304.44	32° 25' 43.607 N	103° 31' 7.891 W
Projection to BHL - #2H Lateral PBHL-Shifted East									

Aim Directional Services
Survey Report - Geographic



Company:	Marshall & Winston, Inc.	Local Co-ordinate Reference:	Site Loco Dinero 36 #2H
Project:	Lea County, New Mexico	TVD Reference:	WELL @ 3662.00usft (Original Well Elev)
Site:	Loco Dinero 36 #2H	MD Reference:	WELL @ 3662.00usft (Original Well Elev)
Well:	#2H	North Reference:	Grid
Wellbore:	Lateral ST01	Survey Calculation Method:	Minimum Curvature
Design:	Lateral ST01	Database:	EDM 5000.1 Single User Db

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
10,136.00	10,134.27	4.89	-28.14	Tie on Aim Pilot Svys
10,234.00	10,232.24	5.06	-27.07	First ST01 Svy
15,245.00	10,919.80	-4,558.01	136.93	Last ST01 Svy
15,307.00	10,920.88	-4,619.99	138.34	Projection to BHL

Checked By: _____ Approved By: _____ Date: _____



Survey Report

Service Company: AIM Directional Services, LLC

Location: Eunice, NM

Well: Loco Dinero 36 #2H (R2)

Rig: McVay #10

API or UWI: 30-025-41856

Job Number: WT-16-059

State: New Mexico

Operating Company: Marshall & Winston Inc.

County: Lea Co., New Mexico

Magnetic Declination: 6.48

Country: USA

Proposed Azimuth: 179.56

Comment

North Reference: GRID

Latitude: 32.2629333

Longitude: -103.319094

Tie-In Data

MD	Inclination	Azimuth	TVD	NS	EW
0.00	0.00	0.00	0.00	0.00	0.00

Survey Data

MD	Inclination	Azimuth	TVD	NS	EW	CA	CD	VS	DLS
100.00	0.53	77.01	100.00	0.10	0.45	77.01	0.46	-0.10	0.53
200.00	0.64	122.30	199.99	-0.09	1.37	93.77	1.38	0.10	0.46
300.00	0.41	161.88	299.99	-0.73	1.96	110.43	2.09	0.74	0.42
400.00	0.44	167.69	399.99	-1.44	2.15	123.89	2.59	1.46	0.05
500.00	0.54	208.65	499.98	-2.23	2.01	138.07	3.00	2.25	0.36
600.00	0.66	197.21	599.98	-3.20	1.61	153.27	3.58	3.21	0.17
700.00	0.63	193.36	699.97	-4.28	1.31	162.96	4.48	4.29	0.05
800.00	0.63	198.54	799.97	-5.34	1.01	169.28	5.43	5.35	0.06
900.00	0.69	206.00	899.96	-6.40	0.57	174.90	6.43	6.40	0.10
1000.00	0.88	219.24	999.95	-7.54	-0.18	181.36	7.54	7.53	0.26
1100.00	0.82	225.66	1099.94	-8.63	-1.18	187.76	8.71	8.62	0.11
1200.00	0.73	252.86	1199.93	-9.32	-2.30	193.84	9.60	9.30	0.37
1300.00	0.71	210.75	1299.92	-10.04	-3.22	197.79	10.54	10.01	0.52
1400.00	0.84	227.61	1399.91	-11.07	-4.08	200.24	11.79	11.03	0.26
1500.00	0.68	240.19	1499.91	-11.85	-5.14	203.43	12.92	11.82	0.23
1600.00	0.82	240.22	1599.90	-12.51	-6.27	206.64	13.99	12.46	0.14
1700.00	0.86	246.01	1699.89	-13.17	-7.58	209.93	15.19	13.11	0.09
1800.00	0.58	244.04	1799.88	-13.69	-8.72	212.49	16.23	13.63	0.28
1900.00	0.42	307.58	1899.87	-13.69	-9.47	214.66	16.64	13.62	0.54
2000.00	0.27	328.05	1999.87	-13.27	-9.88	216.68	16.54	13.19	0.19
2100.00	0.16	35.34	2099.87	-12.95	-9.92	217.46	16.32	12.88	0.26

2200.00	0.18	38.70	2199.87	-12.72	-9.75	217.46	16.02	12.64	0.02
2300.00	0.27	289.93	2299.87	-12.51	-9.87	218.26	15.94	12.44	0.37
2400.00	0.21	314.64	2399.87	-12.30	-10.22	219.71	16.00	12.23	0.12
2500.00	0.36	258.68	2499.87	-12.24	-10.66	221.06	16.23	12.16	0.30
2600.00	0.05	252.48	2599.87	-12.31	-11.01	221.80	16.52	12.23	0.31
2700.00	0.12	30.88	2699.87	-12.24	-11.00	221.95	16.45	12.15	0.16
2800.00	0.15	150.68	2799.87	-12.26	-10.88	221.58	16.39	12.18	0.23
2900.00	0.27	81.29	2899.87	-12.34	-10.58	220.62	16.25	12.26	0.26
3000.00	0.74	43.96	2999.86	-11.84	-9.90	219.91	15.43	11.76	0.55
3100.00	1.16	50.25	3099.85	-10.73	-8.67	218.96	13.79	10.66	0.43
3200.00	1.61	61.04	3199.82	-9.40	-6.67	215.35	11.52	9.35	0.52
3300.00	1.60	64.55	3299.78	-8.12	-4.18	207.23	9.13	8.09	0.10
3400.00	1.58	56.52	3399.74	-6.76	-1.77	194.65	6.98	6.74	0.22
3500.00	1.39	43.16	3499.71	-5.11	0.21	177.61	5.12	5.11	0.39
3600.00	1.58	50.52	3599.68	-3.35	2.11	147.84	3.96	3.37	0.27
3700.00	0.96	9.13	3699.65	-1.65	3.30	116.50	3.69	1.67	1.07
3800.00	1.00	343.87	3799.64	0.02	3.19	89.68	3.19	0.01	0.43
3900.00	1.12	346.81	3899.62	1.81	2.73	56.48	3.27	-1.79	0.13
4000.00	1.26	343.50	3999.60	3.81	2.19	29.91	4.40	-3.80	0.16
4100.00	1.25	341.70	4099.58	5.90	1.54	14.61	6.10	-5.89	0.04
4200.00	1.33	340.77	4199.55	8.03	0.81	5.79	8.08	-8.03	0.08
4300.00	1.80	328.99	4299.51	10.48	-0.38	357.94	10.48	-10.48	0.57
4400.00	1.98	331.62	4399.46	13.34	-2.01	351.44	13.49	-13.36	0.20
4500.00	2.01	336.80	4499.40	16.47	-3.52	347.94	16.85	-16.50	0.18
4600.00	1.89	335.79	4599.34	19.59	-4.89	345.99	20.19	-19.63	0.12
4700.00	1.93	333.83	4699.29	22.61	-6.31	344.41	23.47	-22.65	0.08
4800.00	1.49	333.79	4799.24	25.28	-7.62	343.22	26.41	-25.34	0.44
4900.00	1.75	322.44	4899.20	27.66	-9.13	341.74	29.13	-27.73	0.41
5000.00	1.54	328.83	4999.16	30.02	-10.75	340.29	31.89	-30.10	0.28
5100.00	1.31	340.00	5099.13	32.24	-11.84	339.84	34.35	-32.33	0.36
5200.00	1.13	342.83	5199.11	34.26	-12.52	339.92	36.48	-34.36	0.19
5300.00	0.94	343.36	5299.09	35.99	-13.05	340.07	38.28	-36.09	0.19
5400.00	0.80	348.25	5399.08	37.46	-13.42	340.28	39.79	-37.56	0.16
5435.00	0.67	6.00	5434.08	37.90	-13.45	340.46	40.22	-38.00	0.74
5633.00	0.80	45.10	5632.06	40.03	-12.35	342.85	41.89	-40.12	0.26
5788.00	0.80	55.70	5787.05	41.40	-10.69	345.52	42.76	-41.48	0.10
5882.00	0.80	37.30	5881.04	42.29	-9.75	347.01	43.40	-42.37	0.27
6071.00	0.70	47.00	6070.02	44.13	-8.11	349.59	44.87	-44.19	0.09
6260.00	0.80	48.10	6259.00	45.80	-6.28	352.19	46.23	-45.85	0.05
6355.00	0.70	139.30	6354.00	45.80	-5.41	353.26	46.12	-45.84	1.13
6449.00	0.70	169.30	6447.99	44.80	-4.93	353.72	45.07	-44.84	0.39
6544.00	0.90	153.30	6542.98	43.57	-4.49	354.12	43.80	-43.60	0.31

6638.00	0.60	175.10	6636.97	42.42	-4.11	354.46	42.61	-42.45	0.44
6733.00	0.80	166.20	6731.97	41.28	-3.91	354.59	41.46	-41.30	0.24
6922.00	0.70	161.00	6920.95	38.90	-3.22	355.27	39.04	-38.93	0.06
7111.00	0.70	161.20	7109.94	36.72	-2.47	356.15	36.80	-36.74	0.00
7300.00	1.10	162.50	7298.91	33.89	-1.56	357.37	33.93	-33.91	0.21
7489.00	1.10	166.90	7487.88	30.40	-0.60	358.87	30.40	-30.40	0.04
7678.00	0.90	174.10	7676.85	27.15	-0.04	359.92	27.15	-27.15	0.12
7867.00	1.10	159.60	7865.82	23.98	0.75	1.79	23.99	-23.97	0.17
8057.00	1.00	178.30	8055.79	20.61	1.43	3.98	20.66	-20.60	0.19
8246.00	0.80	171.80	8244.77	17.66	1.67	5.41	17.74	-17.64	0.12
8435.00	0.80	188.90	8433.75	15.05	1.66	6.28	15.14	-15.03	0.13
8624.00	0.90	184.70	8622.73	12.26	1.33	6.19	12.34	-12.25	0.06
8813.00	1.00	208.70	8811.70	9.34	0.42	2.55	9.35	-9.33	0.22
9002.00	1.10	216.50	9000.67	6.43	-1.46	347.25	6.60	-6.44	0.09
9191.00	1.30	237.30	9189.63	3.82	-4.34	311.34	5.78	-3.85	0.25
9380.00	1.50	235.30	9378.57	1.25	-8.18	278.69	8.27	-1.31	0.11
9569.00	1.90	267.10	9567.49	-0.32	-13.34	268.64	13.34	0.21	0.53
9758.00	1.30	298.10	9756.42	0.53	-18.36	271.67	18.37	-0.68	0.55
9947.00	1.80	296.30	9945.35	2.86	-22.91	277.11	23.09	-3.04	0.27
10136.00	1.60	285.30	10134.27	4.87	-28.12	279.83	28.54	-5.09	0.20
10234.00	2.80	94.50	10232.24	5.04	-27.05	280.56	27.52	-5.25	4.47
10266.00	5.20	88.00	10264.16	5.03	-24.82	281.46	25.33	-5.22	7.62
10294.00	8.10	102.30	10291.97	4.66	-21.63	282.15	22.12	-4.82	11.85
10329.00	11.90	104.80	10326.43	3.21	-15.73	281.54	16.05	-3.33	10.93
10360.00	15.20	105.90	10356.57	1.28	-8.73	278.34	8.82	-1.35	10.68
10389.00	17.60	108.40	10384.38	-1.15	-0.91	218.37	1.46	1.14	8.62
10423.00	19.90	116.50	10416.58	-5.35	9.15	120.32	10.60	5.42	10.20
10455.00	21.80	123.60	10446.49	-11.07	18.98	120.26	21.97	11.22	9.87
10484.00	22.90	129.10	10473.32	-17.61	27.84	122.31	32.94	17.82	8.14
10534.00	25.10	139.70	10519.01	-31.84	42.26	127.00	52.91	32.17	9.66
10578.00	27.10	148.20	10558.54	-47.48	53.58	131.55	71.59	47.90	9.63
10628.00	30.70	156.30	10602.32	-68.87	64.72	136.78	94.51	69.36	10.62
10673.00	33.10	161.20	10640.53	-91.02	73.30	141.16	116.87	91.58	7.84
10723.00	37.30	162.90	10681.38	-118.44	82.16	145.25	144.15	119.07	8.62
10767.00	40.40	165.10	10715.64	-144.97	89.75	148.24	170.50	145.66	7.71
10801.00	43.00	165.60	10741.02	-166.85	95.47	150.22	192.23	167.58	7.71
10833.00	45.40	166.90	10763.96	-188.52	100.76	151.88	213.76	189.29	8.02
10853.00	47.50	167.90	10777.74	-202.67	103.92	152.85	227.76	203.46	11.11
10888.00	51.20	168.20	10800.54	-228.64	109.42	154.43	253.47	229.47	10.59
10919.00	54.90	168.20	10819.17	-252.89	114.48	155.64	277.59	253.76	11.94
10948.00	57.90	169.20	10835.22	-276.57	119.21	156.68	301.17	277.48	10.74
10982.00	62.80	170.80	10852.03	-305.66	124.33	157.87	329.98	306.61	14.98

11014.00	66.80	173.40	10865.66	-334.33	128.30	159.01	358.11	335.31	14.50
11043.00	70.20	175.20	10876.28	-361.18	130.97	160.07	384.19	362.17	13.07
11077.00	72.70	176.60	10887.10	-393.33	133.27	161.28	415.29	394.34	8.32
11108.00	75.70	177.00	10895.54	-423.10	134.94	162.31	444.10	424.13	9.76
11137.00	79.30	177.60	10901.82	-451.38	136.27	163.20	471.50	452.41	12.58
11171.00	84.30	178.30	10906.66	-485.00	137.47	164.17	504.11	486.04	14.85
11200.00	89.00	178.80	10908.36	-513.93	138.21	164.95	532.19	514.98	16.30
11294.00	89.40	178.70	10909.67	-607.90	140.26	167.01	623.87	608.96	0.44
11389.00	89.40	179.30	10910.67	-702.88	141.91	168.59	717.06	703.95	0.63
11483.00	90.00	180.40	10911.16	-796.88	142.16	169.89	809.46	797.95	1.33
11578.00	89.50	180.00	10911.57	-891.88	141.83	170.96	903.08	892.94	0.67
11673.00	89.60	180.20	10912.32	-986.87	141.66	171.83	996.99	987.93	0.24
11767.00	90.10	181.20	10912.56	-1080.86	140.51	172.59	1089.96	1081.91	1.19
11862.00	90.20	180.70	10912.32	-1175.85	138.94	173.26	1184.03	1176.88	0.54
11956.00	90.90	180.70	10911.41	-1269.84	137.79	173.81	1277.29	1270.86	0.74
12051.00	90.40	180.90	10910.34	-1364.82	136.46	174.29	1371.63	1365.83	0.57
12145.00	90.30	181.40	10909.76	-1458.80	134.58	174.73	1465.00	1459.79	0.54
12240.00	90.90	181.40	10908.77	-1553.77	132.26	175.13	1559.39	1554.74	0.63
12334.00	90.90	181.60	10907.29	-1647.72	129.80	175.50	1652.83	1648.67	0.21
12429.00	90.80	181.80	10905.88	-1742.67	126.98	175.83	1747.29	1743.60	0.24
12524.00	89.70	181.50	10905.47	-1837.63	124.24	176.13	1841.83	1838.53	1.20
12618.00	89.80	180.90	10905.88	-1931.61	122.27	176.38	1935.47	1932.49	0.65
12713.00	89.20	179.90	10906.71	-2026.60	121.61	176.57	2030.25	2027.47	1.23
12808.00	89.20	179.30	10908.03	-2121.59	122.27	176.70	2125.11	2122.46	0.63
12902.00	88.70	179.90	10909.75	-2215.57	122.93	176.82	2218.98	2216.45	0.83
12997.00	89.50	179.80	10911.25	-2310.56	123.18	176.95	2313.84	2311.43	0.85
13091.00	89.50	179.40	10912.07	-2404.55	123.84	177.05	2407.74	2405.43	0.43
13186.00	89.00	178.70	10913.31	-2499.53	125.41	177.13	2502.67	2500.42	0.91
13280.00	88.80	178.60	10915.12	-2593.48	127.62	177.18	2596.62	2594.39	0.24
13375.00	90.50	180.20	10915.70	-2688.47	128.62	177.26	2691.55	2689.38	2.46
13470.00	90.70	180.90	10914.70	-2783.46	127.71	177.37	2786.39	2784.36	0.77
13564.00	90.90	180.40	10913.39	-2877.45	126.64	177.48	2880.23	2878.33	0.57
13659.00	91.00	180.10	10911.81	-2972.43	126.23	177.57	2975.11	2973.31	0.33
13753.00	91.20	181.30	10910.01	-3066.41	125.08	177.66	3068.96	3067.28	1.29
13848.00	88.80	180.60	10910.01	-3161.38	123.50	177.76	3163.80	3162.24	2.63
13942.00	89.30	180.60	10911.57	-3255.37	122.52	177.84	3257.67	3256.21	0.53
14037.00	88.80	180.90	10913.14	-3350.34	121.28	177.93	3352.54	3351.18	0.61
14131.00	89.10	180.10	10914.86	-3444.32	120.46	178.00	3446.43	3445.15	0.91
14226.00	89.40	179.20	10916.11	-3539.31	121.04	178.04	3541.38	3540.14	1.00
14320.00	88.30	177.70	10917.99	-3633.26	123.58	178.05	3635.36	3634.10	1.98
14415.00	89.40	178.00	10919.90	-3728.17	127.14	178.05	3730.34	3729.04	1.20
14509.00	90.10	178.40	10920.31	-3822.12	130.09	178.05	3824.33	3823.01	0.86

14604.00	90.50	178.30	10919.81	-3917.08	132.83	178.06	3919.33	3917.98	0.43
14698.00	89.80	179.60	10919.57	-4011.06	134.55	178.08	4013.32	4011.98	1.57
14793.00	89.50	180.10	10920.15	-4106.06	134.80	178.12	4108.27	4106.97	0.61
14887.00	90.20	180.20	10920.39	-4200.06	134.55	178.17	4202.21	4200.97	0.75
14982.00	90.70	179.60	10919.65	-4295.05	134.72	178.20	4297.17	4295.96	0.82
15076.00	90.40	179.80	10918.75	-4389.05	135.21	178.24	4391.13	4389.96	0.38
15171.00	89.50	179.50	10918.83	-4484.04	135.79	178.27	4486.10	4484.96	1.00
15245.00	89.00	178.70	10919.80	-4558.03	136.95	178.28	4560.09	4558.95	1.27