

BTA Oil Producers, LLC

Lea County, NM
Sec 36, T20-S, R34E
9012 JV-P Aline #2

Wellbore #1

Survey: MWD

DDC Survey Report

19 February, 2016



MAR 30 2016

The Directional Drilling Company

11390 FM 830

Willis, TX 77318

Phone: (936) 856-4332

Fax: (936) 856-8678



Survey Certification Sheet

Company	Job Number	Date
BTA Oil Producers, LLC	WT-160038	2/19/2016

Lease	Well Name	County & State
Sec36,T20-S,R34E	9012 JV-P Aline #2	Lea, NM

API No.	Survey Depth Range	Survey Type
30-025-42771	1809 feet to 11555 feet MD	MWD

Sidetrack Information	Directional Supervisor/Surveyor
N/A	David Ray

Certification Statement

The data and calculations for this survey have been checked by me and conform to the standards and procedures set forth by The Directional Drilling Company (DDC). This report represents a true and correct directional survey of this well based on the original data obtained at the well site. Wellbore coordinates are calculated using minimum curvature.

Christopher Hughes

Christopher Hughes

MWD Compliance Manager

The Directional Drilling Company

Digitally signed by Christopher Hughes
DN: cn=Christopher Hughes, o=DDC, ou,
email=Chrish@directionaldrillers.com, c=US
Date: 2016.02.22 07:29:51 -06'00'



Survey Report



Company: BTA Oil Producers, LLC
 Project: Lea County, NM
 Site: Sec 36, T20-S, R34E
 Well: 9012 JV-P Aline #2
 Wellbore: Wellbore #1
 Design: Wellbore #1

Local Co-ordinate Reference: Well 9012 JV-P Aline #2
 TVD Reference: WELL @ 3766.0usft (Nomac #133)
 MD Reference: WELL @ 3766.0usft (Nomac #133)
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Database: EDM5002

Project: Lea County, NM
 Map System: US State Plane 1927 (Exact solution)
 Geo Datum: NAD 1927 (NADCON CONUS)
 Map Zone: New Mexico East 3001
 System Datum: Mean Sea Level

Site: Sec 36, T20-S, R34E

Site Position: Northing: 558,908.30 usft Latitude: 32° 32' 1.758 N
 From: Map Easting: 755,179.60 usft Longitude: 103° 30' 19.219 W
 Position Uncertainty: 0.0 usft Slot Radius: 13-3/16 " Grid Convergence: 0.45 °

Well: 9012 JV-P Aline #2
 Well Position: +N/-S 0.0 usft Northing: 558,908.30 usft Latitude: 32° 32' 1.758 N
 +E/-W 0.0 usft Easting: 755,179.60 usft Longitude: 103° 30' 19.219 W
 Position Uncertainty: 0.0 usft Wellhead Elevation: 0.0 usft Ground Level: 3,744.0 usft

Wellbore: Wellbore #1

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	1/28/2016	7.09	60.38	48,270

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	347.26

Survey Program: Date: 2/19/2016

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
100.0	1,809.0	Gyro (Wellbore #1)	Good_gyro	Good Gyro
1,939.0	11,555.0	MWD (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)
Tie into Gyro @ 1809' MD / 1809' TVD									
1,809.0	0.32	250.70	1,809.0	-5.3	-6.6	-3.8	0.00	0.00	0.00
1,939.0	0.20	183.10	1,939.0	-5.7	-6.9	-4.0	0.24	-0.09	-52.00
2,128.0	0.70	93.10	2,128.0	-6.1	-5.8	-4.6	0.39	0.26	-47.62
2,317.0	0.70	93.10	2,316.9	-6.2	-3.5	-5.3	0.00	0.00	0.00
2,507.0	1.10	76.30	2,506.9	-5.8	-0.5	-5.6	0.25	0.21	-8.84
2,697.0	1.20	78.00	2,696.9	-5.0	3.2	-5.6	0.06	0.05	0.89
2,886.0	1.60	68.90	2,885.8	-3.6	7.6	-5.2	0.24	0.21	-4.81
3,076.0	2.50	66.10	3,075.7	-1.0	13.8	-4.0	0.48	0.47	-1.47
3,266.0	1.80	25.60	3,265.6	3.4	18.9	-0.9	0.86	-0.37	-21.32



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MD Reference: WELL @ 3766.0usft (Nomac #133)
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)
3,456.0	2.50	17.20	3,455.4	10.0	21.4	5.1	0.40	0.37	-4.42
3,646.0	2.60	19.00	3,645.3	18.1	24.1	12.3	0.07	0.05	0.95
3,835.0	2.60	7.00	3,834.1	26.4	26.0	20.0	0.29	0.00	-6.35
4,025.0	2.80	3.10	4,023.9	35.3	26.8	28.5	0.14	0.11	-2.05
4,214.0	2.50	4.90	4,212.7	44.0	27.4	36.9	0.16	-0.16	0.95
4,404.0	1.20	354.40	4,402.6	50.1	27.5	42.8	0.70	-0.68	-5.53
4,593.0	1.60	334.30	4,591.5	54.5	26.2	47.3	0.33	0.21	-10.63
4,783.0	1.40	336.80	4,781.4	59.0	24.1	52.2	0.11	-0.11	1.32
4,973.0	1.80	352.90	4,971.4	64.1	22.8	57.5	0.31	0.21	8.47
5,162.0	2.50	0.30	5,160.2	71.1	22.5	64.4	0.40	0.37	3.92
5,351.0	0.90	263.60	5,349.2	75.1	21.0	68.6	1.46	-0.85	-51.16
5,541.0	0.70	259.10	5,539.1	74.7	18.4	68.8	0.11	-0.11	-2.37
5,730.0	0.90	239.70	5,728.1	73.8	16.0	68.4	0.18	0.11	-10.26
5,772.0	0.50	234.80	5,770.1	73.5	15.6	68.2	0.96	-0.95	-11.67
5,854.0	0.90	248.20	5,852.1	73.0	14.7	68.0	0.52	0.49	16.34
5,917.0	2.60	307.60	5,915.1	73.7	13.1	69.0	3.62	2.70	94.29
6,012.0	6.00	322.00	6,009.8	79.0	8.3	75.2	3.73	3.58	15.16
6,106.0	6.50	323.10	6,103.2	87.1	2.1	84.5	0.55	0.53	1.17
6,201.0	6.50	323.10	6,197.6	95.7	-4.4	94.3	0.00	0.00	0.00
6,296.0	8.40	329.40	6,291.8	106.0	-11.1	105.8	2.17	2.00	6.63
6,391.0	8.80	330.40	6,385.8	118.2	-18.2	119.4	0.45	0.42	1.05
6,485.0	8.80	331.10	6,478.7	130.8	-25.3	133.1	0.11	0.00	0.74
6,580.0	8.80	330.80	6,572.5	143.5	-32.3	147.1	0.05	0.00	-0.32
6,674.0	9.30	343.80	6,665.4	157.1	-38.0	161.6	2.23	0.53	13.83
6,769.0	9.10	344.10	6,759.2	171.7	-42.2	176.7	0.22	-0.21	0.32
6,864.0	8.40	341.30	6,853.0	185.5	-46.4	191.1	0.86	-0.74	-2.95
6,959.0	10.00	344.90	6,946.8	200.0	-50.8	206.3	1.79	1.68	3.79
7,053.0	11.40	346.60	7,039.2	216.9	-55.1	223.7	1.53	1.49	1.81
7,148.0	11.60	345.20	7,132.3	235.3	-59.7	242.7	0.36	0.21	-1.47
7,243.0	12.00	349.80	7,225.3	254.2	-63.9	262.1	1.08	0.42	4.84
7,338.0	11.60	351.50	7,318.3	273.4	-67.1	281.5	0.56	-0.42	1.79
7,432.0	11.10	350.80	7,410.4	291.7	-69.9	299.9	0.55	-0.53	-0.74
7,527.0	11.60	349.10	7,503.6	310.1	-73.2	318.6	0.63	0.53	-1.79
7,621.0	13.20	350.80	7,595.4	330.0	-76.7	338.7	1.75	1.70	1.81
7,715.0	13.00	351.20	7,686.9	351.0	-80.0	360.0	0.23	-0.21	0.43
7,811.0	12.30	351.20	7,780.6	371.8	-83.2	381.0	0.73	-0.73	0.00
7,906.0	11.80	350.50	7,873.5	391.4	-86.4	400.8	0.55	-0.53	-0.74
8,000.0	11.80	350.80	7,965.5	410.3	-89.5	420.0	0.07	0.00	0.32
8,095.0	10.70	350.10	8,058.7	428.6	-92.6	438.5	1.17	-1.16	-0.74
8,190.0	12.10	342.70	8,151.8	446.8	-97.0	457.2	2.13	1.47	-7.79
8,285.0	12.00	341.00	8,244.7	465.6	-103.2	476.9	0.39	-0.11	-1.79
8,379.0	11.60	341.00	8,336.7	483.8	-109.5	496.1	0.43	-0.43	0.00
8,474.0	11.30	339.90	8,429.8	501.6	-115.8	514.8	0.39	-0.32	-1.16



Survey Report



Company: BTA Oil Producers, LLC
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 Design: Wellbore #1

Local Co-ordinate Reference: Well 9012 JV-P Aline #2
 TVD Reference: WELL @ 3766.0usft (Nomac #133)
 MD Reference: WELL @ 3766.0usft (Nomac #133)
 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)
8,569.0	12.50	340.60	8,522.8	520.0	-122.4	534.2	1.27	1.26	0.74
8,664.0	12.10	339.90	8,615.6	539.1	-129.2	554.3	0.45	-0.42	-0.74
8,759.0	11.60	342.70	8,708.6	557.6	-135.5	573.7	0.80	-0.53	2.95
8,854.0	10.20	341.70	8,801.9	574.7	-141.0	591.6	1.49	-1.47	-1.05
8,949.0	10.70	346.30	8,895.3	591.2	-145.7	608.8	1.02	0.53	4.84
9,043.0	12.10	345.90	8,987.5	609.2	-150.2	627.4	1.49	1.49	-0.43
9,138.0	12.50	352.60	9,080.3	629.1	-153.9	647.6	1.56	0.42	7.05
9,233.0	11.60	350.10	9,173.2	648.7	-156.9	667.3	1.09	-0.95	-2.63
9,328.0	11.30	347.00	9,266.3	667.2	-160.6	686.2	0.72	-0.32	-3.26
9,422.0	9.90	351.50	9,358.7	684.1	-163.9	703.4	1.73	-1.49	4.79
9,517.0	8.80	346.60	9,452.4	699.3	-166.8	718.9	1.43	-1.16	-5.16
9,611.0	6.30	337.50	9,545.6	711.1	-170.4	731.1	2.94	-2.66	-9.68
9,676.0	4.10	325.90	9,610.3	716.3	-173.1	736.8	3.73	-3.38	-17.85
9,741.0	1.40	307.90	9,675.3	718.7	-175.0	739.6	4.31	-4.15	-27.69
9,801.0	1.20	220.80	9,735.2	718.7	-176.0	739.8	3.00	-0.33	-145.17
9,895.0	1.80	219.00	9,829.2	716.8	-177.6	738.3	0.64	0.64	-1.91
9,989.0	1.90	226.70	9,923.2	714.6	-179.6	736.6	0.28	0.11	8.19
10,084.0	2.10	229.20	10,018.1	712.3	-182.1	735.0	0.23	0.21	2.63
10,178.0	1.90	199.70	10,112.1	709.7	-183.9	732.8	1.10	-0.21	-31.38
10,273.0	1.60	164.50	10,207.0	707.0	-184.1	730.2	1.15	-0.32	-37.05
10,368.0	1.10	163.10	10,302.0	704.8	-183.5	727.9	0.53	-0.53	-1.47
10,462.0	0.90	183.80	10,396.0	703.2	-183.3	726.3	0.44	-0.21	22.02
10,557.0	0.90	244.70	10,491.0	702.2	-184.0	725.5	0.96	0.00	64.11
10,652.0	1.20	118.10	10,586.0	701.4	-183.8	724.7	1.98	0.32	-133.26
10,747.0	4.10	93.50	10,680.8	700.7	-179.5	723.1	3.21	3.05	-25.89
10,841.0	3.00	99.50	10,774.7	700.1	-173.8	721.2	1.23	-1.17	6.38
10,936.0	1.90	87.90	10,869.6	699.7	-169.7	719.9	1.26	-1.16	-12.21
11,031.0	1.60	60.10	10,964.5	700.5	-167.0	720.0	0.94	-0.32	-29.26
11,126.0	0.90	49.90	11,059.5	701.6	-165.3	720.8	0.77	-0.74	-10.74
11,220.0	0.30	60.80	11,153.5	702.2	-164.5	721.2	0.65	-0.64	11.60
11,315.0	0.50	166.60	11,248.5	701.9	-164.2	720.8	0.68	0.21	111.37
11,410.0	1.10	211.30	11,343.5	700.7	-164.6	719.8	0.87	0.63	47.05
11,503.0	1.60	221.10	11,436.5	699.0	-165.9	718.4	0.59	0.54	10.54
TD @ 11555' MD / 11488' TVD									
11,555.0	1.60	221.10	11,488.4	697.9	-166.8	717.5	0.00	0.00	0.00

Survey Annotations

Measured Depth (usft)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Comment
1,809.0	1,809.0	-5.3	-6.6	Tie into Gyro @ 1809' MD / 1809' TVD
11,555.0	11,488.4	697.9	-166.8	TD @ 11555' MD / 11488' TVD



Survey Report



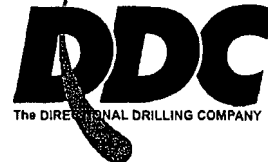
Company: BTA Oil Producers, LLC
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North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM5002

Checked By: _____ Approved By: _____ Date: _____

Company Name: BTA Oil Producers, LLC
 9012 JV-P Aline #2
 Lea County, NM
 Rig: Nomac #133
 Created By: Shane Robbins
 Date: 2/19/2016

9012 JV-P Aline #2
 Lea County, NM
 Q160043 & WT-160038
 Design #1

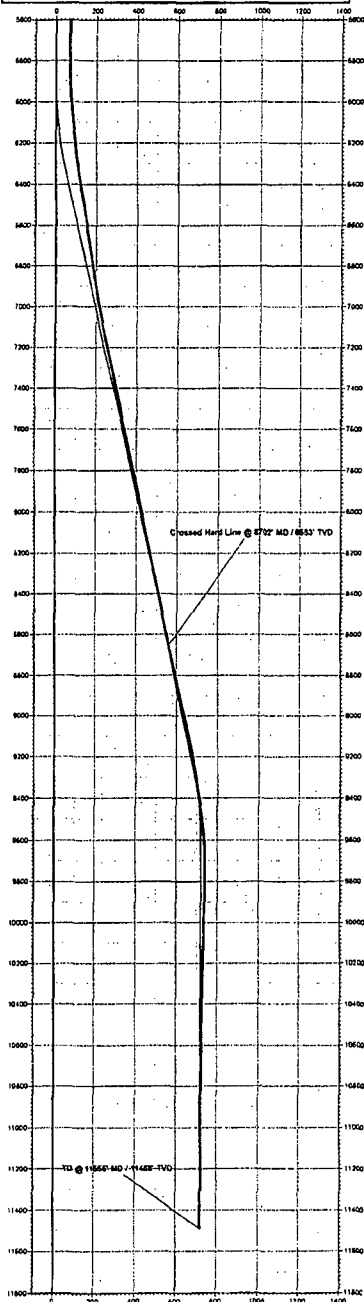


WELL DETAILS: 9012 JV-P Aline #2					
		Ground Level:		3744.0	
+N-S	+E-W	Northing	Easting	Latitude	Longitude
0.0	0.0	666808.30	756178.80	32° 22' 1.745 N	102° 50' 19.218 W

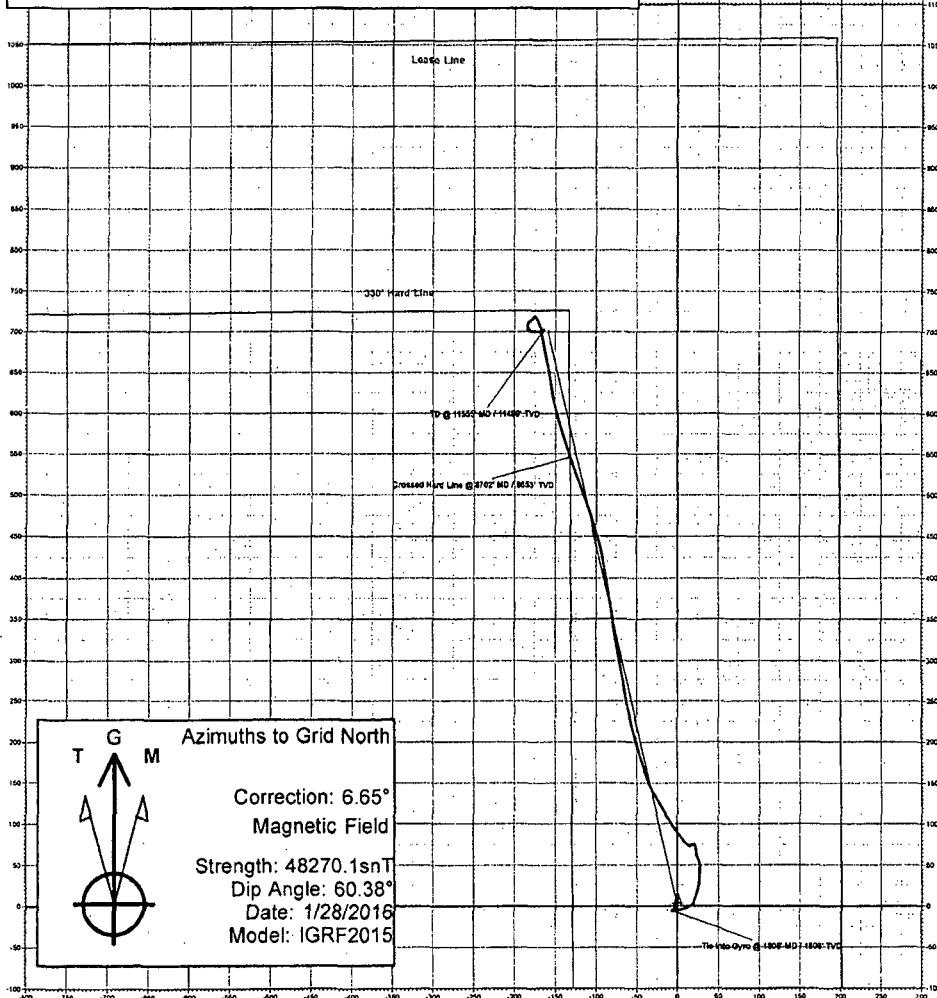
ANNOTATIONS							
MD	Inc	Azi	TVD	+N-S	+E-W	Vsect	Departure
1809.0	0.22	250.70	1809.0	-5.3	-6.6	-3.8	10.2
9702.3	11.80	241.00	8553.1	546.8	-131.9	882.2	824.3
11695.0	1.80	221.10	11488.4	697.9	-168.8	717.5	852.1

Tie into Gyro @ 1809' MD / 1809' TVD
 Crossed Hard Line @ 9702' MD / 8553' TVD
 TD @ 11695' MD / 11488' TVD

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



Vertical Section at 347.26° (200 usf/in)



Azimuths to Grid North

Correction: 6.65°
 Magnetic Field

Strength: 48270.1snT
 Dip Angle: 60.38°
 Date: 1/28/2016
 Model: IGRF2015