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NADEL & GUSSMAN LLC

Cedar Canyon
Eddy County, NM
Macho Grande State #1H
VH - Job #32K11111061

Survey: Gyro

SDI Standard Survey Report

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

Notarized this date 12th of December, 2011.

Notary Signature
County of Midland
State of Texas

CARRIE REED
My Commission Expires
October 4, 2015

Scientific Drilling
Directional Drilling Operations

Scientific Drilling International, Inc.

SDI Standard Survey Report

Scientific Drilling
Directional Drilling Operations

Company:	NADEL & GUSSMAN LLC	**Local Co-ordinate Reference:**	Well Macho Grande State #1H
Project:	Cedar Canyon	**TVD Reference:**	WELL @ 0 0usft (Original Well Elev)
Site:	Eddy County, NM	**MD Reference:**	WELL @ 0 0usft (Original Well Elev)
Well:	Macho Grande State #1H	**North Reference:**	Grid
Wellbore:	VH - Job #32K11111061	**Survey Calculation Method:**	Minimum Curvature
Design:	VH - Job #32K11111061	**Database:**	EDM-Regulatory

Project Cedar Canyon

Map System:	US State Plane 1983	**System Datum:**	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site Eddy County, NM

Site Position:		**Northing:**	461,271.71 usft	**Latitude:**	32° 16' 3 610 N
From:	Lat/Long	**Easting:**	644,532 36 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, Directional (DDC)

Well Position	**+N/-S**	0.0 usft	**Northing:**	461,271 71 usft	**Latitude:**	32° 16' 3 610 N
	+E/-W	0.0 usft	**Easting:**	644,532 36 usft	**Longitude:**	103° 59' 58 060 W
Position Uncertainty		0 0 usft	**Wellhead Elevation:**	usft	**Ground Level:**	0 0 usft

Wellbore VH - Job #32K11111061

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	11/3/2011	7 74	60 14	48,582

Design VH - Job #32K11111061

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 07

Survey Program **Date** 12/30/2011

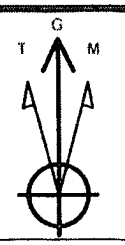
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
100 0	2,756 1	Gyro (VH - Job #32K11111061)	Keeper	Keeper Gyro

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	True Vertical Depth	North/South (usft)	East/West (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 36	14 22	100.0	0 3	0 1	14 22	0 3
200.0	0.34	45.30	200 0	0 8	0 4	24 07	0 9
300 0	0 83	184 83	300 0	0.3	0 5	59 39	0 6
400 0	0 90	188 70	400 0	-1 2	0 3	164 30	1.2
500 0	0 91	192 77	500 0	-2 7	0 0	179.14	2 7
600 0	0 93	182 05	600.0	-4 3	-0.2	182 16	4 3
700 0	1 13	185 86	699 9	-6.1	-0 3	182 74	6 1
800 0	1.15	187 44	799 9	-8 1	-0 5	183 70	8.1
900 0	1 17	181 08	899 9	-10 1	-0 7	183.81	10 1
1,100 0	1.09	186 44	1,099 9	-14 0	-0 9	183 77	14 1
1,200 0	1 18	187 41	1,199 8	-16 0	-1.2	184 16	16.1

Scientific Drilling
Directional Drilling Operations

Project: Cedar Canyon
Eddy County, NM
Well: Macho Grande State #1H
Wellbore: VH - Job #32K11111061
Design: VH - Job #32K11111061

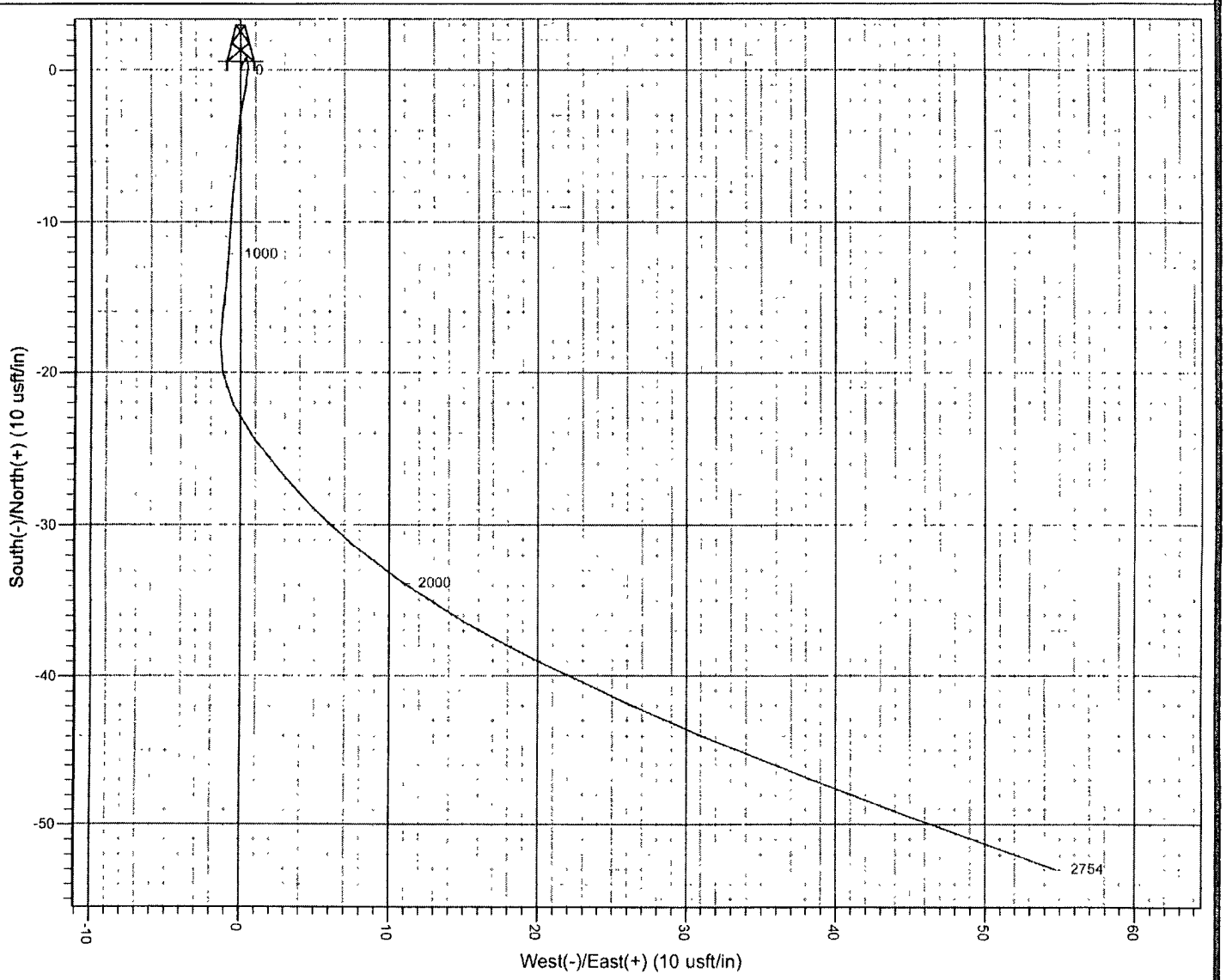


Azimuths to Grid North
True North: -0.18°
Magnetic North: 7.56°

Magnetic Field
Strength: 48582.0snT
Dip Angle: 60.14°
Date: 11/3/2011
Model: IGRF2010

WELL DETAILS: Macho Grande State #1H
WELL @ 0.0usft (Original Well Elev)
Ground Level: 0.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	461271.71	644532.36	32° 16' 3.610 N	103° 59' 58.060 W	



PROJECT DETAILS: Cedar Canyon
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. Eddy County, NM
Site Centre Latitude: 32° 16' 3.610 N
Longitude: 103° 59' 58.060 W
Positional Uncertainity: 0.0
Convergence. 0.18
Local North. Grid

Scientific Drilling International, Inc.

SDI Standard Survey Report

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Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	True Vertical Depth	North/South (usft)	East/West (usft)	Closure Azimuth (°)	Closure Distance (usft)
1,300 0	1.14	183.01	1,299 8	-18 0	-1 3	184.28	18 1
1,400.0	1 20	167.80	1,399 8	-20 0	-1.2	183 37	20 1
1,500 0	1 39	154 70	1,499 8	-22 2	-0.4	181 14	22 2
1,600 0	1 62	142 31	1,599 7	-24 4	0 9	177 79	24 4
1,700.0	1 73	138 05	1,699 7	-26 6	2 8	173 96	26 8
1,800 0	1.81	137 06	1,799.7	-28.9	4.9	170.38	29 3
1,900 0	2 25	128.38	1,899 6	-31 3	7 5	166.49	32 2
2,000 0	2 64	125 12	1,999.5	-33.8	10 9	162 08	35.5
2,100 0	2 91	119 77	2,099 4	-36.4	15 0	157 57	39 4
2,200 0	3 53	116 19	2,199.2	-39.0	20.0	152 87	43 8
2,300 0	3 89	114.54	2,299.0	-41 8	25.8	148.27	49 1
2,400 0	4 02	111 37	2,398.8	-44 5	32.2	144 10	54 9
2,500 0	4 03	112 44	2,498.5	-47 1	38.7	140 59	61 0
2,600 0	3 98	108 86	2,598 3	-49 6	45 2	137.61	67.1
2,700 0	3 58	110.57	2,698 1	-51 8	51.4	135 19	73.0
2,756 1	3 61	109 61	2,754 1	-53 0	54.7	134 06	76 2