

30-015-39345

Nadel & Gussman Permian, LLC

Eddy County, NM (NAD-83)

Sec 32, T23S, R29E

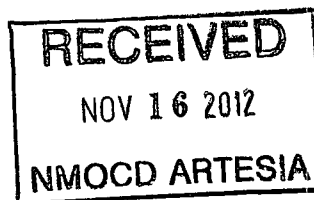
Macho Grande State #1H

Wellbore #1

Survey: MWD

DDC Survey Report

06 December, 2011





I **Larry Wright**, certify that I am employed by **The Directional Drilling Company (DDC)**. That I did on the day(s) of **11/05/11** thru **12/01/11** conduct or supervise the taking of a **MWD Survey(s)** from a depth of **2756** feet to a depth of **12350** feet, **API # 30-015-39345** that the data is true, correct, complete and within the limitations of the tool as set forth by **The Directional Drilling Company (DDC)**.; that I am authorized and qualified to make this report; that this survey was conducted at the request of **Nadel & Gussman Permian, LLC** for the **Macho Grande State #1H**, Well in **Eddy County, NM** ; and that I have reviewed this report and find that it conforms to the principles and procedures as set forth by **The Directional Drilling Company (DDC)**.

Larry Wright

Digitally signed by Larry Wright
DN: cn=Larry Wright, o=The
Directional Drilling Company,
ou=GM of Guidance Services,
email=larryw@directionaldrillers.c
om, c=US
Date: 2012.10.30 09:49:48 -05'00'

DDC Survey Report



Company:	Nadel & Gussman Permian, LLC	Local Co-ordinate Reference:	Well Macho Grande State #1H
Project:	Eddy County, NM (NAD-83)	TVD Reference:	WELL @ 3043.0usft (Original Well Elev)
Site:	Sec 32, T23S, R29E	MD Reference:	WELL @ 3043.0usft (Original Well Elev)
Well:	Macho Grande State #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 (NAD-83)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	Sec 32, T23S, R29E			
Site Position:		Northing:	461,271.88 usft	Latitude: 32° 16' 3.612 N
From:	Map	Easting:	644,532.40 usft	Longitude: 103° 59' 58.060 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence: 0.18 °

Well	Macho Grande State #1H			
Well Position	+N/-S	0.0 usft	Northing:	461,271.88 usft
	+E/-W	0.0 usft	Easting:	644,532.40 usft
Position Uncertainty	0.0 usft		Wellhead Elevation:	usft
			Ground Level:	3,022.0 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	10/6/2011	7.75	60.15	48,567

Design	Wellbore #1			
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	179.87

Survey Program	Date 12/6/2011			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
2,756.0	12,350.0	MWD (Wellbore #1)		

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 On									
2,756.0	3.61	109.61	2,754.2	0.0	0.0	0.0	0.00	0.00	0.00
2,835.0	3.20	107.10	2,833.1	-1.5	4.5	1.5	0.55	-0.52	-3.18
2,867.0	3.00	104.80	2,865.0	-2.0	6.1	2.0	0.74	-0.63	-7.19
2,899.0	2.40	86.80	2,897.0	-2.1	7.6	2.2	3.22	-1.88	-56.25
2,930.0	2.00	62.40	2,928.0	-1.8	8.7	1.9	3.25	-1.29	-78.71
2,962.0	1.80	45.10	2,959.9	-1.2	9.6	1.3	1.89	-0.63	-54.06
2,994.0	1.70	21.70	2,991.9	-0.4	10.1	0.5	2.24	-0.31	-73.13
3,026.0	2.00	3.80	3,023.9	0.6	10.3	-0.5	2.02	0.94	-55.94
3,058.0	2.20	355.00	3,055.9	1.7	10.3	-1.7	1.18	0.63	-27.50
3,090.0	2.60	342.80	3,087.9	3.0	10.0	-3.0	2.02	1.25	-38.13

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Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
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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)
3,121.0	3.10	337.00	3,118.8	4.5	9.5	-4.5	1.86	1.61	-18.71
3,153.0	3.40	334.70	3,150.8	6.1	8.8	-6.1	1.02	0.94	-7.19
3,185.0	3.30	334.40	3,182.7	7.8	7.9	-7.8	0.32	-0.31	-0.94
3,248.0	3.60	334.90	3,245.6	11.2	6.3	-11.2	0.48	0.48	0.79
3,312.0	3.60	333.50	3,309.5	14.9	4.6	-14.9	0.14	0.00	-2.19
3,375.0	3.90	342.90	3,372.3	18.7	3.1	-18.7	1.08	0.48	14.92
3,439.0	4.00	346.00	3,436.2	22.9	1.9	-22.9	0.37	0.16	4.84
3,501.0	3.90	343.40	3,498.0	27.0	0.8	-27.0	0.33	-0.16	-4.19
3,565.0	3.90	340.90	3,561.9	31.2	-0.6	-31.2	0.27	0.00	-3.91
3,629.0	3.90	341.70	3,625.7	35.3	-2.0	-35.3	0.09	0.00	1.25
3,691.0	4.00	341.60	3,687.6	39.4	-3.3	-39.4	0.16	0.16	-0.16
3,754.0	4.10	341.70	3,750.4	43.6	-4.7	-43.6	0.16	0.16	0.16
3,818.0	3.90	341.70	3,814.3	47.8	-6.1	-47.8	0.31	-0.31	0.00
3,881.0	4.30	341.10	3,877.1	52.1	-7.6	-52.1	0.64	0.63	-0.95
3,944.0	4.60	340.10	3,939.9	56.7	-9.2	-56.7	0.49	0.48	-1.59
4,008.0	4.60	340.50	4,003.7	61.5	-10.9	-61.6	0.05	0.00	0.63
4,071.0	4.60	340.50	4,066.5	66.3	-12.6	-66.3	0.00	0.00	0.00
4,135.0	4.60	340.10	4,130.3	71.1	-14.3	-71.2	0.05	0.00	-0.63
4,198.0	4.70	340.60	4,193.1	75.9	-16.0	-76.0	0.17	0.16	0.79
4,262.0	4.50	341.00	4,256.9	80.8	-17.7	-80.8	0.32	-0.31	0.63
4,325.0	4.50	339.60	4,319.7	85.4	-19.4	-85.5	0.17	0.00	-2.22
4,388.0	4.50	339.60	4,382.5	90.1	-21.1	-90.1	0.00	0.00	0.00
4,452.0	4.30	340.60	4,446.3	94.7	-22.8	-94.7	0.33	-0.31	1.56
4,516.0	4.10	338.30	4,510.2	99.1	-24.4	-99.1	0.41	-0.31	-3.59
4,579.0	4.40	347.40	4,573.0	103.5	-25.8	-103.6	1.17	0.48	14.44
4,643.0	4.70	350.30	4,636.8	108.5	-26.8	-108.6	0.59	0.47	4.53
4,706.0	4.60	351.00	4,699.6	113.6	-27.6	-113.6	0.18	-0.16	1.11
4,770.0	4.70	351.10	4,763.4	118.7	-28.4	-118.7	0.16	0.16	0.16
4,834.0	4.80	351.80	4,827.1	123.9	-29.2	-124.0	0.18	0.16	1.09
4,898.0	5.00	346.10	4,890.9	129.3	-30.3	-129.3	0.82	0.31	-8.91
4,961.0	5.10	343.70	4,953.7	134.6	-31.7	-134.7	0.37	0.16	-3.81
5,025.0	5.10	341.70	5,017.4	140.1	-33.4	-140.1	0.28	0.00	-3.13
5,088.0	4.80	338.00	5,080.2	145.2	-35.3	-145.2	0.70	-0.48	-5.87
5,151.0	4.70	337.40	5,143.0	150.0	-37.2	-150.1	0.18	-0.16	-0.95
5,215.0	4.60	335.80	5,206.7	154.8	-39.3	-154.8	0.26	-0.16	-2.50
5,278.0	4.60	339.90	5,269.5	159.4	-41.2	-159.5	0.52	0.00	6.51
5,342.0	4.40	341.30	5,333.3	164.2	-42.9	-164.3	0.36	-0.31	2.19
5,405.0	4.30	340.80	5,396.2	168.7	-44.4	-168.8	0.17	-0.16	-0.79
5,469.0	4.10	339.20	5,460.0	173.1	-46.0	-173.2	0.36	-0.31	-2.50
5,532.0	3.90	337.00	5,522.8	177.2	-47.7	-177.3	0.40	-0.32	-3.49
5,595.0	4.00	343.60	5,585.7	181.2	-49.1	-181.4	0.74	0.16	10.48
5,658.0	4.00	345.70	5,648.5	185.5	-50.3	-185.6	0.23	0.00	3.33
5,721.0	4.30	344.20	5,711.4	189.9	-51.5	-190.0	0.51	0.48	-2.38

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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)
5,784.0	4.40	344.50	5,774.2	194.5	-52.8	-194.6	0.16	0.16	0.48
5,848.0	4.60	345.10	5,838.0	199.3	-54.1	-199.5	0.32	0.31	0.94
5,911.0	4.70	344.60	5,900.8	204.3	-55.4	-204.4	0.17	0.16	-0.79
5,975.0	4.50	344.50	5,964.6	209.2	-56.8	-209.3	0.31	-0.31	-0.16
6,039.0	4.80	343.80	6,028.4	214.2	-58.2	-214.3	0.48	0.47	-1.09
6,102.0	4.90	343.20	6,091.1	219.3	-59.7	-219.4	0.18	0.16	-0.95
6,166.0	4.40	343.00	6,154.9	224.3	-61.2	-224.4	0.78	-0.78	-0.31
6,229.0	4.80	342.20	6,217.7	229.1	-62.7	-229.2	0.64	0.63	-1.27
6,292.0	4.80	343.00	6,280.5	234.1	-64.3	-234.3	0.11	0.00	1.27
6,356.0	5.40	342.00	6,344.3	239.5	-66.0	-239.7	0.95	0.94	-1.56
6,419.0	5.40	342.00	6,407.0	245.2	-67.8	-245.3	0.00	0.00	0.00
6,482.0	5.20	342.60	6,469.7	250.7	-69.6	-250.9	0.33	-0.32	0.95
6,546.0	4.90	340.60	6,533.5	256.1	-71.4	-256.2	0.54	-0.47	-3.13
6,609.0	4.70	338.60	6,596.2	261.0	-73.2	-261.2	0.41	-0.32	-3.17
6,673.0	4.20	336.00	6,660.0	265.6	-75.1	-265.8	0.84	-0.78	-4.06
6,737.0	4.00	336.30	6,723.9	269.8	-77.0	-270.0	0.31	-0.31	0.47
6,800.0	3.60	333.30	6,786.7	273.6	-78.8	-273.7	0.71	-0.63	-4.76
6,864.0	3.30	331.10	6,850.6	277.0	-80.6	-277.2	0.51	-0.47	-3.44
6,928.0	2.60	326.80	6,914.5	279.8	-82.2	-280.0	1.15	-1.09	-6.72
6,991.0	2.10	318.70	6,977.5	281.9	-83.8	-282.1	0.95	-0.79	-12.86
7,054.0	1.60	314.10	7,040.5	283.3	-85.2	-283.5	0.83	-0.79	-7.30
7,117.0	1.20	321.80	7,103.4	284.5	-86.2	-284.7	0.70	-0.63	12.22
7,147.0	1.40	327.60	7,133.4	285.0	-86.6	-285.2	0.80	0.67	19.33
7,179.0	1.50	195.90	7,165.4	285.0	-86.9	-285.2	8.27	0.31	-411.56
7,210.0	5.90	179.00	7,196.4	283.0	-87.0	-283.2	14.47	14.19	-54.52
7,242.0	11.30	176.20	7,228.0	278.2	-86.8	-278.4	16.92	16.88	-8.75
7,274.0	16.40	176.60	7,259.0	270.5	-86.3	-270.7	15.94	15.94	1.25
7,306.0	19.50	178.50	7,289.5	260.7	-85.9	-260.9	9.86	9.69	5.94
7,337.0	22.00	178.50	7,318.5	249.7	-85.6	-249.9	8.06	8.06	0.00
7,369.0	24.50	178.80	7,347.9	237.1	-85.3	-237.3	7.82	7.81	0.94
7,401.0	26.50	178.00	7,376.7	223.3	-84.9	-223.5	6.34	6.25	-2.50
7,433.0	26.70	177.10	7,405.4	209.0	-84.3	-209.2	1.41	0.63	-2.81
7,464.0	26.30	176.30	7,433.1	195.2	-83.5	-195.4	1.73	-1.29	-2.58
7,496.0	26.40	176.70	7,461.8	181.0	-82.6	-181.2	0.64	0.31	1.25
7,528.0	29.70	176.40	7,490.0	166.0	-81.7	-166.2	10.32	10.31	-0.94
7,560.0	34.50	178.30	7,517.1	149.0	-81.0	-149.2	15.33	15.00	5.94
7,592.0	39.20	180.10	7,542.7	129.8	-80.7	-130.0	15.07	14.69	5.63
7,624.0	43.10	181.70	7,566.8	108.8	-81.1	-109.0	12.62	12.19	5.00
7,656.0	45.70	181.20	7,589.7	86.4	-81.6	-86.6	8.20	8.13	-1.56
7,688.0	47.50	181.10	7,611.7	63.2	-82.1	-63.4	5.63	5.63	-0.31
7,719.0	50.50	181.40	7,632.0	39.8	-82.6	-40.0	9.70	9.68	0.97
7,751.0	55.70	181.20	7,651.2	14.2	-83.2	-14.4	16.26	16.25	-0.63

Crossed Hard Line @ 7770' MD

DDC Survey Report



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7,770.0	58.89	181.07	7,661.5	-1.8	-83.5	1.6	16.78	16.77	-0.66
7,782.0	60.90	181.00	7,667.5	-12.2	-83.7	12.0	16.78	16.77	-0.62
7,814.0	66.10	180.90	7,681.8	-40.8	-84.2	40.6	16.25	16.25	-0.31
7,846.0	70.40	181.40	7,693.6	-70.5	-84.8	70.3	13.52	13.44	1.56
7,877.0	74.30	181.90	7,703.0	-100.0	-85.6	99.8	12.67	12.58	1.61
7,909.0	78.00	181.30	7,710.7	-131.1	-86.5	130.9	11.70	11.56	-1.88
7,941.0	82.00	179.60	7,716.2	-162.6	-86.7	162.4	13.55	12.50	-5.31
8,027.0	88.40	178.40	7,723.4	-248.2	-85.2	248.0	7.57	7.44	-1.40
8,058.0	89.50	178.80	7,724.0	-279.2	-84.5	279.0	3.78	3.55	1.29
8,090.0	91.30	178.70	7,723.8	-311.2	-83.8	311.0	5.63	5.63	-0.31
8,122.0	92.60	178.50	7,722.7	-343.2	-83.0	343.0	4.11	4.06	-0.63
8,153.0	93.10	178.80	7,721.1	-374.1	-82.3	373.9	1.88	1.61	0.97
8,185.0	92.10	178.90	7,719.7	-406.1	-81.6	405.9	3.14	-3.13	0.31
8,216.0	90.30	178.70	7,719.0	-437.1	-81.0	436.9	5.84	-5.81	-0.65
8,248.0	89.20	178.30	7,719.2	-469.0	-80.1	468.9	3.66	-3.44	-1.25
8,280.0	88.90	178.20	7,719.7	-501.0	-79.2	500.8	0.99	-0.94	-0.31
8,312.0	87.80	177.40	7,720.6	-533.0	-77.9	532.8	4.25	-3.44	-2.50
8,343.0	87.50	177.10	7,721.9	-563.9	-76.4	563.7	1.37	-0.97	-0.97
8,375.0	87.70	177.40	7,723.2	-595.9	-74.9	595.7	1.13	0.63	0.94
8,407.0	88.20	176.80	7,724.4	-627.8	-73.3	627.6	2.44	1.56	-1.88
8,438.0	87.50	177.00	7,725.5	-658.7	-71.6	658.6	2.35	-2.26	0.65
8,470.0	86.50	176.90	7,727.2	-690.6	-69.9	690.5	3.14	-3.13	-0.31
8,502.0	86.30	176.90	7,729.2	-722.5	-68.2	722.4	0.63	-0.63	0.00
8,534.0	87.20	177.20	7,731.0	-754.4	-66.5	754.3	2.96	2.81	0.94
8,565.0	88.30	177.40	7,732.3	-785.4	-65.1	785.2	3.61	3.55	0.65
8,597.0	88.40	176.90	7,733.2	-817.3	-63.5	817.2	1.59	0.31	-1.56
8,628.0	88.50	178.10	7,734.0	-848.3	-62.1	848.1	3.88	0.32	3.87
8,660.0	88.50	179.80	7,734.9	-880.3	-61.6	880.1	5.31	0.00	5.31
8,691.0	86.90	180.70	7,736.1	-911.2	-61.7	911.1	5.92	-5.16	2.90
8,723.0	86.60	180.40	7,737.9	-943.2	-62.0	943.0	1.32	-0.94	-0.94
8,754.0	86.50	180.30	7,739.8	-974.1	-62.2	974.0	0.46	-0.32	-0.32
8,786.0	86.60	180.00	7,741.7	-1,006.1	-62.3	1,005.9	0.99	0.31	-0.94
8,817.0	86.50	180.20	7,743.6	-1,037.0	-62.3	1,036.9	0.72	-0.32	0.65
8,849.0	85.30	180.70	7,745.9	-1,068.9	-62.6	1,068.8	4.06	-3.75	1.56
8,880.0	84.80	180.50	7,748.5	-1,099.8	-62.9	1,099.7	1.74	-1.61	-0.65
8,912.0	84.80	181.00	7,751.4	-1,131.7	-63.3	1,131.5	1.56	0.00	1.56
8,943.0	84.60	181.10	7,754.3	-1,162.5	-63.9	1,162.4	0.72	-0.65	0.32
8,975.0	84.20	180.60	7,757.4	-1,194.4	-64.3	1,194.2	2.00	-1.25	-1.56
9,007.0	84.00	180.60	7,760.7	-1,226.2	-64.7	1,226.1	0.63	-0.63	0.00
9,039.0	84.70	179.70	7,763.9	-1,258.1	-64.8	1,257.9	3.55	2.19	-2.81
9,070.0	85.40	179.00	7,766.5	-1,288.9	-64.4	1,288.8	3.19	2.26	-2.26
9,102.0	86.50	179.40	7,768.8	-1,320.9	-64.0	1,320.7	3.66	3.44	1.25
9,133.0	87.70	180.20	7,770.4	-1,351.8	-63.9	1,351.7	4.65	3.87	2.58
9,165.0	88.10	180.40	7,771.5	-1,383.8	-64.0	1,383.6	1.40	1.25	0.63

DDC Survey Report



Company: Nadel & Gussman Permian, LLC	Local Co-ordinate Reference: Well Macho Grande State #1H	
Project: Eddy County, NM (NAD-83)	TVD Reference: WELL @ 3043.0usft (Original Well Elev)	
Site: Sec 32, T23S, R29E	MD Reference: WELL @ 3043.0usft (Original Well Elev)	
Well: Macho Grande State #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)
9,196.0	88.30	180.30	7,772.5	-1,414.8	-64.2	1,414.6	0.72	0.65	-0.32
9,228.0	88.50	180.10	7,773.4	-1,446.8	-64.3	1,446.6	0.88	0.63	-0.63
9,259.0	87.70	179.20	7,774.4	-1,477.7	-64.1	1,477.6	3.88	-2.58	-2.90
9,291.0	87.30	179.10	7,775.8	-1,509.7	-63.7	1,509.6	1.29	-1.25	-0.31
9,322.0	88.80	179.30	7,776.9	-1,540.7	-63.2	1,540.5	4.88	4.84	0.65
9,354.0	90.20	179.30	7,777.2	-1,572.7	-62.8	1,572.5	4.38	4.38	0.00
9,386.0	90.20	178.90	7,777.0	-1,604.7	-62.3	1,604.5	1.25	0.00	-1.25
9,417.0	90.00	178.30	7,777.0	-1,635.7	-61.6	1,635.5	2.04	-0.65	-1.94
9,449.0	89.90	178.50	7,777.0	-1,667.7	-60.7	1,667.5	0.70	-0.31	0.63
9,481.0	91.30	178.60	7,776.7	-1,699.6	-59.9	1,699.5	4.39	4.38	0.31
9,512.0	91.10	178.50	7,776.0	-1,730.6	-59.1	1,730.5	0.72	-0.65	-0.32
9,543.0	91.20	178.50	7,775.4	-1,761.6	-58.3	1,761.5	0.32	0.32	0.00
9,575.0	91.80	178.70	7,774.6	-1,793.6	-57.5	1,793.5	1.98	1.88	0.63
9,607.0	91.90	178.60	7,773.5	-1,825.6	-56.7	1,825.4	0.44	0.31	-0.31
9,638.0	90.60	178.50	7,772.9	-1,856.5	-56.0	1,856.4	4.21	-4.19	-0.32
9,670.0	90.50	179.00	7,772.6	-1,888.5	-55.3	1,888.4	1.59	-0.31	1.56
9,701.0	90.70	179.40	7,772.2	-1,919.5	-54.8	1,919.4	1.44	0.65	1.29
9,733.0	90.90	179.90	7,771.8	-1,951.5	-54.6	1,951.4	1.68	0.63	1.56
9,764.0	90.00	179.40	7,771.5	-1,982.5	-54.4	1,982.4	3.32	-2.90	-1.61
9,796.0	88.50	177.80	7,772.0	-2,014.5	-53.7	2,014.4	6.85	-4.69	-5.00
9,828.0	88.60	177.90	7,772.8	-2,046.5	-52.5	2,046.4	0.44	0.31	0.31
9,859.0	88.80	178.60	7,773.5	-2,077.5	-51.5	2,077.3	2.35	0.65	2.26
9,891.0	89.10	178.80	7,774.1	-2,109.4	-50.8	2,109.3	1.13	0.94	0.63
9,922.0	89.00	178.50	7,774.6	-2,140.4	-50.1	2,140.3	1.02	-0.32	-0.97
9,954.0	89.10	177.90	7,775.1	-2,172.4	-49.1	2,172.3	1.90	0.31	-1.88
9,985.0	88.90	176.80	7,775.6	-2,203.4	-47.6	2,203.3	3.61	-0.65	-3.55
10,017.0	88.00	176.80	7,776.5	-2,235.3	-45.8	2,235.2	2.81	-2.81	0.00
10,048.0	88.50	176.70	7,777.5	-2,266.2	-44.1	2,266.1	1.64	1.61	-0.32
10,080.0	89.50	176.70	7,778.0	-2,298.2	-42.2	2,298.1	3.13	3.13	0.00
10,112.0	90.20	176.90	7,778.1	-2,330.1	-40.5	2,330.0	2.28	2.19	0.63
10,143.0	90.80	176.80	7,777.8	-2,361.1	-38.8	2,361.0	1.96	1.94	-0.32
10,175.0	90.90	176.90	7,777.4	-2,393.0	-37.0	2,392.9	0.44	0.31	0.31
10,206.0	90.70	176.50	7,776.9	-2,424.0	-35.2	2,423.9	1.44	-0.65	-1.29
10,238.0	90.50	176.40	7,776.6	-2,455.9	-33.2	2,455.8	0.70	-0.63	-0.31
10,269.0	90.50	177.50	7,776.3	-2,486.9	-31.6	2,486.8	3.55	0.00	3.55
10,301.0	90.60	177.90	7,776.0	-2,518.8	-30.3	2,518.8	1.29	0.31	1.25
10,332.0	89.60	178.30	7,776.0	-2,549.8	-29.3	2,549.8	3.47	-3.23	1.29
10,364.0	89.70	178.30	7,776.2	-2,581.8	-28.3	2,581.7	0.31	0.31	0.00
10,396.0	90.30	177.80	7,776.2	-2,613.8	-27.2	2,613.7	2.44	1.88	-1.56
10,427.0	89.80	177.60	7,776.1	-2,644.8	-26.0	2,644.7	1.74	-1.61	-0.65
10,458.0	89.10	178.40	7,776.4	-2,675.8	-24.9	2,675.7	3.43	-2.26	2.58
10,490.0	88.70	179.00	7,777.0	-2,707.7	-24.2	2,707.7	2.25	-1.25	1.88
10,522.0	89.00	179.40	7,777.7	-2,739.7	-23.7	2,739.7	1.56	0.94	1.25

DDC
Survey Report



Company: Nadel & Gussman Permian, LLC	Local Co-ordinate Reference: Well Macho Grande State #1H
Project: Eddy County, NM (NAD-83)	TVD Reference: WELL @ 3043.0usft (Original Well Elev)
Site: Sec 32, T23S, R29E	MD Reference: WELL @ 3043.0usft (Original Well Elev)
Well: Macho Grande State #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)
10,553.0	88.70	179.30	7,778.3	-2,770.7	-23.4	2,770.7	1.02	-0.97	-0.32
10,585.0	90.10	179.60	7,778.6	-2,802.7	-23.1	2,802.7	4.47	4.38	0.94
10,616.0	91.30	179.30	7,778.3	-2,833.7	-22.8	2,833.7	3.99	3.87	-0.97
10,648.0	91.90	179.80	7,777.4	-2,865.7	-22.5	2,865.6	2.44	1.88	1.56
10,680.0	90.50	179.80	7,776.7	-2,897.7	-22.4	2,897.6	4.38	-4.38	0.00
10,711.0	89.50	179.80	7,776.7	-2,928.7	-22.3	2,928.6	3.23	-3.23	0.00
10,742.0	88.80	180.30	7,777.2	-2,959.7	-22.3	2,959.6	2.77	-2.26	1.61
10,774.0	88.70	180.20	7,777.9	-2,991.7	-22.5	2,991.6	0.44	-0.31	-0.31
10,806.0	89.30	180.20	7,778.4	-3,023.7	-22.6	3,023.6	1.88	1.88	0.00
10,837.0	90.50	179.20	7,778.5	-3,054.7	-22.4	3,054.6	5.04	3.87	-3.23
10,869.0	90.20	178.90	7,778.3	-3,086.7	-21.9	3,086.6	1.33	-0.94	-0.94
10,900.0	90.70	178.60	7,778.0	-3,117.7	-21.2	3,117.6	1.88	1.61	-0.97
10,932.0	90.50	178.20	7,777.7	-3,149.6	-20.3	3,149.6	1.40	-0.63	-1.25
10,964.0	91.20	177.40	7,777.2	-3,181.6	-19.1	3,181.6	3.32	2.19	-2.50
10,995.0	90.80	177.70	7,776.7	-3,212.6	-17.8	3,212.5	1.61	-1.29	0.97
11,026.0	90.40	177.40	7,776.4	-3,243.6	-16.4	3,243.5	1.61	-1.29	-0.97
11,058.0	89.60	177.10	7,776.4	-3,275.5	-14.9	3,275.5	2.67	-2.50	-0.94
11,090.0	90.70	177.10	7,776.3	-3,307.5	-13.3	3,307.4	3.44	3.44	0.00
11,121.0	91.80	176.90	7,775.6	-3,338.4	-11.7	3,338.4	3.61	3.55	-0.65
11,152.0	91.80	177.00	7,774.6	-3,369.4	-10.0	3,369.3	0.32	0.00	0.32
11,184.0	92.40	177.50	7,773.4	-3,401.3	-8.5	3,401.3	2.44	1.88	1.56
11,216.0	92.80	177.40	7,772.0	-3,433.2	-7.1	3,433.2	1.29	1.25	-0.31
11,247.0	91.50	178.00	7,770.8	-3,464.2	-5.8	3,464.2	4.62	-4.19	1.94
11,278.0	90.80	179.30	7,770.2	-3,495.2	-5.1	3,495.2	4.76	-2.26	4.19
11,310.0	90.70	179.80	7,769.8	-3,527.2	-4.8	3,527.2	1.59	-0.31	1.56
11,341.0	90.70	179.40	7,769.4	-3,558.2	-4.6	3,558.1	1.29	0.00	-1.29
11,373.0	90.40	179.30	7,769.1	-3,590.2	-4.3	3,590.1	0.99	-0.94	-0.31
11,404.0	90.40	179.20	7,768.9	-3,621.2	-3.8	3,621.1	0.32	0.00	-0.32
11,436.0	90.60	179.30	7,768.6	-3,653.2	-3.4	3,653.1	0.70	0.63	0.31
11,467.0	90.90	179.70	7,768.2	-3,684.2	-3.2	3,684.1	1.61	0.97	1.29
11,499.0	91.40	179.80	7,767.6	-3,716.1	-3.0	3,716.1	1.59	1.56	0.31
11,531.0	91.20	180.10	7,766.8	-3,748.1	-3.0	3,748.1	1.13	-0.63	0.94
11,562.0	90.10	179.30	7,766.5	-3,779.1	-2.8	3,779.1	4.39	-3.55	-2.58
11,594.0	89.10	179.00	7,766.7	-3,811.1	-2.4	3,811.1	3.26	-3.13	-0.94
11,625.0	89.10	178.80	7,767.2	-3,842.1	-1.8	3,842.1	0.65	0.00	-0.65
11,657.0	90.50	179.40	7,767.3	-3,874.1	-1.3	3,874.1	4.76	4.38	1.88
11,688.0	90.90	179.70	7,766.9	-3,905.1	-1.0	3,905.1	1.61	1.29	0.97
11,720.0	90.20	179.20	7,766.6	-3,937.1	-0.7	3,937.1	2.69	-2.19	-1.56
11,751.0	90.40	179.00	7,766.5	-3,968.1	-0.2	3,968.1	0.91	0.65	-0.65
11,783.0	90.20	178.60	7,766.3	-4,000.1	0.5	4,000.1	1.40	-0.63	-1.25
11,815.0	90.20	178.60	7,766.2	-4,032.1	1.2	4,032.1	0.00	0.00	0.00
11,846.0	89.40	178.10	7,766.3	-4,063.1	2.1	4,063.1	3.04	-2.58	-1.61
11,878.0	89.20	179.20	7,766.7	-4,095.1	2.9	4,095.1	3.49	-0.63	3.44

DDC Survey Report



Company:	Nadel & Gussman Permian, LLC	Local Co-ordinate Reference:	Well Macho Grande State #1H
Project:	Eddy County, NM (NAD-83)	TVD Reference:	WELL @ 3043.0usft (Original Well Elev)
Site:	Sec 32, T23S, R29E	MD Reference:	WELL @ 3043.0usft (Original Well Elev)
Well:	Macho Grande State #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)
11,909.0	89.90	179.80	7,766.9	-4,126.1	3.1	4,126.1	2.97	2.26	1.94
11,941.0	89.90	179.50	7,767.0	-4,158.1	3.3	4,158.1	0.94	0.00	-0.94
11,973.0	90.20	179.50	7,766.9	-4,190.1	3.6	4,190.1	0.94	0.94	0.00
12,004.0	90.60	179.40	7,766.7	-4,221.1	3.9	4,221.1	1.33	1.29	-0.32
12,036.0	89.80	179.10	7,766.6	-4,253.1	4.3	4,253.1	2.67	-2.50	-0.94
12,068.0	89.60	179.00	7,766.8	-4,285.0	4.9	4,285.0	0.70	-0.63	-0.31
12,099.0	90.50	178.80	7,766.8	-4,316.0	5.5	4,316.0	2.97	2.90	-0.65
12,131.0	90.80	179.50	7,766.4	-4,348.0	5.9	4,348.0	2.38	0.94	2.19
12,162.0	90.40	179.10	7,766.1	-4,379.0	6.3	4,379.0	1.82	-1.29	-1.29
12,193.0	89.90	178.90	7,766.0	-4,410.0	6.9	4,410.0	1.74	-1.61	-0.65
12,224.0	89.40	178.60	7,766.2	-4,441.0	7.5	4,441.0	1.88	-1.61	-0.97
12,256.0	89.50	178.80	7,766.5	-4,473.0	8.3	4,473.0	0.70	0.31	0.63
12,287.0	89.50	178.60	7,766.8	-4,504.0	9.0	4,504.0	0.65	0.00	-0.65
TD @ 12350' MD									
12,350.0	89.50	178.60	7,767.3	-4,567.0	10.5	4,567.0	0.00	0.00	0.00

Survey Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
2,756.0	2,754.2	0.0	0.0	Tie On
7,770.0	7,661.5	-1.8	-83.5	Crossed Hard Line @ 7770' MD
12,350.0	7,767.3	-4,567.0	10.5	TD @ 12350' MD

Checked By: _____	Approved By: _____	Date: _____
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