

30-015-34543

Murchison Oil & Gas

Eddy County(NAD83)

Rock Ridge Federal

#3H

OH

Design: OH

Pathfinder X & Y Report

30 January, 2012

PATHFINDER[®]

A Schlumberger Company

Pathfinder
Pathfinder X & Y Report

PATHFINDER
A Schlumberger Company

Company:	Murchison Oil & Gas	Local Co-ordinate Reference:	Well #3H
Project:	Eddy County(NAD83)	TVD Reference:	KB = 19' @ 2934.0usft (TBA)
Site:	Rock Ridge Federal	MD Reference:	KB = 19' @ 2934.0usft (TBA)
Well:	#3H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.1 Single User Db

Project	Eddy County(NAD83)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	Rock Ridge Federal		
Site Position:		Northing:	433,578.790 usft
From:	Map	Easting:	639,405.090 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 11' 29.717 N
		Longitude:	104° 0' 58.730 W
		Grid Convergence:	0 17 °

Well	#3H		
Well Position	+N/-S	0.0 usft	Northing: 433,578.790 usft
	+E/-W	0.0 usft	Easting: 639,405.090 usft
Position Uncertainty	0.0 usft	Wellhead Elevation:	usft
		Latitude:	32° 11' 29.717 N
		Longitude:	104° 0' 58.730 W
		Ground Level:	2,915.0 usft

Wellbore	OH		
Magnetics	Model Name	Sample Date	Declination
			(°)
	IGRF200510	1/19/2012	7.70
			Dip Angle
			(°)
			60.09
			Field Strength
			(nT)
			48,531

Design	OH		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
		Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(usft)	(usft)	(usft)
	0.0	0.0	0.0
			Direction
			(°)
			268.18

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Survey Program Date 1/30/2012

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
100.0	6,500.0	Gyro #1 (OH)	NS-GYRO-MS	North sensing gyrocompassing m/s
6,600.0	11,522.0	MWD #2 (OH)	MWD	MWD - Standard

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
0.0	0.00	0.00	0.0	-2,934.0	0.0	0.0	0.0	0.00	433,578.79	639,405.09
100.0	0.36	131.85	100.0	-2,834.0	-0.2	0.2	-0.2	0.36	433,578.58	639,405.32
200.0	0.47	157.96	200.0	-2,734.0	-0.8	0.6	-0.6	0.22	433,577.99	639,405.71
300.0	0.48	162.24	300.0	-2,634.0	-1.6	0.9	-0.9	0.04	433,577.21	639,405.99
400.0	0.35	161.46	400.0	-2,534.0	-2.3	1.1	-1.1	0.13	433,576.52	639,406.22
500.0	0.32	157.97	500.0	-2,434.0	-2.8	1.3	-1.2	0.04	433,575.97	639,406.42
600.0	0.28	146.56	600.0	-2,334.0	-3.3	1.6	-1.5	0.07	433,575.51	639,406.66
700.0	0.46	118.79	700.0	-2,234.0	-3.7	2.1	-1.9	0.25	433,575.11	639,407.15
800.0	0.50	102.42	800.0	-2,134.0	-4.0	2.8	-2.7	0.14	433,574.83	639,407.92
900.0	0.67	104.05	900.0	-2,034.0	-4.2	3.8	-3.7	0.17	433,574.59	639,408.92
1,000.0	0.67	95.16	1,000.0	-1,934.0	-4.4	5.0	-4.8	0.10	433,574.40	639,410.07
1,100.0	0.32	50.67	1,100.0	-1,834.0	-4.3	5.8	-5.6	0.50	433,574.52	639,410.87
1,200.0	0.18	11.67	1,200.0	-1,734.0	-3.9	6.0	-5.9	0.21	433,574.85	639,411.11
1,300.0	0.32	279.97	1,300.0	-1,634.0	-3.7	5.8	-5.7	0.37	433,575.05	639,410.87
1,400.0	0.46	304.51	1,400.0	-1,534.0	-3.5	5.2	-5.1	0.21	433,575.33	639,410.26
1,500.0	0.27	204.85	1,500.0	-1,434.0	-3.4	4.7	-4.6	0.57	433,575.34	639,409.83
1,600.0	0.41	182.38	1,600.0	-1,334.0	-4.0	4.6	-4.5	0.19	433,574.77	639,409.72
1,700.0	0.66	185.28	1,700.0	-1,234.0	-4.9	4.6	-4.4	0.25	433,573.84	639,409.65
1,800.0	0.72	185.64	1,799.9	-1,134.1	-6.1	4.4	-4.2	0.06	433,572.64	639,409.54
1,900.0	0.92	192.90	1,899.9	-1,034.1	-7.6	4.2	-4.0	0.22	433,571.24	639,409.30
2,000.0	1.06	193.50	1,999.9	-934.1	-9.2	3.8	-3.5	0.14	433,569.55	639,408.90

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Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
2,100.0	1.52	160.52	2,099.9	-834.1	-11.4	4.0	-3.7	0.85	433,567.40	639,409.13
2,200.0	1.92	151.02	2,199.9	-734.1	-14.1	5.3	-4.8	0.49	433,564.69	639,410.38
2,300.0	2.08	150.30	2,299.8	-634.2	-17.1	7.0	-6.5	0.16	433,561.65	639,412.09
2,400.0	2.37	143.22	2,399.7	-534.3	-20.4	9.1	-8.5	0.40	433,558.41	639,414.23
2,500.0	2.57	144.94	2,499.6	-434.4	-23.9	11.7	-10.9	0.21	433,554.92	639,416.76
2,600.0	2.16	146.36	2,599.5	-334.5	-27.3	14.0	-13.1	0.41	433,551.52	639,418.09
2,700.0	1.40	138.34	2,699.5	-234.5	-29.8	15.9	-14.9	0.80	433,549.04	639,420.94
2,800.0	1.07	140.24	2,799.5	-134.5	-31.4	17.3	-16.3	0.33	433,547.41	639,422.35
2,900.0	1.00	141.72	2,899.5	-34.5	-32.8	18.4	-17.3	0.07	433,546.00	639,423.49
3,000.0	0.82	135.08	2,999.4	65.4	-34.0	19.4	-18.4	0.21	433,544.81	639,424.54
3,100.0	0.68	135.34	3,099.4	165.4	-34.9	20.4	-19.2	0.14	433,543.88	639,425.46
3,200.0	0.58	149.09	3,199.4	265.4	-35.8	21.0	-19.9	0.18	433,543.03	639,426.14
3,300.0	0.61	134.49	3,299.4	365.4	-36.6	21.7	-20.5	0.15	433,542.22	639,426.77
3,400.0	0.46	183.22	3,399.4	465.4	-37.3	22.0	-20.8	0.46	433,541.44	639,427.13
3,500.0	0.42	196.69	3,499.4	565.4	-38.1	21.9	-20.7	0.11	433,540.69	639,427.00
3,600.0	0.50	188.60	3,599.4	665.4	-38.9	21.7	-20.5	0.10	433,539.91	639,426.83
3,700.0	0.45	191.63	3,699.4	765.4	-39.7	21.6	-20.3	0.06	433,539.09	639,426.69
3,800.0	0.48	190.43	3,799.4	865.4	-40.5	21.4	-20.1	0.03	433,538.30	639,426.53
3,900.0	0.46	196.45	3,899.4	965.4	-41.3	21.3	-19.9	0.05	433,537.50	639,426.34
4,000.0	0.48	205.52	3,999.4	1,065.4	-42.1	21.0	-19.6	0.08	433,536.74	639,426.05
4,100.0	0.49	208.01	4,099.4	1,165.4	-42.8	20.6	-19.2	0.02	433,535.98	639,425.67
4,200.0	0.50	211.32	4,199.4	1,265.4	-43.6	20.2	-18.8	0.03	433,535.23	639,425.24
4,300.0	0.54	203.35	4,299.4	1,365.4	-44.4	19.7	-18.3	0.08	433,534.43	639,424.83
4,400.0	0.49	212.52	4,399.4	1,465.4	-45.2	19.3	-17.9	0.10	433,533.63	639,424.41
4,500.0	0.57	203.74	4,499.4	1,565.4	-46.0	18.9	-17.4	0.11	433,532.82	639,423.98
4,600.0	0.53	188.01	4,599.4	1,665.4	-46.9	18.6	-17.1	0.16	433,531.90	639,423.72
4,700.0	0.54	191.50	4,699.4	1,765.4	-47.8	18.5	-16.9	0.03	433,530.98	639,423.56

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Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
4,800.0	0.59	176.79	4,799.4	1,865.4	-48.8	18.4	-16.8	0.15	433,530.01	639,423.49
4,900.0	0.76	166.93	4,899.4	1,965.4	-49.9	18.6	-17.0	0.21	433,528.85	639,423.67
5,000.0	0.91	160.09	4,999.3	2,065.3	-51.3	19.0	-17.4	0.18	433,527.46	639,424.09
5,100.0	0.98	169.08	5,099.3	2,165.3	-52.9	19.4	-17.7	0.16	433,525.87	639,424.52
5,200.0	1.00	171.20	5,199.3	2,265.3	-54.6	19.7	-18.0	0.04	433,524.17	639,424.82
5,300.0	0.94	176.44	5,299.3	2,365.3	-56.3	19.9	-18.1	0.11	433,522.49	639,425.00
5,400.0	0.95	177.13	5,399.3	2,465.3	-58.0	20.0	-18.2	0.02	433,520.84	639,425.10
5,500.0	1.00	177.62	5,499.3	2,565.3	-59.6	20.1	-18.2	0.05	433,519.14	639,425.17
5,600.0	0.89	191.49	5,599.3	2,665.3	-61.3	20.0	-18.0	0.25	433,517.51	639,425.06
5,700.0	0.73	184.23	5,699.2	2,765.2	-62.7	19.8	-17.8	0.19	433,516.11	639,424.85
5,800.0	0.85	186.50	5,799.2	2,865.2	-64.1	19.6	-17.6	0.12	433,514.74	639,424.72
5,900.0	0.76	183.86	5,899.2	2,965.2	-65.5	19.5	-17.4	0.10	433,513.34	639,424.59
6,000.0	0.72	169.88	5,999.2	3,065.2	-66.7	19.6	-17.4	0.18	433,512.06	639,424.66
6,100.0	0.67	165.68	6,099.2	3,165.2	-67.9	19.8	-17.7	0.07	433,510.87	639,424.92
6,200.0	0.81	165.29	6,199.2	3,265.2	-69.2	20.1	-17.9	0.14	433,509.62	639,425.24
6,300.0	0.82	178.21	6,299.2	3,365.2	-70.6	20.4	-18.1	0.18	433,508.23	639,425.44
6,400.0	0.63	168.72	6,399.2	3,465.2	-71.8	20.5	-18.2	0.22	433,506.97	639,425.57
6,500.0	0.74	172.31	6,499.2	3,565.2	-73.0	20.7	-18.3	0.12	433,505.79	639,425.76
6,600.0	0.68	211.94	6,599.2	3,665.2	-74.1	20.4	-18.1	0.48	433,504.65	639,425.54
6,651.0	1.06	223.76	6,650.2	3,716.2	-74.7	20.0	-17.6	0.82	433,504.05	639,425.05
6,681.0	1.58	248.02	6,680.2	3,746.2	-75.1	19.4	-17.0	2.51	433,503.70	639,424.48
6,712.0	3.78	263.49	6,711.1	3,777.1	-75.4	18.0	-15.6	7.41	433,503.42	639,423.06
6,742.0	6.51	267.09	6,741.0	3,807.0	-75.6	15.3	-12.9	9.16	433,503.22	639,420.38
6,771.0	10.02	269.11	6,769.7	3,835.7	-75.7	11.1	-8.7	12.14	433,503.10	639,416.22
6,801.0	13.45	269.99	6,799.1	3,865.1	-75.7	5.0	-2.6	11.45	433,503.06	639,410.12
6,831.0	16.97	270.78	6,828.0	3,894.0	-75.7	-2.8	5.2	11.75	433,503.12	639,402.25
6,861.0	20.22	271.31	6,856.4	3,922.4	-75.5	-12.4	14.8	10.85	433,503.29	639,392.68

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6,891.0	23.65	271.40	6,884.3	3,950.3	-75.2	-23.6	26.0	11.43	433,503.56	639,381.48
6,922.0	27.00	270.08	6,912.3	3,978.3	-75.1	-36.9	39.2	10.96	433,503.72	639,368.23
6,952.0	30.07	268.76	6,938.6	4,004.6	-75.2	-51.2	53.6	10.45	433,503.57	639,353.90
6,983.0	33.15	267.44	6,965.0	4,031.0	-75.8	-67.4	69.8	10.18	433,503.02	639,337.66
7,013.0	36.23	266.92	6,989.7	4,055.7	-76.6	-84.5	86.9	10.31	433,502.18	639,320.61
7,043.0	39.04	267.00	7,013.4	4,079.4	-77.6	-102.8	105.2	9.37	433,501.21	639,302.32
7,073.0	42.12	267.27	7,036.2	4,102.2	-78.6	-122.3	124.7	10.28	433,500.23	639,282.83
7,102.0	45.20	267.36	7,057.2	4,123.2	-79.5	-142.3	144.7	10.62	433,499.30	639,262.83
7,133.0	48.98	266.92	7,078.3	4,144.3	-80.6	-164.9	167.4	12.24	433,498.16	639,240.16
7,162.0	52.41	267.18	7,096.7	4,162.7	-81.8	-187.3	189.8	11.85	433,497.01	639,217.76
7,192.0	55.93	267.44	7,114.2	4,180.2	-82.9	-211.6	214.2	11.75	433,495.87	639,193.46
7,223.0	59.36	267.36	7,130.8	4,196.8	-84.1	-237.8	240.3	11.07	433,494.68	639,167.31
7,253.0	62.78	267.44	7,145.3	4,211.3	-85.3	-264.0	266.6	11.40	433,493.49	639,141.08
7,284.0	66.48	267.62	7,158.6	4,224.6	-86.5	-292.0	294.6	11.95	433,492.28	639,113.10
7,314.0	70.17	267.97	7,169.7	4,235.7	-87.6	-319.8	322.5	12.35	433,491.21	639,085.25
7,345.0	74.13	268.41	7,179.2	4,245.2	-88.5	-349.3	352.0	12.85	433,490.28	639,055.76
7,377.0	78.26	268.85	7,186.8	4,252.8	-89.3	-380.4	383.0	12.98	433,489.54	639,024.70
7,411.0	82.83	268.80	7,192.4	4,258.4	-89.9	-413.9	416.6	13.44	433,488.85	638,991.18
7,443.0	87.41	269.15	7,195.1	4,261.1	-90.5	-445.8	448.4	14.35	433,488.28	638,959.31
7,475.0	90.57	268.48	7,195.7	4,261.7	-91.2	-477.8	480.4	10.09	433,487.62	638,927.32
7,507.0	90.40	267.47	7,195.4	4,261.4	-92.3	-509.7	512.4	3.20	433,486.49	638,895.35
7,539.0	90.40	267.21	7,195.2	4,261.2	-93.8	-541.7	544.4	0.81	433,485.00	638,863.38
7,571.0	90.75	267.12	7,194.9	4,260.9	-95.4	-573.7	576.4	1.13	433,483.42	638,831.42
7,603.0	92.42	267.35	7,194.0	4,260.0	-96.9	-605.6	608.4	5.27	433,481.88	638,799.47
7,635.0	93.30	267.65	7,192.4	4,258.4	-98.3	-637.5	640.3	2.91	433,480.48	638,767.54
7,667.0	93.12	267.85	7,190.6	4,256.6	-99.6	-669.5	672.3	0.84	433,479.23	638,735.62
7,699.0	92.51	267.80	7,189.0	4,255.0	-100.8	-701.4	704.3	1.91	433,478.02	638,703.68

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7,731.0	92.07	267.73	7,187.8	4,253.8	-102.0	-733.4	736.2	1.39	433,476.77	638,671.73
7,763.0	91.28	269.24	7,186.8	4,252.8	-102.9	-765.3	768.2	5.32	433,475.93	638,639.76
7,795.0	91.54	270.02	7,186.0	4,252.0	-103.1	-797.3	800.2	2.57	433,475.72	638,607.77
7,826.0	91.28	270.30	7,185.3	4,251.3	-103.0	-828.3	831.2	1.23	433,475.81	638,576.78
7,858.0	91.19	270.69	7,184.6	4,250.6	-102.7	-860.3	863.1	1.25	433,476.08	638,544.79
7,890.0	91.28	270.87	7,183.9	4,249.9	-102.3	-892.3	895.1	0.63	433,476.52	638,512.80
7,922.0	91.19	271.14	7,183.2	4,249.2	-101.7	-924.3	927.0	0.89	433,477.08	638,480.81
7,954.0	91.36	270.97	7,182.5	4,248.5	-101.1	-956.3	959.0	0.75	433,477.67	638,448.82
7,986.0	90.92	270.53	7,181.9	4,247.9	-100.7	-988.3	991.0	1.94	433,478.09	638,416.83
8,018.0	90.84	270.46	7,181.4	4,247.4	-100.4	-1,020.3	1,022.9	0.33	433,478.36	638,384.84
8,050.0	90.92	270.54	7,180.9	4,246.9	-100.1	-1,052.2	1,054.9	0.35	433,478.64	638,352.84
8,082.0	90.84	270.35	7,180.4	4,246.4	-99.9	-1,084.2	1,086.9	0.64	433,478.89	638,320.85
8,114.0	90.31	270.51	7,180.1	4,246.1	-99.7	-1,116.2	1,118.8	1.73	433,479.13	638,288.85
8,146.0	90.40	270.35	7,179.9	4,245.9	-99.4	-1,148.2	1,150.8	0.57	433,479.37	638,256.85
8,178.0	90.22	270.19	7,179.7	4,245.7	-99.3	-1,180.2	1,182.8	0.75	433,479.52	638,224.85
8,210.0	90.40	270.02	7,179.5	4,245.5	-99.2	-1,212.2	1,214.8	0.77	433,479.58	638,192.85
8,242.0	90.48	269.77	7,179.3	4,245.3	-99.3	-1,244.2	1,246.8	0.82	433,479.52	638,160.85
8,274.0	90.13	269.96	7,179.1	4,245.1	-99.3	-1,276.2	1,278.8	1.24	433,479.45	638,128.85
8,306.0	90.40	270.14	7,179.0	4,245.0	-99.3	-1,308.2	1,310.7	1.01	433,479.47	638,096.85
8,338.0	90.66	270.01	7,178.7	4,244.7	-99.3	-1,340.2	1,342.7	0.91	433,479.52	638,064.85
8,370.0	91.54	269.53	7,178.0	4,244.0	-99.4	-1,372.2	1,374.7	3.13	433,479.39	638,032.86
8,402.0	91.71	269.48	7,177.1	4,243.1	-99.7	-1,404.2	1,406.7	0.55	433,479.11	638,000.88
8,434.0	91.71	268.91	7,176.2	4,242.2	-100.1	-1,436.2	1,438.7	1.78	433,478.66	637,968.89
8,466.0	91.63	269.13	7,175.2	4,241.2	-100.7	-1,468.2	1,470.6	0.73	433,478.11	637,936.91
8,498.0	91.63	268.92	7,174.3	4,240.3	-101.2	-1,500.2	1,502.6	0.66	433,477.57	637,904.93
8,530.0	91.71	269.02	7,173.4	4,239.4	-101.8	-1,532.1	1,534.6	0.40	433,477.00	637,872.95
8,562.0	92.42	269.19	7,172.2	4,238.2	-102.3	-1,564.1	1,566.6	2.28	433,476.50	637,840.97

Pathfinder
Pathfinder X & Y Report

PATHFINDER
A Schlumberger Company

Company: Murchison Oil & Gas
Project: Eddy County(NAD83)
Site: Rock Ridge Federal
Well: #3H
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well #3H
TVD Reference: KB = 19' @ 2934.0usft (TBA)
MD Reference: KB = 19' @ 2934.0usft (TBA)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
8,594.0	92.77	269.11	7,170.8	4,236.8	-102.8	-1,596.1	1,598.5	1.12	433,476.02	637,809.01
8,626.0	92.95	268.97	7,169.2	4,235.2	-103.3	-1,628.0	1,630.5	0.71	433,475.49	637,777.05
8,658.0	92.86	268.97	7,167.6	4,233.6	-103.9	-1,660.0	1,662.5	0.28	433,474.91	637,745.10
8,690.0	92.95	268.82	7,166.0	4,232.0	-104.5	-1,691.9	1,694.4	0.55	433,474.30	637,713.15
8,722.0	92.24	269.04	7,164.5	4,230.5	-105.1	-1,723.9	1,726.4	2.32	433,473.70	637,681.18
8,754.0	91.54	268.69	7,163.5	4,229.5	-105.7	-1,755.9	1,758.4	2.45	433,473.06	637,649.21
8,786.0	91.45	268.63	7,162.6	4,228.6	-106.5	-1,787.9	1,790.3	0.34	433,472.32	637,617.23
8,818.0	91.28	268.78	7,161.9	4,227.9	-107.2	-1,819.8	1,822.3	0.71	433,471.59	637,585.25
8,850.0	91.54	268.82	7,161.1	4,227.1	-107.9	-1,851.8	1,854.3	0.82	433,470.92	637,553.26
8,882.0	91.38	269.10	7,160.3	4,226.3	-108.4	-1,883.8	1,886.3	1.04	433,470.34	637,521.28
8,913.0	91.10	268.84	7,159.6	4,225.6	-109.0	-1,914.8	1,917.3	1.19	433,469.79	637,490.29
8,946.0	90.92	269.03	7,159.0	4,225.0	-109.6	-1,947.8	1,950.3	0.79	433,469.17	637,457.30
8,977.0	91.19	268.95	7,158.4	4,224.4	-110.2	-1,978.8	1,981.3	0.91	433,468.63	637,426.31
9,009.0	91.28	268.69	7,157.8	4,223.8	-110.8	-2,010.8	2,013.3	0.86	433,467.97	637,394.33
9,041.0	91.45	268.64	7,157.0	4,223.0	-111.6	-2,042.7	2,045.3	0.55	433,467.22	637,362.34
9,073.0	91.28	269.13	7,156.2	4,222.2	-112.2	-2,074.7	2,077.2	1.62	433,466.60	637,330.36
9,105.0	91.28	269.71	7,155.5	4,221.5	-112.5	-2,106.7	2,109.2	1.81	433,466.28	637,298.37
9,137.0	91.45	270.02	7,154.8	4,220.8	-112.6	-2,138.7	2,141.2	1.10	433,466.20	637,266.38
9,169.0	91.45	269.20	7,153.9	4,219.9	-112.8	-2,170.7	2,173.2	2.56	433,465.98	637,234.39
9,201.0	91.54	268.77	7,153.1	4,219.1	-113.4	-2,202.7	2,205.2	1.37	433,465.42	637,202.40
9,233.0	92.33	268.79	7,152.0	4,218.0	-114.1	-2,234.7	2,237.2	2.47	433,464.73	637,170.43
9,265.0	92.77	268.77	7,150.6	4,216.6	-114.7	-2,266.6	2,269.1	1.38	433,464.05	637,138.47
9,297.0	93.65	268.46	7,148.8	4,214.8	-115.5	-2,298.6	2,301.1	2.92	433,463.28	637,106.53
9,329.0	93.74	268.55	7,146.7	4,212.7	-116.3	-2,330.5	2,333.0	0.40	433,462.45	637,074.61
9,361.0	93.83	268.96	7,144.6	4,210.6	-117.0	-2,362.4	2,364.9	1.31	433,461.76	637,042.68
9,392.0	93.56	269.54	7,142.6	4,208.6	-117.4	-2,393.3	2,395.9	2.06	433,461.35	637,011.75
9,424.0	93.65	269.65	7,140.6	4,206.6	-117.7	-2,425.3	2,427.8	0.44	433,461.12	636,979.82

Pathfinder
Pathfinder X & Y Report

PATHFINDER
A Schlumberger Company

Company: Murchison Oil & Gas
Project: Eddy County(NAD83)
Site: Rock Ridge Federal
Well: #3H
Wellbore: OH
Design: OH

Local Co-ordinate Reference:
TVD Reference:
MD Reference:
North Reference:
Survey Calculation Method:
Database:

Well #3H
KB = 19' @ 2934.0usft (TBA)
KB = 19' @ 2934.0usft (TBA)
Grid
Minimum Curvature
EDM 5000 1 Single User Db

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
9,456.0	93.21	269.69	7,138.7	4,204.7	-117.8	-2,457.2	2,459.7	1.38	433,460.94	636,947.87
9,488.0	92.68	269.53	7,137.1	4,203.1	-118.1	-2,489.2	2,491.7	1.73	433,460.72	636,915.92
9,520.0	92.15	270.13	7,135.7	4,201.7	-118.2	-2,521.1	2,523.6	2.50	433,460.63	636,883.95
9,552.0	92.15	270.37	7,134.5	4,200.5	-118.0	-2,553.1	2,555.6	0.75	433,460.77	636,851.97
9,584.0	91.71	270.25	7,133.4	4,199.4	-117.8	-2,585.1	2,587.5	1.43	433,460.94	636,819.99
9,616.0	91.36	270.27	7,132.6	4,198.6	-117.7	-2,617.1	2,619.5	1.10	433,461.09	636,788.00
9,648.0	91.19	270.34	7,131.9	4,197.9	-117.5	-2,649.1	2,651.5	0.57	433,461.26	636,756.01
9,680.0	91.01	270.17	7,131.3	4,197.3	-117.4	-2,681.1	2,683.5	0.77	433,461.40	636,724.01
9,712.0	91.28	270.07	7,130.6	4,196.6	-117.3	-2,713.1	2,715.4	0.90	433,461.47	636,692.02
9,743.0	91.63	269.96	7,129.8	4,195.8	-117.3	-2,744.1	2,746.4	1.18	433,461.47	636,661.03
9,775.0	91.71	270.06	7,128.9	4,194.9	-117.3	-2,776.0	2,778.4	0.40	433,461.48	636,629.04
9,807.0	91.80	269.91	7,127.9	4,193.9	-117.3	-2,808.0	2,810.3	0.55	433,461.47	636,597.06
9,838.0	91.89	269.89	7,126.9	4,192.9	-117.4	-2,839.0	2,841.3	0.30	433,461.42	636,566.07
9,870.0	92.07	269.85	7,125.8	4,191.8	-117.4	-2,871.0	2,873.3	0.58	433,461.34	636,534.09
9,901.0	91.89	270.00	7,124.7	4,190.7	-117.5	-2,902.0	2,904.2	0.76	433,461.30	636,503.11
9,933.0	91.89	270.01	7,123.7	4,189.7	-117.5	-2,934.0	2,936.2	0.03	433,461.31	636,471.13
9,965.0	91.71	269.80	7,122.7	4,188.7	-117.5	-2,965.9	2,968.2	0.86	433,461.25	636,439.15
9,996.0	91.36	270.04	7,121.9	4,187.9	-117.6	-2,996.9	2,999.2	1.37	433,461.21	636,408.16
10,028.0	90.92	269.95	7,121.2	4,187.2	-117.6	-3,028.9	3,031.1	1.40	433,461.21	636,376.16
10,060.0	91.01	270.04	7,120.7	4,186.7	-117.6	-3,060.9	3,063.1	0.40	433,461.20	636,344.17
10,091.0	91.45	269.90	7,120.0	4,186.0	-117.6	-3,091.9	3,094.1	1.49	433,461.19	636,313.18
10,123.0	91.54	270.66	7,119.2	4,185.2	-117.4	-3,123.9	3,126.1	2.39	433,461.34	636,281.19
10,154.0	91.80	270.60	7,118.3	4,184.3	-117.1	-3,154.9	3,157.0	0.86	433,461.69	636,250.20
10,186.0	92.15	270.25	7,117.2	4,183.2	-116.9	-3,186.9	3,189.0	1.55	433,461.92	636,218.22
10,218.0	92.77	269.84	7,115.8	4,181.8	-116.8	-3,218.8	3,220.9	2.32	433,461.95	636,186.25
10,249.0	92.77	269.62	7,114.3	4,180.3	-117.0	-3,249.8	3,251.9	0.71	433,461.80	636,155.29
10,281.0	93.30	269.51	7,112.6	4,178.6	-117.2	-3,281.8	3,283.8	1.69	433,461.56	636,123.33

Pathfinder
Pathfinder X & Y Report

PATHFINDER
A Schlumberger Company

Company: Murchison Oil & Gas
Project: Eddy County(NAD83)
Site: Rock Ridge Federal
Well: #3H
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well #3H
TVD Reference: KB = 19' @ 2934.0usft (TBA)
MD Reference: KB = 19' @ 2934.0usft (TBA)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
10,313.0	93.47	268.99	7,110.7	4,176.7	-117.6	-3,313.7	3,315.8	1.71	433,461.14	636,091.39
10,344.0	93.39	268.57	7,108.9	4,174.9	-118.3	-3,344.6	3,346.7	1.38	433,460.48	636,060.46
10,376.0	93.21	268.35	7,107.0	4,173.0	-119.2	-3,376.6	3,378.7	0.89	433,459.62	636,028.52
10,407.0	92.59	268.21	7,105.5	4,171.5	-120.1	-3,407.5	3,409.6	2.05	433,458.69	635,997.57
10,439.0	92.77	268.31	7,104.0	4,170.0	-121.1	-3,439.5	3,441.6	0.64	433,457.72	635,965.62
10,471.0	92.68	268.35	7,102.4	4,168.4	-122.0	-3,471.4	3,473.5	0.31	433,456.79	635,933.67
10,502.0	92.33	268.30	7,101.1	4,167.1	-122.9	-3,502.4	3,504.5	1.14	433,455.89	635,902.72
10,534.0	91.89	268.48	7,099.9	4,165.9	-123.8	-3,534.3	3,536.5	1.49	433,454.99	635,870.75
10,566.0	91.89	268.35	7,098.8	4,164.8	-124.7	-3,566.3	3,568.5	0.41	433,454.10	635,838.78
10,597.0	91.80	268.50	7,097.8	4,163.8	-125.5	-3,597.3	3,599.5	0.56	433,453.25	635,807.81
10,629.0	91.80	269.02	7,096.8	4,162.8	-126.2	-3,629.3	3,631.4	1.62	433,452.56	635,775.83
10,660.0	91.89	268.85	7,095.8	4,161.8	-126.8	-3,660.2	3,662.4	0.62	433,451.98	635,744.85
10,692.0	92.24	269.11	7,094.7	4,160.7	-127.4	-3,692.2	3,694.4	1.36	433,451.42	635,712.88
10,723.0	91.98	268.67	7,093.5	4,159.5	-128.0	-3,723.2	3,725.4	1.65	433,450.82	635,681.91
10,755.0	92.07	268.23	7,092.4	4,158.4	-128.8	-3,755.2	3,757.4	1.40	433,449.95	635,649.94
10,787.0	91.63	268.23	7,091.4	4,157.4	-129.8	-3,787.1	3,789.3	1.37	433,448.96	635,617.97
10,818.0	91.54	267.97	7,090.5	4,156.5	-130.9	-3,818.1	3,820.3	0.89	433,447.93	635,587.00
10,850.0	91.54	267.88	7,089.7	4,155.7	-132.0	-3,850.1	3,852.3	0.28	433,446.78	635,555.03
10,881.0	91.36	267.79	7,088.9	4,154.9	-133.2	-3,881.0	3,883.3	0.65	433,445.61	635,524.06
10,913.0	91.28	267.97	7,088.1	4,154.1	-134.4	-3,913.0	3,915.3	0.62	433,444.42	635,492.09
10,945.0	91.19	267.97	7,087.5	4,153.5	-135.5	-3,945.0	3,947.3	0.28	433,443.29	635,460.12
10,976.0	91.10	267.53	7,086.8	4,152.8	-136.7	-3,975.9	3,978.3	1.45	433,442.07	635,429.15
11,008.0	91.45	267.44	7,086.1	4,152.1	-138.1	-4,007.9	4,010.3	1.13	433,440.67	635,397.19
11,039.0	91.71	267.71	7,085.3	4,151.3	-139.4	-4,038.9	4,041.3	1.21	433,439.36	635,366.23
11,071.0	91.80	267.79	7,084.3	4,150.3	-140.7	-4,070.8	4,073.2	0.38	433,438.10	635,334.27
11,103.0	91.98	268.06	7,083.2	4,149.2	-141.8	-4,102.8	4,105.2	1.01	433,436.94	635,302.31
11,134.0	92.15	268.06	7,082.1	4,148.1	-142.9	-4,133.7	4,136.2	0.55	433,435.89	635,271.35

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MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
11,166.0	92.42	268.41	7,080.8	4,146.8	-143.9	-4,165.7	4,168.2	1.38	433,434.91	635,239.39
11,198.0	91.98	267.88	7,079.6	4,145.6	-144.9	-4,197.7	4,200.1	2.15	433,433.87	635,207.43
11,229.0	92.24	267.62	7,078.5	4,144.5	-146.1	-4,228.6	4,231.1	1.19	433,432.66	635,176.47
11,261.0	92.42	267.71	7,077.2	4,143.2	-147.4	-4,260.6	4,263.1	0.63	433,431.36	635,144.52
11,292.0	92.59	268.15	7,075.8	4,141.8	-148.6	-4,291.5	4,294.1	1.52	433,430.24	635,113.57
11,324.0	92.42	268.32	7,074.4	4,140.4	-149.5	-4,323.5	4,326.0	0.75	433,429.25	635,081.62
11,356.0	92.51	268.32	7,073.0	4,139.0	-150.5	-4,355.4	4,358.0	0.28	433,428.32	635,049.66
11,387.0	92.51	268.50	7,071.7	4,137.7	-151.3	-4,386.4	4,389.0	0.58	433,427.46	635,018.71
11,419.0	92.77	268.50	7,070.2	4,136.2	-152.2	-4,418.3	4,420.9	0.81	433,426.62	634,986.75
11,445.0	92.86	268.67	7,068.9	4,134.9	-152.8	-4,444.3	4,446.9	0.74	433,425.98	634,960.79
11,522.0	92.86	268.67	7,065.1	4,131.1	-154.6	-4,521.2	4,523.8	0.00	433,424.19	634,883.91

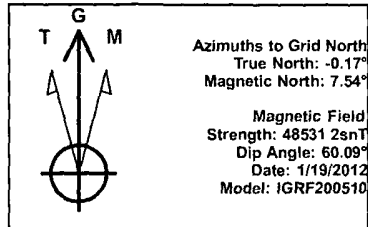
Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
6,771.0	6,769.7	-75.7	11.1	KOP - 6771.0 'MD, 6769.7 'TVD, 269.11 'AZI, 10.02 'INC, -75.7 'N, 11.1 'E
7,475.0	7,195.7	-91.2	-477.8	LP - 7475.0 'MD, 7195.7 'TVD, 268.48 'AZI, 90.57 'INC, -91.2 'N, -477.8 'E
11,522.0	7,065.1	-154.6	-4,521.2	BHL - 11522.0 'MD, 7065.1 'TVD, 268.67 'AZI, 92.86 'INC, -154.6 'N, -4521.2 'E

Checked By: _____ Approved By: _____ Date: _____

Murchison Oil & Gas

Project: Eddy County(NAD83)
 Site: Rock Ridge Federal
 Well: #3H
 Wellbore: OH
 Plan: Post Gyro Plan #6 (#3H/OH)



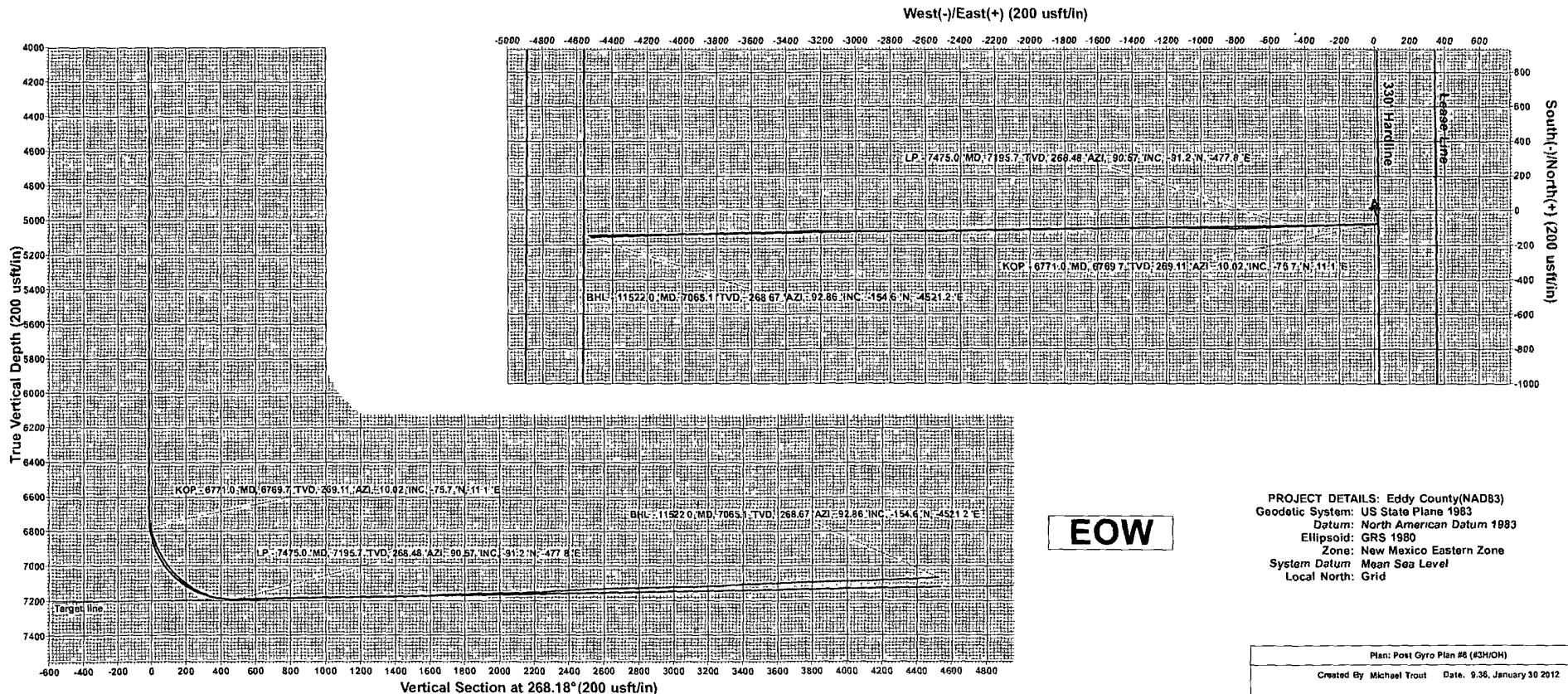
WELL DETAILS #3H						
Ground Elevation: 2915.0						
RXB Elevation: NB - 19' @ 2934 0usft (TBA)						
Rig Name: TBA						
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0 0	0 0	433578.790	639405.090	32° 11' 23.717 N	104° 0' 58.730 W	

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)						
Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
PBHL (RRF #3H)	7120 S	-144.2	-4533.5	433434.560	634871.620	Point

PATHFINDER

A Schlumberger Company

SECTION DETAILS										
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VBact	Target
1	6722.0	1.01	229.17	6721.2	-75.6	-19.2	0.00	0.00	-16.8	
2	7473.9	91.00	269.20	7192.1	-87.8	-466.4	12.00	40.93	468.0	
3	11542.0	91.00	269.20	7120.8	-144.2	-4533.5	0.00	0.00	4535.8	PBHL (RRF #3H)



EOW

PROJECT DETAILS: Eddy County(NAD83)
 Geodetic System: US State Plane 1983
 Datum: North American Datum 1983
 Ellipsoid: GRS 1980
 Zone: New Mexico Eastern Zone
 System Datum: Mean Sea Level
 Local North: Grid

Plan: Post Gyro Plan #6 (#3H/OH)
 Created By: Michael Trout Date: 9.36, January 30 2012

**McVAY DRILLING COMPANY**

P.O. Box 2450
Hobbs, New Mexico 88241
(575) 397-3311
FAX: 39-DRILL

Well Name and Num: Rock Ridge Federal 3H
Location: Sec. 30, T24S, R29E
Operator: Murchison
Drilling Contractor: McVay Drilling Company

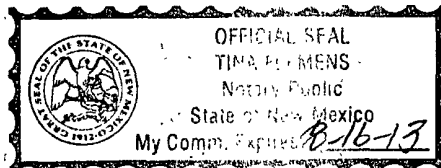
The undersigned certifies that he is an authorized representative of the drilling contractor who drilled the above described well and that he has conducted deviation tests and obtained the following results:

<u>Degrees @</u>	<u>Depth</u>	<u>Degrees @</u>	<u>Depth</u>	<u>Degrees @</u>	<u>Depth</u>	<u>Degrees @</u>	<u>Depth</u>
1.25	203	0.60	3000	3.78	6712	91.10	10973
1.00	386	0.20	3567	13.50	6801		
1.00	468	0.20	4019	16.97	6931		
0.42	587	0.58	4484	33.15	6983		
1.10	1032	1.10	5010	48.90	7133		
0.70	1382	1.00	5372	62.78	7253		
0.03	1573	0.40	5841	74.13	7345		
1.00	1755	0.80	6161	90.39	7507		
0.80	1850	0.80	6288	90.40	7539		
0.97	2081	0.60	6544	91.71	8402		
2.02	2228	0.50	6989	91.36	8882		
2.43	2396	1.80	7116	93.21	9456		
2.44	2460	2.30	7273	92.77	10218		
2.50	2523	1.30	7463	92.50	10313		
1.30	2687	0.50	7653	92.60	10407		
1.00	2708	1.80	7780	91.80	10597		
0.80	2741	1.70	7843	92.20	10692		

By: Hunter C. [Signature]

Subscribed and sworn to before me this 7th day of February, 2012

Tina [Signature]
Notary Public, Lea County, New Mexico



MURCHISON OIL & GAS

Pierce Crossing
Eddy County, NM
Rock Ridge Federal #3H
VH - Job #32K0112046

Survey: Gyro

SDI Standard Survey Report

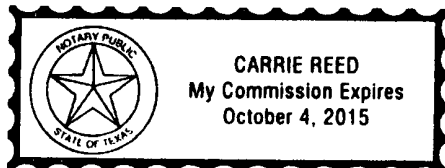
This survey is correct to the best of my knowledge and is supported by actual field data.

Richard

Notarized this date 17th of February, 2012.

Carrie Reed

Notary Signature
County of Midland
State of Texas



Scientific Drilling International, Inc.

SDI Standard Survey Report



Company:	MURCHISON OIL & GAS	Local Co-ordinate Reference:	Well Rock Ridge Federal #3H
Project:	Pierce Crossing	TVD Reference:	WELL @ 0 0usft (Original Well Elev)
Site:	Eddy County, NM	MD Reference:	WELL @ 0 0usft (Original Well Elev)
Well:	Rock Ridge Federal #3H	North Reference:	Grid
Wellbore:	VH - Job #32K0112046	Survey Calculation Method:	Minimum Curvature
Design:	VH - Job #32K0112046	Database:	EDM-Regulatory

Project	Pierce Crossing		
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:	433,564 84 usft	Latitude:	32° 11' 29 722 N
From:	Lat/Long	Easting:	598,069.75 usft	Longitude:	104° 0' 58 729 W
Position Uncertainty:	0 0 usft	Slot Radius:	13-3/16"	Grid Convergence:	0 17 °

Well	Rock Ridge Federal #3H, Directional (Pathfinder)					
Well Position	+N/-S	0 0 usft	Northing:	433,564 84 usft	Latitude:	32° 11' 29 722 N
	+E/-W	0 0 usft	Easting:	598,069 75 usft	Longitude:	104° 0' 58 729 W
Position Uncertainty		0 0 usft	Wellhead Elevation:	usft	Ground Level:	0 0 usft

Wellbore	VH - Job #32K0112046				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	1/15/2012	7 72	60 07	48,514

Design	VH - Job #32K0112046			
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	268 18

Survey Program		Date 2/16/2012		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
100 0	6,850 0	Gyro (VH - Job #32K0112046)	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	131 85	100 0	-0 2	0 2	131 85		0 3
200 0	0 47	158 47	200 0	-0 8	0 6	142 31		1 0
300 0	0 48	162 75	300 0	-1 6	0 9	150 55		1 8
400 0	0 35	161 97	400 0	-2 3	1 1	153 93		2 5
500 0	0 32	158 48	500 0	-2 8	1 3	155 12		3 1
600 0	0 28	147 07	600 0	-3 3	1 5	154 84		3 6
700 0	0 46	119 30	700 0	-3 7	2 0	151 21		4 2
800 0	0 50	102 93	800 0	-4 0	2 8	144 87		4 9
900 0	0 67	104 56	900 0	-4 2	3 8	138 10		5 7
1,000 0	0 67	95 67	1,000 0	-4 4	4 9	131 89		6 6
1,100 0	0 32	51 18	1,100 0	-4 3	5 7	126 93		7 2

Scientific Drilling International, Inc.
SDI Standard Survey Report



Company:	MURCHISON OIL & GAS	Local Co-ordinate Reference:	Well Rock Ridge Federal #3H
Project:	Pierce Crossing	TVD Reference:	WELL @ 0.0usft (Original Well Elev)
Site:	Eddy County, NM	MD Reference:	WELL @ 0.0usft (Original Well Elev)
Well:	Rock Ridge Federal #3H	North Reference:	Grid
Wellbore:	VH - Job #32K0112046	Survey Calculation Method:	Minimum Curvature
Design:	VH - Job #32K0112046	Database:	EDM-Regulatory

Survey							
Measured Depth (usft)	Inclination (°)	Azimuth (°)	True Vertical Depth	North/South (usft)	East/West (usft)	Closure Azimuth (°)	Closure Distance (usft)
1,200.0	0.18	12.18	1,200.0	-4.0	6.0	123.64	7.2
1,300.0	0.32	280.48	1,300.0	-3.8	5.8	123.34	6.9
1,400.0	0.46	305.02	1,400.0	-3.5	5.1	124.23	6.2
1,500.0	0.27	205.36	1,500.0	-3.5	4.7	126.45	5.9
1,600.0	0.41	182.89	1,600.0	-4.1	4.6	131.40	6.1
1,700.0	0.66	185.79	1,700.0	-5.0	4.5	137.79	6.7
1,800.0	0.72	186.15	1,799.9	-6.2	4.4	144.58	7.6
1,900.0	0.92	193.41	1,899.9	-7.6	4.1	151.37	8.6
2,000.0	1.06	194.01	1,999.9	-9.3	3.7	158.06	10.0
2,100.0	1.52	161.03	2,099.9	-11.4	3.9	160.96	12.1
2,200.0	1.92	151.53	2,199.9	-14.1	5.2	159.92	15.1
2,300.0	2.08	150.81	2,299.8	-17.2	6.9	158.28	18.5
2,400.0	2.37	143.73	2,399.7	-20.5	9.0	156.34	22.3
2,500.0	2.57	145.45	2,499.6	-24.0	11.5	154.45	26.6
2,600.0	2.16	146.87	2,599.5	-27.4	13.8	153.33	30.7
2,700.0	1.40	138.85	2,699.5	-29.9	15.6	152.45	33.7
2,800.0	1.07	140.75	2,799.5	-31.5	17.0	151.69	35.8
2,900.0	1.00	142.23	2,899.5	-32.9	18.1	151.20	37.6
3,000.0	0.82	135.59	2,999.4	-34.1	19.1	150.72	39.1
3,100.0	0.68	135.85	3,099.4	-35.1	20.1	150.24	40.4
3,200.0	0.58	149.60	3,199.4	-35.9	20.7	150.03	41.5
3,300.0	0.61	135.00	3,299.4	-36.8	21.4	149.84	42.5
3,400.0	0.46	183.73	3,399.4	-37.5	21.7	149.95	43.4
3,500.0	0.42	197.20	3,499.4	-38.3	21.6	150.59	43.9
3,600.0	0.50	189.11	3,599.4	-39.1	21.4	151.29	44.5
3,700.0	0.45	192.14	3,699.4	-39.9	21.2	151.95	45.2
3,800.0	0.48	190.94	3,799.4	-40.7	21.1	152.60	45.8
3,900.0	0.46	196.96	3,899.4	-41.5	20.9	153.26	46.4
4,000.0	0.48	206.03	3,999.4	-42.2	20.6	154.01	47.0
4,100.0	0.49	208.52	4,099.4	-43.0	20.2	154.83	47.5
4,200.0	0.50	211.83	4,199.4	-43.7	19.8	155.68	48.0
4,300.0	0.54	203.86	4,299.4	-44.5	19.3	156.52	48.6
4,400.0	0.49	213.03	4,399.4	-45.3	18.9	157.34	49.1
4,500.0	0.57	204.25	4,499.4	-46.1	18.5	158.16	49.7
4,600.0	0.53	188.52	4,599.4	-47.0	18.2	158.84	50.4
4,700.0	0.54	192.01	4,699.4	-48.0	18.0	159.38	51.2
4,800.0	0.59	177.30	4,799.4	-48.9	18.0	159.83	52.1
4,900.0	0.76	167.44	4,899.4	-50.1	18.1	160.09	53.3
5,000.0	0.91	160.60	4,999.3	-51.5	18.5	160.19	54.7
5,100.0	0.98	169.59	5,099.3	-53.1	19.0	160.34	56.4
5,200.0	1.00	171.71	5,199.3	-54.8	19.2	160.64	58.1
5,300.0	0.94	176.95	5,299.3	-56.5	19.4	161.03	59.7
5,400.0	0.95	177.64	5,399.3	-58.1	19.5	161.46	61.3
5,500.0	1.00	178.13	5,499.3	-59.8	19.6	161.90	62.9

Scientific Drilling International, Inc.

SDI Standard Survey Report



Company:	MURCHISON OIL & GAS	Local Co-ordinate Reference:	Well Rock Ridge Federal #3H
Project:	Pierce Crossing	TVD Reference:	WELL @ 0 0usft (Original Well Elev)
Site:	Eddy County, NM	MD Reference:	WELL @ 0 0usft (Original Well Elev)
Well:	Rock Ridge Federal #3H	North Reference:	Grid
Wellbore:	VH - Job #32K0112046	Survey Calculation Method:	Minimum Curvature
Design:	VH - Job #32K0112046	Database:	EDM-Regulatory

Survey							
Measured Depth (usft)	Inclination (°)	Azimuth (°)	True Vertical Depth	North/South (usft)	East/West (usft)	Closure Azimuth (°)	Closure Distance (usft)
5,600 0	0 89	192 00	5,599 3	-61 5	19 4	162 46	64 5
5,700 0	0 73	184 74	5,699 2	-62 8	19 2	163 00	65 7
5,800 0	0 85	187 01	5,799 2	-64 2	19 1	163 46	67 0
5,900 0	0 76	184 37	5,899 2	-65 6	18 9	163 91	68 3
6,000 0	0 72	170 39	5,999 2	-66 9	19 0	164 16	69 5
6,100 0	0 67	166 19	6,099 2	-68 1	19 2	164 23	70 7
6,200 0	0 81	165 80	6,199 2	-69 3	19 5	164 26	72 0
6,300 0	0 82	178 72	6,299 2	-70 7	19 7	164 42	73 4
6,400 0	0 63	169 23	6,399 2	-72 0	19 8	164 59	74 7
6,500 0	0 74	172 82	6,499 2	-73 2	20 0	164 69	75 9
6,600 0	0 68	212 28	6,599 2	-74 3	19 8	165 09	76 9
6,700 0	1 04	224 09	6,699 2	-75 5	18 8	165 98	77 8
6,800 0	0 99	250 95	6,799 1	-76 4	17 4	167 17	78 4
6,850 0	0 73	256 66	6,849 1	-76 6	16 7	167 72	78 4



Project: Pierce Crossing
Eddy County, NM
Well: Rock Ridge Federal #3H
Wellbore: VH - Job #32K0112046
Design: VH - Job #32K0112046

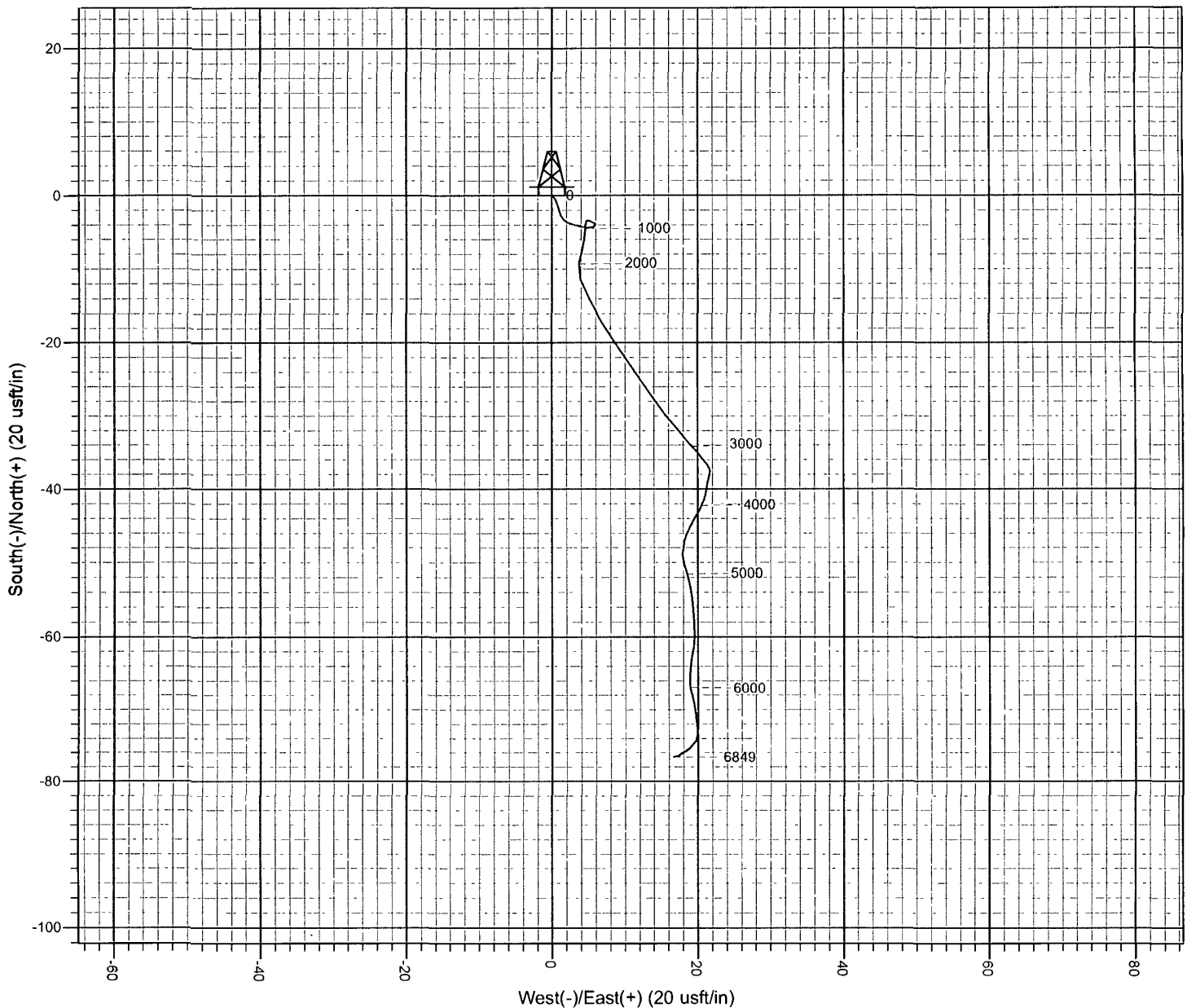


Azimuths to Grid North
True North -0 17°
Magnetic North 7 55°

Magnetic Field
Strength 48514 1snT
Dip Angle 60 07°
Date 1/15/2012
Model IGRF2010

WELL DETAILS: Rock Ridge Federal #3H
WELL @ 0.0usft (Original Well Elev)
Ground Level. 0.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	433564.84	598069.75	32° 11' 29.722 N	104° 0' 58.729 W	



PROJECT DETAILS: Pierce Crossing
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

SITE DETAILS: Eddy County, NM
Site Centre Latitude: 32° 11' 29.722 N
Longitude: 104° 0' 58.729 W
Positional Uncertainty: 0.0
Convergence: 0.17
Local North: Grid