

30-025-43235

**PHOENIX****TECHNOLOGY SERVICES USA INC.**

3610 Elkins Road, Midland, Texas 79705 T. 432.684.0057 F. 432.686.7964 www.phxtech.com

Celebrating 20 Years of Focused Solutions

September 7, 2016

HOBBS OCD**SEP 16 2016****RECEIVED**

Oil Conservation Division
 State of New Mexico
 1625 N. French Drive
 Hobbs, New Mexico 88240

Dear District 1 - Hobbs

Attention: Regulatory Department

Re: Mewbourne Oil
 Birddog 20 17B2ED State 1H ✓
 Lea County, New Mexico
 API #30-025-43235 ✓
 Job No. 1610313

Enclosed please find the Survey Data Certification, and the original Plat and one copy of the Survey Report performed on the above referenced Well by Phoenix Technology Services, Inc. (P-5 No. 664171). Other information required by your office is as follows:

Name & Title of Surveyor	Drain Hole Number	Surveyed Depths		Dates Performed		Type of Survey
		From	To	Start	End	
Noe Garza	1H	0	10,170	07/24/16	07/24/16	Gyro

A certified plat on which the bottom hole location is oriented both to the 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.

Best Regards,

Claudia Carreon
 Operations Administrator

SEP 16 2016

RECEIVED

SURVEY CERTIFICATION FORM

3610 Elkins Road Midland, TX 79705 t:432-684-0057 f: 432-686-7964

PHOENIX
TECHNOLOGY SERVICESCompany: MewbourneJob #: 1610313Well Name: Birdog 20 17B2ED State 1HCounty/State: Lea Co., New MexicoSurvey Instrument Type: North Seek Rate GyroAPI # 30-025-43235

TIE-IN DATA

Measure Depth (ft)	Vertical Depth (ft)	Inclination (°)	Azimuth (°)	N-S Coordinates	E-W Coordinates	Data Source
0	0	0	0	0	0	Surface

First Survey

Date	Depth (ft)	Inclination (°)	Azimuth (°)
2016-07-24	0	0	0

Last Survey

Date	Depth (ft)	Inclination (°)	Azimuth (°)
2016-07-24	10170	0.3	109.6

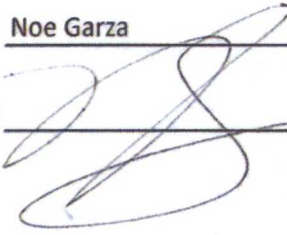
Projected TD Survey

Date	Depth (ft)	Inclination (°)	Azimuth (°)
0	0	0	0

Grid Correction
-0.45

Gyro Operator: Phoenix Technology Services USA Ltd.Gyro Supervisor: Jaime Stephenson

To the best of my knowledge I certify this survey data to be correct and true

Date: 07-24-16Print Name: Noe GarzaSignature: 



Company: Mewbourne
 Well: Birdog 2D 17 B2ED State 1H
 Location: Lea Co., New Mexico
 Rig: Patterson 250

Job Number: 1610313
 Grid Corr.: -0.45
 Lat: 32.47
 Long: -103.50

Date: 07-24-16
 Calculation Method: Minimum Curvature
 Proposed Azimuth:
 RKB - MSL in feet: 25'
 Tie Into: Surface

Survey Tool Type	Survey Depth (ft)	Inclination (deg)	Azimuth (deg)	Course Length (ft)	True Vertical Depth (ft)	Vertical Section (ft)	Coordinates		Closure		Dogleg Severity (d/100')	Build Rate (d/100')	Walk Rate (d/100')
							N/S (ft)	E/W (ft)	Distance (ft)	Angle (deg)			
Enter Tie-In Survey on Line 10													
FIELD COPY, NON-DEFINITIVE													
TIE IN	0			0	0	0	0	0					
Gyro	100.00	0.19	199.12	100	100.00	-0.16	0.16 S	0.05 W	0.17	199.12	0.19	0.19	199.12
	200.00	0.24	212.54	100	200.00	-0.49	0.49 S	0.22 W	0.54	204.31	0.07	0.05	13.42
	300.00	0.19	239.24	100	300.00	-0.75	0.75 S	0.48 W	0.89	212.38	0.11	-0.05	26.70
	400.00	0.22	154.17	100	400.00	-1.01	1.01 S	0.54 W	1.14	207.95	0.28	0.03	-85.07
	500.00	0.35	92.92	100	500.00	-1.20	1.20 S	0.15 W	1.21	186.98	0.31	0.13	-61.25
	600.00	0.42	97.71	100	599.99	-1.26	1.26 S	0.52 E	1.37	157.54	0.08	0.07	4.79
	700.00	0.67	122.98	100	699.99	-1.63	1.63 S	1.38 E	2.13	139.83	0.34	0.25	25.27
	800.00	0.53	100.45	100	799.98	-2.03	2.03 S	2.32 E	3.08	131.20	0.27	-0.14	-22.53
	900.00	0.62	123.30	100	899.98	-2.41	2.41 S	3.23 E	4.03	126.78	0.24	0.09	22.85
	1000.00	1.63	124.30	100	999.96	-3.51	3.51 S	4.85 E	5.99	125.87	1.01	1.01	1.00
	1100.00	1.83	121.45	100	1099.91	-5.15	5.15 S	7.39 E	9.01	124.84	0.22	0.20	-2.85
	1200.00	1.34	115.21	100	1199.87	-6.48	6.48 S	9.81 E	11.76	123.43	0.52	-0.49	-6.24
	1300.00	1.34	134.32	100	1299.85	-7.79	7.79 S	11.71 E	14.06	123.65	0.44	0.00	19.11
	1400.00	1.06	121.56	100	1399.83	-9.09	9.09 S	13.33 E	16.14	124.30	0.39	-0.28	-12.76
	1500.00	0.96	114.01	100	1499.81	-9.92	9.92 S	14.88 E	17.89	123.68	0.17	-0.10	-7.55
	1600.00	0.62	87.92	100	1599.80	-10.24	10.24 S	16.19 E	19.16	122.31	0.49	-0.34	-26.09
	1700.00	1.10	68.89	100	1699.79	-9.87	9.87 S	17.63 E	20.20	119.26	0.55	0.48	-19.03
	1800.00	0.97	52.66	100	1799.77	-9.01	9.01 S	19.20 E	21.21	115.16	0.32	-0.13	-16.23
	1900.00	1.25	60.36	100	1899.75	-7.96	7.96 S	20.82 E	22.29	110.93	0.32	0.28	7.70
	2000.00	1.57	67.09	100	1999.72	-6.89	6.89 S	23.03 E	24.03	106.66	0.36	0.32	6.73
	2100.00	1.65	68.73	100	2099.69	-5.83	5.83 S	25.63 E	26.28	102.82	0.09	0.08	1.64
	2200.00	1.08	51.12	100	2199.66	-4.72	4.72 S	27.70 E	28.10	99.67	0.70	-0.57	-17.61
	2300.00	0.75	46.61	100	2299.64	-3.68	3.68 S	28.91 E	29.15	97.25	0.34	-0.33	-4.51
	2400.00	0.81	61.63	100	2399.63	-2.89	2.89 S	30.01 E	30.15	95.51	0.21	0.06	15.02
	2500.00	0.76	64.07	100	2499.63	-2.27	2.27 S	31.23 E	31.31	94.15	0.06	-0.05	2.44
	2600.00	0.66	63.59	100	2599.62	-1.72	1.72 S	32.34 E	32.39	93.05	0.10	-0.10	-0.48
	2700.00	0.15	59.30	100	2699.61	-1.40	1.40 S	32.97 E	33.00	92.43	0.51	-0.51	-4.29



Company: Mewbourne
 Well: BirdDog 2D 17 B2ED State 1H
 Location: Lea Co., New Mexico
 Rig: Patterson 250

Job Number: 1610313
 Grid Corr.: -0.45
 Lat: 32.47
 Long: -103.50

Calculation Method: Minimum Curvature
 Proposed Azimuth:
 RKB - MSL in feet: 25'
 Tie Into: Surface

Survey Tool Type	Survey Depth (ft)	Inclination (deg)	Azimuth (deg)	Course Length (ft)	True Vertical Depth (ft)	Vertical Section (ft)	Coordinates		Closure		Dogleg Severity (d/100')	Build Rate (d/100')	Walk Rate (d/100')
							N/S (ft)	E/W (ft)	Distance (ft)	Angle (deg)			
	2800.00	0.29	37.43	100	2799.61	-1.13	1.13 S	33.24 E	33.26	91.95	0.16	0.14	-21.87
	2900.00	0.16	23.87	100	2899.61	-0.80	0.80 S	33.45 E	33.46	91.37	0.14	-0.13	-13.56
	3000.00	0.39	15.82	100	2999.61	-0.35	0.35 S	33.60 E	33.60	90.59	0.23	0.23	-8.05
	3100.00	0.30	36.96	100	3099.61	0.19	0.19 N	33.85 E	33.85	89.68	0.15	-0.09	21.14
	3200.00	0.34	45.84	100	3199.61	0.61	0.61 N	34.22 E	34.22	88.98	0.06	0.04	8.88
	3300.00	0.51	62.76	100	3299.61	1.02	1.02 N	34.83 E	34.84	88.33	0.21	0.17	16.92
	3400.00	0.25	41.47	100	3399.60	1.38	1.38 N	35.37 E	35.39	87.76	0.29	-0.26	-21.29
	3500.00	0.73	17.32	100	3499.60	2.16	2.16 N	35.70 E	35.76	86.54	0.51	0.48	-24.15
	3600.00	0.57	33.39	100	3599.59	3.18	3.18 N	36.16 E	36.30	84.98	0.24	-0.16	16.07
	3700.00	0.24	343.99	100	3699.59	3.80	3.80 N	36.38 E	36.58	84.04	0.45	-0.33	310.60
	3800.00	0.25	328.22	100	3799.59	4.18	4.18 N	36.21 E	36.45	83.41	0.07	0.01	-15.77
	3900.00	0.37	289.99	100	3899.59	4.48	4.48 N	35.79 E	36.07	82.87	0.23	0.12	-38.23
	4000.00	0.25	209.82	100	3999.59	4.40	4.40 N	35.38 E	35.65	82.91	0.41	-0.12	-80.17
	4100.00	0.42	287.57	100	4099.59	4.32	4.32 N	34.92 E	35.18	82.95	0.44	0.17	77.75
	4200.00	0.26	290.95	100	4199.58	4.51	4.51 N	34.36 E	34.65	82.52	0.16	-0.16	3.38
	4300.00	0.30	331.79	100	4299.58	4.82	4.82 N	34.02 E	34.36	81.93	0.20	0.04	40.84
	4400.00	0.45	339.31	100	4399.58	5.42	5.42 N	33.76 E	34.19	80.88	0.16	0.15	7.52
	4500.00	0.59	345.81	100	4499.58	6.29	6.29 N	33.49 E	34.08	79.37	0.15	0.14	6.50
	4600.00	0.81	358.72	100	4599.57	7.49	7.49 N	33.35 E	34.18	77.34	0.27	0.22	12.91
	4700.00	0.76	351.77	100	4699.56	8.86	8.86 N	33.24 E	34.40	75.08	0.11	-0.05	-6.95
	4800.00	0.73	329.93	100	4799.55	10.07	10.07 N	32.83 E	34.34	72.95	0.28	-0.03	-21.84
	4900.00	0.70	326.66	100	4899.54	11.13	11.13 N	32.17 E	34.04	70.92	0.05	-0.03	-3.27
	5000.00	1.12	356.45	100	4999.53	12.61	12.61 N	31.78 E	34.19	68.35	0.62	0.42	29.79
	5100.00	0.95	350.12	100	5099.51	14.40	14.40 N	31.57 E	34.70	65.48	0.20	-0.17	-6.33
	5200.00	0.80	351.49	100	5199.50	15.91	15.91 N	31.33 E	35.14	63.07	0.15	-0.15	1.37
	5300.00	0.53	329.48	100	5299.50	17.00	17.00 N	30.99 E	35.35	61.25	0.37	-0.27	-22.01
	5400.00	0.53	320.98	100	5399.49	17.76	17.76 N	30.46 E	35.26	59.76	0.08	0.00	-8.50
	5500.00	0.78	342.36	100	5499.49	18.77	18.77 N	29.97 E	35.36	57.94	0.35	0.25	21.38
	5600.00	0.97	40.49	100	5599.48	20.06	20.06 N	30.31 E	36.35	56.50	0.87	0.19	-301.87
	5700.00	0.39	350.68	100	5699.47	21.04	21.04 N	30.80 E	37.30	55.67	0.78	-0.58	310.19



Company: Mewbourne
 Well: Birdog 2D 17 B2ED State 1H
 Location: Lea Co., New Mexico
 Rig: Patterson 250

Job Number: 1610313
 Grid Corr.: -0.45
 Lat: 32.47
 Long: -103.50

Calculation Method: Minimum Curvature
 Proposed Azimuth:
 RKB - MSL in feet: 25'
 Tie Into: Surface

Survey Tool Type	Survey Depth (ft)	Inclination (deg)	Azimuth (deg)	Course Length (ft)	True Vertical Depth (ft)	Vertical Section (ft)	Coordinates		Closure		Dogleg Severity (d/100')	Build Rate (d/100')	Walk Rate (d/100')
							N/S (ft)	E/W (ft)	Distance (ft)	Angle (deg)			
	5800.00	0.14	247.44	100	5799.47	21.33	21.33 N	30.64 E	37.33	55.16	0.44	-0.25	-103.24
	5900.00	0.24	22.83	100	5899.47	21.47	21.47 N	30.60 E	37.39	54.94	0.35	0.10	-224.61
	6000.00	0.25	295.40	100	5999.47	21.76	21.76 N	30.49 E	37.46	54.48	0.34	0.01	272.57
	6100.00	0.44	193.97	100	6099.47	21.48	21.48 N	30.20 E	37.06	54.57	0.55	0.19	-101.43
	6200.00	0.41	242.58	100	6199.46	20.94	20.94 N	29.79 E	36.41	54.89	0.35	-0.03	48.61
	6300.00	0.79	281.06	100	6299.46	20.91	20.91 N	28.79 E	35.59	54.01	0.53	0.38	38.48
	6400.00	0.64	268.78	100	6399.45	21.03	21.03 N	27.56 E	34.67	52.65	0.21	-0.15	-12.28
	6500.00	0.85	273.40	100	6499.44	21.06	21.06 N	26.26 E	33.66	51.27	0.22	0.21	4.62
	6600.00	0.93	249.74	100	6599.43	20.83	20.83 N	24.76 E	32.35	49.93	0.37	0.08	-23.66
	6700.00	0.85	261.87	100	6699.42	20.44	20.44 N	23.26 E	30.97	48.69	0.20	-0.08	12.13
	6800.00	0.65	250.60	100	6799.41	20.15	20.15 N	21.99 E	29.83	47.51	0.25	-0.20	-11.27
	6900.00	0.99	247.39	100	6899.40	19.63	19.63 N	20.66 E	28.50	46.47	0.34	0.34	-3.21
	7000.00	0.44	207.38	100	6999.39	18.95	18.95 N	19.69 E	27.33	46.09	0.71	-0.55	-40.01
	7100.00	0.48	228.26	100	7099.39	18.33	18.33 N	19.20 E	26.55	46.32	0.17	0.04	20.88
	7200.00	0.41	320.48	100	7199.39	18.33	18.33 N	18.66 E	26.16	45.51	0.64	-0.07	92.22
	7300.00	0.55	238.32	100	7299.38	18.36	18.36 N	18.02 E	25.72	44.47	0.64	0.14	-82.16
	7400.00	0.46	228.05	100	7399.38	17.83	17.83 N	17.31 E	24.86	44.15	0.13	-0.09	-10.27
	7500.00	0.48	253.07	100	7499.38	17.44	17.44 N	16.62 E	24.09	43.61	0.20	0.02	25.02
	7600.00	0.75	225.40	100	7599.37	16.86	16.86 N	15.75 E	23.07	43.04	0.39	0.27	-27.67
	7700.00	0.24	145.51	100	7699.37	16.23	16.23 N	15.40 E	22.37	43.50	0.75	-0.51	-79.89
	7800.00	0.55	180.24	100	7799.36	15.58	15.58 N	15.52 E	21.99	44.89	0.38	0.31	34.73
	7900.00	0.71	138.97	100	7899.36	14.63	14.63 N	15.92 E	21.62	47.42	0.47	0.16	-41.27
	8000.00	0.41	190.12	100	7999.35	13.81	13.81 N	16.27 E	21.34	49.67	0.55	-0.30	51.15
	8100.00	0.58	138.91	100	8099.35	13.08	13.08 N	16.54 E	21.08	51.66	0.45	0.17	-51.21
	8200.00	0.40	87.88	100	8199.35	12.71	12.71 N	17.22 E	21.40	53.57	0.45	-0.18	-51.03
	8300.00	0.23	67.50	100	8299.35	12.80	12.80 N	17.75 E	21.88	54.21	0.20	-0.17	-20.38
	8400.00	0.33	52.55	100	8399.35	13.05	13.05 N	18.17 E	22.37	54.31	0.12	0.10	-14.95
	8500.00	0.53	83.66	100	8499.34	13.28	13.28 N	18.85 E	23.06	54.85	0.30	0.20	31.11
	8600.00	0.76	99.65	100	8599.34	13.22	13.22 N	19.97 E	23.95	56.50	0.29	0.23	15.99
	8700.00	0.24	85.25	100	8699.33	13.12	13.12 N	20.83 E	24.62	57.79	0.53	-0.52	-14.40



Company: Mewbourne
 Well: Birdog 2D 17 B2ED State 1H
 Location: Lea Co., New Mexico
 Rig: Patterson 250

Job Number: 1610313
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 Lat: 32.47
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Calculation Method: Minimum Curvature
 Proposed Azimuth: _____
 RKB - MSL in feet: 25'
 Tie Into: Surface

Survey Tool Type	Survey Depth (ft)	Inclina- tion (deg)	Azimuth (deg)	Course Length (ft)	True Vertical Depth (ft)	Vertical Section (ft)	Coordinates		Closure		Dogleg Severity (d/100')	Build Rate (d/100')	Walk Rate (d/100')
							N/S (ft)	E/W (ft)	Distance (ft)	Angle (deg)			
	8800.00	0.06	80.19	100	8799.33	13.15	13.15 N	21.09 E	24.85	58.06	0.18	-0.18	-5.06
	8900.00	0.25	87.66	100	8899.33	13.17	13.17 N	21.36 E	25.09	58.35	0.19	0.19	7.47
	9000.00	0.29	186.74	100	8999.33	12.92	12.92 N	21.55 E	25.13	59.05	0.41	0.04	99.08
	9100.00	0.29	310.41	100	9099.33	12.84	12.84 N	21.33 E	24.89	58.95	0.51	0.00	123.67
	9200.00	0.60	307.25	100	9199.33	13.32	13.32 N	20.72 E	24.63	57.26	0.31	0.31	-3.16
	9300.00	1.73	282.16	100	9299.30	13.95	13.95 N	18.82 E	23.43	53.45	1.21	1.13	-25.09
	9400.00	1.70	258.66	100	9399.26	13.98	13.98 N	15.89 E	21.17	48.67	0.70	-0.03	-23.50
	9500.00	1.98	252.44	100	9499.21	13.17	13.17 N	12.79 E	18.36	44.17	0.34	0.28	-6.22
	9600.00	2.12	280.05	100	9599.15	12.97	12.97 N	9.32 E	15.97	35.72	0.99	0.14	27.61
	9700.00	1.87	291.98	100	9699.09	13.90	13.90 N	5.99 E	15.14	23.31	0.48	-0.25	11.93
	9800.00	0.77	267.88	100	9799.06	14.49	14.49 N	3.81 E	14.98	14.72	1.21	-1.10	-24.10
	9900.00	1.47	340.13	100	9899.04	15.67	15.67 N	2.70 E	15.90	9.77	1.44	0.70	72.25
	10000.00	0.94	11.19	100	9999.02	17.68	17.68 N	2.42 E	17.85	7.80	0.82	-0.53	-328.94
	10100.00	0.21	85.89	100	10099.02	18.50	18.50 N	2.76 E	18.70	8.50	0.91	-0.73	74.70
	10170.00	0.30	109.60	70	10169.02	18.45	18.45 N	3.06 E	18.70	9.43	0.20	0.13	33.87