

30-015-40875

Lime Rock Resources

Eddy County, NM (NAD27 NME)

Stirling 7 F

#8

OH

Design: OH - Job #32D12121502

SDI Standard Survey Report

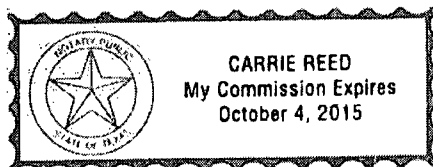
This survey is correct to the best of my knowledge and is supported by actual field data.

Richard

Notarized this date 15th of January, 2013.

Carrie Reed

Notary Signature
County of Midland
State of Texas



Scientific Drilling

Scientific Drilling International, Inc.
SDI Standard Survey Report



Company:	Lime Rock Resources	Local Co-ordinate Reference:	Well #8
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	RF @ 3302.90usft
Site:	Stirling 7 F	MD Reference:	RF @ 3302.90usft
Well:	#8	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH - Job #32D12121502	Database:	EDM-Regulatory

Project:	Eddy 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		Stirling 7 F			
Site Position:		Northing:	641,380.66 usft	Latitude:	32° 45' 47.691" N
From:	Lat/Long	Easting:	504,546.23 usft	Longitude:	104° 19' 6.758" W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16"	Grid Convergence:	0.01"

Well	#8					
Well Position	+N/-S	0.00 usft	Northing:	641,380.66 usft	Latitude:	32° 45' 47.691 N
	+E/-W	0.00 usft	Easting:	504,546.23 usft	Longitude:	104° 19' 6.758 W
Position Uncertainty:		0.00 usft	Wellhead Elevation:	usft	Ground Level:	3,289.50 usft

Wellbore		OH			
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2012	12/17/12			

Design:	OH - Job #32D12121502			
Audit Notes:				
Version:	1.0	Phase:	ACTUAL	Tie On Depth: 0.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(usft)	(usft)	(usft)	(°)
	0.00	0.00	0.00	0.00

Survey Program		Date	01/21/13		
From	To	Survey (Wellbore)	Tool Name	Description	
(usft)	(usft)				
100.20-	1,021.00	Gyro (OH)	Keeper	Keeper Standard Rate Gyro	
1,031.00	4,300.00	MWD (OH)	MWD	MWD - Standard	

Survey	Measured Depth	Inclination	Azimuth	True Vertical	North/South	East/West	Closure Azimuth	Closure Distance
	(usft)	(°)	(°)	Depth	(usft)	(usft)	(°)	(usft)
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	100.20	0.30	279.26	100.20	0.04	-0.26	279.26	0.26
	200.09	0.72	236.35	200.09	-0.26	-1.04	255.78	1.07
	300.16	0.73	244.54	300.15	-0.89	-2.14	247.50	2.31
	400.00	0.44	221.25	399.98	-1.45	-2.97	243.98	3.30
	500.17	0.37	243.10	500.15	-1.88	-3.51	241.77	3.98
	600.36	1.02	249.53	600.33	-2.34	-4.63	243.18	5.19
	700.13	2.47	247.02	700.05	-3.49	-7.44	244.87	8.22
	800.16	2.84	249.91	799.98	-5.18	-11.75	246.20	12.85
	900.10	2.87	253.57	899.79	-6.74	-16.48	247.75	17.81
	1,000.00	2.40	250.10	999.59	-8.16	-20.85	248.62	22.39

Scientific Drilling International, Inc.
SDI Standard Survey Report



Company:	Lime Rock Resources	Local Co-ordinate Reference:	Well #8
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	RF @ 3302.90usft
Site:	Stirling 7 F	MD Reference:	RF @ 3302.90usft
Well:	#8	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH - Job #32D12121502	Database:	EDM-Regulatory

Survey								
Measured Depth (usft)	Inclination (°)	Azimuth (°)	True Vertical Depth	North/South (usft)	East/West (usft)	Closure Azimuth (°)	Closure Distance (usft)	
1,021.00	2.55	249.32	1,020.57	-8.48	-21.70	248.66	23.29	
Gyro Tie-in								
1,031.00	2.31	250.25	1,030.56	-8.62	-22.09	248.68	23.72	
1,095.00	1.58	247.66	1,094.52	-9.39	-24.12	248.72	25.89	
1,158.00	1.12	258.72	1,157.50	-9.84	-25.53	248.91	27.36	
1,222.00	1.36	262.22	1,221.49	-10.07	-26.90	249.47	28.72	
1,285.00	1.29	255.18	1,284.47	-10.35	-28.32	249.92	30.16	
1,349.00	1.37	258.10	1,348.45	-10.69	-29.77	250.24	31.63	
1,412.00	0.79	196.24	1,411.44	-11.27	-30.63	249.80	32.63	
1,475.00	0.79	188.94	1,474.44	-12.11	-30.82	248.54	33.11	
1,507.00	0.62	191.40	1,506.44	-12.50	-30.88	247.96	33.32	
1,570.00	0.43	73.89	1,569.43	-12.77	-30.72	247.43	33.27	
1,634.00	0.95	83.85	1,633.43	-12.65	-29.97	247.12	32.52	
1,697.00	0.69	65.17	1,696.42	-12.43	-29.10	246.87	31.65	
1,761.00	0.61	283.22	1,760.42	-12.19	-29.08	247.26	31.54	
1,824.00	1.95	263.37	1,823.40	-12.24	-30.48	248.12	32.84	
1,887.00	1.09	260.03	1,886.38	-12.46	-32.13	248.80	34.46	
1,951.00	0.77	94.14	1,950.38	-12.60	-32.30	248.69	34.67	
2,014.00	1.22	93.58	2,013.37	-12.67	-31.21	247.90	33.68	
2,078.00	0.23	125.23	2,077.36	-12.79	-30.42	247.20	33.00	
2,141.00	0.40	212.77	2,140.36	-13.05	-30.44	246.80	33.12	
2,204.00	0.22	161.76	2,203.36	-13.35	-30.52	246.38	33.31	
2,268.00	0.32	222.46	2,267.36	-13.60	-30.60	246.05	33.49	
2,331.00	0.24	217.64	2,330.36	-13.83	-30.80	245.82	33.77	
2,395.00	0.26	210.12	2,394.36	-14.06	-30.96	245.57	34.00	
2,458.00	0.55	221.13	2,457.36	-14.41	-31.23	245.22	34.39	
2,521.00	0.35	236.40	2,520.36	-14.75	-31.59	244.97	34.86	
2,585.00	0.44	222.69	2,584.35	-15.04	-31.92	244.77	35.28	
2,648.00	0.41	224.68	2,647.35	-15.37	-32.24	244.50	35.72	
2,712.00	0.26	260.83	2,711.35	-15.56	-32.54	244.45	36.07	
2,775.00	0.18	198.34	2,774.35	-15.68	-32.72	244.40	36.28	
2,839.00	0.09	148.95	2,838.35	-15.82	-32.72	244.20	36.34	
2,934.00	0.21	187.42	2,933.35	-16.05	-32.71	243.86	36.43	
3,029.00	0.26	53.11	3,028.35	-16.10	-32.56	243.69	36.32	
3,123.00	0.11	236.45	3,122.35	-16.02	-32.46	243.74	36.20	
3,218.00	0.22	79.79	3,217.35	-16.04	-32.36	243.64	36.11	
3,314.00	0.26	58.25	3,313.35	-15.89	-31.99	243.59	35.72	
3,409.00	0.36	357.38	3,408.35	-15.48	-31.82	244.06	35.38	
3,504.00	0.44	24.55	3,503.35	-14.85	-31.68	244.89	34.99	
3,599.00	0.74	35.84	3,598.34	-14.02	-31.17	245.79	34.18	
3,694.00	0.65	32.35	3,693.33	-13.07	-30.52	246.83	33.20	
3,789.00	0.70	26.52	3,788.33	-12.09	-29.98	248.03	32.32	
3,884.00	0.76	47.19	3,883.32	-11.14	-29.26	249.15	31.31	
3,980.00	0.92	44.45	3,979.31	-10.16	-28.25	250.22	30.02	
4,075.00	1.06	43.04	4,074.29	-8.97	-27.12	251.69	28.56	

Scientific Drilling International, Inc.
SDI Standard Survey Report



Company:	Lime Rock Resources	Local Co-ordinate Reference:	Well #8
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	RF @ 3302.90usft
Site:	Stirling 7.F	MD Reference:	RF @ 3302.90usft
Well:	#8	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH - Job #32D12121502	Database:	EDM-Regulatory

Survey							
Measured Depth (usft)	Inclination (°)	Azimuth (°)	True Vertical Depth	North/South (usft)	East/West (usft)	Closure Azimuth (°)	Closure Distance (usft)
4,170.00	0.27	36.36	4,169.29	-8.15	-26.38	252.83	27.61
4,251.00	0.34	32.52	4,250.29	-7.79	-26.14	253.40	27.28
Last MWD Survey							
4,300.00	0.34	32.52	4,299.29	-7.55	-25.98	253.80	27.06
Projection to Bit							

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
1,021.00	1,020.57	-8.48	-21.70	Gyro Tie-in
4,251.00	4,250.29	-7.79	-26.14	Last MWD Survey
4,300.00	4,299.29	-7.55	-25.98	Projection to Bit

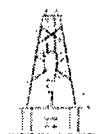
Lime Rock Resources



Azimuth to Grid North
 True North: -0.01°
 Magnetic North: 7.88°
 Magnetic Field
 Strength: 46655.8nT
 Dip Angle: 60.48°
 Date: 12/17/2012
 Model: RGGM2012

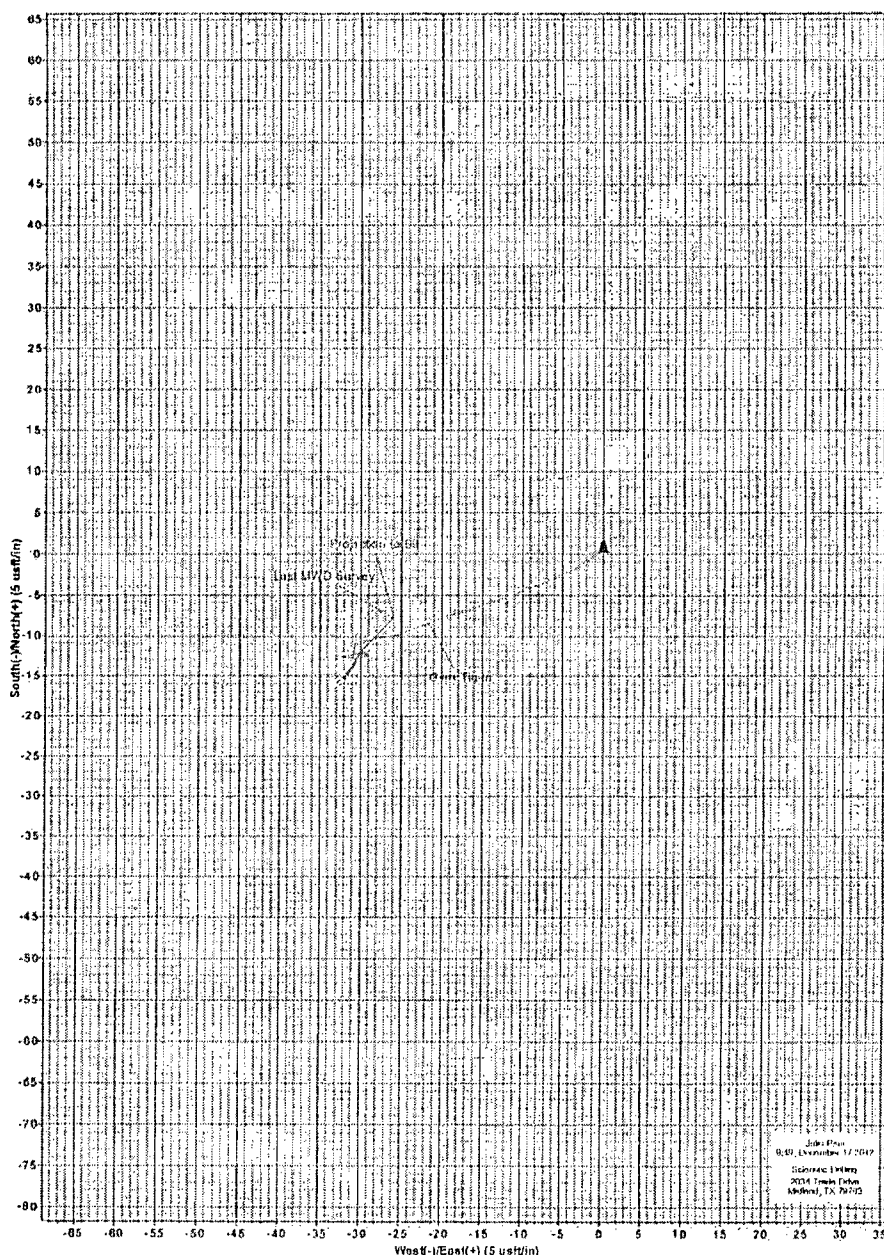
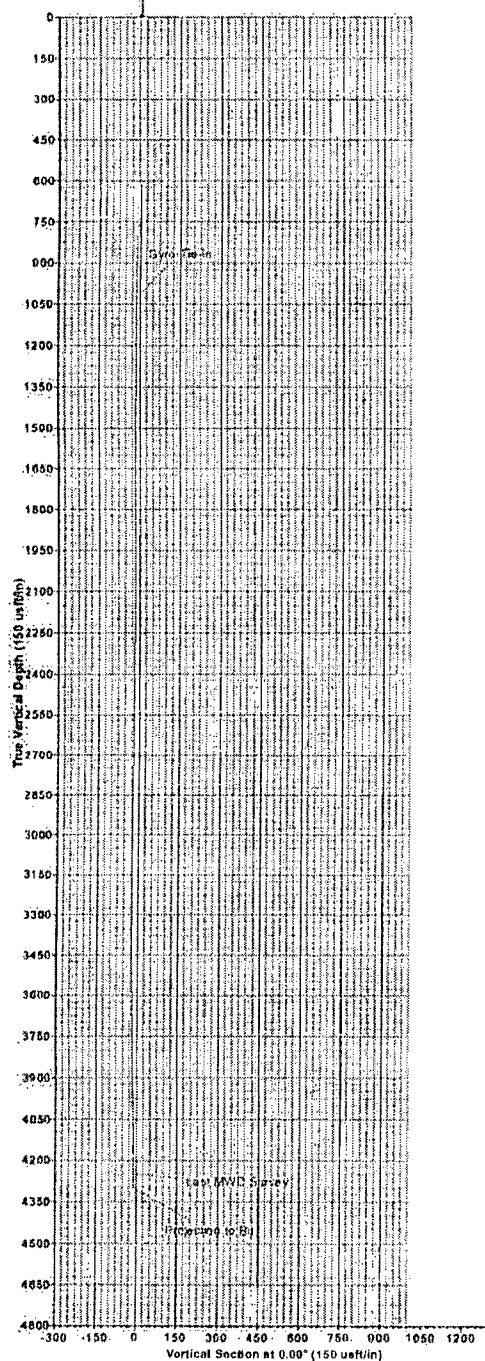
To convert a Magnetic Direction to a Grid Direction, Add 7.88°
 To convert a True Direction to a Grid Direction, Subtract 0.01°

Stirling 7 F #8
 Eddy County, NM (NAD27 NME)
 Northing: 641380.66
 Easting: 504546.23
 OH



RF @ 3507.90usft
 Ground Level: 3289.50

WELL DETAILS:					
+N/-S	+E/-W	Ground Level	3289.50	Latitude	Longitude
0.00	0.00	Northing	641380.66	504546.23	32° 45' 47.691 N 104° 19' 6.758 W
SITE DETAILS: Stirling 7 F					
Site Centre Northing: 641380.66					
Easting: 504546.23					
Positional Uncertainty: 0.00					
Convergence: 0.01					
Local North: Grid					
PROJECT DETAILS: Eddy County, NM (NAD27 NME)					
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					
Map Spheroid: US State Plane 1927 (Exact solution)					
Datum: NAD 1927 (NADCON CONUS)					
Ellipsoid: Clarke 1866					
Zone: New Mexico East 3001					
Local Origin: Well #8, Grid North					
Latitude: 32° 45' 47.691 N					
Longitude: 104° 19' 6.758 W					
Grid East: 504546.23					
Grid North: 641380.66					
Scale Factor: 1.000					
Geomagnetic Model: RGGM2012					
Sample Date: 17400-12					
Magnetic Declination: 7.88°					
Dip Angle from Horizontal: 60.48°					
Magnetic Field Strength: 46655					
To convert a Magnetic Direction to a Grid Direction, Add 7.88°					
To convert a Magnetic Direction to a True Direction, Add 7.89° East					
To convert a True Direction to a Grid Direction, Subtract 0.01°					



Job Plan
 0.00, 174000-12
 Scientific Drilling
 2014 Texas Drive
 Houston, TX 77055