



NADEL & GUSSMAN LLC

15-39761

Atoka
Eddy County, NM
Iron Duke #2H
VH - Job #32K09121119

Survey: Gyro

SDI Standard Survey Report

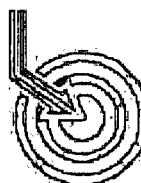
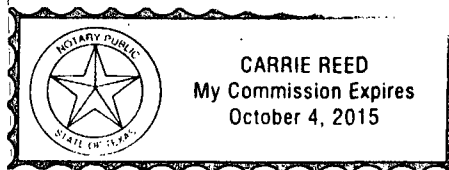
This survey is correct to the best of my knowledge and is supported by actual field data.

[Signature]

Notarized this date 8th of October, 2012.

[Signature]

Notary Signature
County of Midland
State of Texas



Scientific Drilling

Scientific Drilling International, Inc.
SDI Standard Survey Report



Company:	NADEL & GUSSMAN LLC	Local Co-ordinate Reference:	Well Iron Duke #2H
Project:	Atoka	TVD Reference:	WELL @ 0.00usft (Original Well Elev)
Site:	Eddy County, NM	MD Reference:	WELL @ 0.00usft (Original Well Elev)
Well:	Iron Duke #2H	North Reference:	Grid
Wellbore:	VH - Job #32K09121119	Survey Calculation Method:	Minimum Curvature
Design:	VH - Job #32K09121119	Database:	EDM-Regulatory

Project	Atoka		
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		Eddy County, NM			
Site Position:		Northing:	637,926.15 usft	Latitude:	32° 45' 13.457 N
From:	Lat/Long	Easting:	481,380.48 usft	Longitude:	104° 23' 38.033 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16"	Grid Convergence:	-0.03 °

Well	Iron Duke #2H, Directional (DDC)					
Well Position	+N/-S	0.00 usft	Northing:	640,929.70 usft	Latitude:	32° 45' 43.200 N
	+E/-W	0.00 usft	Easting:	485,654.49 usft	Longitude:	104° 22' 48.000 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	0.00 usft

Wellbore		VH - Job #32K09121119			
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	09/06/12	7.85	60.51	48,752

Design		VH - Job #32K09121119			
Audit Notes:					
Version: 1.0		Phase:		ACTUAL	
				Tie On Depth: 0.00	
Vertical Section:		Depth From (TVD)		Direction	
		(usft)		(°)	
		0.00		63.70	

Survey Program		Date	09/29/12		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
100.00	3,055.00	Gyro (VH - Job #32K09121119)	Keeper	Keeper Gyro	

Survey							
Measured Depth (usft)	Inclination (°)	Azimuth (°)	True Vertical Depth	North/South (usft)	East/West (usft)	Closure Azimuth (°)	Closure Distance (usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.51	265.45	100.00	-0.04	-0.44	265.45	0.45
200.00	0.51	275.39	199.99	-0.03	-1.33	268.76	1.33
300.00	0.59	20.40	299.99	0.50	-1.59	287.27	1.67
400.00	0.81	20.47	399.98	1.64	-1.17	324.56	2.01
500.00	0.88	25.06	499.97	3.00	-0.59	348.78	3.06
600.00	1.04	28.80	599.96	4.49	0.17	2.14	4.49
700.00	1.43	38.83	699.94	6.26	1.39	12.50	6.41
800.00	1.43	55.39	799.91	7.94	3.20	21.94	8.56
900.00	1.20	60.78	899.88	9.16	5.14	29.29	10.50
1,000.00	1.10	63.59	999.86	10.10	6.91	34.39	12.23
1,100.00	0.96	56.44	1,099.84	10.99	8.47	37.63	13.87

Scientific Drilling International, Inc.

SDI Standard Survey Report



Company:	NADEL & GUSSMAN LLC	Local Co-ordinate Reference:	Well Iron Duke #2H
Project:	Atoka	TVD Reference:	WELL @ 0.00usft (Original Well Elev)
Site:	Eddy County, NM	MD Reference:	WELL @ 0.00usft (Original Well Elev)
Well:	Iron Duke #2H	North Reference:	Grid
Wellbore:	VH - Job #32K09121119	Survey Calculation Method:	Minimum Curvature
Design:	VH - Job #32K09121119	Database:	EDM-Regulatory

Survey								
Measured Depth (usft)	Inclination (°)	Azimuth (°)	True Vertical Depth	North/South (usft)	East/West (usft)	Closure Azimuth (°)	Closure Distance (usft)	
1,200.00	1.26	69.58	1,199.82	11.83	10.20	40.76	15.62	
1,300.00	1.38	75.74	1,299.80	12.51	12.39	44.73	17.61	
1,400.00	1.43	79.54	1,399.77	13.04	14.79	48.61	19.71	
1,500.00	1.24	83.48	1,499.74	13.38	17.09	51.93	21.71	
1,600.00	1.08	83.95	1,599.72	13.61	19.10	54.54	23.45	
1,700.00	0.99	82.06	1,699.70	13.83	20.90	56.51	25.06	
1,800.00	0.74	66.38	1,799.69	14.20	22.34	57.56	26.48	
1,900.00	0.69	72.64	1,899.68	14.64	23.51	58.08	27.70	
2,000.00	0.55	86.60	1,999.68	14.85	24.56	58.84	28.70	
2,100.00	0.56	88.84	2,099.67	14.89	25.53	59.75	29.55	
2,200.00	0.57	87.00	2,199.67	14.92	26.52	60.63	30.43	
2,300.00	0.19	93.40	2,299.67	14.94	27.18	61.20	31.01	
2,400.00	0.34	137.98	2,399.67	14.71	27.54	61.89	31.22	
2,500.00	0.16	158.25	2,499.66	14.36	27.79	62.68	31.28	
2,600.00	0.29	200.66	2,599.66	13.99	27.76	63.24	31.08	
2,700.00	0.35	199.24	2,699.66	13.47	27.57	63.96	30.68	
2,800.00	0.29	244.42	2,799.66	13.07	27.24	64.36	30.21	
2,900.00	0.30	244.46	2,899.66	12.85	26.77	64.36	29.70	
3,000.00	0.70	265.47	2,999.66	12.69	25.93	63.92	28.86	
3,055.00	0.54	240.76	3,054.65	12.53	25.37	63.70	28.29	

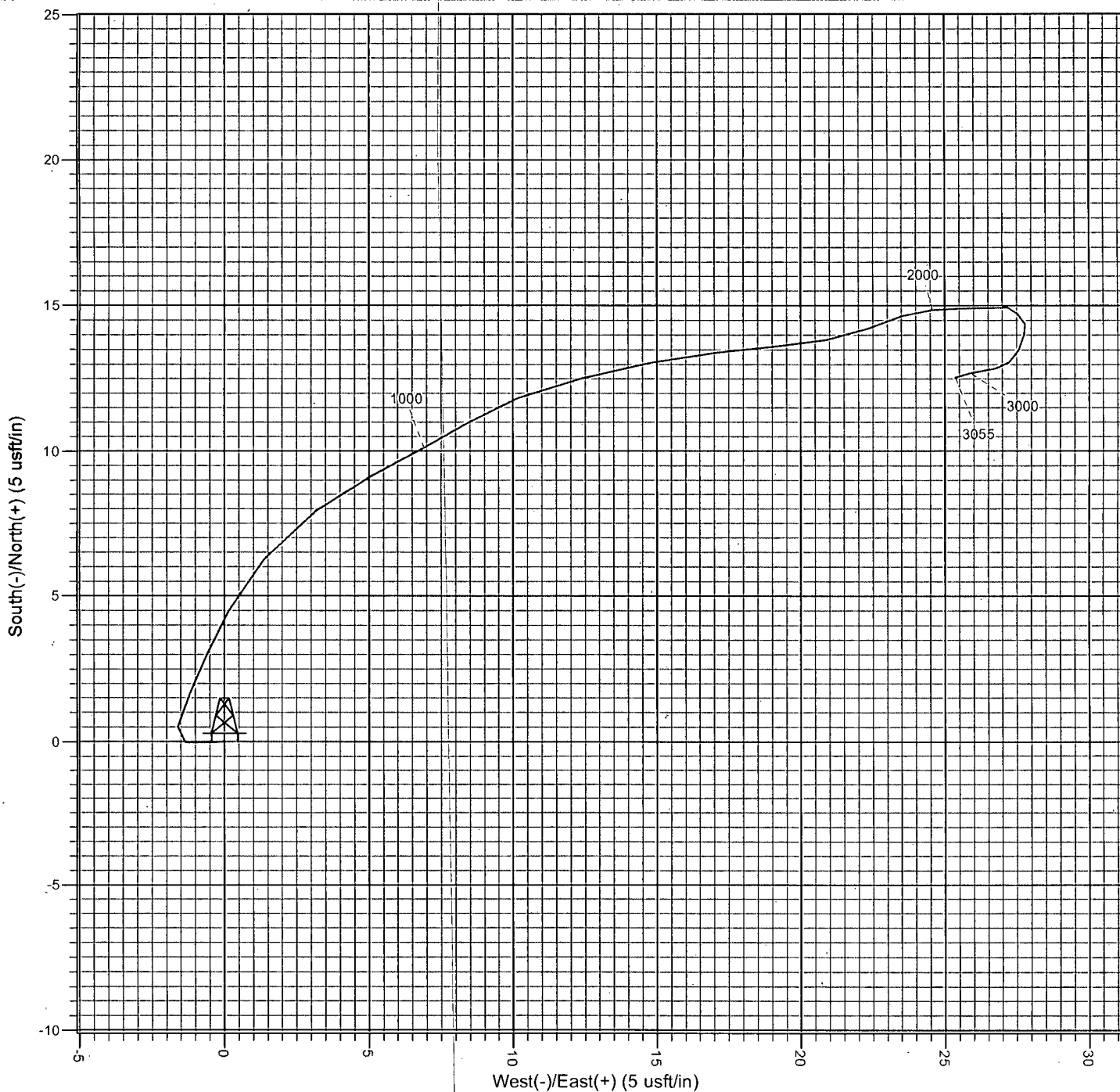


Scientific Drilling

Project: Atoka
Eddy County, NM
Well: Iron Duke #2H
Wellbore: VH - Job #32K09121119
Design: VH - Job #32K09121119

WELL DETAILS: Iron Duke #2H
WELL @ 0.00usft (Original Well Elev)

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	640929.70	485654.49	32° 45' 43.200 N	104° 22' 48.000 W	



PROJECT DETAILS: Atoka	SITE DETAILS: Eddy County, NM
Geodetic System: US State Plane 1927 (Exact solution)	Site Centre Latitude: 32° 45' 13.457 N
Datum: NAD 1927 (NADCON CONUS)	Longitude: 104° 23' 38.033 W
Ellipsoid: Clarke 1866	Positional Uncertainty: 0.00
Zone: New Mexico East 3001	Convergence: -0.03
System Datum: Mean Sea Level	Local North: Grid