

3001542474



Job Number: SVMO-141268
 Company: Mewbourne Oil & Gas
 Lease/Well: Ruger 31 B2EH Fed Com 1H
 Location: Eddy County, NM
 Rig Name: Patterson #46
 RKB: 20.5'
 G.L. or M.S.L.: GL

State/Country: New Mexico/USA
 Declination: 7.39°
 Grid: East To Grid North
 File name: Y:\WINSER~1\2014SU~1\MEWBOU~1\MO\RUGER3~2\1H.SVY
 Date/Time: 19-Sep-14 / 15:57
 Curve Name: Surface - 6996' M.D. (Rate Gyro)

MS Survey

WINSERVE SURVEY CALCULATIONS
 Minimum Curvature Method
 Vertical Section Plane .00
 Vertical Section Referenced to Wellhead
 Rectangular Coordinates Referenced to Wellhead

We hereby certify that our survey data from
 Surface MD to 6996' MD is, to the best of
 our knowledge a true and accurate account of
 the well bore.
Harley Patterson 9/19/14
 MS Energy Services Date

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	C L O S U R E		Dogleg Severity Deg/100
							Distance FT	Direction Deg	
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
100.00	.85	235.15	100.00	-.42	-.61	-.42	.74	235.15	.85
200.00	2.34	235.19	199.95	-2.01	-2.89	-2.01	3.53	235.17	1.49
300.00	3.78	225.48	299.81	-5.49	-6.92	-5.49	8.83	231.57	1.53
400.00	4.35	228.56	399.56	-10.31	-12.11	-10.31	15.91	229.60	.61
500.00	3.48	224.81	499.32	-14.97	-17.10	-14.97	22.73	228.78	.91
600.00	2.87	212.43	599.17	-19.24	-20.58	-19.24	28.17	226.92	.91
700.00	2.17	186.38	699.08	-23.24	-22.13	-23.24	32.09	223.60	1.32
800.00	2.07	180.08	799.01	-26.92	-22.34	-26.92	34.99	219.69	.25
900.00	1.93	173.86	898.95	-30.40	-22.17	-30.40	37.63	216.09	.26

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	C L O S U R E		Dogleg Severity Deg/100
							Distance FT	Direction Deg	
1000.00	1.72	169.19	998.90	-33.55	-21.70	-33.55	39.96	212.90	.26
1100.00	1.58	176.23	1098.86	-36.40	-21.33	-36.40	42.19	210.37	.25
1200.00	1.60	169.19	1198.82	-39.15	-20.98	-39.15	44.42	208.19	.20
1300.00	1.48	168.16	1298.78	-41.78	-20.45	-41.78	46.52	206.08	.12
1400.00	1.63	173.39	1398.74	-44.46	-20.02	-44.46	48.76	204.25	.21
1500.00	2.06	176.58	1498.69	-47.67	-19.75	-47.67	51.60	202.51	.44
1600.00	1.87	177.69	1598.63	-51.09	-19.58	-51.09	54.72	200.97	.19
1700.00	1.70	178.55	1698.59	-54.20	-19.48	-54.20	57.60	199.76	.17
1800.00	1.54	183.56	1798.55	-57.03	-19.52	-57.03	60.28	198.90	.21
1900.00	1.43	181.67	1898.51	-59.62	-19.64	-59.62	62.77	198.24	.12
2000.00	1.32	180.55	1998.48	-62.02	-19.69	-62.02	65.07	197.61	.11
2100.00	1.37	179.62	2098.46	-64.36	-19.69	-64.36	67.31	197.01	.05
2200.00	1.17	185.50	2198.43	-66.58	-19.78	-66.58	69.45	196.55	.24
2300.00	1.21	199.33	2298.41	-68.59	-20.23	-68.59	71.51	196.43	.29
2400.00	1.18	206.92	2398.39	-70.50	-21.05	-70.50	73.58	196.62	.16
2500.00	1.02	202.96	2498.37	-72.24	-21.86	-72.24	75.47	196.84	.18
2600.00	.85	198.78	2598.36	-73.76	-22.45	-73.76	77.10	196.92	.18
2700.00	.85	206.69	2698.34	-75.13	-23.02	-75.13	78.57	197.03	.12
2800.00	.66	213.02	2798.34	-76.27	-23.66	-76.27	79.86	197.24	.21
2900.00	.26	227.84	2898.33	-76.91	-24.15	-76.91	80.61	197.43	.41
3000.00	.36	275.12	2998.33	-77.03	-24.63	-77.03	80.87	197.73	.26
3100.00	.09	279.76	3098.33	-76.99	-25.02	-76.99	80.95	198.00	.27
3200.00	.19	320.63	3198.33	-76.85	-25.20	-76.85	80.88	198.16	.14
3300.00	.25	345.00	3298.33	-76.51	-25.36	-76.51	80.60	198.34	.11
3400.00	.34	340.56	3398.33	-76.02	-25.52	-76.02	80.19	198.56	.09
3500.00	.44	353.89	3498.33	-75.36	-25.66	-75.36	79.61	198.80	.13
3600.00	.40	337.82	3598.32	-74.65	-25.83	-74.65	78.99	199.09	.12
3700.00	.53	3.12	3698.32	-73.87	-25.94	-73.87	78.29	199.35	.24
3800.00	.72	340.71	3798.31	-72.81	-26.12	-72.81	77.36	199.73	.31

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	C L O S U R E		Dogleg Severity Deg/100
							Distance FT	Direction Deg	
3900.00	.96	335.81	3898.30	-71.46	-26.67	-71.46	76.27	200.47	.25
4000.00	1.59	323.19	3998.28	-69.58	-27.84	-69.58	74.94	201.81	.69
4100.00	1.86	315.38	4098.23	-67.31	-29.81	-67.31	73.62	203.89	.36
4200.00	2.43	312.23	4198.16	-64.73	-32.52	-64.73	72.45	206.68	.58
4300.00	2.92	304.42	4298.05	-61.87	-36.20	-61.87	71.68	210.33	.61
4400.00	2.88	304.93	4397.93	-58.99	-40.36	-58.99	71.48	214.38	.05
4500.00	2.93	305.82	4497.80	-56.06	-44.49	-56.06	71.57	218.44	.07
4600.00	2.95	307.24	4597.67	-53.00	-48.61	-53.00	71.92	222.52	.08
4700.00	3.05	307.60	4697.53	-49.82	-52.77	-49.82	72.57	226.64	.10
4800.00	3.17	305.67	4797.38	-46.59	-57.12	-46.59	73.71	230.80	.16
4900.00	3.31	304.67	4897.22	-43.33	-61.74	-43.33	75.43	234.94	.15
5000.00	3.30	301.93	4997.06	-40.17	-66.56	-40.17	77.74	238.89	.16
5100.00	3.45	299.73	5096.88	-37.16	-71.61	-37.16	80.68	242.58	.20
5200.00	3.67	297.95	5196.69	-34.16	-77.05	-34.16	84.29	246.09	.25
5300.00	4.26	288.16	5296.45	-31.51	-83.41	-31.51	89.16	249.31	.90
5400.00	4.76	285.58	5396.14	-29.23	-90.93	-29.23	95.52	252.18	.54
5500.00	4.61	284.80	5495.81	-27.09	-98.82	-27.09	102.46	254.67	.16
5600.00	2.93	274.44	5595.59	-25.87	-105.25	-25.87	108.38	256.19	1.81
5700.00	1.13	252.59	5695.52	-25.97	-108.74	-25.97	111.80	256.57	1.93
5800.00	.26	189.33	5795.51	-26.48	-109.72	-26.48	112.87	256.43	1.04
5900.00	.08	1.39	5895.51	-26.64	-109.75	-26.64	112.94	256.36	.34
6000.00	.15	334.85	5995.51	-26.45	-109.81	-26.45	112.95	256.46	.09
6100.00	.09	309.81	6095.51	-26.28	-109.92	-26.28	113.02	256.55	.08
6200.00	.04	237.11	6195.51	-26.25	-110.01	-26.25	113.10	256.58	.09
6300.00	.16	174.19	6295.51	-26.41	-110.03	-26.41	113.15	256.50	.15
6400.00	.17	172.40	6395.51	-26.69	-109.99	-26.69	113.19	256.36	.01
6500.00	.19	160.29	6495.51	-27.00	-109.92	-27.00	113.19	256.20	.04
6600.00	.15	139.12	6595.51	-27.25	-109.78	-27.25	113.11	256.06	.07
6700.00	.21	143.62	6695.51	-27.50	-109.58	-27.50	112.98	255.91	.06

Mewbourne Oil Co

Eddy County, New Mexico

Sec 31, T9S, R9E

Ruger 31 B2EH Fed Com #1H

Wellbore #1

Design: Wellbore #1

DDC Survey Report

30 September, 2014



HP Survey Report



Company:	Mewbourne Oil Co	Local Co-ordinate Reference:	Well Ruger 31 B2EH Fed Com #1H
Project:	Eddy County, New Mexico	TVD Reference:	Well @ 3315.0usft (Patterson)
Site:	Sec 31, T9S, R9E	MD Reference:	Well @ 3315.0usft (Patterson)
Well:	Ruger 31 B2EH Fed Com #1H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Compass

Project	Eddy County, New Mexico		
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		Sec 31, T9S, R9E			
Site Position:		Northing:	586,420.00 usft	Latitude:	32° 36' 43.178 N
From:	Map	Easting:	565,319.60 usft	Longitude:	104° 7' 16.322 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.11 °

Well	Ruger 31 B2EH Fed Com #1H					
Well Position	+N/-S	0.0 usft	Northing:	588,680.08 usft	Latitude:	32° 37' 5.543 N
	+E/-W	0.0 usft	Easting:	565,311.80 usft	Longitude:	104° 7' 16.360 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	0.0 usft	Ground Level:	3,295.0 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	8/27/2014	7.48	60.38	48,474

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	255.55	

Survey Program	Date	9/30/2014			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
100.0	6,996.0	Gyro Survey (Wellbore #1)	Good_gyro	Good Gyro	
7,094.0	12,165.0	MWD Survey (Wellbore #1)	MWD default	MWD - Standard	

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)	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00	
100.0	0.85	235.15	100.0	-0.4	-0.6	0.7	0.85	0.85	0.00	
200.0	2.34	235.19	200.0	-2.0	-2.9	3.3	1.49	1.49	0.04	
300.0	3.78	225.48	299.8	-5.5	-6.9	8.1	1.53	1.44	-9.71	
400.0	4.35	228.56	399.6	-10.3	-12.1	14.3	0.61	0.57	3.08	
500.0	3.48	224.81	499.3	-15.0	-17.1	20.3	0.91	-0.87	-3.75	
600.0	2.87	212.43	599.2	-19.2	-20.6	24.7	0.91	-0.61	-12.38	
700.0	2.17	186.38	699.1	-23.2	-22.1	27.2	1.32	-0.70	-26.05	
800.0	2.07	180.08	799.0	-26.9	-22.3	28.4	0.25	-0.10	-6.30	
900.0	1.93	173.86	898.9	-30.4	-22.2	29.1	0.26	-0.14	-6.22	

HP Survey Report



Company:	Mewbourne Oil Co	Local Co-ordinate Reference:	Well Ruger 31 B2EH Fed Com #1H
Project:	Eddy County, New Mexico	TVD Reference:	Well @ 3315.0usft (Patterson)
Site:	Sec 31, T9S, R9E	MD Reference:	Well @ 3315.0usft (Patterson)
Well:	Ruger 31 B2EH Fed Com #1H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Compass

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)	
1,000.0	1.72	169.19	998.9	-33.6	-21.7	29.4	0.26	-0.21	-4.67	
1,100.0	1.58	176.23	1,098.9	-36.4	-21.3	29.7	0.25	-0.14	7.04	
1,200.0	1.60	169.19	1,198.8	-39.1	-21.0	30.1	0.20	0.02	-7.04	
1,300.0	1.48	168.16	1,298.8	-41.8	-20.5	30.2	0.12	-0.12	-1.03	
1,400.0	1.63	173.39	1,398.7	-44.5	-20.0	30.5	0.21	0.15	5.23	
1,500.0	2.06	176.58	1,498.7	-47.7	-19.8	31.0	0.44	0.43	3.19	
1,600.0	1.87	177.69	1,598.6	-51.1	-19.6	31.7	0.19	-0.19	1.11	
1,700.0	1.70	178.55	1,698.6	-54.2	-19.5	32.4	0.17	-0.17	0.86	
1,800.0	1.54	183.56	1,798.5	-57.0	-19.5	33.1	0.21	-0.16	5.01	
1,900.0	1.43	181.67	1,898.5	-59.6	-19.6	33.9	0.12	-0.11	-1.89	
2,000.0	1.32	180.55	1,998.5	-62.0	-19.7	34.5	0.11	-0.11	-1.12	
2,100.0	1.37	179.62	2,098.5	-64.4	-19.7	35.1	0.05	0.05	-0.93	
2,200.0	1.17	185.50	2,198.4	-66.6	-19.8	35.8	0.24	-0.20	5.88	
2,300.0	1.21	199.33	2,298.4	-68.6	-20.2	36.7	0.29	0.04	13.83	
2,400.0	1.18	206.92	2,398.4	-70.5	-21.0	38.0	0.16	-0.03	7.59	
2,500.0	1.02	202.96	2,498.4	-72.2	-21.9	39.2	0.18	-0.16	-3.96	
2,600.0	0.85	198.78	2,598.4	-73.8	-22.4	40.1	0.18	-0.17	-4.18	
2,700.0	0.85	206.69	2,698.3	-75.1	-23.0	41.0	0.12	0.00	7.91	
2,800.0	0.66	213.02	2,798.3	-76.3	-23.7	41.9	0.21	-0.19	6.33	
2,900.0	0.26	227.84	2,898.3	-76.9	-24.1	42.6	0.41	-0.40	14.82	
3,000.0	0.36	275.12	2,998.3	-77.0	-24.6	43.1	0.26	0.10	47.28	
3,100.0	0.09	279.76	3,098.3	-77.0	-25.0	43.4	0.27	-0.27	4.64	
3,200.0	0.19	320.63	3,198.3	-76.8	-25.2	43.6	0.14	0.10	40.87	
3,300.0	0.25	345.00	3,298.3	-76.5	-25.4	43.6	0.11	0.06	24.37	
3,400.0	0.34	340.56	3,398.3	-76.0	-25.5	43.7	0.09	0.09	-4.44	
3,500.0	0.44	353.89	3,498.3	-75.4	-25.7	43.6	0.13	0.10	13.33	
3,600.0	0.40	337.82	3,598.3	-74.7	-25.8	43.6	0.12	-0.04	-16.07	
3,700.0	0.53	312	3,698.3	-73.9	-25.9	43.5	0.24	0.13	25.30	
3,800.0	0.72	340.71	3,798.3	-72.8	-26.1	43.5	0.31	0.19	-22.41	
3,900.0	0.96	335.81	3,898.3	-71.5	-26.7	43.7	0.25	0.24	-4.90	
4,000.0	1.59	323.19	3,998.3	-69.6	-27.8	44.3	0.69	0.63	-12.62	
4,100.0	1.86	315.38	4,098.2	-67.3	-29.8	45.7	0.36	0.27	-7.81	
4,200.0	2.43	312.23	4,198.2	-64.7	-32.5	47.6	0.58	0.57	-3.15	
4,300.0	2.92	304.42	4,298.1	-61.9	-36.2	50.5	0.61	0.49	-7.81	
4,400.0	2.88	304.93	4,397.9	-59.0	-40.4	53.8	0.05	-0.04	0.51	
4,500.0	2.93	305.82	4,497.8	-56.1	-44.5	57.1	0.07	0.05	0.89	
4,600.0	2.95	307.24	4,597.7	-53.0	-48.6	60.3	0.08	0.02	1.42	
4,700.0	3.05	307.60	4,697.5	-49.8	-52.8	63.5	0.10	0.10	0.36	
4,800.0	3.17	305.67	4,797.4	-46.6	-57.1	66.9	0.16	0.12	-1.93	
4,900.0	3.31	304.67	4,897.2	-43.3	-61.7	70.6	0.15	0.14	-1.00	
5,000.0	3.30	301.93	4,997.1	-40.2	-66.6	74.5	0.16	-0.01	-2.74	
5,100.0	3.45	299.73	5,096.9	-37.2	-71.6	78.6	0.20	0.15	-2.20	
5,200.0	3.67	297.95	5,196.7	-34.2	-77.1	83.1	0.25	0.22	-1.78	

HP Survey Report



Company:	Mewbourne Oil Co	Local Co-ordinate Reference:	Well Ruger 31 B2EH Fed Com #1H
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Site:	Sec 31, T9S, R9E	MD Reference:	Well @ 3315.0usft (Patterson)
Well:	Ruger 31 B2EH Fed Com #1H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Compass

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)	
5,300.0	4.26	288.16	5,296.4	-31.5	-83.4	88.6	0.90	0.59	-9.79	
5,400.0	4.76	285.58	5,396.1	-29.2	-90.9	95.4	0.54	0.50	-2.58	
5,500.0	4.61	284.80	5,495.8	-27.1	-98.8	102.5	0.16	-0.15	-0.78	
5,600.0	2.93	274.44	5,595.6	-25.9	-105.3	108.4	1.81	-1.68	-10.36	
5,700.0	1.13	252.59	5,695.5	-26.0	-108.7	111.8	1.93	-1.80	-21.85	
5,800.0	0.26	189.33	5,795.5	-26.5	-109.7	112.9	1.04	-0.87	-63.26	
5,900.0	0.08	1.39	5,895.5	-26.6	-109.8	112.9	0.34	-0.18	172.06	
6,000.0	0.15	334.85	5,995.5	-26.5	-109.8	112.9	0.09	0.07	-26.54	
6,100.0	0.09	309.81	6,095.5	-26.3	-109.9	113.0	0.08	-0.06	-25.04	
6,200.0	0.04	237.11	6,195.5	-26.3	-110.0	113.1	0.09	-0.05	-72.70	
6,300.0	0.16	174.19	6,295.5	-26.4	-110.0	113.1	0.15	0.12	-62.92	
6,400.0	0.17	172.40	6,395.5	-26.7	-110.0	113.2	0.01	0.01	-1.79	
6,500.0	0.19	160.29	6,495.5	-27.0	-109.9	113.2	0.04	0.02	-12.11	
6,600.0	0.15	139.12	6,595.5	-27.3	-109.8	113.1	0.07	-0.04	-21.17	
6,700.0	0.21	143.62	6,695.5	-27.5	-109.6	113.0	0.06	0.06	4.50	
6,800.0	0.14	150.97	6,795.5	-27.8	-109.4	112.9	0.07	-0.07	7.35	
6,900.0	0.14	161.26	6,895.5	-28.0	-109.3	112.8	0.03	0.00	10.29	
Tie-In @ 6996' MD / 6991.5' TVD										
6,996.0	0.11	207.96	6,991.5	-28.2	-109.3	112.9	0.11	-0.03	48.65	
7,094.0	2.80	74.90	7,089.5	-27.6	-107.1	110.6	2.93	2.74	-135.78	
7,126.0	6.20	79.10	7,121.4	-27.1	-104.6	108.1	10.67	10.63	13.13	
7,158.0	9.50	76.30	7,153.1	-26.1	-100.3	103.7	10.38	10.31	-8.75	
7,190.0	12.50	77.70	7,184.5	-24.8	-94.4	97.6	9.41	9.38	4.38	
7,222.0	15.50	81.20	7,215.5	-23.4	-86.8	89.9	9.74	9.38	10.94	
7,254.0	18.60	81.20	7,246.1	-22.0	-77.5	80.5	9.69	9.69	0.00	
7,285.0	21.80	81.20	7,275.2	-20.3	-66.9	69.9	10.32	10.32	0.00	
7,317.0	23.90	84.00	7,304.7	-18.7	-54.6	57.6	7.39	6.56	8.75	
7,349.0	25.50	90.30	7,333.8	-18.1	-41.3	44.5	9.62	5.00	19.69	
7,381.0	27.60	88.60	7,362.4	-17.9	-27.0	30.6	6.98	6.56	-5.31	
7,413.0	29.70	86.50	7,390.5	-17.3	-11.6	15.6	7.28	6.56	-6.56	
7,445.0	32.00	85.40	7,417.9	-16.1	4.7	-0.6	7.40	7.19	-3.44	
7,477.0	35.00	86.80	7,444.6	-14.9	22.3	-17.9	9.68	9.38	4.38	
7,509.0	39.10	85.80	7,470.2	-13.7	41.6	-36.8	12.95	12.81	-3.13	
7,541.0	43.10	84.30	7,494.3	-11.8	62.5	-57.6	12.87	12.50	-4.69	
7,573.0	46.80	83.30	7,516.9	-9.4	85.0	-80.0	11.77	11.56	-3.13	
7,605.0	50.70	84.00	7,538.0	-6.7	108.9	-103.8	12.30	12.19	2.19	
7,636.0	54.00	84.30	7,556.9	-4.2	133.3	-128.0	10.67	10.65	0.97	
7,668.0	57.40	84.30	7,575.0	-1.6	159.6	-154.2	10.63	10.63	0.00	
7,700.0	60.90	85.40	7,591.4	0.8	187.0	-181.3	11.33	10.94	3.44	
7,732.0	64.60	84.70	7,606.0	3.3	215.3	-209.3	11.72	11.56	-2.19	
7,764.0	69.30	85.40	7,618.6	5.8	244.6	-238.4	14.82	14.69	2.19	
7,796.0	75.10	85.40	7,628.3	8.3	275.0	-268.4	18.13	18.13	0.00	
CROSSED HARD-LINE @ 7800.2' MD / 7629.4' TVD										
7,800.2	75.94	85.55	7,629.4	8.6	279.0	-272.4	20.30	19.99	3.62	

HP Survey Report



Company:	Mewbourne Oil Co	Local Co-ordinate Reference:	Well Ruger 31 B2EH Fed Com #1H
Project:	Eddy County, New Mexico	TVD Reference:	Well @ 3315.0usft (Patterson)
Site:	Sec 31, T9S, R9E	MD Reference:	Well @ 3315.0usft (Patterson)
Well:	Ruger 31 B2EH Fed Com #1H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Compass

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)
7,827.0	81.30	86.50	7,634.7	10.4	305.2	-298.2	20.30	20.00	3.54
7,859.0	85.70	86.10	7,638.3	12.5	337.0	-329.4	13.81	13.75	-1.25
7,891.0	85.90	86.50	7,640.6	14.5	368.8	-360.8	1.39	0.63	1.25
7,923.0	87.80	86.50	7,642.4	16.5	400.7	-392.1	5.94	5.94	0.00
7,955.0	90.40	86.10	7,642.9	18.5	432.6	-423.6	8.22	8.13	-1.25
7,987.0	90.80	85.80	7,642.6	20.8	464.6	-455.1	1.56	1.25	-0.94
8,018.0	88.70	85.80	7,642.7	23.1	495.5	-485.6	6.77	-6.77	0.00
8,049.0	88.90	85.10	7,643.3	25.5	526.4	-516.1	2.35	0.65	-2.26
8,081.0	86.60	85.10	7,644.6	28.3	558.2	-547.6	7.19	-7.19	0.00
8,113.0	85.70	84.70	7,646.7	31.1	590.0	-579.1	3.08	-2.81	-1.25
8,145.0	85.20	85.10	7,649.3	33.9	621.8	-610.6	2.00	-1.56	1.25
8,177.0	85.00	84.30	7,652.0	36.9	653.5	-642.1	2.57	-0.63	-2.50
8,209.0	85.90	85.40	7,654.6	39.7	685.3	-673.6	4.43	2.81	3.44
8,240.0	87.30	86.50	7,656.4	41.9	716.2	-704.0	5.74	4.52	3.55
8,272.0	87.60	86.80	7,657.8	43.8	748.1	-735.4	1.33	0.94	0.94
8,335.0	88.30	87.50	7,660.1	46.9	811.0	-797.0	1.57	1.11	1.11
8,399.0	89.00	87.20	7,661.6	49.9	874.9	-859.7	1.19	1.09	-0.47
8,463.0	88.50	87.20	7,663.0	53.0	938.8	-922.3	0.78	-0.78	0.00
8,527.0	89.60	86.50	7,664.0	56.5	1,002.7	-985.1	2.04	1.72	-1.09
8,590.0	89.20	85.80	7,664.7	60.8	1,065.5	-1,047.0	1.28	-0.63	-1.11
8,654.0	88.50	86.10	7,666.0	65.3	1,129.4	-1,109.9	1.19	-1.09	0.47
8,718.0	89.00	85.10	7,667.4	70.2	1,193.2	-1,172.9	1.75	0.78	-1.56
8,782.0	89.20	84.30	7,668.4	76.1	1,256.9	-1,236.1	1.29	0.31	-1.25
8,845.0	88.70	83.30	7,669.5	82.9	1,319.5	-1,298.5	1.77	-0.79	-1.59
8,909.0	88.50	84.30	7,671.1	89.8	1,383.1	-1,361.8	1.59	-0.31	1.56
8,973.0	88.70	85.10	7,672.7	95.7	1,446.8	-1,424.9	1.29	0.31	1.25
9,036.0	89.70	85.80	7,673.5	100.7	1,509.6	-1,487.0	1.94	1.59	1.11
9,100.0	90.10	86.10	7,673.7	105.2	1,573.4	-1,549.9	0.78	0.63	0.47
9,164.0	90.30	85.80	7,673.4	109.8	1,637.3	-1,612.9	0.56	0.31	-0.47
9,227.0	89.00	86.10	7,673.8	114.2	1,700.1	-1,674.8	2.12	-2.06	0.48
9,291.0	88.70	86.50	7,675.1	118.3	1,764.0	-1,737.7	0.78	-0.47	0.63
9,354.0	88.70	86.10	7,676.5	122.4	1,826.8	-1,799.6	0.63	0.00	-0.63
9,418.0	89.00	85.80	7,677.8	126.9	1,890.7	-1,862.5	0.66	0.47	-0.47
9,482.0	89.00	85.10	7,678.9	132.0	1,954.4	-1,925.6	1.09	0.00	-1.09
9,577.0	88.20	87.90	7,681.3	137.8	2,049.2	-2,018.8	3.06	-0.84	2.95
9,673.0	87.80	87.20	7,684.6	141.9	2,145.1	-2,112.6	0.84	-0.42	-0.73
9,768.0	89.70	86.80	7,686.7	146.9	2,239.9	-2,205.7	2.04	2.00	-0.42
9,864.0	90.30	86.50	7,686.7	152.5	2,335.8	-2,299.9	0.70	0.63	-0.31
9,960.0	88.70	87.20	7,687.5	157.8	2,431.6	-2,394.1	1.82	-1.67	0.73
10,055.0	88.70	86.80	7,689.7	162.7	2,526.5	-2,487.1	0.42	0.00	-0.42
10,151.0	89.00	85.80	7,691.6	168.9	2,622.2	-2,581.4	1.09	0.31	-1.04
10,246.0	88.30	85.40	7,693.8	176.2	2,716.9	-2,675.0	0.85	-0.74	-0.42
10,341.0	88.90	86.50	7,696.2	182.9	2,811.7	-2,768.4	1.32	0.63	1.16

HP Survey Report



Company:	Mewbourne Oil Co	Local Co-ordinate Reference:	Well Ruger 31 B2EH Fed Com #1H
Project:	Eddy County, New Mexico	TVD Reference:	Well @ 3315.0usft (Patterson)
Site:	Sec 31, T9S, R9E	MD Reference:	Well @ 3315.0usft (Patterson)
Well:	Ruger 31 B2EH Fed Com #1H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Compass

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)
10,436.0	89.60	86.10	7,697.4	189.0	2,906.5	-2,861.7	0.85	0.74	-0.42
10,531.0	88.50	85.80	7,699.0	195.8	3,001.2	-2,955.1	1.20	-1.16	-0.32
10,625.0	88.30	85.40	7,701.6	203.0	3,094.9	-3,047.6	0.48	-0.21	-0.43
10,721.0	88.30	86.80	7,704.4	209.5	3,190.6	-3,142.0	1.46	0.00	1.46
10,817.0	88.70	87.20	7,707.0	214.5	3,286.5	-3,236.0	0.59	0.42	0.42
10,912.0	86.20	87.20	7,711.2	219.1	3,381.2	-3,329.0	2.63	-2.63	0.00
11,007.0	87.30	86.80	7,716.6	224.1	3,476.0	-3,421.9	1.23	1.16	-0.42
11,102.0	88.70	84.70	7,719.9	231.1	3,570.6	-3,515.4	2.66	1.47	-2.21
11,197.0	89.20	84.30	7,721.6	240.2	3,665.2	-3,609.2	0.67	0.53	-0.42
11,292.0	89.00	86.80	7,723.1	247.6	3,759.9	-3,702.7	2.64	-0.21	2.63
11,387.0	90.40	86.10	7,723.6	253.5	3,854.7	-3,796.0	1.65	1.47	-0.74
11,482.0	89.60	85.80	7,723.6	260.2	3,949.4	-3,889.5	0.90	-0.84	-0.32
11,576.0	88.90	85.40	7,724.8	267.4	4,043.2	-3,982.0	0.86	-0.74	-0.43
11,671.0	87.80	84.00	7,727.6	276.2	4,137.7	-4,075.8	1.87	-1.16	-1.47
11,766.0	88.70	86.50	7,730.5	284.1	4,232.3	-4,169.3	2.80	0.95	2.63
11,860.0	89.00	86.10	7,732.4	290.1	4,326.1	-4,261.7	0.53	0.32	-0.43
11,954.0	89.40	86.10	7,733.7	296.5	4,419.9	-4,354.1	0.43	0.43	0.00
12,049.0	89.60	85.40	7,734.5	303.6	4,514.6	-4,447.6	0.77	0.21	-0.74
12,111.0	89.70	85.40	7,734.9	308.5	4,576.4	-4,508.7	0.16	0.16	0.00
TD @ 12165' MD / 7735.2 TVD									
12,165.0	89.70	85.40	7,735.2	312.9	4,630.2	-4,561.9	0.00	0.00	0.00

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
6,996.0	6,991.5	-28.2	-109.3	Tie-In @ 6996' MD / 6991.5' TVD
7,800.2	7,629.4	8.6	279.0	CROSSED HARD-LINE @ 7800.2' MD / 7629.4' TVD
12,165.0	7,735.2	312.9	4,630.2	TD @ 12165' MD / 7735.2 TVD

Checked By: _____ Approved By: _____ Date: _____

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	C L O S U R E		Dogleg Severity Deg/100
							Distance FT	Direction Deg	
6800.00	.14	150.97	6795.51	-27.75	-109.41	-27.75	112.88	255.77	.07
6900.00	.14	161.26	6895.51	-27.98	-109.32	-27.98	112.84	255.65	.03
Last Survey Depth Recorded									
6996.00	.11	207.96	6991.51	-28.17	-109.32	-28.17	112.89	255.55	.11

JAN 06 2015

RECEIVED

Company Name: Mewbourne Oil Co
Ruger 31 B2EH Fed Com #1H
Eddy County, New Mexico
Rig: Patterson #46
Created By: John Mooney
Date: 09/30/2014

Ruger 31 B2EH Fed Com #1H
Eddy County, New Mexico
Quote 140918 & WT-140877
Design #2 - Tied to Gyro

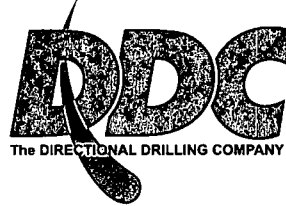
PROJECT DETAILS: Eddy County, New Mexico
Geodetic System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone: New Mexico East 3001
System Datum: Mean Sea Level

WELL DETAILS: Ruger 31 B2EH Fed Com #1H

Ground Level: 5295.0
+N-S +E-W Northing Easting Latitude Longitude
0.0 0.0 589690.08 565311.00 32° 37' 5.543 N 104° 7' 16.360 W

T G M Azimuths to Grid North
Correction: 7.36°
Magnetic Field
Strength: 48474.3snT
Dip Angle: 60.38°
Date: 8/27/2014
Model: IGRF2010

Mewbourne Oil Company



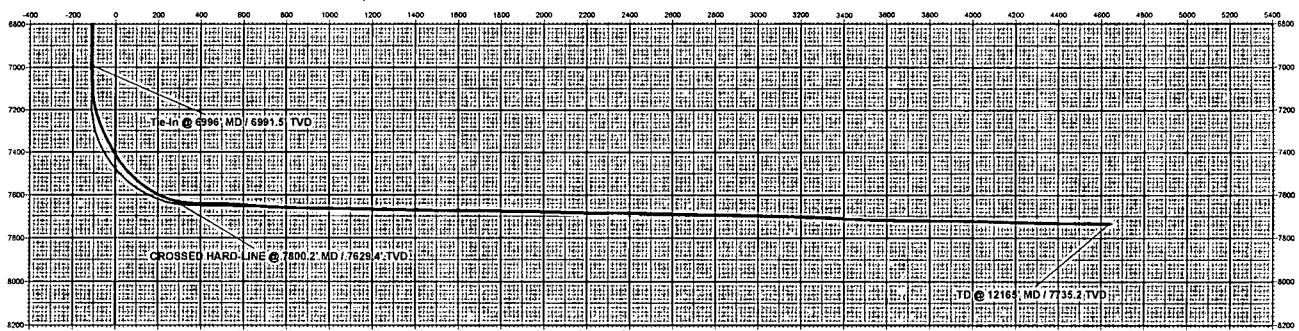
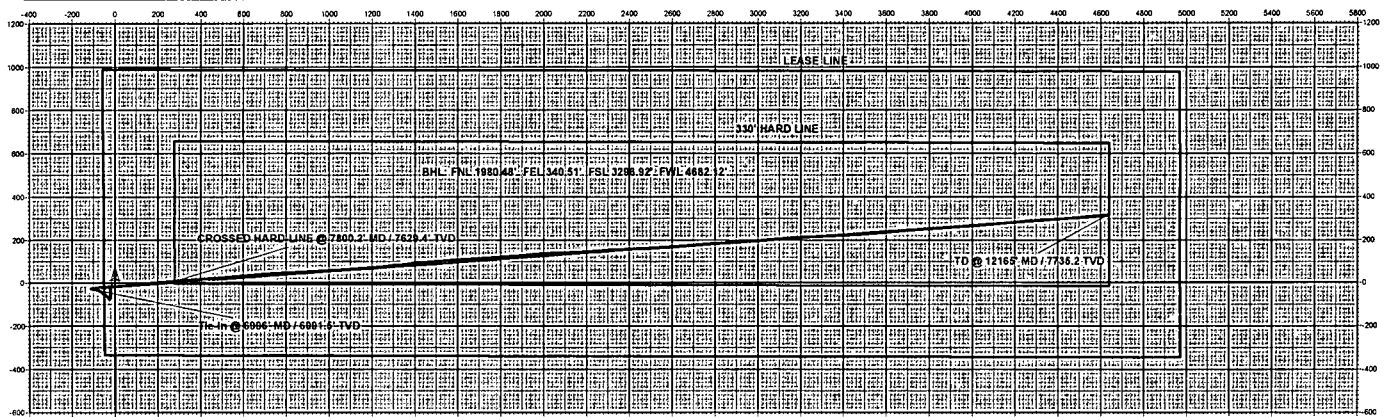
DESIGN TARGET DETAILS

Name	TVD	+N-S	+E-W	Northing	Easting	Latitude	Longitude
PBHL Ruger 31 B2EH Fed Com #1H DW2	7735.0	315.7	4640.7	588995.75	569952.51	32° 37' 5.572 N	104° 6' 22.093 W

- plan hits target center

ANNOTATIONS

MD	Inc	Azi	TVD	+N-S	+E-W	Vsect	Departure	Annotation
6996.0	0.11	207.96	6991.5	-28.2	-109.3	112.9	194.8	Tie-in @ 6996' MD / 6991.5' TVD
7800.2	75.94	85.55	7629.4	8.6	279.0	-272.4	585.4	CROSSED HARD-LINE @ 7800.2' MD / 7629.4' TVD
12165.0	89.70	85.40	7735.2	312.9	4630.2	-4561.9	4947.7	TD @ 12165' MD / 7735.2' TVD



Vertical Section at 86.11° (200 usf/in)