

5D Plan Report



HOBBS OCD
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5D Plan Report

Apache Corporation

Field Name: *Apache Lea Co, NM (Nad 83 NME)*
Site Name: *Black & Tan 27 Fed Com ME*
Well Name: *Black & Tan 27 Fed Com 305H*
Plan: *P1:V1*

14 March 2017



Black & Tan 27 Fed Com 305H

Field Name: Apache Lea Co, NM (Nad 83 NME)	Map Units: US ft		Company Name: Apache Corporation	
	Vertical Reference Datum (VRD): Mean Sea Level			
	Projected Coordinate System: NAD83 / New Mexico East (ftUS)			
	Comment:			
Site: Black & Tan 27 Fed Com ME	Units: US ft	North Reference: Grid	Convergence Angle: 0.42	
	Position:	Northing: 560146.00 US ft	Latitude: 32.537436611	
		Easting: 783862.20 US ft	Longitude: -103.546350856	
	Elevation above MSL:3714.00 US ft			
Comment:				
Slot: Black & Tan 27 Fed Com 305H	Position (Relative to Site Centre)			
	+N/-S: 0.00 US ft	Northing: 560146.00 US ft	Latitude: 32.537436611	
	+E/-W: 0.00 US ft	Easting: 783862.20 US ft	Longitude: -103.546350856	
	Slot TVD Reference: Ground Elevation			
Elevation above MSL: 3714.00 US ft				
Comment:				
Well: Black & Tan 27 Fed Com 305H	Type:Main well	UWI:	Plan:P1:V1	
	File Number:	Comment:		
	Closure Distance:4791.12US ft	Closure Azimuth:357.13°		
	Vertical Section: Position of Origin (Relative to Slot centre)			
+N/-S: 0.00 US ft		+E/-W: 0.00 US ft		Az: 0.00°
Magnetic Parameters:				
Model: bggm2016	Field Strength:	Declination: 7.02°	Dip: 60.38°	Date:
	48263.6nT			13/Mar/2017

Drill floor: Plan: P1:V1			
Rig Height (Drill Floor): 25.00 US ft	Elevation above MSL: 3739.00 US ft	Inclination: 0.00°	Azimuth: 0.00°

Target set: Black & Tan 27 Fed Com 305H Comment:								
Target Name:	Shape:	TVD (US ft)	N.Offset (US ft)	E.Offset (US ft)	North (US ft)	East (US ft)	Latitude (° ' ")	Longitude (° ' ")
PBHL 305H	Cuboid	11039.00	4785.10	-240.20	564931.10	783622.00	32°33'2.14"	103°32'49.26"

Wellpath created using minimum curvature.

Tie Point:					
MD: 0.00 US ft	Inclination: 0.00°	Azimuth: 0.00°	TVD: 0.00 US ft	North Offset: 0.00 US ft	East Offset: 0.00 US ft

Salient Points: (Relative to Slot centre)(TVD relative to Drill Floor)											
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	VS (US ft)	N.Offset (US ft)	E.Offset (US ft)	Latitude (° ' ")	Longitude (° ' ")	B.Rate (°/100 US ft)	T.Rate (°/100 US ft)	DLS (°/100 US ft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	32.537436611	-103.546350856	0.00	0.00	0.00
1629.00	0.00	0.00	1629.00	0.00	0.00	0.00	32.537436611	-103.546350856	0.00	0.00	0.00

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Salient Points: (Relative to Slot centre)(TVD relative to Drill Floor)												
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	VS (US ft)	N.Offset (US ft)	E.Offset (US ft)	Latitude (° ' ")	Longitude (° ' ")	B.Rate (°/100US ft)	T.Rate (°/100US ft)	DLS (°/100US ft)	Comment
1961.00	0.00	0.00	1961.00	0.00	0.00	0.00	32.537436 611	- 103.54635 0856	0.00	0.00	0.00	Salado :
3369.00	0.00	0.00	3369.00	0.00	0.00	0.00	32.537436 611	- 103.54635 0856	0.00	0.00	0.00	Tansill :
3524.00	0.00	0.00	3524.00	0.00	0.00	0.00	32.537436 611	- 103.54635 0856	0.00	0.00	0.00	Yates :
3639.00	0.00	0.00	3639.00	0.00	0.00	0.00	32.537436 611	- 103.54635 0856	0.00	0.00	0.00	Seven Rivers :
5674.00	0.00	0.00	5674.00	0.00	0.00	0.00	32.537436 611	- 103.54635 0856	0.00	0.00	0.00	Delaware :
8577.00	0.00	0.00	8577.00	0.00	0.00	0.00	32.537436 611	- 103.54635 0856	0.00	0.00	0.00	Bone Spring :
9024.00	0.00	0.00	9024.00	0.00	0.00	0.00	32.537436 611	- 103.54635 0856	0.00	0.00	0.00	Avalon :
9284.00	0.00	0.00	9284.00	0.00	0.00	0.00	32.537436 611	- 103.54635 0856	0.00	0.00	0.00	1st Bone Spring Carb :
9689.00	0.00	0.00	9689.00	0.00	0.00	0.00	32.537436 611	- 103.54635 0856	0.00	0.00	0.00	1st Bone Spring Sand :
9954.00	0.00	0.00	9954.00	0.00	0.00	0.00	32.537436 611	- 103.54635 0856	0.00	0.00	0.00	2nd Bone Spring Carb :
10224.00	0.00	0.00	10224.00	0.00	0.00	0.00	32.537436 611	- 103.54635 0856	0.00	0.00	0.00	2nd Bone Spring Sand :
10566.45	0.00	0.00	10566.45	0.00	0.00	0.00	32.537436 611	- 103.54635 0856	0.00	0.00	0.00	KOP
10753.77	22.48	303.73	10749.00	20.14	20.14	-30.17	32.537492 584	- 103.54644 8262	12.00	0.00	12.00	3rd Bone Spring Carb :
10816.45	30.00	303.73	10805.18	35.52	35.52	-53.20	32.537535 316	- 103.54652 2624	12.00	0.00	12.00	Build/Turn
11040.62	48.99	334.69	10979.00	145.12	145.12	-137.52	32.537838 269	- 103.54679 3599	8.47	13.81	12.00	3rd Bone Spring Sand :
11438.06	91.00	359.56	11113.80	500.11	500.11	-207.23	32.538815 380	- 103.54701 1285	10.57	6.26	12.00	LP
15723.83	91.00	359.56	11039.00	4785.10	4785.10	-240.20	32.550593 369	- 103.54701 5599	0.00	0.00	0.00	PBHL 305H

Interpolated Points: (Relative to Slot centre)(TVD relative to Drill Floor)												
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	VS (US ft)	N.Offset (US ft)	E.Offset (US ft)	Northing (US ft)	Easting (US ft)	B.Rate (°/100US ft)	T.Rate (°/100US ft)	DLS (°/100US ft)	Comment
0.00	0.00	0.00	0.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
100.00	0.00	0.00	100.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
200.00	0.00	0.00	200.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
300.00	0.00	0.00	300.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
400.00	0.00	0.00	400.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
500.00	0.00	0.00	500.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
600.00	0.00	0.00	600.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
700.00	0.00	0.00	700.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
800.00	0.00	0.00	800.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
900.00	0.00	0.00	900.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
1000.00	0.00	0.00	1000.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
1100.00	0.00	0.00	1100.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
1200.00	0.00	0.00	1200.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
1300.00	0.00	0.00	1300.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
1400.00	0.00	0.00	1400.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	

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Interpolated Points: (Relative to Slot centre)(TVD relative to Drill Floor)												
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	VS (US ft)	N.Offset (US ft)	E.Offset (US ft)	Northing (US ft)	Easting (US ft)	B.Rate (°/100US ft)	T.Rate (°/100US ft)	DLS (°/100US ft)	Comment
1500.00	0.00	0.00	1500.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
1600.00	0.00	0.00	1600.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
1629.00	0.00	0.00	1629.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	Rustler :
1700.00	0.00	0.00	1700.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
1800.00	0.00	0.00	1800.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
1900.00	0.00	0.00	1900.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
1961.00	0.00	0.00	1961.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	Salado :
2000.00	0.00	0.00	2000.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
2100.00	0.00	0.00	2100.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
2200.00	0.00	0.00	2200.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
2300.00	0.00	0.00	2300.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
2400.00	0.00	0.00	2400.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
2500.00	0.00	0.00	2500.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
2600.00	0.00	0.00	2600.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
2700.00	0.00	0.00	2700.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
2800.00	0.00	0.00	2800.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
2900.00	0.00	0.00	2900.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
3000.00	0.00	0.00	3000.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
3100.00	0.00	0.00	3100.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
3200.00	0.00	0.00	3200.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
3300.00	0.00	0.00	3300.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
3369.00	0.00	0.00	3369.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	Tansill :
3400.00	0.00	0.00	3400.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
3500.00	0.00	0.00	3500.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
3524.00	0.00	0.00	3524.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	Yates :
3600.00	0.00	0.00	3600.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
3639.00	0.00	0.00	3639.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	Seven Rivers :
3700.00	0.00	0.00	3700.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
3800.00	0.00	0.00	3800.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
3900.00	0.00	0.00	3900.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
4000.00	0.00	0.00	4000.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
4100.00	0.00	0.00	4100.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
4200.00	0.00	0.00	4200.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
4300.00	0.00	0.00	4300.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
4400.00	0.00	0.00	4400.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
4500.00	0.00	0.00	4500.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
4600.00	0.00	0.00	4600.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
4700.00	0.00	0.00	4700.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
4800.00	0.00	0.00	4800.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
4900.00	0.00	0.00	4900.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
5000.00	0.00	0.00	5000.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
5100.00	0.00	0.00	5100.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
5200.00	0.00	0.00	5200.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
5300.00	0.00	0.00	5300.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
5400.00	0.00	0.00	5400.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
5500.00	0.00	0.00	5500.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
5600.00	0.00	0.00	5600.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
5674.00	0.00	0.00	5674.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	Delaware :
5700.00	0.00	0.00	5700.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
5800.00	0.00	0.00	5800.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
5900.00	0.00	0.00	5900.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
6000.00	0.00	0.00	6000.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
6100.00	0.00	0.00	6100.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
6200.00	0.00	0.00	6200.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
6300.00	0.00	0.00	6300.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
6400.00	0.00	0.00	6400.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
6500.00	0.00	0.00	6500.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	

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Interpolated Points: (Relative to Slot centre)(TVD relative to Drill Floor)												Comment
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	VS (US ft)	N.Offset (US ft)	E.Offset (US ft)	Northing (US ft)	Easting (US ft)	B.Rate (°/100US ft)	T.Rate (°/100US ft)	DLS (°/100US ft)	
6600.00	0.00	0.00	6600.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
6700.00	0.00	0.00	6700.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
6800.00	0.00	0.00	6800.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
6900.00	0.00	0.00	6900.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
7000.00	0.00	0.00	7000.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
7100.00	0.00	0.00	7100.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
7200.00	0.00	0.00	7200.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
7300.00	0.00	0.00	7300.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
7400.00	0.00	0.00	7400.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
7500.00	0.00	0.00	7500.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
7600.00	0.00	0.00	7600.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
7700.00	0.00	0.00	7700.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
7800.00	0.00	0.00	7800.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
7900.00	0.00	0.00	7900.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
8000.00	0.00	0.00	8000.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
8100.00	0.00	0.00	8100.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
8200.00	0.00	0.00	8200.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
8300.00	0.00	0.00	8300.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
8400.00	0.00	0.00	8400.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
8500.00	0.00	0.00	8500.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
8577.00	0.00	0.00	8577.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	Bone Spring :
8600.00	0.00	0.00	8600.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
8700.00	0.00	0.00	8700.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
8800.00	0.00	0.00	8800.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
8900.00	0.00	0.00	8900.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
9000.00	0.00	0.00	9000.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
9024.00	0.00	0.00	9024.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	Avalon :
9100.00	0.00	0.00	9100.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
9200.00	0.00	0.00	9200.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
9284.00	0.00	0.00	9284.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	1st Bone Spring Carb :
9300.00	0.00	0.00	9300.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
9400.00	0.00	0.00	9400.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
9500.00	0.00	0.00	9500.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
9600.00	0.00	0.00	9600.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
9689.00	0.00	0.00	9689.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	1st Bone Spring Sand :
9700.00	0.00	0.00	9700.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
9800.00	0.00	0.00	9800.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
9900.00	0.00	0.00	9900.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
9954.00	0.00	0.00	9954.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	2nd Bone Spring Carb :
10000.00	0.00	0.00	10000.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
10100.00	0.00	0.00	10100.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
10200.00	0.00	0.00	10200.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
10224.00	0.00	0.00	10224.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	2nd Bone Spring Sand :
10300.00	0.00	0.00	10300.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
10400.00	0.00	0.00	10400.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
10500.00	0.00	0.00	10500.00	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	
10566.45	0.00	0.00	10566.45	0.00	0.00	0.00	560146.00	783862.20	0.00	0.00	0.00	KOP
10600.00	4.03	303.73	10599.97	0.65	0.65	-0.98	560146.65	783861.22	12.00	0.00	12.00	
10700.00	16.03	303.73	10698.27	10.30	10.30	-15.43	560156.30	783846.77	12.00	0.00	12.00	
10753.77	22.48	303.73	10749.00	20.14	20.14	-30.17	560166.14	783832.03	12.00	-0.00	12.00	3rd Bone Spring Carb :
10800.00	28.03	303.73	10790.80	31.09	31.09	-46.57	560177.09	783815.63	12.00	0.00	12.00	

5D Plan Report

Interpolated Points: (Relative to Slot centre)(TVD relative to Drill Floor)												
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	VS (US ft)	N.Offset (US ft)	E.Offset (US ft)	Northing (US ft)	Easting (US ft)	B.Rate (%/100US ft)	T.Rate (%/100US ft)	DLS (%/100US ft)	Comment
10816.45	30.00	303.73	10805.18	35.52	35.52	-53.20	560181.52	783809.00	12.00	-0.00	12.00	Build/Turn
10900.00	36.09	318.42	10875.30	65.60	65.60	-86.99	560211.60	783775.21	7.29	17.58	12.00	
11000.00	45.05	330.78	10951.31	118.71	118.71	-123.95	560264.71	783738.25	8.96	12.36	12.00	
11040.62	48.99	334.69	10979.00	145.12	145.12	-137.52	560291.12	783724.68	9.71	9.64	12.00	3rd Bone Spring Sand :
11100.00	54.97	339.63	11015.57	188.22	188.22	-155.59	560334.22	783706.61	10.06	8.32	12.00	
11200.00	65.38	346.51	11065.28	271.11	271.11	-180.53	560417.11	783681.67	10.42	6.88	12.00	
11300.00	76.07	352.32	11098.27	363.74	363.74	-197.68	560509.74	783664.52	10.68	5.80	12.00	
11400.00	86.87	357.60	11113.09	462.08	462.08	-206.29	560608.08	783655.91	10.81	5.28	12.00	
11438.06	91.00	359.56	11113.80	500.11	500.11	-207.23	560646.11	783654.97	10.84	5.15	12.00	LP
11500.00	91.00	359.56	11112.72	562.04	562.04	-207.71	560708.04	783654.49	0.00	0.00	0.00	
11600.00	91.00	359.56	11110.97	662.02	662.02	-208.48	560808.02	783653.72	0.00	0.00	0.00	
11700.00	91.00	359.56	11109.23	762.00	762.00	-209.25	560908.00	783652.95	0.00	0.00	0.00	
11800.00	91.00	359.56	11107.48	861.99	861.99	-210.02	561007.99	783652.18	0.00	0.00	0.00	
11900.00	91.00	359.56	11105.74	961.97	961.97	-210.79	561107.97	783651.41	0.00	0.00	0.00	
12000.00	91.00	359.56	11103.99	1061.95	1061.95	-211.56	561207.95	783650.64	0.00	0.00	0.00	
12100.00	91.00	359.56	11102.24	1161.93	1161.93	-212.32	561307.93	783649.88	0.00	0.00	0.00	
12200.00	91.00	359.56	11100.50	1261.91	1261.91	-213.09	561407.91	783649.11	0.00	0.00	0.00	
12300.00	91.00	359.56	11098.75	1361.89	1361.89	-213.86	561507.89	783648.34	0.00	0.00	0.00	
12400.00	91.00	359.56	11097.01	1461.88	1461.88	-214.63	561607.88	783647.57	0.00	0.00	0.00	
12500.00	91.00	359.56	11095.26	1561.86	1561.86	-215.40	561707.86	783646.80	0.00	0.00	0.00	
12600.00	91.00	359.56	11093.52	1661.84	1661.84	-216.17	561807.84	783646.03	0.00	0.00	0.00	
12700.00	91.00	359.56	11091.77	1761.82	1761.82	-216.94	561907.82	783645.26	0.00	0.00	0.00	
12800.00	91.00	359.56	11090.03	1861.80	1861.80	-217.71	562007.80	783644.49	0.00	0.00	0.00	
12900.00	91.00	359.56	11088.28	1961.78	1961.78	-218.48	562107.78	783643.72	0.00	0.00	0.00	
13000.00	91.00	359.56	11086.54	2061.77	2061.77	-219.25	562207.77	783642.95	0.00	0.00	0.00	
13100.00	91.00	359.56	11084.79	2161.75	2161.75	-220.02	562307.75	783642.18	0.00	0.00	0.00	
13200.00	91.00	359.56	11083.05	2261.73	2261.73	-220.79	562407.73	783641.41	0.00	0.00	0.00	
13300.00	91.00	359.56	11081.30	2361.71	2361.71	-221.56	562507.71	783640.64	0.00	0.00	0.00	
13400.00	91.00	359.56	11079.56	2461.69	2461.69	-222.32	562607.69	783639.88	0.00	0.00	0.00	
13500.00	91.00	359.56	11077.81	2561.68	2561.68	-223.09	562707.68	783639.11	0.00	0.00	0.00	
13600.00	91.00	359.56	11076.07	2661.66	2661.66	-223.86	562807.66	783638.34	0.00	0.00	0.00	
13700.00	91.00	359.56	11074.32	2761.64	2761.64	-224.63	562907.64	783637.57	0.00	0.00	0.00	
13800.00	91.00	359.56	11072.58	2861.62	2861.62	-225.40	563007.62	783636.80	0.00	0.00	0.00	
13900.00	91.00	359.56	11070.83	2961.60	2961.60	-226.17	563107.60	783636.03	0.00	0.00	0.00	
14000.00	91.00	359.56	11069.08	3061.58	3061.58	-226.94	563207.58	783635.26	0.00	0.00	0.00	
14100.00	91.00	359.56	11067.34	3161.57	3161.57	-227.71	563307.57	783634.49	0.00	0.00	0.00	
14200.00	91.00	359.56	11065.59	3261.55	3261.55	-228.48	563407.55	783633.72	0.00	0.00	0.00	
14300.00	91.00	359.56	11063.85	3361.53	3361.53	-229.25	563507.53	783632.95	0.00	0.00	0.00	
14400.00	91.00	359.56	11062.10	3461.51	3461.51	-230.02	563607.51	783632.18	0.00	0.00	0.00	
14500.00	91.00	359.56	11060.36	3561.49	3561.49	-230.79	563707.49	783631.41	0.00	0.00	0.00	
14600.00	91.00	359.56	11058.61	3661.48	3661.48	-231.56	563807.48	783630.64	0.00	0.00	0.00	
14700.00	91.00	359.56	11056.87	3761.46	3761.46	-232.32	563907.46	783629.88	0.00	0.00	0.00	
14800.00	91.00	359.56	11055.12	3861.44	3861.44	-233.09	564007.44	783629.11	0.00	0.00	0.00	
14900.00	91.00	359.56	11053.38	3961.42	3961.42	-233.86	564107.42	783628.34	0.00	0.00	0.00	
15000.00	91.00	359.56	11051.63	4061.40	4061.40	-234.63	564207.40	783627.57	0.00	0.00	0.00	
15100.00	91.00	359.56	11049.89	4161.38	4161.38	-235.40	564307.38	783626.80	0.00	0.00	0.00	
15200.00	91.00	359.56	11048.14	4261.37	4261.37	-236.17	564407.37	783626.03	0.00	0.00	0.00	
15300.00	91.00	359.56	11046.40	4361.35	4361.35	-236.94	564507.35	783625.26	0.00	0.00	0.00	
15400.00	91.00	359.56	11044.65	4461.33	4461.33	-237.71	564607.33	783624.49	0.00	0.00	0.00	
15500.00	91.00	359.56	11042.91	4561.31	4561.31	-238.48	564707.31	783623.72	0.00	0.00	0.00	
15600.00	91.00	359.56	11041.16	4661.29	4661.29	-239.25	564807.29	783622.95	0.00	0.00	0.00	
15700.00	91.00	359.56	11039.42	4761.28	4761.28	-240.02	564907.28	783622.18	0.00	0.00	0.00	
15723.83	91.00	359.56	11039.00	4785.10	4785.10	-240.20	564931.10	783622.00	0.00	0.00	0.00	PBHL 305H

5D Plan Report

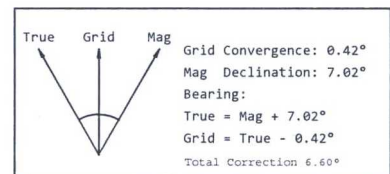
Formation Points: (Relative to Slot centre)(TVD relative to Drill Floor)									
Name	MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	TVD (MSL) (US ft)	N.Offset (US ft)	E.Offset (US ft)	F.Dip (°)	F.Dir (°)
Rustler	1629.00	0.00	0.00	1629.00	-2110.00	0.00	0.00	0	0
Salado	1961.00	0.00	0.00	1961.00	-1778.00	0.00	0.00	0	0
Tansill	3369.00	0.00	0.00	3369.00	-370.00	0.00	0.00	0	0
Yates	3524.00	0.00	0.00	3524.00	-215.00	0.00	0.00	0	0
Seven Rivers	3639.00	0.00	0.00	3639.00	-100.00	0.00	0.00	0	0
Delaware	5674.00	0.00	0.00	5674.00	1935.00	0.00	0.00	0	0
Bone Spring	8577.00	0.00	0.00	8577.00	4838.00	0.00	0.00	0	0
Avalon	9024.00	0.00	0.00	9024.00	5285.00	0.00	0.00	0	0
1st Bone Spring Carb	9284.00	0.00	0.00	9284.00	5545.00	0.00	0.00	0	0
1st Bone Spring Sand	9689.00	0.00	0.00	9689.00	5950.00	0.00	0.00	0	0
2nd Bone Spring Carb	9954.00	0.00	0.00	9954.00	6215.00	0.00	0.00	0	0
2nd Bone Spring Sand	10224.00	0.00	0.00	10224.00	6485.00	0.00	0.00	0	0
3rd Bone Spring Carb	10753.77	22.48	303.73	10749.00	7010.00	20.14	-30.17	0	0
3rd Bone Spring Sand	11040.62	48.99	334.69	10979.00	7240.00	145.12	-137.52	0	0



Apache
Black & Tan 27 Fed Com 305H
Lea Co, NM



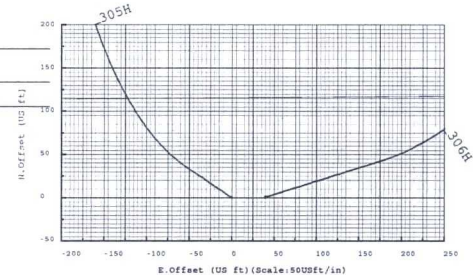
Weatherford



KB:3739'
GL:3714'

Plan Data for Black & Tan 27 Fed Com 305H

Plan Point Information:											
Dogleg Severity Unit: %/100.00ft						Position offsets from Slot centre					
MD	Inc	Az	TVD	+N/-S	+E/-W	Northing	Easting	VSec	DLS	Comments	
(USft)	(°)	(°)	(USft)	(USft)	(USft)	(USft)	(USft)	(USft)	(DLSU)		
0.00	0.00	0.00	0.00	0.00	-0.00	560146.00	783862.20	0.00	0.00		
10566.45	0.00	0.00	10566.45	0.00	-0.00	560146.00	783862.20	0.00	0.00	KOP	
10816.45	30.00	303.73	10805.18	35.52	-53.20	560181.52	783809.00	38.14	12.00	Build/Turn	
11438.06	91.00	359.56	11113.80	500.11	-207.23	560646.11	783654.97	509.87	12.00	LP	
15723.83	91.00	359.56	11039.00	4785.10	-240.20	564931.10	783622.00	4791.12	0.00	PBHL 305H	



Plan Data for Black & Tan 27 Fed Com 305H

Field: Apache Lea Co, NM (Nad 83 NME)
Map Unit: USFt Vertical Reference Datum (VRD): Mean Sea Level
Projected Coordinate System: NAD83 / New Mexico East (ftUS)

Site: Black & Tan 27 Fed Com ME
Unit: USFt TVD Reference:
Company Name: Apache Corporation
Position: Northing: 560146.00USft Latitude: 32.537437°
Easting: 783862.20USft Longitude: -103.546351°
North Reference: Grid Grid Convergence: 0.42°
Elevation Above VRD: 3714.00USft

Slot: Black & Tan 27 Fed Com 305H

Position:
Offset is from Site centre
+N/-S: 0.00USft Northing: 560146.00USft Latitude: 32.537437°
+E/-W: 0.00USft Easting: 783862.20USft Longitude: -103.546351°
Elevation Above VRD: 3714.00USft

Well: Black & Tan 27 Fed Com 305H

Type: Main-Well
File Number:
Plan Folder: P1 Plan: P1.V1
Vertical Section: Position offset of origin from Slot centre:
+N/-S: 0.00USft Azimuth: 357.13°
+E/-W: 0.00USft
Magnetic Parameters:
Model: Field Strength: Declination: Dip: Date:
bggm2016 48263(nT) 7.02° 60.38° 2017-03-13

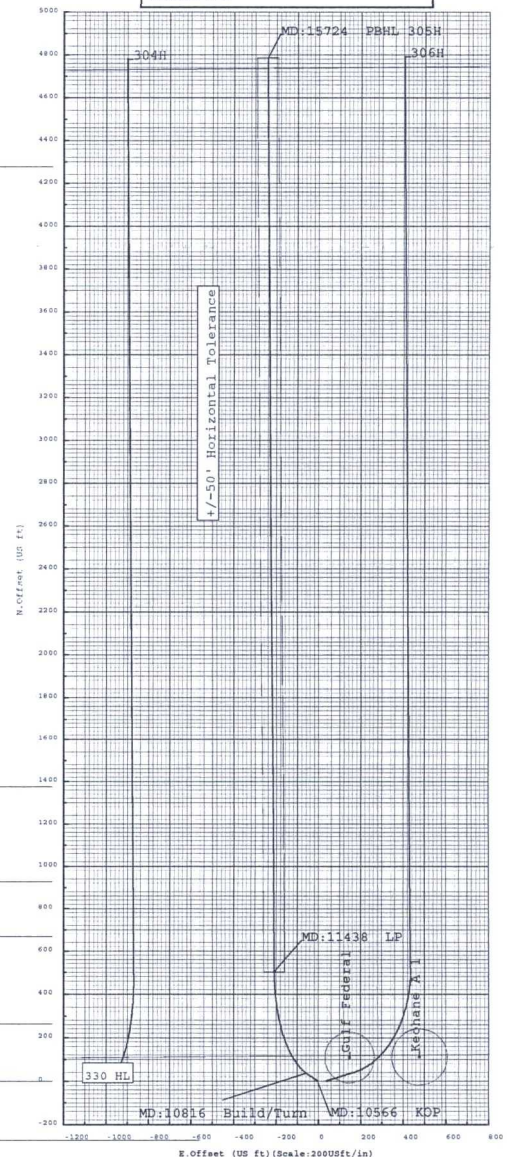
Plan Data for Black & Tan 27 Fed Com 305H

Formation Point Information:			
Name	TVD	SS	MD
(USft)	(USft)	(USft)	(USft)
Rustler	1629.00	2110.00	1629.00
Salado	1961.00	1778.00	1961.00
Tansill	3369.00	370.00	3369.00
Yates	3524.00	215.00	3524.00
Seven Rivers	3639.00	100.00	3639.00
Delaware	5674.00	-1935.00	5674.00
Bone Spring	8577.00	-4838.00	8577.00
Avalon	9024.00	-5285.00	9024.00
1st Bone Spring Carb	9284.00	-5545.00	9284.00
1st Bone Spring Sand	9689.00	-5950.00	9689.00
2nd Bone Spring Carb	9954.00	-6215.00	9954.00
2nd Bone Spring Sand	10224.00	-6485.00	10224.00
3rd Bone Spring Carb	10749.00	-7010.00	10753.77
3rd Bone Spring Sand	10979.00	-7240.00	11040.62

Plan Data for Black & Tan 27 Fed Com 305H

Target Set Information:					
Name: Black & Tan 27 Fed Com 305H					
Position offsets from Slot centre					
Name	TVD	SS	+N/-S	+E/-W	Northing
(USft)	(USft)	(USft)	(USft)	(USft)	(USft)
PBHL 305H	11039.00	-7300.00	4785.10	-240.20	564931.10

Black & Tan 27 Fed Com 305H
Gulf Federal
Black & Tan 27 Fed Com 306H
Black & Tan 27 Fed Com 304H
Keohane A 1



±/-20' Vertical Tolerance

Drawing By: GWR Date: 03-14-2017
Weatherford Drilling Services
10,000 Pilot Ave.
Midland, TX 79711
+1.432.561.8892 Main
+1.432.561.8895 Fax

VS (US ft) (Bearing: 357.13° Scale: 2000ft/in)