



DIRECTIONAL DRILLING

Company Name: Apache Corporation
West Blinebry Drinkard Unit 145H
Lea County, NM
Rig: Sendero #19
Created By: Shelly Peterkin
Date: 02/23/2017

West Blinebry Drinkard Unit 145H
Lea County, NM
Q170225 & WT-170183
Design #2

WELL DETAILS: West Blinebry Drinkard Unit 145H

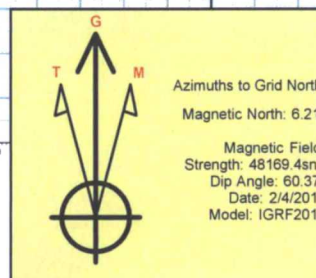
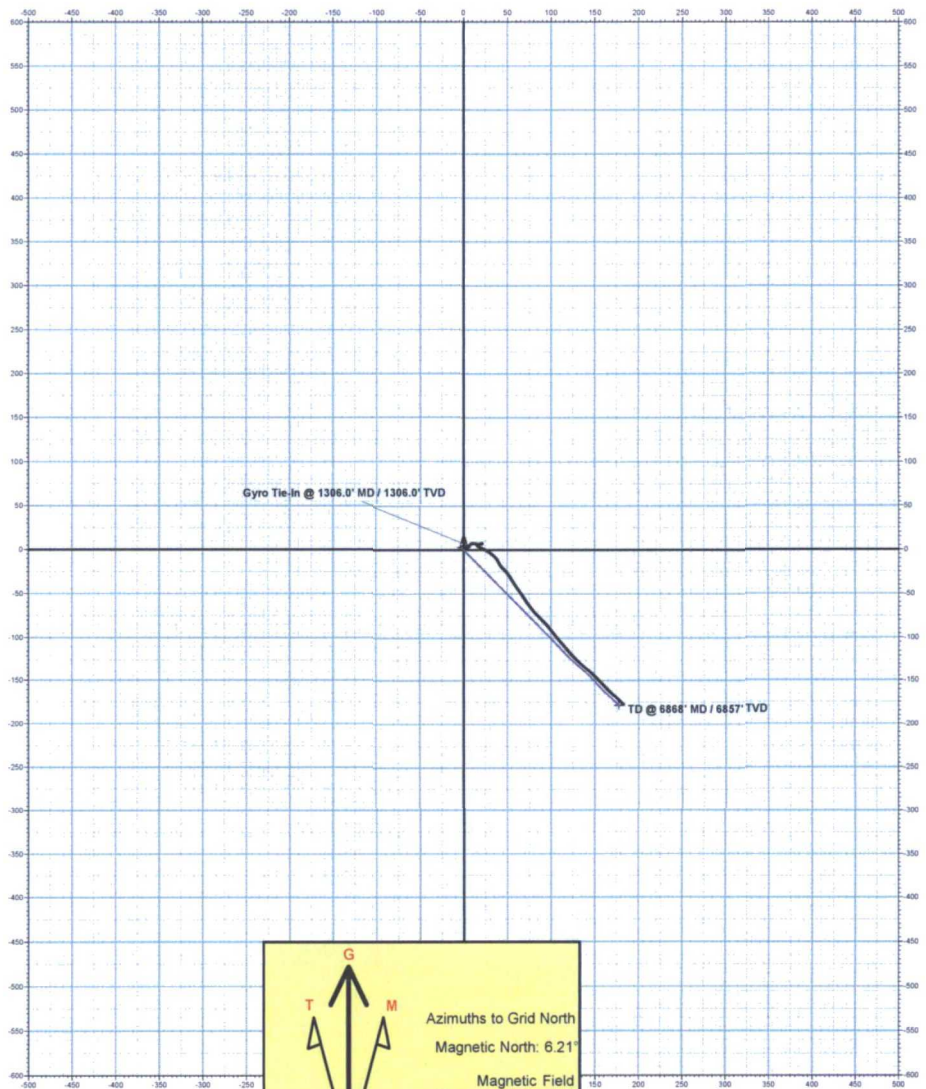
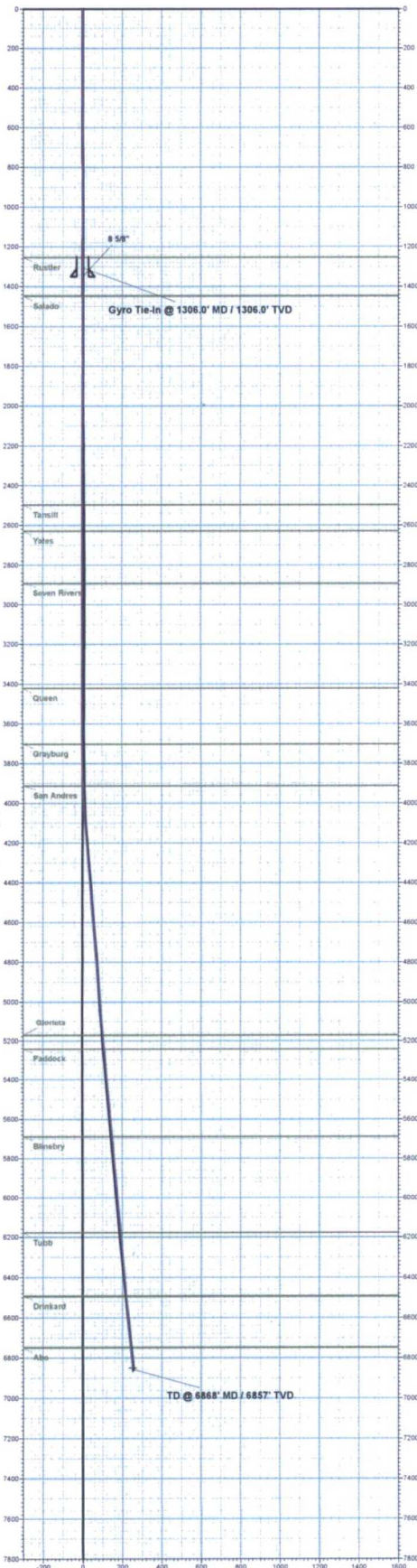
Ground Level:	3477.9
+N-S	0.0
+E-W	0.0
Northing	540697.87
Easting	855919.78
Latitude	32° 28' 52.211 N
Longitude	103° 10' 44.942 W

ANNOTATIONS

MD	Inc	Azi	TVD	+N-S	+E-W	Vsect	Departure	Annotation
1306.0	0.38	34.75	1306.0	4.8	5.7	0.5	8.7	Gyro Tie-In @ 1306.0' MD / 1306.0' TVD
6868.0	5.40	135.20	6868.0	-177.4	182.6	264.5	285.0	TD @ 6868' MD / 6857' 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





Apache Corporation

Lea County, NM

Sec 17, T21S, 37E

West Blinebry Drinkard Unit 145H

Wellbore #1

Design: Wellbore #1

Standard Survey Report

23 February, 2017





Survey Report



Company:	Apache Corporation	Local Co-ordinate Reference:	Well West Blinebry Drinkard Unit 145H
Project:	Lea County, NM	TVD Reference:	KB @ 3488.0usft (Sendero #19)
Site:	Sec 17, T21S, 37E	MD Reference:	KB @ 3488.0usft (Sendero #19)
Well:	West Blinebry Drinkard Unit 145H	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 17, T21S, 37E		
Site Position:		Northing:	541,661.76 usft
From:	Map	Easting:	854,741.12 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 29' 1.972 N
		Longitude:	103° 10' 58.577 W
		Grid Convergence:	0.62 °

Well	West Blinebry Drinkard Unit 145H		
Well Position	+N/-S	0.0 usft	Northing:
	+E/-W	0.0 usft	Easting:
Position Uncertainty	0.0 usft	Wellhead Elevation:	0.0 usft
		Latitude:	32° 28' 52.211 N
		Longitude:	103° 10' 44.942 W
		Ground Level:	3,477.0 usft

Wellbore	Wellbore #1		
Magnetics	Model Name	Sample Date	Declination (°)
	IGRF2015	2/4/2017	6.83
			Dip Angle (°)
			60.37
			Field Strength (nT)
			48,169

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 (°)
			135.21

Survey Program	Date 2/23/2017		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name
118.0	1,306.0	GYRO (Wellbore #1)	Good_gyro
1,420.0	6,868.0	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
118.0	0.05	161.96	118.0	0.0	0.0	0.0	0.04	0.04	0.00
236.8	0.67	39.01	236.8	0.4	0.5	0.0	0.59	0.52	-103.52
355.6	0.74	21.50	355.5	1.7	1.2	-0.4	0.19	0.06	-14.74
474.3	0.23	122.25	474.3	2.3	1.7	-0.4	0.69	-0.43	84.83
593.1	0.26	103.17	593.1	2.1	2.1	0.0	0.07	0.03	-16.07
711.9	0.26	110.00	711.8	1.9	2.6	0.5	0.03	0.00	5.75
830.6	0.42	70.76	830.6	2.0	3.3	0.9	0.23	0.13	-33.04
949.4	0.47	41.72	949.4	2.5	4.0	1.1	0.19	0.04	-24.45
1,068.1	0.50	36.48	1,068.1	3.3	4.7	1.0	0.05	0.03	-4.41



Survey Report



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Site:	Sec 17, T21S, 37E	MD Reference:	KB @ 3488.0usft (Sendero #19)
Well:	West Blinbry Drinkard Unit 145H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	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)
1,186.9	0.42	31.79	1,186.9	4.1	5.2	0.8	0.07	-0.07	-3.95
1,306.0	0.38	34.75	1,306.0	4.8	5.7	0.6	0.04	-0.03	2.49
Gyro Tie-In @ 1306.0' MD / 1306.0' TVD									
1,420.0	0.10	111.50	1,420.0	5.0	6.0	0.6	0.32	-0.25	67.32
1,589.0	0.20	58.60	1,589.0	5.1	6.4	0.8	0.10	0.06	-31.30
1,755.0	0.40	42.10	1,755.0	5.7	7.0	0.9	0.13	0.12	-9.94
1,923.0	1.10	44.70	1,922.9	7.3	8.5	0.8	0.42	0.42	1.55
2,091.0	1.70	112.20	2,090.9	7.5	12.0	3.1	0.97	0.36	40.18
2,260.0	0.40	86.90	2,259.9	6.6	14.9	5.8	0.80	-0.77	-14.97
2,427.0	0.80	87.40	2,426.9	6.7	16.6	7.0	0.24	0.24	0.30
2,595.0	0.70	91.10	2,594.9	6.7	18.8	8.5	0.07	-0.06	2.20
2,764.0	0.30	84.40	2,763.8	6.7	20.3	9.5	0.24	-0.24	-3.96
2,933.0	0.30	64.90	2,932.8	7.0	21.1	10.0	0.06	0.00	-11.54
3,100.0	0.20	325.80	3,099.8	7.4	21.4	9.8	0.23	-0.06	-59.34
3,269.0	0.40	264.40	3,268.8	7.6	20.6	9.2	0.21	0.12	-36.33
3,437.0	0.60	250.00	3,436.8	7.2	19.2	8.4	0.14	0.12	-8.57
3,605.0	0.70	247.00	3,604.8	6.5	17.4	7.7	0.06	0.06	-1.79
3,774.0	0.80	238.90	3,773.8	5.5	15.5	7.0	0.09	0.06	-4.79
3,858.0	0.30	32.70	3,857.8	5.4	15.1	6.8	1.28	-0.60	183.10
3,942.0	1.00	160.40	3,941.8	4.9	15.5	7.4	1.44	0.83	152.02
4,025.0	2.40	113.90	4,024.8	3.5	17.3	9.7	2.24	1.69	-56.02
4,110.0	4.80	113.30	4,109.6	1.4	22.2	14.7	2.82	2.82	-0.71
4,277.0	5.60	132.90	4,275.9	-7.0	34.6	29.3	1.16	0.48	11.74
4,361.0	5.40	154.70	4,359.5	-13.3	39.3	37.1	2.48	-0.24	25.95
4,446.0	3.70	138.40	4,444.3	-19.0	42.8	43.6	2.49	-2.00	-19.18
4,530.0	4.50	133.60	4,528.1	-23.3	47.0	49.6	1.04	0.95	-5.71
4,613.0	5.00	145.20	4,610.8	-28.5	51.4	56.4	1.30	0.60	13.98
4,697.0	5.30	149.30	4,694.4	-34.8	55.5	63.8	0.57	0.36	4.88
4,823.0	4.40	144.20	4,820.0	-43.8	61.3	74.2	0.79	-0.71	-4.05
4,907.0	4.40	145.60	4,903.7	-49.0	65.0	80.6	0.13	0.00	1.67
5,076.0	4.40	147.20	5,072.2	-59.8	72.2	93.3	0.07	0.00	0.95
5,244.0	4.50	138.00	5,239.7	-70.1	80.1	106.2	0.43	0.06	-5.48
5,413.0	5.20	132.90	5,408.1	-80.3	90.1	120.5	0.49	0.41	-3.02
5,582.0	4.90	144.70	5,576.5	-91.4	99.9	135.2	0.64	-0.18	6.98
5,750.0	4.80	137.20	5,743.9	-102.4	108.8	149.3	0.38	-0.06	-4.46
5,917.0	4.80	138.90	5,910.3	-112.8	118.1	163.3	0.09	0.00	1.02
6,085.0	5.40	135.40	6,077.6	-123.7	128.3	178.2	0.40	0.36	-2.08
6,254.0	5.00	135.40	6,245.9	-134.6	139.1	193.5	0.24	-0.24	0.00
6,422.0	5.90	134.00	6,413.2	-145.8	150.4	209.5	0.54	0.54	-0.83
6,590.0	6.00	133.80	6,580.3	-157.9	163.0	226.9	0.06	0.06	-0.12
6,759.0	5.70	135.20	6,748.4	-170.0	175.3	244.1	0.20	-0.18	0.83
6,818.0	5.40	135.20	6,807.1	-174.0	179.3	249.8	0.51	-0.51	0.00
6,868.0	5.40	135.20	6,856.9	-177.4	182.6	254.5	0.00	0.00	0.00



Survey Report



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TD @ 6868' MD / 6857' TVD									

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
1,306.0	1,306.0	4.8	5.7	Gyro Tie-In @ 1306.0' MD / 1306.0' TVD
6,868.0	6,856.9	-177.4	182.6	TD @ 6868' MD / 6857' TVD