

Company: Mewbourne Oil Company
Lease/Well: Zircon 1 HE State/No 001H



Rig Name: Patterson #80
State/County: New Mexico/Eddy
Latitude: 32.69, Longitude: -104.02
GRID North is 0.17 Degrees East of True North
VS-Azi: 269.73 Degrees



DRILLOG HA GYRO SURVEY CALCULATIONS

Filename: zircon 1 he state #1h-de_01.ut

Minimum Curvature Method

Report Date/Time: 9/23/2013 / 15:18

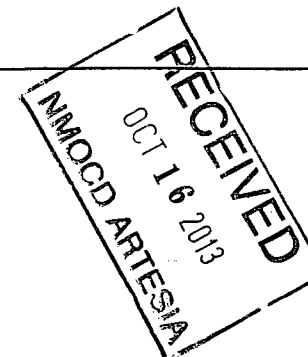
Vaughn Energy Services

Corpus Christi, Texas

800-606-4976

Surveyor: David Miller

Zircon 1 HE State No 001H / API 30-015-41489



Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	****
100.00	1.28	81.24	99.99	0.17	1.10	-1.10	1.11	81.24	1.28
200.00	1.67	82.13	199.96	0.54	3.65	-3.65	3.68	81.59	0.40
300.00	1.75	76.94	299.91	1.08	6.58	-6.58	6.67	80.64	0.17
400.00	1.84	75.33	399.86	1.84	9.62	-9.63	9.79	79.20	0.10
500.00	1.77	77.64	499.82	2.57	12.68	-12.69	12.94	78.53	0.10
600.00	1.81	77.85	599.77	3.24	15.74	-15.75	16.06	78.38	0.04
700.00	1.84	73.52	699.72	4.03	18.82	-18.84	19.25	77.93	0.14
800.00	2.17	62.12	799.65	5.37	22.04	-22.06	22.68	76.31	0.52
900.00	2.39	54.32	899.58	7.47	25.41	-25.44	26.48	73.62	0.38
1000.00	3.07	63.76	999.46	9.87	29.51	-29.55	31.12	71.50	0.81
1100.00	3.38	65.76	1099.30	12.27	34.60	-34.66	36.71	70.48	0.33
1200.00	3.93	66.66	1199.10	14.84	40.43	-40.50	43.07	69.85	0.55
1300.00	3.12	67.01	1298.91	17.25	46.08	-46.16	49.20	69.47	0.80
1400.00	2.85	68.10	1398.77	19.25	50.90	-50.99	54.41	69.29	0.27
1500.00	2.31	76.63	1498.67	20.64	55.17	-55.27	58.90	69.49	0.66
1600.00	1.81	80.22	1598.61	21.38	58.68	-58.78	62.46	69.99	0.52
1700.00	1.52	85.30	1698.56	21.75	61.56	-61.66	65.29	70.54	0.32
1800.00	1.77	83.21	1798.52	22.04	64.42	-64.52	68.09	71.11	0.26
1900.00	1.14	81.55	1898.49	22.37	66.94	-67.04	70.58	71.52	0.64
2000.00	0.91	84.32	1998.47	22.60	68.71	-68.81	72.33	71.79	0.23
2100.00	0.75	82.55	2098.46	22.76	70.15	-70.25	73.75	72.02	0.16
2200.00	0.84	78.61	2198.45	22.99	71.51	-71.62	75.11	72.18	0.10

*Provide tie-in to TD
30015-41489*

Operating Company Mewbourne
 Well Name & Number Zircon 1 HE St #1H
 Sales Ticket Number 4707060
 Date 1/0/1900

Company Rep 0
 Field ZIRCON
 BOT Service Rep 0
 District Location Odessa, Texas, USA



	Size	Weight	Grade	ID	Drift	Thread	Capacity	Length	Burst	Collapse	
Casing	7.000	26.00	P-110	6.276	6.151		0.03826	7,558.00	9,960	6,230	
Top Liner	4.500	13.50	338000	3.920	3.795	LT&C	0.01492	4,220.22	12,410	10,680	
Bott Liner											
TVD		7,165.00		KOP		6,600.00		Open Hole	6.125	Casing Vol. (bbl)	280.6
Carry Fluid Weight (ppg)			8.4		Propant Content (ppa)				Max Drill Out Size		0

	Comm. Number	Description	Depth	Length	OD	ID	Ball Seat ID	Shear Press	Max Rate (BPM)	Displ (BBL)
Liner Top	1	JR Setting Sleeve_RH Profile	7332.78							

Zone Length										
		JR Sleeve_S3 Hyd Set Packer	7332.78	9.57	5.813	3.875				
		4-1/2-13.5 LTC Nipple	7342.35	8.07	5.000	3.920				
		8 Joints of 4-1/2-13.5 LTC Casing	7350.42	347.01	5.000	3.920				
20	20	3.625 EX Frac Sleeve	7697.43	2.40	5.750		3.525	2375	316	281
		1 Joint of 4-1/2-13.5 LTC Casing	7699.83	77.08	5.000	3.920				
		Baker Open Hole Packer	7776.91	3.89	5.820	3.875		2154		
		2 Joints of 4-1/2-13.5 LTC Casing	7780.80	115.47	5.000	3.920				
19	19	3.500 EX Frac Sleeve	7896.27	2.40	5.750		3.400	2375	294	281
		1 Joint of 4-1/2-13.5 LTC Casing	7898.67	115.53	5.000	3.920				
		Baker Open Hole Packer	8014.20	3.89	5.820	3.875		2154		
		2 Joints of 4-1/2-13.5 LTC Casing	8018.09	111.22	5.000	3.920				
18	18	3.375 EX Frac Sleeve	8129.31	2.40	5.750		3.275	2375	273	281
		1 Joint of 4-1/2-13.5 LTC Casing	8131.71	77.08	5.000	3.920				
		Baker Open Hole Packer	8208.79	3.89	5.820	3.875		2154		
		2 Joints of 4-1/2-13.5 LTC Casing	8212.68	77.02	5.000	3.920				
17	17	3.250 EX Frac Sleeve	8289.70	2.40	5.750		3.150	2375	252	281
		1 Joint of 4-1/2-13.5 LTC Casing	8292.10	115.82	5.000	3.920				
		Baker Open Hole Packer	8407.92	3.89	5.820	3.875		2154		
		2 Joints of 4-1/2-13.5 LTC Casing	8411.81	76.75	5.000	3.920				
16	16	3.125 EX Frac Sleeve	8488.56	2.40	5.750		3.025	2375	233	281
		2 Joints of 4-1/2-13.5 LTC Casing	8490.96	115.60	5.000	3.920				
		Baker Open Hole Packer	8606.58	3.89	5.820	3.875		2154		

Operating Company Mewbourne
 Well Name & Number Zircon 1 HE St #1H
 Sales Ticket Number 4707060
 Date 1/0/1900

Company Rep 0
 Field ZIRCON
 BOT Service Rep 0
 District Location Odessa, Texas, USA



	Size	Weight	Grade	ID	Drift	Thread	Capacity	Length	Burst	Collapse
Casing	7.000	26.00	P-110	6.276	6.151		0.03826	7,558.00	9,960	6,230
Top Liner	4.500	13.50	338000	3.920	3.795	LT&C	0.01492	4,220.22	12,410	10,680
Bott Liner										
TVD	7,165.00		KOP		6,600.00		Open Hole	6.125	Casing Vol. (bbl)	280.6
Carry Fluid Weight (ppg)			8.4		Propant Content (ppa)				Max Drill Out Size	0

	Comm. Number	Description	Depth	Length	OD	ID	Ball Seat ID	Shear Press	Max Rate (BPM)	Displ (BBL)
15		2 Joints of 4-1/2-13.5 LTC Casing	8610.45	76.99	5.000	3.920				
	15	3.000 EX Frac sleeve	8687.44	2.40	5.750		2.900	2375	214	281
		1 Joint of 4-1/2-13.5 LTC Casing	8689.84	115.71	5.000	3.920				
14		Baker Open Hole Packer	8805.55	3.89	5.820	3.875		2154		
		2 Joints of 4-1/2-13.5 LTC Casing	8809.44	76.85	5.000	3.920				
	14	2.875 EX Frac Sleeve	8886.29	2.40	5.750		2.775	2375	196	281
13		2 Joints of 4-1/2-13.5 LTC Casing	8888.69	76.33	5.000	3.920				
		Baker Open Hole Packer	8965.02	3.89	5.820	3.875		2154		
		2 Joints of 4-1/2-13.5 LTC Casing	8968.91	115.35	5.000	3.920				
12	13	2.750 EX Frac Sleeve	9084.26	2.40	5.750		2.650	2375	179	281
		1 Joint of 4-1/2-13.5 LTC Casing	9086.66	115.63	5.000	3.920				
		Baker Open Hole Packer	9202.28	3.89	5.820	3.875		2154		
11		2 Joints of 4-1/2-13.5 LTC Casing	9206.18	115.59	5.000	3.920				
	12	2.625 EX Frac Sleeve	9321.77	2.40	5.750		2.525	2375	162	281
		2 Joints of 4-1/2-13.5 LTC Casing	9324.17	77.02	5.000	3.920				
10		Baker Open Hole Packer	9401.19	3.89	5.820	3.875		2154		
		2 Joints of 4-1/2-13.5 LTC Casing	9405.08	76.96	5.000	3.920				
	11	2.500 EX Frac Sleeve	9482.04	2.40	5.750		2.400	2375	147	281
9		1 Joint of 4-1/2-13.5 LTC Casing	9484.44	115.67	5.000	3.920				
		Baker Open Hole Packer	9600.11	3.89	5.820	3.875		2154		
		2 Joints of 4-1/2-13.5 LTC Casing	9604.00	115.70	5.000	3.920				
9	10	2.375 EX Frac Sleeve	9719.70	2.40	5.750		2.275	2375	132	281
		2 Joints of 4-1/2-13.5 LTC Casing	9722.10	76.97	5.000	3.920				
		Baker Open Hole Packer	9799.07	3.89	5.820	3.875		2154		
9		1 Joint of 4-1/2-13.5 LTC Casing	9802.96	115.80	5.000	3.920				
	9	2.250 EX Frac Sleeve	9918.76	2.40	5.750		2.150	2375	118	281

Operating Company Mewbourne
 Well Name & Number Zircon 1 HE St #1H
 Sales Ticket Number 4707060
 Date 1/0/1900

Company Rep 0
 Field ZIRCON
 BOT Service Rep 0
 District Location Odessa, Texas, USA



	Size	Weight	Grade	ID	Drift	Thread	Capacity	Length	Burst	Collapse
Casing	7.000	26.00	P-110	6.276	6.151		0.03826	7,558.00	9,960	6,230
Top Liner	4.500	13.50	338000	3.920	3.795	LT&C	0.01492	4,220.22	12,410	10,680
Bott Liner										
TVD	7,165.00		KOP		6,600.00		Open Hole	6.125	Casing Vol. (bbl)	280.6
Carry Fluid Weight (ppg)	8.4		Propant Content (ppa)					Max Drill Out Size		0

	Comm. Number	Description	Depth	Length	OD	ID	Ball Seat ID	Shear Press	Max Rate (BPM)	Displ (BBL)
8		2 Joints of 4-1/2-13.5 LTC Casing	9921.16	77.03	5.000	3.920				
		Baker Open Hole Packer	9998.18	3.89	5.820	3.875		2154		
		1 Joint of 4-1/2-13.5 LTC Casing	10002.08	115.54	5.000	3.920				
7	8	2.125 EX Frac Sleeve	10117.62	2.40	5.750		2.025	2375	104	281
		2 Joints of 4-1/2-13.5 LTC Casing	10120.02	77.28	5.000	3.920				
		Baker Open Hole Packer	10197.30	3.89	5.820	3.875		2154		
6		1 Joint of 4-1/2-13.5 LTC Casing	10201.19	115.46	5.000	3.920				
	7	2.000 EX Frac Sleeve	10316.65	2.40	5.750		1.900	2375	92	281
		2 Joints of 4-1/2-13.5 LTC Casing	10319.05	77.17	5.000	3.920				
5		Baker Open Hole Packer	10396.22	3.89	5.820	3.875		2154		
		1 Joint of 4-1/2-13.5 LTC Casing	10400.11	76.90	5.000	3.920				
	6	1.875 EX Frac Sleeve	10477.01	2.40	5.750		1.775	2375	80	281
4		2 Joints of 4-1/2-13.5 LTC Casing	10479.41	115.70	5.000	3.920				
		Baker Open Hole Packer	10595.11	3.89	5.820	3.875		2154		
		2 Joints of 4-1/2-13.5 LTC Casing	10599.00	115.54	5.000	3.920				
3	5	1.750 EX Frac Sleeve	10714.54	2.40	5.750		1.650	2375	69	281
		1 Joint of 4-1/2-13.5 LTC Casing	10716.94	77.01	5.000	3.920				
		Baker Open Hole Packer	10793.95	3.89	5.820	3.875		2154		
2		2 Joints of 4-1/2-13.5 LTC Casing	10797.84	115.62	5.000	3.920				
	4	1.625 EX Frac Sleeve	10913.46	2.40	5.750		1.525	2375	59	281
		2 Joints of 4-1/2-13.5 LTC Casing	10915.86	115.66	5.000	3.920				
1		Baker Open Hole Packer	11031.52	3.89	5.820	3.875		2154		
		2 Joints of 4-1/2-13.5 LTC Casing	11035.41	76.94	5.000	3.920				
	3	1.500 DBL Ball Frac Sleeve	11112.35	2.40	5.750		1.400	2375	50	281
		1 Joint of 4-1/2-13.5 LTC Casing	11114.75	114.03	5.000	3.920				
		Baker Open Hole Packer	11228.78	3.89	5.820	3.875		2154		

Company Rep	0
Field	ZIRCON
BOT Service Rep	0
District Location	Odessa, Texas, USA



Carry Fluid Weight (ppg)	8.4	Propant Content (ppa)		Max Drill Out Size	0
--------------------------	-----	-----------------------	--	--------------------	---

[illegible]