



OCD - HOBBS
03/07/2017
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BTA Oil Producers

Lea County, NM
Sec 1, T26S, R32E
8105 JV-P Mesa #3H

Wellbore #1

Survey: MWD Survey #1

DDC Survey Report

05 August, 2015



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	WT-150508	8/5/2015

Lease	Well Name	County & State
Sec1,T26S,R32E	8105 JV-P Mesa #3H	Lea, N.M

API No.	Survey Depth Range	Survey Type
30-025-41290	8972 feet to 14361 feet MD	MWD

Sidetrack Information	Directional Supervisor/Surveyor
N/A	Bradley Reed

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**

Digitally signed by Christopher Hughes
DN: cn=Christopher Hughes, o=DDC, ou,
email=Chrish@directionaldrillers.com,
c=US
Date: 2015.08.06 08:01:18 -05'00'

Christopher Hughes
MWD Compliance Manager
The Directional Drilling Company

A handwritten signature in blue ink, appearing to read "CHRISTOPHER HUGHES", is written over a large, stylized blue circular mark or stamp.



HP Survey Report



Company:	BTA Oil Producers	Local Co-ordinate Reference:	Well 8105 JV-P Mesa #3H
Project:	Lea County, NM	TVD Reference:	Well @ 3298.0usft (Patriot #1)
Site:	Sec 1, T26S, R32E	MD Reference:	Well @ 3298.0usft (Patriot #1)
Well:	8105 JV-P Mesa #3H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Compass

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 1, T26S, R32E			
Site Position:		Northing:	388,292.70 usft	Latitude: 32° 3' 56.206 N
From:	Map	Easting:	716,059.40 usft	Longitude: 103° 38' 9.118 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence: 0.37 °

Well	8105 JV-P Mesa #3H			
Well Position	+N/-S	0.0 usft	Northing:	388,292.70 usft
	+E/-W	0.0 usft	Easting:	716,059.40 usft
Position Uncertainty	0.0 usft		Wellhead Elevation:	usft
			Ground Level:	3,280.0 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	6/18/2015	7.19	59.93	48,043

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	1.14	

Survey Program	Date	8/5/2015			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
100.0	8,972.0	Gyro (Wellbore #1)	Good_gyro	Good Gyro	
9,041.0	14,361.0	MWD Survey #1 (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-In @ 8972' MD / 8967' TVD										
8,972.0	1.90	183.43	8,967.0	-143.9	112.2	-141.7	0.00	0.00	0.00	
9,041.0	0.60	16.30	9,036.0	-144.7	112.3	-142.5	3.60	-1.88	-242.21	
9,072.0	5.40	13.00	9,066.9	-143.1	112.6	-140.9	15.49	15.48	-10.65	
9,104.0	10.60	11.90	9,098.6	-138.8	113.6	-136.5	16.26	16.25	-3.44	
9,136.0	15.10	12.40	9,129.8	-131.8	115.1	-129.5	14.07	14.06	1.56	
9,167.0	18.30	12.10	9,159.5	-123.1	117.0	-120.8	10.33	10.32	-0.97	
9,199.0	20.80	12.80	9,189.6	-112.7	119.3	-110.3	7.85	7.81	2.19	
9,231.0	22.60	14.70	9,219.3	-101.2	122.1	-98.7	6.04	5.63	5.94	
9,263.0	24.80	15.40	9,248.6	-88.8	125.4	-86.3	6.93	6.88	2.19	



HP Survey Report



Company: BTA Oil Producers
Project: Lea County, NM
Site: Sec 1, T26S, R32E
Well: 8105 JV-P Mesa #3H
Wellbore: Wellbore #1
Design: Wellbore #1

Local Co-ordinate Reference: Well 8105 JV-P Mesa #3H
TVD Reference: Well @ 3298.0usft (Patriot #1)
MD Reference: Well @ 3298.0usft (Patriot #1)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Compass

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)
9,294.0	27.80	16.10	9,276.4	75.6	129.2	73.0	9.73	9.68	2.26
9,326.0	29.90	18.40	9,304.5	-60.8	133.8	-58.1	7.42	6.56	7.19
9,358.0	30.60	19.30	9,332.1	-45.6	139.0	-42.8	2.61	2.19	2.81
9,389.0	32.20	18.80	9,358.6	-30.3	144.2	-27.4	5.23	5.16	-1.61
9,421.0	33.70	18.30	9,385.4	-13.8	149.8	-10.8	4.76	4.69	-1.56
9,453.0	35.20	18.40	9,411.8	3.4	155.5	6.5	4.69	4.69	0.31
9,484.0	37.40	18.80	9,436.8	20.8	161.3	24.0	7.14	7.10	1.29
9,516.0	39.00	17.20	9,461.9	39.6	167.4	42.9	5.88	5.00	-5.00
9,548.0	41.00	16.30	9,486.4	59.3	173.4	62.7	6.51	6.25	-2.81
9,580.0	43.30	15.30	9,510.2	80.0	179.2	83.5	7.49	7.19	-3.13
9,611.0	45.90	14.00	9,532.2	101.0	184.7	104.7	8.89	8.39	-4.19
9,643.0	48.10	11.20	9,554.1	123.9	189.8	127.6	9.39	6.88	-8.75
9,675.0	50.30	7.30	9,575.0	147.8	193.7	151.6	11.50	6.88	-12.19
9,707.0	53.40	4.70	9,594.7	172.8	196.3	176.6	11.60	9.69	-8.13
9,739.0	57.20	4.40	9,613.0	199.0	198.4	202.9	11.90	11.88	-0.94
9,770.0	61.20	4.90	9,628.8	225.5	200.5	229.5	12.98	12.90	1.61
9,802.0	65.90	3.80	9,643.1	254.1	202.7	258.1	15.01	14.69	-3.44
9,834.0	70.70	3.70	9,654.9	283.8	204.7	287.8	15.00	15.00	-0.31
9,865.0	75.70	4.20	9,663.9	313.4	206.7	317.4	16.20	16.13	1.61
9,897.0	80.60	3.50	9,670.4	344.6	208.8	348.7	15.46	15.31	-2.19
9,923.0	84.40	2.30	9,673.8	370.3	210.1	374.4	15.31	14.62	-4.62
9,954.0	87.80	1.00	9,675.9	401.2	211.0	405.4	11.74	10.97	-4.19
10,018.0	88.40	0.30	9,678.1	465.2	211.7	469.3	1.44	0.94	-1.09
10,113.0	90.10	1.90	9,679.3	560.2	213.5	564.3	2.46	1.79	1.68
10,208.0	92.70	1.70	9,677.0	655.1	216.5	659.3	2.74	2.74	-0.21
10,303.0	92.60	1.20	9,672.6	749.9	218.9	754.2	0.54	-0.11	-0.53
10,398.0	90.80	1.00	9,669.8	844.9	220.7	849.1	1.91	-1.89	-0.21
10,493.0	90.40	0.70	9,668.8	939.9	222.2	944.1	0.53	-0.42	-0.32
10,588.0	89.70	358.70	9,668.7	1,034.9	221.7	1,039.1	2.23	-0.74	-2.11
10,684.0	90.40	359.10	9,668.6	1,130.8	219.8	1,135.0	0.84	0.73	0.42
10,779.0	89.70	357.30	9,668.5	1,225.8	216.8	1,229.9	2.03	-0.74	-1.89
10,874.0	89.30	357.50	9,669.4	1,320.7	212.5	1,324.7	0.47	-0.42	0.21
10,969.0	91.20	356.30	9,668.9	1,415.5	207.4	1,419.4	2.37	2.00	-1.26
11,064.0	90.20	355.90	9,667.8	1,510.3	200.9	1,514.0	1.13	-1.05	-0.42
11,159.0	90.10	355.80	9,667.5	1,605.1	194.0	1,608.6	0.15	-0.11	-0.11
11,255.0	90.00	356.50	9,667.4	1,700.9	187.6	1,704.2	0.74	-0.10	0.73
11,350.0	90.30	357.10	9,667.2	1,795.7	182.3	1,799.0	0.71	0.32	0.63
11,445.0	88.70	357.00	9,666.0	1,890.6	177.4	1,893.7	1.69	-1.68	-0.11
11,540.0	88.70	357.70	9,670.2	1,985.4	173.0	1,988.5	0.74	0.00	0.74
11,635.0	87.80	357.30	9,673.1	2,080.3	168.9	2,083.3	1.04	-0.95	-0.42
11,730.0	89.30	357.90	9,675.5	2,175.2	164.9	2,178.0	1.70	1.58	0.63
11,826.0	91.00	358.60	9,675.2	2,271.1	162.0	2,273.9	1.92	1.77	0.73
11,921.0	91.20	358.60	9,673.4	2,366.1	159.6	2,368.8	0.21	0.21	0.00



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Wellbore: Wellbore #1
Design: Wellbore #1

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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)
12,016.0	90.80	358.20	9,671.8	2,461.0	157.0	2,463.7	0.60	-0.42	-0.42
12,111.0	90.00	357.90	9,671.1	2,556.0	153.8	2,558.5	0.90	-0.84	-0.32
12,232.0	91.40	357.50	9,669.6	2,676.9	148.9	2,679.3	1.20	1.16	-0.33
12,328.0	90.80	357.30	9,667.8	2,772.8	144.6	2,775.1	0.66	-0.63	-0.21
12,423.0	90.60	358.70	9,666.6	2,867.7	141.2	2,869.9	1.49	-0.21	1.47
12,518.0	89.20	357.90	9,666.8	2,962.6	138.4	2,964.8	1.70	-1.47	-0.84
12,613.0	88.60	357.50	9,668.6	3,057.6	134.6	3,059.6	0.76	-0.63	-0.42
12,708.0	88.60	357.10	9,670.9	3,152.4	130.1	3,154.4	0.42	0.00	-0.42
12,803.0	89.80	357.90	9,672.2	3,247.3	126.0	3,249.2	1.52	1.26	0.84
12,898.0	89.20	359.80	9,673.1	3,342.3	124.1	3,344.1	2.10	-0.63	2.00
12,993.0	88.60	359.30	9,674.9	3,437.3	123.3	3,439.0	0.82	-0.63	-0.53
13,089.0	90.90	0.00	9,675.3	3,533.3	122.8	3,535.0	2.50	2.40	0.73
13,184.0	91.10	359.80	9,673.7	3,628.2	122.6	3,630.0	0.30	0.21	-0.21
13,279.0	91.20	359.60	9,671.8	3,723.2	122.1	3,724.9	0.24	0.11	-0.21
13,374.0	91.20	359.30	9,669.8	3,818.2	121.2	3,819.9	0.32	0.00	-0.32
13,469.0	91.10	358.70	9,667.9	3,913.2	119.5	3,914.8	0.64	-0.11	-0.63
13,565.0	90.70	358.70	9,666.3	4,009.1	117.3	4,010.7	0.42	-0.42	0.00
13,660.0	90.30	359.10	9,665.5	4,104.1	115.5	4,105.6	0.60	-0.42	0.42
13,755.0	90.30	358.40	9,665.0	4,199.1	113.4	4,200.5	0.74	0.00	-0.74
13,850.0	90.30	0.10	9,664.5	4,294.1	112.2	4,295.4	1.79	0.00	1.79
13,945.0	89.30	359.40	9,664.9	4,389.1	111.8	4,390.4	1.28	-1.05	-0.74
14,040.0	89.10	358.60	9,666.2	4,484.0	110.1	4,485.3	0.87	-0.21	-0.84
14,135.0	89.30	357.90	9,667.5	4,579.0	107.2	4,580.2	0.77	0.21	-0.74
14,231.0	89.10	357.90	9,668.8	4,674.9	103.7	4,676.0	0.21	-0.21	0.00
14,309.0	88.10	357.00	9,670.8	4,752.8	100.2	4,753.9	1.72	-1.28	-1.15
TD @ 14361' MD / 9673' TVD									
14,361.0	88.10	357.00	9,672.5	4,804.7	97.5	4,805.7	0.00	0.00	0.00

Survey Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
8,972.0	8,967.0	-143.9	112.2	Tie-In @ 8972' MD / 8967' TVD
14,361.0	9,672.5	4,804.7	97.5	TD @ 14361' MD / 9673' TVD

Checked By: _____ Approved By: _____ Date: _____