



HOBBS CCD
JUN 06 2018
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Apache Corporation

Lea County, NM (NAD83 NME)
Black & Tan 27 Federal Com
307H

OH / Job #62211

Design: Surveys (H&P 482)

Standard Survey Report

29 January, 2018



Company:	Apache Corporation	Local Co-ordinate Reference:	Well 307H
Project:	Lea County, NM (NAD83 NME)	TVD Reference:	GL + KB @ 3741.00usft (H&P 482)
Site:	Black & Tan 27 Federal Com	MD Reference:	GL + KB @ 3741.00usft (H&P 482)
Well:	307H	North Reference:	Grid
Wellbore:	OH / Job #62211	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (H&P 482)	Database:	Compass 5000 GCR

Project	Lea County, NM (NAD83 NME)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site		Black & Tan 27 Federal Com			
Site Position:		Northing:	560,131.70 usft	Latitude:	32° 32' 14.81280 N
From:	Map	Easting:	781,352.90 usft	Longitude:	103° 33' 16.17520 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.42 °

Well	307H					
Well Position	+N/-S	0.00 usft	Northing:	560,155.80 usft	Latitude:	32° 32' 14.77130 N
	+E/-W	0.00 usft	Easting:	785,192.00 usft	Longitude:	103° 32' 31.32896 W
Position Uncertainty	0.00 usft		Wellhead Elevation:	0.00 usft	Ground Level:	3,715.00 usft

Wellbore	OH / Job #62211				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	1/15/2018	6.77	60.50	48,283

Design		Surveys (H&P 482)			
Audit Notes:					
Version:		1.0	Phase:	ACTUAL	Tie On Depth: 0.00
Vertical Section:		Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
		0.00	0.00	0.00	353.57

Survey Program	Date 1/29/2018				
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
100.00	10,550.00	Phoenix Gyro Surveys (OH / Job #62211)	SPT_GTD	Continuous north-seeking gyro	
10,550.00	15,844.00	Phoenix MWD Surveys (OH / Job #62211)	MWD+HDGM	OWSG Rev.2 MWD + HDGM	

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)	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
100.00	0.08	214.99	100.00	-0.06	-0.04	-0.05	0.08	0.08	0.00	
200.00	0.51	203.97	200.00	-0.52	-0.26	-0.49	0.43	0.43	-11.02	
300.00	0.61	232.44	299.99	-1.25	-0.86	-1.15	0.29	0.10	28.47	
400.00	0.35	139.12	399.99	-1.81	-1.09	-1.67	0.72	-0.26	-93.32	
500.00	0.33	314.51	499.99	-1.84	-1.09	-1.70	0.68	-0.02	175.39	
600.00	0.46	160.83	599.99	-2.01	-1.16	-1.87	0.77	0.13	-153.68	
700.00	0.15	207.51	699.99	-2.51	-1.09	-2.37	0.37	-0.31	46.68	
800.00	0.24	316.74	799.99	-2.47	-1.30	-2.31	0.32	0.09	109.23	
900.00	0.22	225.86	899.99	-2.45	-1.58	-2.26	0.33	-0.02	-90.88	

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Well:	307H	North Reference:	Grid
Wellbore:	OH / Job #62211	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (H&P 482)	Database:	Compass 5000 GCR

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)
1,000.00	0.56	268.72	999.99	-2.60	-2.21	-2.34	0.43	0.34	42.86
1,100.00	0.62	214.12	1,099.98	-3.06	-3.00	-2.70	0.54	0.06	-54.60
1,200.00	0.15	140.89	1,199.98	-3.61	-3.22	-3.22	0.59	-0.47	-73.23
1,300.00	0.45	287.01	1,299.98	-3.59	-3.51	-3.18	0.58	0.30	146.12
1,400.00	0.56	208.23	1,399.97	-3.91	-4.12	-3.42	0.65	0.11	-78.78
1,500.00	0.09	269.54	1,499.97	-4.34	-4.43	-3.82	0.52	-0.47	61.31
1,600.00	0.42	70.01	1,599.97	-4.22	-4.16	-3.72	0.51	0.33	160.47
1,700.00	0.46	43.23	1,699.97	-3.80	-3.54	-3.38	0.21	0.04	-26.78
1,800.00	0.62	316.96	1,799.97	-3.11	-3.64	-2.68	0.75	0.16	-86.27
1,900.00	0.21	296.44	1,899.96	-2.63	-4.17	-2.15	0.43	-0.41	-20.52
2,000.00	0.31	126.56	1,999.96	-2.71	-4.12	-2.23	0.52	0.10	-169.88
2,100.00	0.34	309.18	2,099.96	-2.69	-4.13	-2.21	0.65	0.03	-177.38
2,200.00	0.63	353.65	2,199.96	-1.95	-4.42	-1.45	0.45	0.29	44.47
2,300.00	0.59	359.01	2,299.95	-0.89	-4.49	-0.38	0.07	-0.04	5.36
2,400.00	0.48	288.43	2,399.95	-0.24	-4.90	0.31	0.62	-0.11	-70.58
2,500.00	0.32	148.88	2,499.95	-0.35	-5.15	0.23	0.75	-0.16	-139.55
2,600.00	0.76	34.46	2,599.95	-0.04	-4.63	0.48	0.94	0.44	-114.42
2,700.00	0.56	229.89	2,699.94	0.19	-4.63	0.71	1.31	-0.20	-164.57
2,800.00	0.82	60.02	2,799.94	0.23	-4.38	0.72	1.37	0.26	-169.87
2,900.00	1.56	50.36	2,899.92	1.46	-2.71	1.75	0.76	0.74	-9.66
3,000.00	1.42	65.17	2,999.89	2.85	-0.54	2.89	0.41	-0.14	14.81
3,100.00	1.62	76.55	3,099.85	3.70	1.96	3.45	0.36	0.20	11.38
3,200.00	0.61	13.89	3,199.83	4.54	3.46	4.12	1.45	-1.01	-62.66
3,300.00	0.68	138.31	3,299.83	4.61	3.98	4.14	1.14	0.07	124.42
3,400.00	0.64	186.13	3,399.82	3.62	4.32	3.11	0.54	-0.04	47.82
3,500.00	0.21	152.30	3,499.82	2.90	4.34	2.39	0.48	-0.43	-33.83
3,600.00	0.62	202.41	3,599.82	2.24	4.22	1.75	0.51	0.41	50.11
3,700.00	1.23	189.04	3,699.80	0.68	3.85	0.24	0.64	0.61	-13.37
3,800.00	1.26	175.75	3,799.78	-1.48	3.76	-1.89	0.29	0.03	-13.29
3,900.00	1.14	160.32	3,899.76	-3.51	4.18	-3.96	0.34	-0.12	-15.43
4,000.00	1.45	160.11	3,999.73	-5.64	4.94	-6.16	0.31	0.31	-0.21
4,100.00	1.04	136.63	4,099.71	-7.49	6.00	-8.11	0.65	-0.41	-23.48
4,200.00	0.60	115.59	4,199.70	-8.38	7.09	-9.12	0.53	-0.44	-21.04
4,300.00	0.86	172.41	4,299.69	-9.35	7.66	-10.14	0.73	0.26	56.82
4,400.00	1.30	165.18	4,399.68	-11.19	8.05	-12.02	0.46	0.44	-7.23
4,500.00	1.31	129.84	4,499.65	-13.01	9.22	-13.97	0.79	0.01	-35.34
4,600.00	0.18	94.83	4,599.64	-13.76	10.25	-14.82	1.17	-1.13	-35.01
4,700.00	0.67	151.35	4,699.64	-14.29	10.69	-15.39	0.59	0.49	56.52
4,800.00	0.31	283.89	4,799.64	-14.73	10.71	-15.84	0.91	-0.36	132.54
4,900.00	0.91	336.31	4,899.63	-13.94	10.13	-14.99	0.76	0.60	52.42
5,000.00	1.14	303.75	4,999.62	-12.66	8.98	-13.59	0.62	0.23	-32.56
5,100.00	0.49	354.59	5,099.61	-11.68	8.11	-12.52	0.91	-0.65	50.84
5,200.00	0.92	6.92	5,199.60	-10.46	8.17	-11.31	0.45	0.43	12.33

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5,300.00	1.06	337.46	5,299.58	-8.81	7.91	-9.64	0.52	0.14	-29.46	
5,400.00	1.03	322.29	5,399.57	-7.25	7.01	-7.98	0.28	-0.03	-15.17	
5,500.00	0.75	318.04	5,499.56	-6.05	6.02	-6.68	0.29	-0.28	-4.25	
5,600.00	0.71	327.42	5,599.55	-5.04	5.25	-5.59	0.13	-0.04	9.38	
5,700.00	1.15	343.66	5,699.53	-3.55	4.63	-4.05	0.51	0.44	16.24	
5,800.00	1.23	327.03	5,799.51	-1.69	3.77	-2.10	0.35	0.08	-16.63	
5,900.00	1.27	310.99	5,899.49	-0.06	2.35	-0.33	0.35	0.04	-16.04	
6,000.00	0.99	303.49	5,999.47	1.14	0.79	1.05	0.32	-0.28	-7.50	
6,100.00	1.15	307.47	6,099.45	2.23	-0.73	2.30	0.18	0.16	3.98	
6,200.00	1.04	317.89	6,199.43	3.51	-2.13	3.73	0.23	-0.11	10.42	
6,300.00	2.54	296.82	6,299.38	5.18	-4.72	5.68	1.61	1.50	-21.07	
6,400.00	2.99	290.24	6,399.27	7.09	-9.14	8.07	0.55	0.45	-6.58	
6,500.00	2.78	288.30	6,499.14	8.75	-13.89	10.25	0.23	-0.21	-1.94	
6,600.00	2.69	272.40	6,599.03	9.61	-18.54	11.63	0.76	-0.09	-15.90	
6,700.00	2.64	281.28	6,698.92	10.16	-23.14	12.69	0.42	-0.05	8.88	
6,800.00	3.06	295.12	6,798.80	11.74	-27.82	14.78	0.80	0.42	13.84	
6,900.00	4.52	265.43	6,898.59	12.56	-34.16	16.31	2.40	1.46	-29.69	
7,000.00	5.93	263.06	6,998.17	11.62	-43.22	16.39	1.43	1.41	-2.37	
7,100.00	6.96	265.00	7,097.53	10.47	-54.38	16.50	1.05	1.03	1.94	
7,200.00	6.63	264.19	7,196.83	9.36	-66.16	16.71	0.34	-0.33	-0.81	
7,300.00	6.42	266.43	7,296.18	8.43	-77.49	17.05	0.33	-0.21	2.24	
7,400.00	7.61	255.25	7,395.44	6.39	-89.47	16.37	1.81	1.19	-11.18	
7,500.00	6.99	255.58	7,494.63	3.19	-101.77	14.57	0.62	-0.62	0.33	
7,600.00	6.70	263.24	7,593.92	0.99	-113.45	13.69	0.96	-0.29	7.66	
7,700.00	6.56	264.82	7,693.25	-0.21	-124.93	13.78	0.23	-0.14	1.58	
7,800.00	6.83	266.08	7,792.57	-1.14	-136.56	14.16	0.31	0.27	1.26	
7,900.00	6.87	263.34	7,891.85	-2.24	-148.43	14.40	0.33	0.04	-2.74	
8,000.00	6.37	263.39	7,991.19	-3.57	-159.88	14.36	0.50	-0.50	0.05	
8,100.00	7.46	270.99	8,090.46	-4.09	-171.88	15.18	1.42	1.09	7.60	
8,200.00	8.06	266.51	8,189.54	-4.41	-185.37	16.38	0.85	0.60	-4.48	
8,300.00	8.11	262.93	8,288.55	-5.70	-199.37	16.66	0.51	0.05	-3.58	
8,400.00	7.97	262.15	8,387.57	-7.52	-213.24	16.41	0.18	-0.14	-0.78	
8,500.00	8.25	252.54	8,486.57	-10.62	-226.95	14.86	1.38	0.28	-9.61	
8,600.00	6.37	248.76	8,585.75	-14.78	-238.96	12.07	1.94	-1.88	-3.78	
8,700.00	6.00	249.05	8,685.17	-18.66	-249.02	9.34	0.37	-0.37	0.29	
8,800.00	5.06	250.70	8,784.71	-21.99	-258.06	7.05	0.95	-0.94	1.65	
8,900.00	4.75	263.22	8,884.34	-23.93	-266.33	6.04	1.11	-0.31	12.52	
9,000.00	5.91	268.07	8,983.91	-24.59	-275.59	6.42	1.24	1.16	4.85	
9,100.00	5.70	265.18	9,083.40	-25.19	-285.68	6.97	0.36	-0.21	-2.89	
9,200.00	6.25	255.45	9,182.86	-26.97	-295.90	6.34	1.15	0.55	-9.73	
9,300.00	6.50	259.87	9,282.24	-29.33	-306.74	5.20	0.55	0.25	4.42	
9,400.00	5.87	259.60	9,381.65	-31.25	-317.34	4.48	0.63	-0.63	-0.27	
9,500.00	5.83	258.36	9,481.13	-33.20	-327.35	3.67	0.13	-0.04	-1.24	

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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)	
9,600.00	5.52	259.40	9,580.64	-35.11	-337.05	2.86	0.33	-0.31	1.04	
9,700.00	6.43	270.75	9,680.10	-35.92	-347.38	3.21	1.49	0.91	11.35	
9,800.00	6.38	268.59	9,779.48	-35.98	-358.53	4.39	0.25	-0.05	-2.16	
9,900.00	6.13	269.65	9,878.88	-36.15	-369.42	5.45	0.28	-0.25	1.06	
10,000.00	6.50	264.32	9,978.28	-36.75	-380.40	6.09	0.69	0.37	-5.33	
10,100.00	6.33	263.73	10,077.65	-37.91	-391.51	6.17	0.18	-0.17	-0.59	
10,200.00	5.12	263.15	10,177.15	-39.04	-401.42	6.16	1.21	-1.21	-0.58	
10,300.00	5.43	273.23	10,276.73	-39.31	-410.57	6.92	0.98	0.31	10.08	
10,400.00	4.94	270.64	10,376.32	-38.99	-419.60	8.24	0.54	-0.49	-2.59	
10,500.00	4.69	277.02	10,475.97	-38.45	-427.96	9.72	0.59	-0.25	6.38	
10,550.00	4.38	286.72	10,525.81	-37.65	-431.82	10.95	1.65	-0.62	19.40	
Tie In										
10,670.00	3.90	289.60	10,645.50	-34.96	-440.05	14.54	0.44	-0.40	2.40	
First Phoenix MWD Survey										
10,718.00	5.92	342.29	10,693.34	-32.05	-442.35	17.69	9.82	4.21	109.77	
10,765.00	12.37	345.51	10,739.72	-24.86	-444.35	25.06	13.76	13.72	6.85	
10,816.00	19.00	348.42	10,788.79	-11.42	-447.38	38.75	13.09	13.00	5.71	
10,863.00	20.26	348.08	10,833.06	4.03	-450.60	54.47	2.69	2.68	-0.72	
10,910.00	19.34	347.43	10,877.28	19.59	-453.97	70.31	2.01	-1.96	-1.38	
10,957.00	19.34	343.77	10,921.63	34.66	-457.84	85.72	2.58	0.00	-7.79	
11,005.00	24.75	342.53	10,966.11	51.89	-463.09	103.42	11.31	11.27	-2.58	
11,052.00	30.27	344.30	11,007.78	72.69	-469.25	124.79	11.87	11.74	3.77	
11,099.00	33.48	351.41	11,047.70	96.93	-474.39	149.45	10.50	6.83	15.13	
11,114.00	35.12	353.53	11,060.09	105.31	-475.50	157.90	13.52	10.92	14.14	
HL: 11114' MD, 35.12° Inc, 351.41° Azi										
11,146.00	38.72	357.52	11,085.67	124.46	-476.97	177.10	13.52	11.26	12.47	
11,194.00	45.29	0.47	11,121.33	156.56	-477.48	209.04	14.29	13.69	6.15	
11,226.00	51.19	1.19	11,142.63	180.41	-477.13	232.71	18.51	18.44	2.25	
11,257.00	54.13	2.85	11,161.43	205.04	-476.25	257.08	10.40	9.48	5.35	
11,289.00	57.62	2.62	11,179.38	231.50	-474.99	283.23	10.92	10.91	-0.72	
11,336.00	63.15	0.42	11,202.60	272.32	-473.93	323.68	12.45	11.77	-4.68	
11,383.00	69.68	359.22	11,221.39	315.37	-474.07	366.48	14.09	13.89	-2.55	
11,430.00	78.28	359.02	11,234.35	360.50	-474.77	411.40	18.30	18.30	-0.43	
11,457.00	81.93	358.66	11,238.99	387.09	-475.31	437.88	13.58	13.52	-1.33	
11,504.00	86.09	358.46	11,243.90	433.81	-476.48	484.44	8.86	8.85	-0.43	
11,599.00	89.56	357.40	11,247.50	528.66	-479.91	579.08	3.82	3.65	-1.12	
11,694.00	89.44	356.99	11,248.33	623.54	-484.56	673.88	0.45	-0.13	-0.43	
11,789.00	88.79	356.32	11,249.80	718.37	-490.10	768.73	0.98	-0.68	-0.71	
11,883.00	88.05	355.51	11,252.39	812.09	-496.80	862.62	1.17	-0.79	-0.86	
11,978.00	88.82	357.78	11,254.98	906.89	-502.35	957.44	2.52	0.81	2.39	
12,072.00	89.87	359.43	11,256.06	1,000.85	-504.64	1,051.07	2.08	1.12	1.76	
12,167.00	89.19	359.33	11,256.84	1,095.84	-505.67	1,145.57	0.72	-0.72	-0.11	
12,261.00	88.84	359.06	11,258.45	1,189.81	-506.99	1,239.11	0.47	-0.37	-0.29	
12,356.00	88.45	358.51	11,260.70	1,284.77	-509.00	1,333.69	0.71	-0.41	-0.58	

Company:	Apache Corporation	Local Co-ordinate Reference:	Well 307H
Project:	Lea County, NM (NAD83 NME)	TVD Reference:	GL + KB @ 3741.00usft (H&P 482)
Site:	Black & Tan 27 Federal Com	MD Reference:	GL + KB @ 3741.00usft (H&P 482)
Well:	307H	North Reference:	Grid
Wellbore:	OH / Job #62211	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (H&P 482)	Database:	Compass 5000 GCR

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)	
12,451.00	87.70	357.63	11,263.89	1,379.66	-512.20	1,428.34	1.22	-0.79	-0.93	
12,545.00	87.11	358.51	11,268.15	1,473.51	-515.36	1,521.95	1.13	-0.63	0.94	
12,640.00	89.48	359.36	11,270.97	1,568.44	-517.13	1,616.49	2.65	2.49	0.89	
12,735.00	91.32	0.17	11,270.31	1,663.43	-517.52	1,710.92	2.12	1.94	0.85	
12,829.00	91.49	359.87	11,268.01	1,757.40	-517.48	1,804.30	0.37	0.18	-0.32	
12,924.00	91.27	359.70	11,265.72	1,852.38	-517.84	1,898.72	0.29	-0.23	-0.18	
13,018.00	90.88	358.88	11,263.95	1,946.35	-519.00	1,992.23	0.97	-0.41	-0.87	
13,113.00	90.30	358.54	11,262.98	2,041.32	-521.14	2,086.84	0.71	-0.61	-0.36	
13,208.00	89.98	357.99	11,262.74	2,136.28	-524.02	2,181.52	0.67	-0.34	-0.58	
13,302.00	91.10	359.34	11,261.86	2,230.24	-526.21	2,275.14	1.87	1.19	1.44	
13,397.00	90.81	358.83	11,260.27	2,325.22	-527.73	2,369.69	0.62	-0.31	-0.54	
13,492.00	91.13	0.37	11,258.67	2,420.20	-528.39	2,464.15	1.66	0.34	1.62	
13,586.00	91.15	0.27	11,256.80	2,514.18	-527.86	2,557.48	0.11	0.02	-0.11	
13,681.00	92.90	0.44	11,253.44	2,609.11	-527.28	2,651.75	1.85	1.84	0.18	
13,775.00	92.61	0.17	11,248.92	2,703.00	-526.78	2,744.99	0.42	-0.31	-0.29	
13,870.00	94.71	0.12	11,242.86	2,797.80	-526.54	2,839.17	2.21	2.21	-0.05	
13,964.00	94.34	359.93	11,235.44	2,891.51	-526.50	2,932.28	0.44	-0.39	-0.20	
14,059.00	94.31	359.90	11,228.28	2,986.24	-526.64	3,026.43	0.04	-0.03	-0.03	
14,153.00	93.92	359.37	11,221.53	3,080.00	-527.23	3,119.67	0.70	-0.41	-0.56	
14,248.00	93.80	359.01	11,215.14	3,174.77	-528.57	3,213.99	0.40	-0.13	-0.38	
14,343.00	93.54	358.45	11,209.05	3,269.55	-530.68	3,308.41	0.65	-0.27	-0.59	
14,438.00	93.43	358.36	11,203.28	3,364.34	-533.31	3,402.90	0.15	-0.12	-0.09	
14,532.00	93.40	358.40	11,197.68	3,458.14	-535.97	3,496.40	0.05	-0.03	0.04	
14,627.00	93.56	357.99	11,191.91	3,552.91	-538.95	3,590.92	0.46	0.17	-0.43	
14,721.00	93.35	0.59	11,186.25	3,646.73	-540.12	3,684.27	2.77	-0.22	2.77	
14,816.00	93.53	0.88	11,180.55	3,741.55	-538.90	3,778.36	0.36	0.19	0.31	
14,911.00	93.26	0.41	11,174.92	3,836.37	-537.83	3,872.47	0.57	-0.28	-0.49	
15,005.00	92.69	359.81	11,170.04	3,930.25	-537.65	3,965.73	0.88	-0.61	-0.64	
15,100.00	92.44	359.06	11,165.79	4,025.15	-538.59	4,060.14	0.83	-0.26	-0.79	
15,195.00	94.68	0.00	11,159.89	4,119.95	-539.37	4,154.44	2.56	2.36	0.99	
15,289.00	97.03	1.19	11,150.30	4,213.45	-538.40	4,247.24	2.80	2.50	1.27	
15,384.00	97.40	0.63	11,138.37	4,307.68	-536.90	4,340.71	0.70	0.39	-0.59	
15,479.00	97.05	0.59	11,126.43	4,401.92	-535.90	4,434.25	0.37	-0.37	-0.04	
15,573.00	97.29	0.47	11,114.69	4,495.19	-535.03	4,526.83	0.29	0.26	-0.13	
15,668.00	95.57	0.06	11,104.05	4,589.58	-534.60	4,620.58	1.86	-1.81	-0.43	
15,762.00	95.64	359.74	11,094.87	4,683.13	-534.76	4,713.56	0.35	0.07	-0.34	
15,781.00	95.73	359.66	11,092.99	4,702.04	-534.86	4,732.36	0.63	0.47	-0.42	
Final Phoenix MWD Survey										
15,813.00	95.73	359.66	11,089.80	4,733.88	-535.05	4,764.02	0.00	0.00	0.00	
HL: 15,813' MD, 95.73° Inc, 359.66° Azi										
15,844.00	95.73	359.66	11,086.70	4,764.72	-535.23	4,794.69	0.00	0.00	0.00	
PTD: 15844' MD, 95.73° Inc, 359.66° Azi										

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Site:	Black & Tan 27 Federal Com	MD Reference:	GL + KB @ 3741.00usft (H&P 482)
Well:	307H	North Reference:	Grid
Wellbore:	OH / Job #62211	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (H&P 482)	Database:	Compass 5000 GCR

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
10,550.00	10,525.81	-37.65	-431.82	Tie In
10,670.00	10,645.50	-34.96	-440.05	First Phoenix MWD Survey
11,114.00	11,060.09	105.31	-475.50	HL: 11114' MD, 35.12° Inc, 351.41° Azi
15,781.00	11,092.99	4,702.04	-534.86	Final Phoenix MWD Survey
15,813.00	11,089.80	4,733.88	-535.05	HL: 15,813' MD, 95.73° Inc, 359.66° Azi
15,844.00	11,086.70	4,764.72	-535.23	PTD: 15844' MD, 95.73° Inc, 359.66° Azi