



COMPANY: Mewbourne Oil Company .
WELL: Birddog 20/17 B2ED State Com #1H
COUNTY: Lea County N.M.
DATUM: NAD 1927 (NADCON CONUS)
RIG: Patterson #270

HOBBS OCD

NOV 07 2016

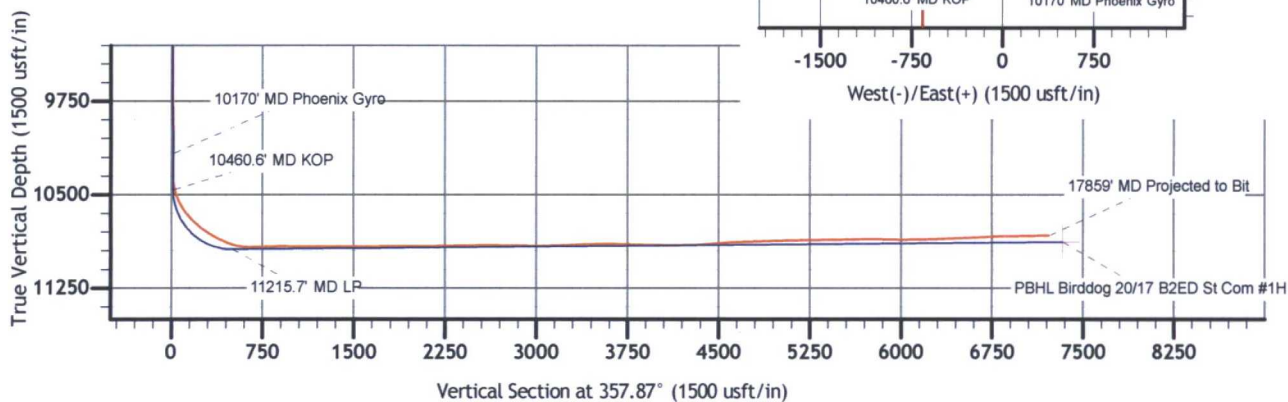
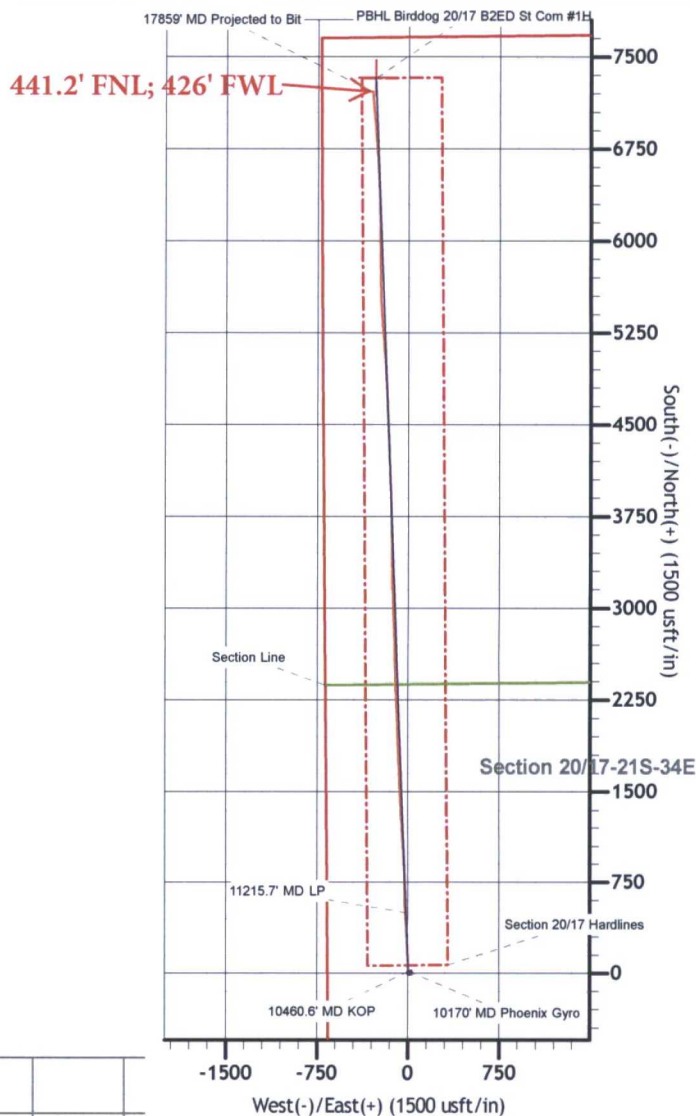
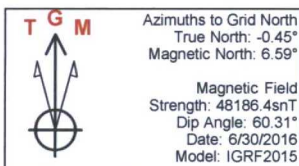


GRID CORRECTION: To convert a Magnetic Direction to a Grid Direction, Add 6.59°

RECEIVED

GEODETIC ZONE: New Mexico East 3001										Slot
GL 3721+27 @ 3748.0usft (Patterson #270)										
GROUND ELEVATION: 3721.0										
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude					
0.0	0.0	533857.90	757654.10	32° 27' 53.696 N	103° 29' 52.609 W					
PLAN SECTIONS										
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dieg	TFace	VSeet	Target
1	10170.0	0.30	109.60	10169.0	18.4	3.1	0.00	0.00	18.3	
2	10460.6	0.30	109.60	10459.6	17.9	4.5	0.00	0.00	17.8	
3	11215.7	90.50	357.81	10938.0	499.3	-11.5	12.00	-111.79	499.4	
4	18048.3	90.50	357.81	10878.0	7326.7	-272.4	0.00	0.00	7331.8	PBHL Birddog 20/17 B2ED St Com #1H

SHL- 2380' FNL & 660' FWL
Section 20 21S-34E
PBHL- 330' FNL & 450' FWL
Section 17 21S-34E



HODDING

NOV 07 2016

RECEIVED

Mewbourne Oil Company .

Lea County N.M.

Section 20/17-21S-34E Birddog 20/17 B2ED St Com #1

Birddog 20/17 B2ED State Com #1H

Original Hole

Design: Original Hole

Standard Survey Report

22 August, 2016

Stryker Directional Survey Report

Company:	Mewbourne Oil Company .	Local Co-ordinate Reference:	Well Birddog 20/17 B2ED State Com #1H
Project:	Lea County N.M.	TVD Reference:	GL 3721+27 @ 3748.0usft (Patterson #270)
Site:	Section 20/17-21S-34E Birddog 20/17 B2ED St Com #1	MD Reference:	GL 3721+27 @ 3748.0usft (Patterson #270)
Well:	Birddog 20/17 B2ED State Com #1H	North Reference:	Grid
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Original Hole	Database:	Stryker_EDM

Project	Lea County N.M.		
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	Section 20/17-21S-34E Birddog 20/17 B2ED St Com #1				
Site Position:		Northing:	533,857.90 usft	Latitude:	32° 27' 53.696 N
From:	Map	Easting:	757,654.10 usft	Longitude:	103° 29' 52.609 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.45 °

Well	Birddog 20/17 B2ED State Com #1H					
Well Position	+N/-S	0.0 usft	Northing:	533,857.90 usft	Latitude:	32° 27' 53.696 N
	+E/-W	0.0 usft	Easting:	757,654.10 usft	Longitude:	103° 29' 52.609 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	0.0 usft	Ground Level:	3,721.0 usft

Wellbore	Original Hole				
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	6/30/2016	7.04	60.31	48,186

Design	Original Hole				
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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	9.43

Survey Program		Date	8/22/2016		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
100.0	10,170.0	Phoenix Gyro Survey #1 (Original Hole)	GyroFlex		
10,354.0	17,859.0	MWD Survey (Original Hole)	MWD	MWD v3:standard declination	

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	0.19	199.12	100.0	-0.2	-0.1	-0.2	0.19	0.19	0.00
200.0	0.24	212.54	200.0	-0.5	-0.2	-0.5	0.07	0.05	13.42
300.0	0.19	239.24	300.0	-0.8	-0.5	-0.8	0.11	-0.05	26.70
400.0	0.22	154.17	400.0	-1.0	-0.5	-1.1	0.28	0.03	-85.07
500.0	0.35	92.92	500.0	-1.2	-0.1	-1.2	0.31	0.13	-61.25
600.0	0.42	97.71	600.0	-1.3	0.5	-1.2	0.08	0.07	4.79
700.0	0.67	122.98	700.0	-1.6	1.4	-1.4	0.34	0.25	25.27
800.0	0.53	100.45	800.0	-2.0	2.3	-1.6	0.27	-0.14	-22.53

Stryker Directional Survey Report

Company:	Mewbourne Oil Company .	Local Co-ordinate Reference:	Well Birddog 20/17 B2ED State Com #1H
Project:	Lea County N.M.	TVD Reference:	GL 3721+27 @ 3748.0usft (Patterson #270)
Site:	Section 20/17-21S-34E Birddog 20/17 B2ED St Com #1	MD Reference:	GL 3721+27 @ 3748.0usft (Patterson #270)
Well:	Birddog 20/17 B2ED State Com #1H	North Reference:	Grid
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Original Hole	Database:	Stryker_EDM

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)	
900.0	0.62	123.30	900.0	-2.4	3.2	-1.9	0.24	0.09	22.85	
1,000.0	1.63	124.30	1,000.0	-3.5	4.9	-2.7	1.01	1.01	1.00	
1,100.0	1.83	121.45	1,099.9	-5.1	7.4	-3.9	0.22	0.20	-2.85	
1,200.0	1.34	115.21	1,199.9	-6.5	9.8	-4.8	0.52	-0.49	-6.24	
1,300.0	1.34	134.32	1,299.8	-7.8	11.7	-5.8	0.44	0.00	19.11	
1,400.0	1.06	121.56	1,399.8	-9.1	13.3	-6.8	0.39	-0.28	-12.76	
1,500.0	0.96	114.01	1,499.8	-9.9	14.9	-7.3	0.17	-0.10	-7.55	
1,600.0	0.62	87.92	1,599.8	-10.2	16.2	-7.4	0.49	-0.34	-26.09	
1,700.0	1.10	68.89	1,699.8	-9.9	17.6	-6.9	0.55	0.48	-19.03	
1,800.0	0.97	52.66	1,799.8	-9.0	19.2	-5.7	0.32	-0.13	-16.23	
1,900.0	1.25	60.36	1,899.8	-8.0	20.8	-4.4	0.32	0.28	7.70	
2,000.0	1.57	67.09	1,999.7	-6.9	23.0	-3.0	0.36	0.32	6.73	
2,100.0	1.65	68.73	2,099.7	-5.8	25.6	-1.6	0.09	0.08	1.64	
2,200.0	1.08	51.12	2,199.7	-4.7	27.7	-0.1	0.70	-0.57	-17.61	
2,300.0	0.75	46.61	2,299.6	-3.7	28.9	1.1	0.34	-0.33	-4.51	
2,400.0	0.81	61.63	2,399.6	-2.9	30.0	2.1	0.21	0.06	15.02	
2,500.0	0.76	64.07	2,499.6	-2.3	31.2	2.9	0.06	-0.05	2.44	
2,600.0	0.66	63.59	2,599.6	-1.7	32.3	3.6	0.10	-0.10	-0.48	
2,700.0	0.15	59.30	2,699.6	-1.4	33.0	4.0	0.51	-0.51	-4.29	
2,800.0	0.29	37.43	2,799.6	-1.1	33.2	4.3	0.16	0.14	-21.87	
2,900.0	0.16	23.87	2,899.6	-0.8	33.4	4.7	0.14	-0.13	-13.56	
3,000.0	0.39	15.82	2,999.6	-0.3	33.6	5.2	0.23	0.23	-8.05	
3,100.0	0.30	36.96	3,099.6	0.2	33.8	5.7	0.15	-0.09	21.14	
3,200.0	0.34	45.84	3,199.6	0.6	34.2	6.2	0.06	0.04	8.88	
3,300.0	0.51	62.76	3,299.6	1.0	34.8	6.7	0.21	0.17	16.92	
3,400.0	0.25	41.47	3,399.6	1.4	35.4	7.2	0.29	-0.26	-21.29	
3,500.0	0.73	17.32	3,499.6	2.2	35.7	8.0	0.51	0.48	-24.15	
3,600.0	0.57	33.39	3,599.6	3.2	36.2	9.1	0.24	-0.16	16.07	
3,700.0	0.24	343.99	3,699.6	3.8	36.4	9.7	0.45	-0.33	-49.40	
3,800.0	0.25	328.22	3,799.6	4.2	36.2	10.1	0.07	0.01	-15.77	
3,900.0	0.37	289.99	3,899.6	4.5	35.8	10.3	0.23	0.12	-38.23	
4,000.0	0.25	209.82	3,999.6	4.4	35.4	10.1	0.41	-0.12	-80.17	
4,100.0	0.42	287.57	4,099.6	4.3	34.9	10.0	0.44	0.17	77.75	
4,200.0	0.26	290.95	4,199.6	4.5	34.4	10.1	0.16	-0.16	3.38	
4,300.0	0.30	331.79	4,299.6	4.8	34.0	10.3	0.20	0.04	40.84	
4,400.0	0.45	339.31	4,399.6	5.4	33.8	10.9	0.16	0.15	7.52	
4,500.0	0.59	345.81	4,499.6	6.3	33.5	11.7	0.15	0.14	6.50	
4,600.0	0.81	358.72	4,599.6	7.5	33.4	12.9	0.27	0.22	12.91	
4,700.0	0.76	351.77	4,699.6	8.9	33.2	14.2	0.11	-0.05	-6.95	
4,800.0	0.73	329.93	4,799.6	10.1	32.8	15.3	0.28	-0.03	-21.84	
4,900.0	0.70	326.66	4,899.5	11.1	32.2	16.2	0.05	-0.03	-3.27	
5,000.0	1.12	356.45	4,999.5	12.6	31.8	17.6	0.62	0.42	29.79	

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Well:	Birddog 20/17 B2ED State Com #1H	North Reference:	Grid
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Original Hole	Database:	Stryker_EDM

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)
5,100.0	0.95	350.12	5,099.5	14.4	31.6	19.4	0.20	-0.17	-6.33
5,200.0	0.80	351.49	5,199.5	15.9	31.3	20.8	0.15	-0.15	1.37
5,300.0	0.53	329.48	5,299.5	17.0	31.0	21.8	0.37	-0.27	-22.01
5,400.0	0.53	320.98	5,399.5	17.8	30.5	22.5	0.08	0.00	-8.50
5,500.0	0.78	342.36	5,499.5	18.8	30.0	23.4	0.35	0.25	21.38
5,600.0	0.97	40.49	5,599.5	20.1	30.3	24.8	0.87	0.19	58.13
5,700.0	0.39	350.68	5,699.5	21.0	30.8	25.8	0.78	-0.58	-49.81
5,800.0	0.14	247.44	5,799.5	21.3	30.6	26.1	0.44	-0.25	-103.24
5,900.0	0.24	22.83	5,899.5	21.5	30.6	26.2	0.35	0.10	135.39
6,000.0	0.25	295.40	5,999.5	21.8	30.5	26.5	0.34	0.01	-87.43
6,100.0	0.44	193.97	6,099.5	21.5	30.2	26.1	0.55	0.19	-101.43
6,200.0	0.41	242.58	6,199.5	20.9	29.8	25.5	0.35	-0.03	48.61
6,300.0	0.79	281.06	6,299.5	20.9	28.8	25.3	0.53	0.38	38.48
6,400.0	0.64	268.78	6,399.5	21.0	27.6	25.3	0.21	-0.15	-12.28
6,500.0	0.85	273.40	6,499.4	21.1	26.3	25.1	0.22	0.21	4.62
6,600.0	0.93	249.74	6,599.4	20.8	24.8	24.6	0.37	0.08	-23.66
6,700.0	0.85	261.87	6,699.4	20.4	23.3	24.0	0.20	-0.08	12.13
6,800.0	0.65	250.60	6,799.4	20.1	22.0	23.5	0.25	-0.20	-11.27
6,900.0	0.99	247.39	6,899.4	19.6	20.7	22.7	0.34	0.34	-3.21
7,000.0	0.44	207.38	6,999.4	19.0	19.7	21.9	0.71	-0.55	-40.01
7,100.0	0.48	228.26	7,099.4	18.3	19.2	21.2	0.17	0.04	20.88
7,200.0	0.41	320.48	7,199.4	18.3	18.7	21.1	0.64	-0.07	92.22
7,300.0	0.55	238.32	7,299.4	18.4	18.0	21.1	0.64	0.14	-82.16
7,400.0	0.46	228.05	7,399.4	17.8	17.3	20.4	0.13	-0.09	-10.27
7,500.0	0.48	253.07	7,499.4	17.4	16.6	19.9	0.20	0.02	25.02
7,600.0	0.75	225.40	7,599.4	16.9	15.7	19.2	0.39	0.27	-27.67
7,700.0	0.24	145.51	7,699.4	16.2	15.4	18.5	0.75	-0.51	-79.89
7,800.0	0.55	180.24	7,799.4	15.6	15.5	17.9	0.38	0.31	34.73
7,900.0	0.71	138.97	7,899.4	14.6	15.9	17.0	0.47	0.16	-41.27
8,000.0	0.41	190.12	7,999.4	13.8	16.3	16.3	0.55	-0.30	51.15
8,100.0	0.58	138.91	8,099.4	13.1	16.5	15.6	0.45	0.17	-51.21
8,200.0	0.40	87.88	8,199.4	12.7	17.2	15.4	0.45	-0.18	-51.03
8,300.0	0.23	67.50	8,299.3	12.8	17.8	15.5	0.20	-0.17	-20.38
8,400.0	0.33	52.55	8,399.3	13.1	18.2	15.9	0.12	0.10	-14.95
8,500.0	0.53	83.66	8,499.3	13.3	18.9	16.2	0.30	0.20	31.11
8,600.0	0.76	99.65	8,599.3	13.2	20.0	16.3	0.29	0.23	15.99
8,700.0	0.24	85.25	8,699.3	13.1	20.8	16.4	0.53	-0.52	-14.40
8,800.0	0.06	80.19	8,799.3	13.1	21.1	16.4	0.18	-0.18	-5.06
8,900.0	0.25	87.66	8,899.3	13.2	21.4	16.5	0.19	0.19	7.47
9,000.0	0.29	186.74	8,999.3	12.9	21.5	16.3	0.41	0.04	99.08
9,100.0	0.29	310.41	9,099.3	12.8	21.3	16.2	0.51	0.00	123.67
9,200.0	0.60	307.25	9,199.3	13.3	20.7	16.5	0.31	0.31	-3.16
9,300.0	1.73	282.16	9,299.3	14.0	18.8	16.8	1.21	1.13	-25.09

Stryker Directional Survey Report

Company:	Mewbourne Oil Company	Local Co-ordinate Reference:	Well Birddog 20/17 B2ED State Com #1H
Project:	Lea County N.M.	TVD Reference:	GL 3721+27 @ 3748.0usft (Patterson #270)
Site:	Section 20/17-21S-34E Birddog 20/17 B2ED St Com #1	MD Reference:	GL 3721+27 @ 3748.0usft (Patterson #270)
Well:	Birddog 20/17 B2ED State Com #1H	North Reference:	Grid
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Original Hole	Database:	Stryker_EDM

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)
9,400.0	1.70	258.66	9,399.3	14.0	15.9	16.4	0.70	-0.03	-23.50
9,500.0	1.98	252.44	9,499.2	13.2	12.8	15.1	0.34	0.28	-6.22
9,600.0	2.12	280.05	9,599.2	13.0	9.3	14.3	0.99	0.14	27.61
9,700.0	1.87	291.98	9,699.1	13.9	6.0	14.7	0.48	-0.25	11.93
9,800.0	0.77	267.88	9,799.1	14.5	3.8	14.9	1.21	-1.10	-24.10
9,900.0	1.47	340.13	9,899.0	15.7	2.7	15.9	1.44	0.70	72.25
10,000.0	0.94	11.19	9,999.0	17.7	2.4	17.8	0.82	-0.53	31.06
10,100.0	0.21	85.89	10,099.0	18.5	2.8	18.7	0.91	-0.73	74.70
10,170.0	0.30	109.60	10,169.0	18.4	3.1	18.7	0.20	0.13	33.87
10170' MD Phoenix Gyro									
10,354.0	0.70	244.30	10,353.0	17.8	2.5	18.0	0.51	0.22	73.21
10,385.0	3.00	334.70	10,384.0	18.4	2.0	18.5	9.95	7.42	291.61
10,417.0	7.60	348.70	10,415.9	21.3	1.2	21.2	14.83	14.38	43.75
10,448.0	11.80	355.70	10,446.4	26.5	0.6	26.2	14.05	13.55	22.58
10,479.0	15.50	356.50	10,476.5	33.8	0.1	33.3	11.95	11.94	2.58
10,510.0	20.70	359.00	10,506.0	43.4	-0.3	42.7	16.96	16.77	8.06
10,541.0	25.20	2.20	10,534.5	55.5	-0.1	54.7	15.06	14.52	10.32
10,572.0	28.30	5.10	10,562.2	69.4	0.8	68.6	10.85	10.00	9.35
10,603.0	30.60	2.10	10,589.2	84.6	1.7	83.7	8.81	7.42	-9.68
10,635.0	32.50	357.40	10,616.5	101.3	1.7	100.2	9.71	5.94	-14.69
10,666.0	35.80	355.80	10,642.1	118.7	0.6	117.2	11.03	10.65	-5.16
10,697.0	40.00	356.00	10,666.6	137.7	-0.8	135.7	13.55	13.55	0.65
10,728.0	43.90	356.00	10,689.6	158.3	-2.2	155.8	12.58	12.58	0.00
10,759.0	46.90	356.20	10,711.4	180.4	-3.7	177.3	9.69	9.68	0.65
10,791.0	49.80	356.40	10,732.7	204.2	-5.2	200.6	9.07	9.06	0.63
10,822.0	51.50	356.50	10,752.3	228.1	-6.7	224.0	5.49	5.48	0.32
10,853.0	52.80	357.10	10,771.3	252.6	-8.1	247.8	4.46	4.19	1.94
10,884.0	54.70	357.40	10,789.7	277.5	-9.3	272.3	6.18	6.13	0.97
10,915.0	57.60	357.40	10,806.9	303.3	-10.5	297.4	9.35	9.35	0.00
10,946.0	58.90	357.20	10,823.2	329.6	-11.7	323.2	4.23	4.19	-0.65
10,978.0	62.20	357.10	10,839.0	357.4	-13.1	350.4	10.32	10.31	-0.31
11,009.0	64.20	357.40	10,852.9	385.1	-14.4	377.5	6.51	6.45	0.97
11,040.0	65.50	357.30	10,866.1	413.1	-15.7	404.9	4.20	4.19	-0.32
11,071.0	67.60	356.70	10,878.5	441.5	-17.2	432.7	7.00	6.77	-1.94
11,102.0	70.90	356.00	10,889.4	470.4	-19.0	460.9	10.85	10.65	-2.26
11,133.0	73.10	356.10	10,899.0	499.8	-21.1	489.6	7.10	7.10	0.32
11,165.0	77.30	356.70	10,907.2	530.7	-23.0	519.7	13.25	13.13	1.88
11,196.0	80.80	357.80	10,913.1	561.1	-24.5	549.5	11.82	11.29	3.55
11,227.0	84.10	359.00	10,917.2	591.8	-25.3	579.7	11.32	10.65	3.87
11,258.0	87.30	359.90	10,919.5	622.7	-25.6	610.1	10.72	10.32	2.90
11,278.0	88.70	359.80	10,920.2	642.7	-25.7	629.8	7.02	7.00	-0.50
11,333.0	92.00	358.30	10,919.8	697.7	-26.6	683.9	6.59	6.00	-2.73

Stryker Directional Survey Report

Company:	Mewbourne Oil Company	Local Co-ordinate Reference:	Well Birddog 20/17 B2ED State Com #1H
Project:	Lea County N.M.	TVD Reference:	GL 3721+27 @ 3748.0usft (Patterson #270)
Site:	Section 20/17-21S-34E Birddog 20/17 B2ED St Com #1	MD Reference:	GL 3721+27 @ 3748.0usft (Patterson #270)
Well:	Birddog 20/17 B2ED State Com #1H	North Reference:	Grid
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Original Hole	Database:	Stryker_EDM

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)
11,364.0	92.70	358.10	10,918.6	728.6	-27.6	714.3	2.35	2.26	-0.65
11,458.0	91.90	357.80	10,914.8	822.5	-30.9	806.3	0.91	-0.85	-0.32
11,552.0	89.70	357.40	10,913.5	916.4	-34.9	898.3	2.38	-2.34	-0.43
11,645.0	89.40	356.70	10,914.2	1,009.3	-39.6	989.1	0.82	-0.32	-0.75
11,739.0	89.50	357.20	10,915.1	1,103.1	-44.6	1,080.9	0.54	0.11	0.53
11,833.0	89.70	356.80	10,915.8	1,197.0	-49.6	1,172.7	0.48	0.21	-0.43
11,926.0	90.20	356.80	10,915.9	1,289.9	-54.8	1,263.5	0.54	0.54	0.00
12,020.0	89.50	356.20	10,916.1	1,383.7	-60.5	1,355.1	0.98	-0.74	-0.64
12,114.0	90.90	357.60	10,915.8	1,477.5	-65.6	1,446.8	2.11	1.49	1.49
12,207.0	91.30	357.20	10,914.0	1,570.4	-69.8	1,537.8	0.61	0.43	-0.43
12,301.0	90.40	358.10	10,912.6	1,664.3	-73.6	1,629.8	1.35	-0.96	0.96
12,395.0	89.40	357.40	10,912.8	1,758.3	-77.3	1,721.8	1.30	-1.06	-0.74
12,488.0	88.70	357.40	10,914.3	1,851.2	-81.6	1,812.8	0.75	-0.75	0.00
12,582.0	90.30	358.60	10,915.1	1,945.1	-84.8	1,904.9	2.13	1.70	1.28
12,676.0	90.40	358.10	10,914.5	2,039.0	-87.5	1,997.1	0.54	0.11	-0.53
12,769.0	91.00	357.60	10,913.4	2,132.0	-91.0	2,088.2	0.84	0.65	-0.54
12,863.0	91.00	357.10	10,911.8	2,225.9	-95.4	2,180.1	0.53	0.00	-0.53
12,956.0	91.50	356.70	10,909.7	2,318.7	-100.4	2,270.9	0.69	0.54	-0.43
13,050.0	90.60	358.70	10,908.0	2,412.6	-104.2	2,362.9	2.33	-0.96	2.13
13,143.0	91.20	358.20	10,906.6	2,505.6	-106.7	2,454.2	0.84	0.65	-0.54
13,237.0	89.10	358.90	10,906.3	2,599.5	-109.1	2,546.5	2.35	-2.23	0.74
13,330.0	89.20	358.10	10,907.7	2,692.5	-111.5	2,637.8	0.87	0.11	-0.86
13,423.0	89.70	357.40	10,908.6	2,785.4	-115.2	2,728.9	0.92	0.54	-0.75
13,516.0	89.30	357.30	10,909.4	2,878.3	-119.5	2,819.8	0.44	-0.43	-0.11
13,609.0	89.90	358.40	10,910.0	2,971.2	-122.9	2,910.9	1.35	0.65	1.18
13,703.0	90.60	358.20	10,909.6	3,065.2	-125.7	3,003.2	0.77	0.74	-0.21
13,796.0	90.90	357.10	10,908.4	3,158.1	-129.5	3,094.2	1.23	0.32	-1.18
13,889.0	92.30	359.90	10,905.8	3,251.0	-132.0	3,185.5	3.37	1.51	3.01
13,983.0	93.50	359.40	10,901.1	3,344.9	-132.6	3,278.0	1.38	1.28	-0.53
14,077.0	91.80	359.60	10,896.7	3,438.8	-133.4	3,370.5	1.82	-1.81	0.21
14,170.0	90.70	358.90	10,894.7	3,531.8	-134.6	3,462.0	1.40	-1.18	-0.75
14,264.0	88.60	359.20	10,895.3	3,625.7	-136.1	3,554.4	2.26	-2.23	0.32
14,357.0	89.70	358.70	10,896.6	3,718.7	-137.9	3,645.9	1.30	1.18	-0.54
14,451.0	88.00	358.60	10,898.5	3,812.7	-140.1	3,738.2	1.81	-1.81	-0.11
14,545.0	88.00	358.20	10,901.8	3,906.6	-142.7	3,830.4	0.43	0.00	-0.43
14,638.0	88.40	358.00	10,904.7	3,999.5	-145.8	3,921.5	0.48	0.43	-0.22
14,732.0	90.60	357.80	10,905.5	4,093.4	-149.2	4,013.6	2.35	2.34	-0.21
14,825.0	90.30	358.00	10,904.8	4,186.3	-152.6	4,104.7	0.39	-0.32	0.22
14,919.0	92.50	358.10	10,902.5	4,280.2	-155.8	4,196.9	2.34	2.34	0.11
14,981.0	93.00	358.10	10,899.5	4,342.1	-157.9	4,257.6	0.81	0.81	0.00
15,012.0	93.50	357.90	10,897.8	4,373.1	-159.0	4,287.9	1.74	1.61	-0.65
15,075.0	94.00	357.20	10,893.7	4,435.9	-161.6	4,349.4	1.36	0.79	-1.11
15,106.0	94.70	356.90	10,891.3	4,466.7	-163.2	4,379.6	2.46	2.26	-0.97

Stryker Directional Survey Report

Company:	Mewbourne Oil Company	Local Co-ordinate Reference:	Well Birddog 20/17 B2ED State Com #1H
Project:	Lea County N.M.	TVD Reference:	GL 3721+27 @ 3748.0usft (Patterson #270)
Site:	Section 20/17-21S-34E Birddog 20/17 B2ED St Com #1	MD Reference:	GL 3721+27 @ 3748.0usft (Patterson #270)
Well:	Birddog 20/17 B2ED State Com #1H	North Reference:	Grid
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Original Hole	Database:	Stryker_EDM

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)
15,199.0	94.20	357.30	10,884.1	4,559.3	-167.9	4,470.2	0.69	-0.54	0.43
15,293.0	91.70	358.20	10,879.3	4,653.1	-171.6	4,562.1	2.83	-2.66	0.96
15,386.0	92.10	357.40	10,876.2	4,746.0	-175.2	4,653.2	0.96	0.43	-0.86
15,481.0	92.50	356.40	10,872.4	4,840.8	-180.3	4,745.8	1.13	0.42	-1.05
15,574.0	91.50	356.50	10,869.1	4,933.6	-186.1	4,836.4	1.08	-1.08	0.11
15,668.0	91.50	355.10	10,866.7	5,027.3	-192.9	4,927.7	1.49	0.00	-1.49
15,787.0	90.80	356.70	10,864.3	5,145.9	-201.5	5,043.4	1.47	-0.59	1.34
15,881.0	91.60	355.30	10,862.3	5,239.7	-208.0	5,134.8	1.72	0.85	-1.49
15,975.0	90.20	355.40	10,860.8	5,333.4	-215.6	5,225.9	1.49	-1.49	0.11
16,069.0	90.10	356.00	10,860.6	5,427.1	-222.7	5,317.3	0.65	-0.11	0.64
16,162.0	90.20	358.10	10,860.3	5,520.0	-227.5	5,408.1	2.26	0.11	2.26
16,256.0	91.20	359.10	10,859.2	5,613.9	-229.8	5,500.4	1.50	1.06	1.06
16,349.0	91.80	358.50	10,856.8	5,706.9	-231.7	5,591.8	0.91	0.65	-0.65
16,443.0	89.50	359.60	10,855.7	5,800.9	-233.3	5,684.2	2.71	-2.45	1.17
16,536.0	88.70	359.70	10,857.2	5,893.8	-233.8	5,775.9	0.87	-0.86	0.11
16,630.0	88.70	359.30	10,859.3	5,987.8	-234.6	5,868.4	0.43	0.00	-0.43
16,723.0	90.40	0.00	10,860.0	6,080.8	-235.2	5,960.1	1.98	1.83	0.75
16,817.0	90.70	358.90	10,859.1	6,174.8	-236.1	6,052.6	1.21	0.32	-1.17
16,910.0	92.80	358.90	10,856.3	6,267.7	-237.9	6,144.0	2.26	2.26	0.00
17,004.0	92.90	358.00	10,851.6	6,361.6	-240.4	6,236.2	0.96	0.11	-0.96
17,097.0	93.00	357.30	10,846.8	6,454.4	-244.3	6,327.1	0.76	0.11	-0.75
17,191.0	92.00	357.10	10,842.7	6,548.2	-248.8	6,418.9	1.08	-1.06	-0.21
17,285.0	92.00	356.70	10,839.4	6,642.0	-253.9	6,510.6	0.43	0.00	-0.43
17,316.0	92.20	356.50	10,838.3	6,672.9	-255.8	6,540.8	0.91	0.65	-0.65
17,472.0	92.10	355.50	10,832.4	6,828.4	-266.6	6,692.4	0.64	-0.06	-0.64
17,565.0	90.80	355.80	10,830.1	6,921.1	-273.7	6,782.7	1.43	-1.40	0.32
17,659.0	90.40	354.70	10,829.1	7,014.8	-281.5	6,873.8	1.25	-0.43	-1.17
17,859.0	90.40	354.70	10,827.7	7,213.9	-299.9	7,067.3	0.00	0.00	0.00

17859' MD Projected to Bit

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates	Comment
		+N/-S (usft)	+E/-W (usft)
10,170.0	10,169.0	18.4	3.1
17,859.0	10,827.7	7,213.9	-299.9



August 22, 2016

New Mexico Energy, Minerals and Natural Resources Department
Attn: Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, NM 87505

Attn: Jackie Lathan

Re: Mewbourne Oil Company
Birddog 20 17 B2ED State Com #001H
Berry; Bone Spring, South
Lea County, New Mexico
API# 30-025-43235

Enclosed please find the original and one (1) copy of the survey performed on the reference well by STRYKER ENERGY DIRECTIONAL SERVICES, L.L.C. Other information required by your office is as follows:

<u>Name & Title</u>	<u>Drainhole No.</u>	<u>Survey Depths</u>	<u>Dates Performed</u>	<u>Type Survey</u>
Bill Wallace	Original Hole	10,354ft. to 17,659ft.	07-25-16 to 08-06-16	MWD Survey

A certified plat on which the bottom-hole location is oriented to both surface location and to the lease lines (or unit lines in case of pooling) is attached to the survey report. If any other information is required, please contact the undersigned at the letterhead address and phone number.


Todd Estes

Enclosures

CC:

Mewbourne Oil Company
Attn: Frosty Lathan
P.O. Box 5720
Hobbs, NM 88241

Mewbourne Oil Company
Attn: Robin Terrell
P.O. Box 5720
Hobbs, NM 88241

NMEMaNRD\Mewbourne Oil Company\Birddog 20-17 B2ED State Com #1H\M161051

STRYKER ENERGY DIRECTIONAL SERVICES, L.L.C.
P.O. Box 1250
Montgomery, TX 77356
Office (936) 582-7296 * Fax (936)-588-4163



August 22, 2016

Survey Certification Report

STATE OF TEXAS

COUNTY OF Montgomery

I, Todd Estes, certify that I am employed by STRYKER ENERGY DIRECTIONAL SERVICES, L.L.C., and that I did on the day(s) of July 25, 2016, through August 06, 2016 conduct or supervise the taking of a SEDS Original MWD Survey from a depth of 10,354 feet to a depth of 17,659 feet; that I am authorized and qualified to make this report; that this survey was conducted at the request of Mewbourne Oil Company, for the Birddog 20 17 B2ED State Com #001H well, API # **30-025-43235** in Lea County, New Mexico; and that I have reviewed this report and find that it conforms to the principles as set forth by STRYKER ENERGY DIRECTIONAL SERVICES, L.L.C.

Todd Estes

STRYKER ENERGY DIRECTIONAL SERVICES, L.L.C.

STRYKER ENERGY DIRECTIONAL SERVICES, L.L.C.

P.O. Box 1250

Montgomery, TX 77356

Office (936) 582-7296 * Fax (936)-588-4163

Stryker Directional

Birddog 20-17 B2ED State Com #1H

Company: Mewbourne Oil Company
Project: Lea County N.M.
Site: Section 20/17-21S-34E Birddog 20/17 B2ED St C
Well: Birddog 20/17 B2ED State Com #1H
Wellbore: Original Hole
Design: Original Hole

Local Co-ordinate Reference: Well Birddog 20/17 B2ED State Com #1H
TVD Reference: GL 3721+27 @ 3748.0usft (Patterson #270)
MD Reference: GL 3721+27 @ 3748.0usft (Patterson #270)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Stryker_EDM

Project	Lea County N.M.		
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	Section 20/17-21S-34E Birddog 20/17 B2ED St Com #1		
Site Position:		Northing: 533,857.90 usft	Latitude: 32° 27' 53.696 N
From: Map		Easting: 757,654.10 usft	Longitude: 103° 29' 52.609 W
Position Uncertainty: 0.0 usft		Slot Radius: 13-3/16 "	Grid Convergence: 0.45 °

Well	Birddog 20/17 B2ED State Com #1H		
Well Position +N/-S	0.0 usft	Northing: 533,857.90 usft	Latitude: 32° 27' 53.696 N
+E/-W	0.0 usft	Easting: 757,654.10 usft	Longitude: 103° 29' 52.609 W
Position Uncertainty	0.0 usft	Wellhead Elevation: 0.0 usft	Ground Level: 3,721.0 usft

Wellbore	Original Hole				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	6/30/2016	7.04	60.31	48,186

Design	Original Hole			
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	9.43

Stryker Directional

Birddog 20-17 B2ED State Com #1H

Company: Mewbourne Oil Company
Project: Lea County N.M.
Site: Section 20/17-21S-34E Birddog 20/17 B2ED St C
Well: Birddog 20/17 B2ED State Com #1H
Wellbore: Original Hole
Design: Original Hole

Local Co-ordinate Reference: Well Birddog 20/17 B2ED State Com #1H
TVD Reference: GL 3721+27 @ 3748.0usft (Patterson #270)
MD Reference: GL 3721+27 @ 3748.0usft (Patterson #270)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Stryker_EDM

Survey Program Date 8/8/2016

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
100.0	10,170.0	Phoenix Gyro Survey #1 (Original Hole)	GyroFlex	
10,354.0	17,859.0	MWD Survey (Original Hole)	MWD	MWD v3:standard declination

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	Closure Distance (usft)	Closure Azimuth (°)	DLeg (°/100usft)
10,170.0	0.30	109.60	10,169.0	18.4	3.1	18.7	18.7	9.43	0.00
10,354.0	0.70	244.30	10,353.0	17.8	2.5	18.0	18.0	8.01	0.51
10,385.0	3.00	334.70	10,384.0	18.4	2.0	18.5	18.6	6.15	9.95
10,417.0	7.60	348.70	10,415.9	21.3	1.2	21.2	21.3	3.27	14.83
10,448.0	11.80	355.70	10,446.4	26.5	0.6	26.2	26.5	1.24	14.05
10,479.0	15.50	356.50	10,476.5	33.8	0.1	33.3	33.8	0.14	11.95
10,510.0	20.70	359.00	10,506.0	43.4	-0.3	42.7	43.4	359.65	16.96
10,541.0	25.20	2.20	10,534.5	55.5	-0.1	54.7	55.5	359.89	15.06
10,572.0	28.30	5.10	10,562.2	69.4	0.8	68.6	69.4	0.66	10.85
10,603.0	30.60	2.10	10,589.2	84.6	1.7	83.7	84.6	1.18	8.81
10,635.0	32.50	357.40	10,616.5	101.3	1.7	100.2	101.3	0.93	9.71
10,666.0	35.80	355.80	10,642.1	118.7	0.6	117.2	118.7	0.29	11.03
10,697.0	40.00	356.00	10,666.6	137.7	-0.8	135.7	137.7	359.69	13.55
10,728.0	43.90	356.00	10,689.6	158.3	-2.2	155.8	158.3	359.21	12.58
10,759.0	46.90	356.20	10,711.4	180.4	-3.7	177.3	180.4	358.83	9.69
10,791.0	49.80	356.40	10,732.7	204.2	-5.2	200.6	204.3	358.53	9.07
10,822.0	51.50	356.50	10,752.3	228.1	-6.7	224.0	228.2	358.31	5.49
10,853.0	52.80	357.10	10,771.3	252.6	-8.1	247.8	252.7	358.17	4.46
10,884.0	54.70	357.40	10,789.7	277.5	-9.3	272.3	277.7	358.08	6.18
10,915.0	57.60	357.40	10,806.9	303.3	-10.5	297.4	303.4	358.03	9.35
10,946.0	58.90	357.20	10,823.2	329.6	-11.7	323.2	329.8	357.97	4.23

Stryker Directional

Birddog 20-17 B2ED State Com #1H

Company: Mewbourne Oil Company .
Project: Lea County N.M.
Site: Section 20/17-21S-34E Birddog 20/17 B2ED St C
Well: Birddog 20/17 B2ED State Com #1H
Wellbore: Original Hole
Design: Original Hole

Local Co-ordinate Reference: Well Birddog 20/17 B2ED State Com #1H
TVD Reference: GL 3721+27 @ 3748.0usft (Patterson #270)
MD Reference: GL 3721+27 @ 3748.0usft (Patterson #270)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Stryker_EDM

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	Closure Distance (usft)	Closure Azimuth (°)	DLeg (°/100usft)
10,978.0	62.20	357.10	10,839.0	357.4	-13.1	350.4	357.7	357.90	10.32
11,009.0	64.20	357.40	10,852.9	385.1	-14.4	377.5	385.3	357.86	6.51
11,040.0	65.50	357.30	10,866.1	413.1	-15.7	404.9	413.4	357.82	4.20
11,071.0	67.60	356.70	10,878.5	441.5	-17.2	432.7	441.8	357.77	7.00
11,102.0	70.90	356.00	10,889.4	470.4	-19.0	460.9	470.8	357.68	10.85
11,133.0	73.10	356.10	10,899.0	499.8	-21.1	489.6	500.3	357.59	7.10
11,165.0	77.30	356.70	10,907.2	530.7	-23.0	519.7	531.2	357.52	13.25
11,196.0	80.80	357.80	10,913.1	561.1	-24.5	549.5	561.6	357.50	11.82
11,227.0	84.10	359.00	10,917.2	591.8	-25.3	579.7	592.3	357.55	11.32
11,258.0	87.30	359.90	10,919.5	622.7	-25.6	610.1	623.2	357.64	10.72
11,278.0	88.70	359.80	10,920.2	642.7	-25.7	629.8	643.2	357.71	7.02
11,333.0	92.00	358.30	10,919.8	697.7	-26.6	683.9	698.2	357.82	6.59
11,364.0	92.70	358.10	10,918.6	728.6	-27.6	714.3	729.2	357.83	2.35
11,458.0	91.90	357.80	10,914.8	822.5	-30.9	806.3	823.1	357.85	0.91
11,552.0	89.70	357.40	10,913.5	916.4	-34.9	898.3	917.1	357.82	2.38
11,645.0	89.40	356.70	10,914.2	1,009.3	-39.6	989.1	1,010.1	357.75	0.82
11,739.0	89.50	357.20	10,915.1	1,103.1	-44.6	1,080.9	1,104.0	357.68	0.54
11,833.0	89.70	356.80	10,915.8	1,197.0	-49.6	1,172.7	1,198.0	357.63	0.48
11,926.0	90.20	356.80	10,915.9	1,289.9	-54.8	1,263.5	1,291.0	357.57	0.54
12,020.0	89.50	356.20	10,916.1	1,383.7	-60.5	1,355.1	1,385.0	357.50	0.98
12,114.0	90.90	357.60	10,915.8	1,477.5	-65.6	1,446.8	1,479.0	357.46	2.11
12,207.0	91.30	357.20	10,914.0	1,570.4	-69.8	1,537.8	1,572.0	357.46	0.61
12,301.0	90.40	358.10	10,912.6	1,664.3	-73.6	1,629.8	1,666.0	357.47	1.35
12,395.0	89.40	357.40	10,912.8	1,758.3	-77.3	1,721.8	1,760.0	357.48	1.30
12,488.0	88.70	357.40	10,914.3	1,851.2	-81.6	1,812.8	1,853.0	357.48	0.75
12,582.0	90.30	358.60	10,915.1	1,945.1	-84.8	1,904.9	1,946.9	357.50	2.13
12,676.0	90.40	358.10	10,914.5	2,039.0	-87.5	1,997.1	2,040.9	357.54	0.54

Stryker Directional

Birddog 20-17 B2ED State Com #1H

Company: Mewbourne Oil Company
Project: Lea County N.M.
Site: Section 20/17-21S-34E Birddog 20/17 B2ED St C
Well: Birddog 20/17 B2ED State Com #1H
Wellbore: Original Hole
Design: Original Hole

Local Co-ordinate Reference: Well Birddog 20/17 B2ED State Com #1H
TVD Reference: GL 3721+27 @ 3748.0usft (Patterson #270)
MD Reference: GL 3721+27 @ 3748.0usft (Patterson #270)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Stryker_EDM

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	Closure Distance (usft)	Closure Azimuth (°)	DLeg (°/100usft)
12,769.0	91.00	357.60	10,913.4	2,132.0	-91.0	2,088.2	2,133.9	357.56	0.84
12,863.0	91.00	357.10	10,911.8	2,225.9	-95.4	2,180.1	2,227.9	357.55	0.53
12,956.0	91.50	356.70	10,909.7	2,318.7	-100.4	2,270.9	2,320.9	357.52	0.69
13,050.0	90.60	358.70	10,908.0	2,412.6	-104.2	2,362.9	2,414.9	357.53	2.33
13,143.0	91.20	358.20	10,906.6	2,505.6	-106.7	2,454.2	2,507.8	357.56	0.84
13,237.0	89.10	358.90	10,906.3	2,599.5	-109.1	2,546.5	2,601.8	357.60	2.35
13,330.0	89.20	358.10	10,907.7	2,692.5	-111.5	2,637.8	2,694.8	357.63	0.87
13,423.0	89.70	357.40	10,908.6	2,785.4	-115.2	2,728.9	2,787.8	357.63	0.92
13,516.0	89.30	357.30	10,909.4	2,878.3	-119.5	2,819.8	2,880.8	357.62	0.44
13,609.0	89.90	358.40	10,910.0	2,971.2	-122.9	2,910.9	2,973.8	357.63	1.35
13,703.0	90.60	358.20	10,909.6	3,065.2	-125.7	3,003.2	3,067.8	357.65	0.77
13,796.0	90.90	357.10	10,908.4	3,158.1	-129.5	3,094.2	3,160.8	357.65	1.23
13,889.0	92.30	359.90	10,905.8	3,251.0	-132.0	3,185.5	3,253.7	357.68	3.37
13,983.0	93.50	359.40	10,901.1	3,344.9	-132.6	3,278.0	3,347.5	357.73	1.38
14,077.0	91.80	359.60	10,896.7	3,438.8	-133.4	3,370.5	3,441.4	357.78	1.82
14,170.0	90.70	358.90	10,894.7	3,531.8	-134.6	3,462.0	3,534.3	357.82	1.40
14,264.0	88.60	359.20	10,895.3	3,625.7	-136.1	3,554.4	3,628.3	357.85	2.26
14,357.0	89.70	358.70	10,896.6	3,718.7	-137.9	3,645.9	3,721.3	357.88	1.30
14,451.0	88.00	358.60	10,898.5	3,812.7	-140.1	3,738.2	3,815.2	357.90	1.81
14,545.0	88.00	358.20	10,901.8	3,906.6	-142.7	3,830.4	3,909.2	357.91	0.43
14,638.0	88.40	358.00	10,904.7	3,999.5	-145.8	3,921.5	4,002.1	357.91	0.48
14,732.0	90.60	357.80	10,905.5	4,093.4	-149.2	4,013.6	4,096.1	357.91	2.35
14,825.0	90.30	358.00	10,904.8	4,186.3	-152.6	4,104.7	4,189.1	357.91	0.39
14,919.0	92.50	358.10	10,902.5	4,280.2	-155.8	4,196.9	4,283.1	357.92	2.34
14,981.0	93.00	358.10	10,899.5	4,342.1	-157.9	4,257.6	4,345.0	357.92	0.81
15,012.0	93.50	357.90	10,897.8	4,373.1	-159.0	4,287.9	4,376.0	357.92	1.74
15,075.0	94.00	357.20	10,893.7	4,435.9	-161.6	4,349.4	4,438.8	357.91	1.36

Stryker Directional

Birddog 20-17 B2ED State Com #1H

Company: Mewbourne Oil Company
Project: Lea County N.M.
Site: Section 20/17-21S-34E Birddog 20/17 B2ED St C
Well: Birddog 20/17 B2ED State Com #1H
Wellbore: Original Hole
Design: Original Hole

Local Co-ordinate Reference: Well Birddog 20/17 B2ED State Com #1H
TVD Reference: GL 3721+27 @ 3748.0usft (Patterson #270)
MD Reference: GL 3721+27 @ 3748.0usft (Patterson #270)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Stryker_EDM

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	Closure Distance (usft)	Closure Azimuth (°)	DLeg (°/100usft)
15,106.0	94.70	356.90	10,891.3	4,466.7	-163.2	4,379.6	4,469.7	357.91	2.46
15,199.0	94.20	357.30	10,884.1	4,559.3	-167.9	4,470.2	4,562.4	357.89	0.69
15,293.0	91.70	358.20	10,879.3	4,653.1	-171.6	4,562.1	4,656.3	357.89	2.83
15,386.0	92.10	357.40	10,876.2	4,746.0	-175.2	4,653.2	4,749.2	357.89	0.96
15,481.0	92.50	356.40	10,872.4	4,840.8	-180.3	4,745.8	4,844.2	357.87	1.13
15,574.0	91.50	356.50	10,869.1	4,933.6	-186.1	4,836.4	4,937.1	357.84	1.08
15,668.0	91.50	355.10	10,866.7	5,027.3	-192.9	4,927.7	5,031.0	357.80	1.49
15,767.0	90.80	356.70	10,864.3	5,145.9	-201.5	5,043.4	5,149.9	357.76	1.47
15,881.0	91.60	355.30	10,862.3	5,239.7	-208.0	5,134.8	5,243.8	357.73	1.72
15,975.0	90.20	355.40	10,860.8	5,333.4	-215.6	5,225.9	5,337.7	357.68	1.49
16,069.0	90.10	356.00	10,860.6	5,427.1	-222.7	5,317.3	5,431.7	357.65	0.65
16,162.0	90.20	358.10	10,860.3	5,520.0	-227.5	5,408.1	5,524.7	357.64	2.26
16,256.0	91.20	359.10	10,859.2	5,613.9	-229.8	5,500.4	5,618.6	357.66	1.50
16,349.0	91.80	358.50	10,856.8	5,706.9	-231.7	5,591.8	5,711.6	357.68	0.91
16,443.0	89.50	359.60	10,855.7	5,800.9	-233.3	5,684.2	5,805.5	357.70	2.71
16,536.0	88.70	359.70	10,857.2	5,893.8	-233.8	5,775.9	5,898.5	357.73	0.87
16,630.0	88.70	359.30	10,859.3	5,987.8	-234.6	5,868.4	5,992.4	357.76	0.43
16,723.0	90.40	0.00	10,860.0	6,080.8	-235.2	5,960.1	6,085.4	357.78	1.98
16,817.0	90.70	358.90	10,859.1	6,174.8	-236.1	6,052.6	6,179.3	357.81	1.21
16,910.0	92.80	358.90	10,856.3	6,267.7	-237.9	6,144.0	6,272.2	357.83	2.26
17,004.0	92.90	358.00	10,851.6	6,361.6	-240.4	6,236.2	6,366.1	357.84	0.96
17,097.0	93.00	357.30	10,846.8	6,454.4	-244.3	6,327.1	6,459.0	357.83	0.76
17,191.0	92.00	357.10	10,842.7	6,548.2	-248.8	6,418.9	6,552.9	357.82	1.08
17,285.0	92.00	356.70	10,839.4	6,642.0	-253.9	6,510.6	6,646.8	357.81	0.43
17,316.0	92.20	356.50	10,838.3	6,672.9	-255.8	6,540.8	6,677.8	357.81	0.91
17,472.0	92.10	355.50	10,832.4	6,828.4	-266.6	6,692.4	6,833.6	357.76	0.64
17,565.0	90.80	355.80	10,830.1	6,921.1	-273.7	6,782.7	6,926.5	357.74	1.43

Stryker Directional

Birddog 20-17 B2ED State Com #1H

Company: Mewbourne Oil Company
Project: Lea County N.M.
Site: Section 20/17-21S-34E Birddog 20/17 B2ED St C
Well: Birddog 20/17 B2ED State Com #1H
Wellbore: Original Hole
Design: Original Hole

Local Co-ordinate Reference: Well Birddog 20/17 B2ED State Com #1H
TVD Reference: GL 3721+27 @ 3748.0usft (Patterson #270)
MD Reference: GL 3721+27 @ 3748.0usft (Patterson #270)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Stryker_EDM

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	Closure Distance (usft)	Closure Azimuth (°)	DLeg (°/100usft)
17,659.0	90.40	354.70	10,829.1	7,014.8	-281.5	6,873.8	7,020.4	357.70	1.25
17,859.0	90.40	354.70	10,827.7	7,213.9	-299.9	7,067.3	7,220.2	357.62	0.00

17859' MD Projected to Bit

Survey Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
17,859.0	10,827.7	7,213.9	-299.9	17859' MD Projected to Bit



COMPANY: Mewbourne Oil Company
 WELL: Birdog 20/17 B2ED State Com #1H
 COUNTY: Lea County N.M.
 DATUM: NAD 1927 (NADCON CONUS)
 RIG: Patterson #270



GRID CORRECTION: To convert a Magnetic Direction to a Grid Direction, Add 6.59°

GEODETTIC ZONE: New Mexico East 3001									
GL 3721+27 @ 3748.0usft (Patterson #270)									
GROUND ELEVATION: 3721.0									
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot			
0.0	0.0	533857.90	757654.10	32° 27' 53.696 N	103° 29' 52.609 W				

PLAN SECTIONS									
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dieg	TFace	VSeet
1	10170.0	0.30	109.60	10169.0	18.4	3.1	0.00	0.00	18.3
2	10460.6	0.30	109.60	10459.6	17.9	4.5	0.00	0.00	17.8
3	11215.7	90.50	357.81	10836.0	489.3	-11.5	12.00	-111.79	499.4
4	18048.3	90.50	357.81	10878.0	7326.7	-272.4	0.00	0.00	7331.8

PBHL Birdog 20/17 B2ED St Com #1H

SHL- 2380' FNL & 660' FWL
 Section 20 21S-34E
 PBHL- 330' FNL & 450' FWL
 Section 17 21S-34E

