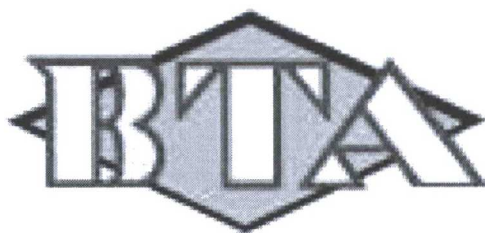


Company Name: BTA Oil Producers, LLC
 Starcaster 18 Federal #2H
 Lea County, NM
 Rig: Nomac #54
 Created By: Shane Robbins
 Date: 11/7/2016

Starcaster 18 Federal #2H
 Lea County, NM
 Q160654 & WT-160446
 Design #1

PROJECT DETAILS: Lea County, NM
 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



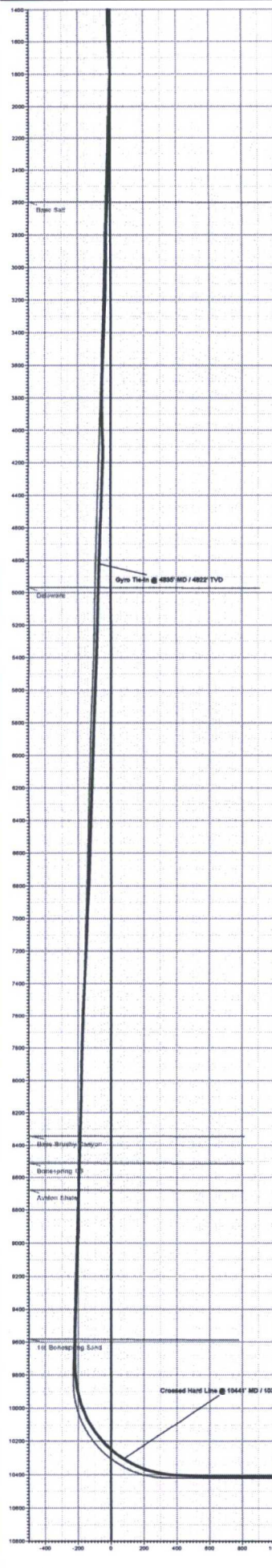
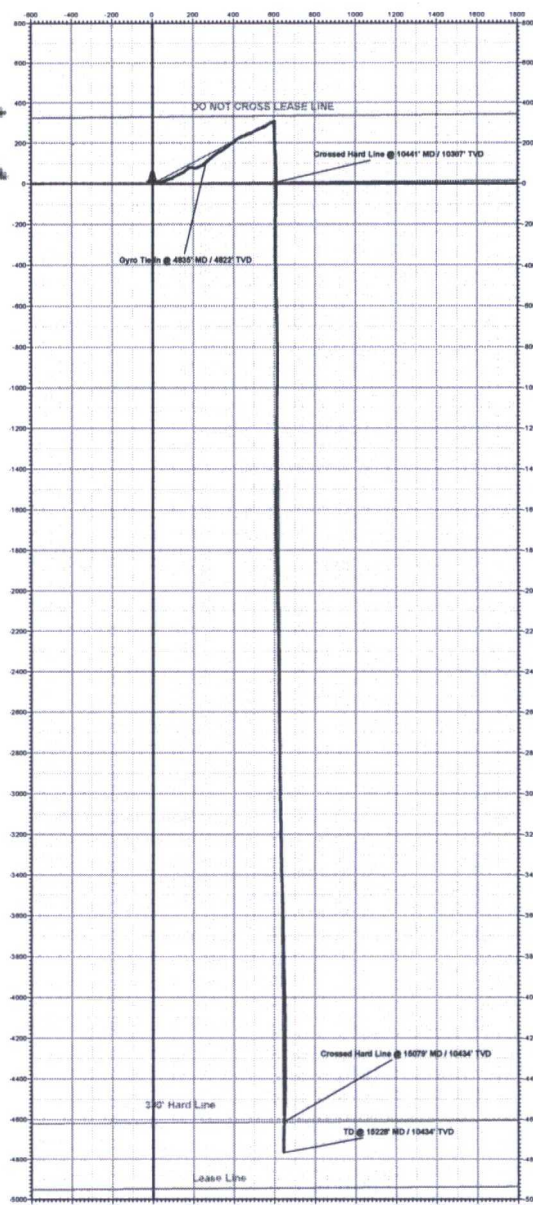
Azimuths to Grid North

Correction: 6.57°
 Magnetic Field

Strength: 48064.0snT
 Dip Angle: 60.16°
 Date: 10/17/2016
 Model: IGRF2015

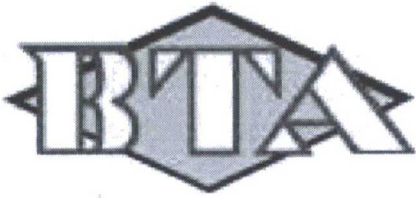
WELL DETAILS: Starcaster 18 Federal #2H				
		Ground Level:	3567.9	
+N-S	+E-W	Northing	Easting	Latitude
0.0	0.0	477774.30	733664.08	32° 18' 38.087 N 103° 37' 46.388 W

ANNOTATIONS									
MD	Inc	Azi	TVD	+N-S	+E-W	Vsect	Departure	Annotation	
4835.0	3.46	82.20	4821.7	106.1	265.5	-89.3	313.7	Gyro Tie-in @ 4835' MD / 4822' TVD	
10440.6	58.46	180.76	10306.5	4.6	610.9	77.8	1006.5	Crossed Hard Line @ 10441' MD / 10307' TVD	
15078.7	89.61	181.46	10434.3	-4613.8	648.0	4659.0	5624.9	Crossed Hard Line @ 15079' MD / 10434' TVD	
15228.0	90.50	181.10	10433.8	-4763.0	644.9	4806.5	5774.2	TD @ 15228' MD / 10434' TVD	



Vertical Section at 172.25" (200 usf/in)

HOBBS OCD
 OCT 16 2017
 RECEIVED



HOBBS, NM

OCT 16 2017

RECEIVED

BTA Oil Producers, LLC

Lea County, NM

Sec 18, T23S, R34E

Starcaster 18 Federal #2H

Wellbore #1

Design: Wellbore #1

QES Survey Report

07 November, 2016





Survey Report



Company:	BTA Oil Producers, LLC	Local Co-ordinate Reference:	Well Starcaster 18 Federal #2H
Project:	Lea County, NM	TVD Reference:	WELL @ 3532.0usft (Nomac #94)
Site:	Sec 18, T23S, R34E	MD Reference:	WELL @ 3532.0usft (Nomac #94)
Well:	Starcaster 18 Federal #2H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM5002

Project	Lea County, NM		
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 18, T23S, R34E		
Site Position:		Northing:	477,774.30 usft
From:	Map	Easting:	753,564.86 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 18' 39.057 N
		Longitude:	103° 30' 45.358 W
		Grid Convergence:	0.44 °

Well	Starcaster 18 Federal #2H		
Well Position	+N-S	0.0 usft	Northing: 477,774.30 usft
	+E-W	0.0 usft	Easting: 753,564.86 usft
Position Uncertainty	0.0 usft	Wellhead Elevation:	0.0 usft
		Latitude:	32° 18' 39.057 N
		Longitude:	103° 30' 45.358 W
		Ground Level:	3,507.0 usft

Wellbore	Wellbore #1		
Magnetics	Model Name	Sample Date	Declination (°)
	IGRF2015	10/17/2016	7.00
			Dip Angle (°)
			60.16
			Field Strength (nT)
			48,064

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)
	0.0	0.0	0.0
			Direction (°)
			172.25

Survey Program	Date 11/7/2016		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name
100.0	4,835.0 Gyro (Wellbore #1)		Good_gyro
5,009.0	15,228.0 MWD Surveys (Wellbore #1)		MWD default
			Description
			Good Gyro
			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	1.29	48.04	100.0	0.8	0.8	-0.6	1.29	1.29	0.00	
200.0	1.63	55.22	200.0	2.3	2.8	-1.9	0.39	0.34	7.18	
300.0	0.95	39.58	299.9	3.8	4.5	-3.1	0.76	-0.68	-15.64	
400.0	0.75	37.87	399.9	4.9	5.5	-4.1	0.20	-0.20	-1.71	
500.0	0.81	42.61	499.9	6.0	6.3	-5.0	0.09	0.06	4.74	
600.0	0.85	45.97	599.9	7.0	7.4	-5.9	0.06	0.04	3.36	
700.0	0.35	42.36	699.9	7.7	8.1	-6.6	0.50	-0.50	-3.61	
800.0	0.25	347.26	799.9	8.2	8.3	-7.0	0.29	-0.10	-55.10	
900.0	0.51	8.63	899.9	8.8	8.3	-7.6	0.29	0.26	21.37	



Survey Report



Company: BTA Oil Producers, LLC
Project: Lea County, NM
Site: Sec 18, T23S, R34E
Well: Starcaster 18 Federal #2H
Wellbore: Wellbore #1
Design: Wellbore #1

Local Co-ordinate Reference: Well Starcaster 18 Federal #2H
TVD Reference: WELL @ 3532.0usft (Nomac #94)
MD Reference: WELL @ 3532.0usft (Nomac #94)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM5002

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	0.37	343.98	999.9	9.6	8.3	-8.4	0.23	-0.14	-24.65
1,100.0	0.75	323.08	1,099.9	10.4	7.8	-9.3	0.43	0.38	-20.90
1,200.0	1.22	313.93	1,199.9	11.7	6.6	-10.7	0.49	0.47	-9.15
1,300.0	1.30	320.36	1,299.8	13.3	5.1	-12.5	0.16	0.08	6.43
1,400.0	0.59	296.41	1,399.8	14.4	3.9	-13.7	0.80	-0.71	-23.95
1,500.0	3.43	116.98	1,499.8	13.3	6.1	-12.3	4.02	2.84	-179.43
1,600.0	3.34	113.18	1,599.6	10.8	11.5	-9.1	0.24	-0.09	-3.80
1,700.0	4.92	111.07	1,699.3	8.1	18.2	-5.5	1.59	1.58	-2.11
1,800.0	6.12	101.75	1,798.9	5.4	27.4	-1.7	1.49	1.20	-9.32
1,900.0	7.11	81.49	1,898.2	5.3	38.7	0.0	2.52	0.99	-20.26
2,000.0	7.98	72.69	1,997.4	8.3	51.5	-1.2	1.44	0.87	-8.80
2,100.0	5.61	60.43	2,096.7	12.7	62.4	-4.2	2.77	-2.37	-12.26
2,200.0	5.45	53.45	2,196.2	18.0	70.4	-8.3	0.69	-0.16	-6.98
2,300.0	5.71	78.66	2,295.7	21.8	79.1	-10.9	2.44	0.26	25.21
2,400.0	6.40	79.40	2,395.2	23.8	89.5	-11.5	0.69	0.69	0.74
2,500.0	5.17	56.15	2,494.7	27.3	98.7	-13.8	2.62	-1.23	-23.25
2,600.0	5.55	54.95	2,594.2	32.6	106.4	-18.0	0.40	0.38	-1.20
2,700.0	5.78	55.83	2,693.8	38.2	114.5	-22.4	0.25	0.23	0.88
2,800.0	4.26	70.93	2,793.4	42.2	122.2	-25.4	2.00	-1.52	15.10
2,900.0	4.69	70.07	2,893.1	44.9	129.6	-27.0	0.44	0.43	-0.86
3,000.0	5.27	69.69	2,992.7	47.8	137.7	-28.8	0.58	0.58	-0.38
3,100.0	4.55	67.06	3,092.3	51.0	145.7	-30.9	0.75	-0.72	-2.63
3,200.0	3.51	48.68	3,192.1	54.6	151.6	-33.6	1.65	-1.04	-18.38
3,300.0	4.14	53.16	3,291.9	58.7	156.8	-37.1	0.70	0.63	4.48
3,400.0	4.53	53.11	3,391.6	63.3	162.8	-40.7	0.39	0.39	-0.05
3,500.0	4.75	52.56	3,491.2	68.2	169.3	-44.7	0.22	0.22	-0.55
3,600.0	4.86	48.97	3,590.9	73.5	175.8	-49.1	0.32	0.11	-3.59
3,700.0	3.90	66.14	3,690.6	77.6	182.1	-52.4	1.61	-0.96	17.17
3,800.0	3.73	85.05	3,790.4	79.3	188.4	-53.1	1.26	-0.17	18.91
3,900.0	4.58	92.39	3,890.1	79.4	195.7	-52.3	1.00	0.85	7.34
4,000.0	5.46	100.98	3,989.7	78.3	204.3	-50.0	1.15	0.88	8.59
4,100.0	4.55	96.47	4,089.4	77.0	212.9	-47.5	0.99	-0.91	-4.51
4,200.0	4.55	65.26	4,189.1	78.2	220.5	-47.7	2.45	0.00	-31.21
4,300.0	5.56	63.81	4,288.7	82.0	228.4	-50.4	1.02	1.01	-1.45
4,400.0	6.67	68.47	4,388.1	86.2	238.2	-53.3	1.22	1.11	4.66
4,500.0	5.85	56.41	4,487.5	91.2	247.8	-56.9	1.55	-0.82	-12.06
4,600.0	4.59	49.65	4,587.1	96.6	255.1	-61.3	1.40	-1.26	-6.76
4,700.0	2.99	43.71	4,686.9	101.1	260.0	-65.1	1.65	-1.60	-5.94
4,800.0	3.21	49.09	4,786.7	104.8	263.9	-68.3	0.36	0.22	5.38
Gyro Tie-In @ 4835' MD / 4822' TVD									
4,835.0	3.46	52.20	4,821.7	106.1	265.5	-69.3	0.88	0.71	8.89
5,009.0	3.40	51.20	4,995.3	112.5	273.6	-74.6	0.05	-0.03	-0.57
5,072.0	3.40	47.30	5,058.2	115.0	276.5	-76.6	0.37	0.00	-6.19



Survey Report



Company: BTA Oil Producers, LLC
Project: Lea County, NM
Site: Sec 18, T23S, R34E
Well: Starcaster 18 Federal #2H
Wellbore: Wellbore #1
Design: Wellbore #1

Local Co-ordinate Reference: Well Starcaster 18 Federal #2H
TVD Reference: WELL @ 3532.0usft (Nomac #94)
MD Reference: WELL @ 3532.0usft (Nomac #94)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM5002

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)
5,167.0	3.70	49.60	5,153.1	118.9	280.9	-79.9	0.35	0.32	2.42
5,262.0	4.20	54.20	5,247.8	122.9	286.0	-83.2	0.62	0.53	4.84
5,357.0	4.20	51.60	5,342.6	127.1	291.6	-86.6	0.20	0.00	-2.74
5,452.0	4.20	51.60	5,437.3	131.4	297.0	-90.2	0.00	0.00	0.00
5,547.0	3.70	53.50	5,532.1	135.4	302.2	-93.4	0.54	-0.53	2.00
5,642.0	3.50	53.20	5,626.9	139.0	307.0	-96.3	0.21	-0.21	-0.32
5,737.0	3.40	49.10	5,721.7	142.5	311.5	-99.2	0.28	-0.11	-4.32
5,832.0	3.00	50.20	5,816.6	146.0	315.5	-102.1	0.43	-0.42	1.16
5,927.0	3.90	58.30	5,911.4	149.3	320.2	-104.7	1.08	0.95	8.53
6,022.0	4.80	61.90	6,006.1	152.8	326.4	-107.4	0.99	0.95	3.79
6,117.0	4.60	60.20	6,100.8	156.6	333.2	-110.2	0.26	-0.21	-1.79
6,212.0	4.30	63.20	6,195.5	160.1	339.7	-112.8	0.40	-0.32	3.16
6,307.0	5.30	56.00	6,290.2	164.2	346.5	-115.9	1.23	1.05	-7.58
6,402.0	5.20	56.70	6,384.8	169.0	353.8	-119.7	0.13	-0.11	0.74
6,497.0	5.10	54.60	6,479.4	173.8	360.8	-123.5	0.22	-0.11	-2.21
6,592.0	4.80	54.90	6,574.1	178.5	367.5	-127.3	0.32	-0.32	0.32
6,687.0	4.80	54.70	6,668.7	183.1	374.0	-131.0	0.02	0.00	-0.21
6,782.0	4.70	54.20	6,763.4	187.7	380.4	-134.7	0.11	-0.11	-0.53
6,877.0	5.20	52.30	6,858.0	192.6	387.0	-138.6	0.55	0.53	-2.00
6,972.0	5.10	51.20	6,952.7	197.9	393.6	-143.0	0.15	-0.11	-1.16
7,067.0	4.90	50.50	7,047.3	203.1	400.1	-147.3	0.22	-0.21	-0.74
7,162.0	5.10	49.80	7,141.9	208.4	406.4	-151.7	0.22	0.21	-0.74
7,257.0	4.80	51.20	7,236.6	213.6	412.7	-156.0	0.34	-0.32	1.47
7,352.0	4.40	55.10	7,331.3	218.2	418.8	-159.7	0.53	-0.42	4.11
7,447.0	6.30	62.30	7,425.9	222.7	426.4	-163.1	2.12	2.00	7.58
7,542.0	6.50	64.40	7,520.3	227.4	435.9	-166.6	0.32	0.21	2.21
7,637.0	6.40	66.70	7,614.7	231.9	445.6	-169.6	0.29	-0.11	2.42
7,732.0	5.70	66.20	7,709.1	235.9	454.8	-172.4	0.74	-0.74	-0.53
7,827.0	5.40	67.20	7,803.7	239.5	463.2	-174.8	0.33	-0.32	1.05
7,922.0	5.10	68.10	7,898.3	242.8	471.3	-177.0	0.33	-0.32	0.95
8,017.0	4.80	69.80	7,992.9	245.7	478.9	-178.9	0.35	-0.32	1.79
8,112.0	4.30	72.50	8,087.6	248.2	486.0	-180.4	0.57	-0.53	2.84
8,207.0	5.40	60.20	8,182.3	251.5	493.3	-182.7	1.59	1.16	-12.95
8,302.0	5.20	59.10	8,276.9	255.9	500.9	-186.0	0.24	-0.21	-1.16
8,397.0	4.90	63.00	8,371.5	260.0	508.2	-189.1	0.48	-0.32	4.11
8,492.0	4.70	63.20	8,466.2	263.6	515.3	-191.7	0.21	-0.21	0.21
8,587.0	4.50	65.30	8,560.9	266.9	522.2	-194.0	0.28	-0.21	2.21
8,682.0	4.40	65.50	8,655.6	269.9	528.9	-196.2	0.11	-0.11	0.21
8,777.0	4.10	70.60	8,750.3	272.6	535.4	-197.9	0.51	-0.32	5.37
8,872.0	3.80	76.50	8,845.1	274.4	541.6	-198.9	0.53	-0.32	6.21
8,966.0	3.80	78.60	8,938.9	275.8	547.7	-199.4	0.15	0.00	2.23
9,062.0	5.10	53.90	9,034.6	278.9	554.3	-201.6	2.38	1.35	-25.73
9,157.0	5.10	55.10	9,129.3	283.8	561.2	-205.6	0.11	0.00	1.26



Survey Report



Company: BTA Oil Producers, LLC
Project: Lea County, NM
Site: Sec 18, T23S, R34E
Well: Starcaster 18 Federal #2H
Wellbore: Wellbore #1
Design: Wellbore #1

Local Co-ordinate Reference: Well Starcaster 18 Federal #2H
TVD Reference: WELL @ 3532.0usft (Nomac #94)
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North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM5002

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)
9,252.0	4.60	53.50	9,223.9	288.5	567.7	-209.3	0.55	-0.53	-1.68
9,347.0	4.50	54.20	9,318.6	293.0	573.8	-212.9	0.12	-0.11	0.74
9,442.0	4.30	56.50	9,413.3	297.1	579.8	-216.2	0.28	-0.21	2.42
9,537.0	4.20	63.00	9,508.1	300.7	585.8	-218.9	0.52	-0.11	6.84
9,632.0	4.00	75.70	9,602.8	303.0	592.1	-220.4	0.98	-0.21	13.37
9,727.0	3.00	96.80	9,697.7	303.6	597.8	-220.2	1.70	-1.05	22.21
9,820.0	2.90	157.70	9,790.6	301.1	601.1	-217.3	3.22	-0.11	65.48
9,915.0	9.80	182.90	9,884.9	290.8	601.6	-207.0	7.66	7.26	26.53
10,010.0	18.80	177.60	9,976.9	267.4	601.9	-183.8	9.56	9.47	-5.58
10,105.0	27.50	178.00	10,064.2	230.1	603.3	-146.6	9.16	9.16	0.42
10,200.0	35.40	176.00	10,145.1	180.6	606.0	-97.3	8.39	8.32	-2.11
10,295.0	45.00	178.10	10,217.6	119.5	609.0	-36.3	10.20	10.11	2.21
10,390.0	54.90	179.00	10,278.7	46.9	610.8	35.9	10.45	10.42	0.95
Crossed Hard Line @ 10441' MD / 10307' TVD									
10,440.6	58.46	180.76	10,306.5	4.6	610.9	77.8	7.61	7.03	3.48
10,485.0	61.60	182.20	10,328.6	-33.8	609.9	115.8	7.61	7.07	3.24
10,580.0	71.80	179.90	10,366.2	-121.0	608.4	201.9	10.96	10.74	-2.42
10,675.0	79.30	180.80	10,389.9	-212.9	607.8	292.9	7.95	7.89	0.95
10,770.0	86.00	179.90	10,402.0	-307.0	607.2	386.1	7.11	7.05	-0.95
10,793.0	86.70	179.50	10,403.5	-330.0	607.3	408.9	3.50	3.04	-1.74
10,889.0	87.60	179.00	10,408.2	-425.9	608.6	504.0	1.07	0.94	-0.52
10,984.0	88.90	179.00	10,411.1	-520.8	610.2	598.3	1.37	1.37	0.00
11,079.0	89.90	178.80	10,412.1	-615.8	612.1	692.7	1.07	1.05	-0.21
11,174.0	91.10	178.10	10,411.3	-710.7	614.6	787.1	1.46	1.26	-0.74
11,363.0	88.50	180.60	10,412.0	-899.7	616.8	974.7	1.91	-1.38	1.32
11,554.0	90.70	180.80	10,413.3	-1,090.7	614.4	1,163.6	1.16	1.15	0.10
11,744.0	87.20	180.40	10,416.8	-1,280.6	612.5	1,351.5	1.85	-1.84	-0.21
11,838.0	88.20	180.80	10,420.6	-1,374.5	611.5	1,444.4	1.15	1.06	0.43
11,933.0	88.90	180.40	10,423.0	-1,469.5	610.5	1,538.4	0.85	0.74	-0.42
12,028.0	88.40	179.70	10,425.2	-1,564.5	610.4	1,632.5	0.91	-0.53	-0.74
12,123.0	87.50	180.10	10,428.6	-1,659.4	610.6	1,726.6	1.04	-0.95	0.42
12,218.0	88.60	179.90	10,431.8	-1,754.3	610.6	1,820.6	1.18	1.16	-0.21
12,313.0	89.80	179.00	10,433.2	-1,849.3	611.5	1,914.9	1.58	1.26	-0.95
12,408.0	91.30	178.70	10,432.2	-1,944.3	613.4	2,009.2	1.61	1.58	-0.32
12,503.0	92.20	178.50	10,429.3	-2,039.2	615.7	2,103.6	0.97	0.95	-0.21
12,598.0	92.30	178.00	10,425.6	-2,134.1	618.6	2,198.0	0.54	0.11	-0.53
12,693.0	90.80	179.00	10,423.0	-2,229.0	621.1	2,292.4	1.90	-1.58	1.05
12,788.0	89.70	179.70	10,422.6	-2,324.0	622.2	2,386.7	1.37	-1.16	0.74
12,883.0	90.50	179.40	10,422.5	-2,419.0	622.9	2,480.9	0.90	0.84	-0.32
12,978.0	89.60	179.40	10,422.4	-2,514.0	623.9	2,575.2	0.95	-0.95	0.00
13,073.0	90.50	179.40	10,422.3	-2,609.0	624.9	2,669.4	0.95	0.95	0.00
13,168.0	91.50	179.20	10,420.6	-2,704.0	626.1	2,763.7	1.07	1.05	-0.21
13,263.0	90.00	179.50	10,419.4	-2,799.0	627.1	2,858.0	1.61	-1.58	0.32
13,358.0	89.50	179.50	10,419.8	-2,894.0	628.0	2,952.2	0.53	-0.53	0.00



Survey Report



Company: BTA Oil Producers, LLC
Project: Lea County, NM
Site: Sec 18, T23S, R34E
Well: Starcaster 18 Federal #2H
Wellbore: Wellbore #1
Design: Wellbore #1

Local Co-ordinate Reference: Well Starcaster 18 Federal #2H
TVD Reference: WELL @ 3532.0usft (Nomac #94)
MD Reference: WELL @ 3532.0usft (Nomac #94)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM5002

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)
13,453.0	87.80	179.40	10,422.1	-2,988.9	628.9	3,046.4	1.79	-1.79	-0.11
13,548.0	86.30	178.80	10,426.9	-3,083.8	630.4	3,140.6	1.70	-1.58	-0.63
13,643.0	87.20	179.20	10,432.3	-3,178.6	632.0	3,234.8	1.04	0.95	0.42
13,738.0	88.10	179.00	10,436.2	-3,273.5	633.5	3,329.1	0.97	0.95	-0.21
13,833.0	89.20	178.70	10,438.5	-3,368.5	635.4	3,423.4	1.20	1.16	-0.32
13,928.0	90.70	178.10	10,438.5	-3,463.4	638.1	3,517.8	1.70	1.58	-0.63
14,023.0	92.10	178.30	10,436.2	-3,558.4	641.1	3,612.3	1.49	1.47	0.21
14,118.0	90.80	179.00	10,433.8	-3,653.3	643.3	3,706.7	1.55	-1.37	0.74
14,213.0	88.90	179.00	10,434.1	-3,748.3	644.9	3,801.0	2.00	-2.00	0.00
14,307.0	90.00	178.70	10,435.0	-3,842.3	646.8	3,894.4	1.21	1.17	-0.32
14,402.0	90.90	178.10	10,434.2	-3,937.2	649.5	3,988.8	1.14	0.95	-0.63
14,497.0	91.00	179.00	10,432.6	-4,032.2	651.9	4,083.2	0.95	0.11	0.95
14,592.0	90.80	179.40	10,431.2	-4,127.1	653.2	4,177.5	0.47	-0.21	0.42
14,687.0	89.60	179.90	10,430.8	-4,222.1	653.8	4,271.7	1.37	-1.26	0.53
14,782.0	89.20	180.20	10,431.8	-4,317.1	653.7	4,365.9	0.53	-0.42	0.32
14,877.0	90.10	180.60	10,432.4	-4,412.1	653.0	4,459.9	1.04	0.95	0.42
14,972.0	89.10	181.80	10,433.1	-4,507.1	651.1	4,553.7	1.64	-1.05	1.26
15,067.0	89.50	181.50	10,434.2	-4,602.1	648.3	4,647.5	0.53	0.42	-0.32
Crossed Hard Line @ 15079' MD / 10434' TVD									
15,078.7	89.61	181.46	10,434.3	-4,613.8	648.0	4,659.0	1.01	0.93	-0.37
15,174.0	90.50	181.10	10,434.2	-4,709.0	645.9	4,753.1	1.01	0.93	-0.37
TD @ 15228' MD / 10434' TVD									
15,228.0	90.50	181.10	10,433.8	-4,763.0	644.9	4,806.5	0.00	0.00	0.00

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
4,835.0	4,821.7	106.1	265.5	Gyro Tie-In @ 4835' MD / 4822' TVD
10,440.6	10,306.5	4.6	610.9	Crossed Hard Line @ 10441' MD / 10307' TVD
15,078.7	10,434.3	-4,613.8	648.0	Crossed Hard Line @ 15079' MD / 10434' TVD
15,228.0	10,433.8	-4,763.0	644.9	TD @ 15228' MD / 10434' TVD

Checked By: _____ Approved By: _____ Date: _____