

30-025-43921



HOBBS CCD

JUN 11 2018

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Apache Corporation

**Lea County, NM (NAD83 NME)
Black & Tan 27 Federal Com
303H**

ST01/ Job #61822

Design: Surveys (H&P 482)

Standard Survey Report

10 November, 2017



Company:	Apache Corporation	Local Co-ordinate Reference:	Well 303H
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:	303H	North Reference:	Grid
Wellbore:	ST01 / Job #61822	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	303H					
Well Position	+N/-S	0.00 usft	Northing:	560,138.30 usft	Latitude:	32° 32' 14.77000 N
	+E/-W	0.00 usft	Easting:	782,842.60 usft	Longitude:	103° 32' 58.77358 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	3,715.00 usft

Wellbore	ST01 / Job #61822				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	10/20/2017	6.73	60.52	48,290

Design	Surveys (H&P 482)				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	10,700.00
Vertical Section:	Depth From (TVD) (usft)	+N-S (usft)	+E-W (usft)	Direction (°)	
	0.00	0.00	0.00	0.02	

Survey Program	Date 11/10/2017				
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
100.00	10,700.00	Phoenix Gyro Surveys (OH / Job #61822)	SPT_GTD	Continuous north-seeking gyro	
10,761.00	15,791.00	Phoenix MWD Surveys (ST01 / Job #6182	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	0.17	296.71	100.00	0.07	-0.13	0.07	0.17	0.17	0.00
200.00	0.34	352.41	200.00	0.43	-0.30	0.43	0.28	0.17	55.70
300.00	0.42	0.44	300.00	1.09	-0.34	1.09	0.10	0.08	8.03
400.00	0.40	14.75	399.99	1.79	-0.25	1.79	0.10	-0.02	14.31
500.00	0.28	95.38	499.99	2.11	0.08	2.11	0.45	-0.12	80.63
600.00	0.41	342.27	599.99	2.42	0.22	2.42	0.58	0.13	-113.11
700.00	0.41	13.84	699.99	3.11	0.19	3.11	0.22	0.00	31.57
800.00	0.24	280.29	799.99	3.50	0.07	3.50	0.49	-0.17	-93.55
900.00	0.40	283.43	899.99	3.62	-0.47	3.62	0.16	0.16	3.14

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Wellbore:	ST01 / Job #61822	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	0.37	283.66	999.98	3.77	-1.13	3.77	0.03	-0.03	0.23
1,100.00	0.63	25.21	1,099.98	4.35	-1.20	4.35	0.79	0.26	101.55
1,200.00	0.23	68.63	1,199.98	4.92	-0.78	4.92	0.49	-0.40	43.42
1,300.00	0.22	16.42	1,299.98	5.18	-0.54	5.17	0.20	-0.01	-52.21
1,400.00	0.20	194.20	1,399.98	5.19	-0.53	5.19	0.42	-0.02	177.78
1,500.00	0.15	268.59	1,499.98	5.02	-0.70	5.02	0.22	-0.05	74.39
1,600.00	0.22	207.39	1,599.98	4.84	-0.92	4.84	0.20	0.07	-61.20
1,700.00	0.41	75.17	1,699.98	4.76	-0.67	4.76	0.58	0.19	-132.22
1,800.00	0.31	91.02	1,799.97	4.85	-0.05	4.85	0.14	-0.10	15.85
1,900.00	0.65	114.86	1,899.97	4.61	0.74	4.61	0.39	0.34	23.84
2,000.00	0.35	135.05	1,999.97	4.15	1.47	4.15	0.34	-0.30	20.19
2,100.00	0.86	121.89	2,099.96	3.54	2.32	3.54	0.53	0.51	-13.16
2,200.00	0.73	113.63	2,199.95	2.89	3.54	2.89	0.17	-0.13	-8.26
2,300.00	0.78	99.95	2,299.94	2.52	4.79	2.52	0.19	0.05	-13.68
2,400.00	0.75	93.50	2,399.93	2.36	6.12	2.36	0.09	-0.03	-6.45
2,500.00	0.63	105.22	2,499.93	2.17	7.30	2.18	0.18	-0.12	11.72
2,600.00	0.75	92.79	2,599.92	2.00	8.49	2.00	0.19	0.12	-12.43
2,700.00	0.70	96.60	2,699.91	1.90	9.75	1.90	0.07	-0.05	3.81
2,800.00	0.81	84.48	2,799.90	1.89	11.06	1.90	0.19	0.11	-12.12
2,900.00	0.79	100.79	2,899.89	1.83	12.44	1.84	0.23	-0.02	16.31
3,000.00	0.29	120.39	2,999.89	1.58	13.33	1.58	0.53	-0.50	19.60
3,100.00	0.21	68.74	3,099.89	1.51	13.72	1.52	0.23	-0.08	-51.65
3,200.00	0.32	220.39	3,199.89	1.37	13.71	1.37	0.51	0.11	151.65
3,300.00	0.50	167.49	3,299.89	0.73	13.62	0.73	0.40	0.18	-52.90
3,400.00	0.72	179.03	3,399.88	-0.32	13.73	-0.32	0.25	0.22	11.54
3,500.00	0.82	187.54	3,499.87	-1.66	13.65	-1.66	0.15	0.10	8.51
3,600.00	0.76	226.92	3,599.86	-2.82	13.07	-2.82	0.54	-0.06	39.38
3,700.00	0.82	252.30	3,699.85	-3.50	11.90	-3.49	0.35	0.06	25.38
3,800.00	0.86	212.41	3,799.84	-4.35	10.82	-4.34	0.57	0.04	-39.89
3,900.00	0.98	204.60	3,899.83	-5.76	10.06	-5.75	0.17	0.12	-7.81
4,000.00	0.90	226.28	3,999.82	-7.08	9.14	-7.07	0.36	-0.08	21.68
4,100.00	1.02	284.44	4,099.81	-7.40	7.71	-7.40	0.94	0.12	58.16
4,200.00	0.98	279.34	4,199.79	-7.04	6.00	-7.04	0.10	-0.04	-5.10
4,300.00	1.05	301.80	4,299.77	-6.42	4.38	-6.41	0.40	0.07	22.46
4,400.00	1.00	304.56	4,399.76	-5.44	2.88	-5.44	0.07	-0.05	2.76
4,500.00	0.75	319.71	4,499.75	-4.44	1.74	-4.44	0.34	-0.25	15.15
4,600.00	0.54	321.79	4,599.74	-3.57	1.02	-3.57	0.21	-0.21	2.08
4,700.00	0.55	28.71	4,699.74	-2.78	0.96	-2.78	0.60	0.01	66.92
4,800.00	0.91	18.12	4,799.73	-1.61	1.44	-1.61	0.38	0.36	-10.59
4,900.00	1.03	17.03	4,899.71	0.01	1.95	0.01	0.12	0.12	-1.09
5,000.00	0.90	27.18	4,999.70	1.56	2.57	1.57	0.21	-0.13	10.15
5,100.00	1.05	20.31	5,099.69	3.12	3.25	3.12	0.19	0.15	-6.87
5,200.00	0.98	18.94	5,199.67	4.79	3.85	4.79	0.07	-0.07	-1.37



Phoenix Technology Services LP

Survey Report



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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)
5,300.00	0.94	21.69	5,299.66	6.36	4.43	6.36	0.06	-0.04	2.75
5,400.00	0.85	31.64	5,399.64	7.76	5.12	7.76	0.18	-0.09	9.95
5,500.00	0.66	27.57	5,499.64	8.90	5.77	8.90	0.20	-0.19	-4.07
5,600.00	0.55	8.03	5,599.63	9.88	6.11	9.89	0.23	-0.11	-19.54
5,700.00	0.78	344.58	5,699.62	11.01	5.99	11.02	0.35	0.23	-23.45
5,800.00	1.01	13.35	5,799.61	12.53	6.02	12.53	0.50	0.23	28.77
5,900.00	0.71	40.84	5,899.60	13.85	6.63	13.86	0.50	-0.30	27.49
6,000.00	0.79	8.76	5,999.59	15.00	7.14	15.01	0.42	0.08	-32.08
6,100.00	0.95	90.69	6,099.58	15.68	8.07	15.68	1.15	0.16	81.93
6,200.00	1.20	97.95	6,199.57	15.52	9.94	15.52	0.28	0.25	7.26
6,300.00	1.60	121.77	6,299.54	14.64	12.16	14.65	0.70	0.40	23.82
6,400.00	1.01	180.26	6,399.51	13.02	13.34	13.03	1.38	-0.59	58.49
6,500.00	1.47	209.25	6,499.49	11.02	12.71	11.03	0.76	0.46	28.99
6,600.00	1.65	198.74	6,599.45	8.54	11.62	8.55	0.34	0.18	-10.51
6,700.00	1.73	221.38	6,699.41	6.05	10.16	6.05	0.67	0.08	22.64
6,800.00	1.59	207.55	6,799.37	3.68	8.52	3.69	0.42	-0.14	-13.83
6,900.00	1.37	177.54	6,899.34	1.26	7.93	1.26	0.80	-0.22	-30.01
7,000.00	1.55	205.58	6,999.31	-1.16	7.40	-1.15	0.73	0.18	28.04
7,100.00	1.27	194.96	7,099.28	-3.45	6.53	-3.44	0.38	-0.28	-10.62
7,200.00	1.34	189.43	7,199.25	-5.67	6.05	-5.67	0.14	0.07	-5.53
7,300.00	1.38	230.91	7,299.23	-7.58	4.93	-7.58	0.96	0.04	41.48
7,400.00	1.43	269.54	7,399.20	-8.35	2.74	-8.35	0.93	0.05	38.63
7,500.00	1.19	331.33	7,499.18	-7.45	1.00	-7.45	1.36	-0.24	61.79
7,600.00	1.44	351.05	7,599.15	-5.30	0.30	-5.30	0.51	0.25	19.72
7,700.00	1.22	346.70	7,699.12	-3.02	-0.14	-3.02	0.24	-0.22	-4.35
7,800.00	1.05	339.37	7,799.10	-1.13	-0.70	-1.13	0.22	-0.17	-7.33
7,900.00	1.34	337.00	7,899.08	0.81	-1.48	0.81	0.29	0.29	-2.37
8,000.00	1.22	328.24	7,999.06	2.79	-2.50	2.79	0.23	-0.12	-8.76
8,100.00	1.13	327.00	8,099.04	4.52	-3.60	4.52	0.09	-0.09	-1.24
8,200.00	0.72	346.23	8,199.02	5.96	-4.29	5.95	0.51	-0.41	19.23
8,300.00	0.95	2.02	8,299.01	7.40	-4.41	7.39	0.32	0.23	15.79
8,400.00	1.05	344.20	8,399.00	9.11	-4.63	9.10	0.33	0.10	-17.82
8,500.00	0.82	347.48	8,498.98	10.69	-5.03	10.68	0.24	-0.23	3.28
8,600.00	0.87	65.78	8,598.98	11.70	-4.49	11.69	1.07	0.05	78.30
8,700.00	0.55	37.08	8,698.97	12.39	-3.51	12.39	0.47	-0.32	-28.70
8,800.00	0.48	133.58	8,798.97	12.48	-2.92	12.48	0.77	-0.07	96.50
8,900.00	0.65	86.85	8,898.96	12.23	-2.05	12.23	0.47	0.17	-46.73
9,000.00	0.69	117.34	8,998.96	11.98	-0.95	11.98	0.35	0.04	30.49
9,100.00	0.41	108.46	9,098.95	11.59	-0.07	11.59	0.29	-0.28	-8.88
9,200.00	0.99	136.60	9,198.94	10.85	0.86	10.85	0.66	0.58	28.14
9,300.00	0.98	105.58	9,298.93	9.99	2.28	9.99	0.53	-0.01	-31.02
9,400.00	1.03	165.76	9,398.92	8.89	3.32	8.89	1.01	0.05	60.18
9,500.00	1.43	166.94	9,498.89	6.81	3.82	6.81	0.40	0.40	1.18

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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	1.04	177.73	9,598.87	4.68	4.14	4.68	0.45	-0.39	10.79
9,700.00	0.57	227.32	9,698.86	3.44	3.81	3.44	0.80	-0.47	49.59
9,800.00	0.35	335.33	9,798.86	3.38	3.32	3.38	0.76	-0.22	108.01
9,900.00	0.58	234.44	9,898.86	3.36	2.78	3.36	0.73	0.23	-100.89
10,000.00	0.44	226.69	9,998.85	2.80	2.09	2.81	0.16	-0.14	-7.75
10,100.00	0.55	255.94	10,098.85	2.42	1.34	2.43	0.27	0.11	29.25
10,200.00	1.03	253.16	10,198.84	2.05	0.02	2.05	0.48	0.48	-2.78
10,300.00	1.41	237.18	10,298.82	1.12	-1.88	1.12	0.51	0.38	-15.98
10,400.00	1.31	259.50	10,398.79	0.25	-4.03	0.24	0.54	-0.10	22.32
10,500.00	1.01	226.61	10,498.77	-0.57	-5.80	-0.57	0.72	-0.30	-32.89
10,600.00	0.90	215.71	10,598.76	-1.81	-6.90	-1.81	0.21	-0.11	-10.90
10,700.00	0.94	218.77	10,698.74	-3.09	-7.87	-3.09	0.06	0.04	3.06
Tie In									
10,812.00	9.53	354.67	10,810.26	5.45	-9.31	5.45	9.13	7.67	121.34
First Phoenix MWD Survey									
10,859.00	16.17	357.09	10,856.06	15.87	-10.00	15.87	14.17	14.13	5.15
10,906.00	23.05	0.90	10,900.31	31.63	-10.19	31.62	14.88	14.64	8.11
10,953.00	31.21	6.44	10,942.11	52.97	-8.68	52.96	18.16	17.36	11.79
11,001.00	36.98	10.36	10,981.84	79.55	-4.68	79.55	12.86	12.02	8.17
11,048.00	39.79	10.06	11,018.68	108.27	0.49	108.27	5.99	5.98	-0.64
11,059.00	41.15	9.66	11,027.05	115.30	1.71	115.31	12.61	12.39	-3.61
HL: 11059' MD, 41.15° Inc, 9.66° Azi									
11,095.00	45.62	8.50	11,053.20	139.72	5.60	139.72	12.61	12.41	-3.23
11,142.00	49.56	7.50	11,084.90	174.08	10.42	174.08	8.53	8.38	-2.13
11,190.00	54.33	5.17	11,114.48	211.63	14.56	211.63	10.65	9.94	-4.85
11,237.00	58.19	4.04	11,140.58	250.58	17.69	250.58	8.45	8.21	-2.40
11,284.00	63.39	3.39	11,163.51	291.50	20.34	291.51	11.13	11.06	-1.38
11,331.00	67.10	2.45	11,183.19	334.12	22.51	334.13	8.10	7.89	-2.00
11,379.00	71.26	1.46	11,200.24	378.95	24.04	378.96	8.88	8.67	-2.06
11,426.00	75.01	359.07	11,213.88	423.91	24.24	423.92	9.35	7.98	-5.09
11,473.00	80.20	357.50	11,223.96	469.78	22.86	469.79	11.51	11.04	-3.34
11,520.00	85.14	357.24	11,229.96	516.33	20.72	516.34	10.52	10.51	-0.55
11,589.00	91.16	358.04	11,232.19	585.21	17.88	585.21	8.80	8.72	1.16
11,684.00	92.47	358.07	11,229.18	680.10	14.66	680.11	1.38	1.38	0.03
11,778.00	92.29	357.80	11,225.27	773.96	11.27	773.96	0.35	-0.19	-0.29
11,873.00	91.05	357.38	11,222.50	868.83	7.28	868.84	1.38	-1.31	-0.44
11,968.00	90.55	358.24	11,221.18	963.75	3.65	963.76	1.05	-0.53	0.91
12,062.00	91.04	357.76	11,219.87	1,057.69	0.37	1,057.69	0.73	0.52	-0.51
12,157.00	89.90	358.27	11,219.09	1,152.63	-2.92	1,152.62	1.31	-1.20	0.54
12,251.00	90.98	358.30	11,218.37	1,246.58	-5.73	1,246.58	1.15	1.15	0.03
12,346.00	90.59	0.05	11,217.07	1,341.56	-7.10	1,341.55	1.89	-0.41	1.84
12,440.00	91.42	0.04	11,215.42	1,435.54	-7.03	1,435.54	0.88	0.88	-0.01
12,535.00	90.27	359.72	11,214.02	1,530.53	-7.23	1,530.53	1.26	-1.21	-0.34
12,630.00	91.45	359.56	11,212.60	1,625.51	-7.82	1,625.51	1.25	1.24	-0.17

Company:	Apache Corporation	Local Co-ordinate Reference:	Well 303H
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:	303H	North Reference:	Grid
Wellbore:	ST01 / Job #61822	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)
12,724.00	90.36	0.59	11,211.11	1,719.50	-7.70	1,719.50	1.60	-1.16	1.10
12,819.00	91.78	0.78	11,209.34	1,814.47	-6.57	1,814.47	1.51	1.49	0.20
12,913.00	90.75	0.66	11,207.26	1,908.44	-5.38	1,908.44	1.10	-1.10	-0.13
13,008.00	92.19	0.61	11,204.82	2,003.40	-4.33	2,003.40	1.52	1.52	-0.05
13,103.00	90.82	0.59	11,202.33	2,098.36	-3.34	2,098.36	1.44	-1.44	-0.02
13,197.00	89.47	0.33	11,202.09	2,192.36	-2.58	2,192.36	1.46	-1.44	-0.28
13,292.00	90.95	0.23	11,201.74	2,287.35	-2.12	2,287.35	1.56	1.56	-0.11
13,386.00	92.45	0.18	11,198.95	2,381.31	-1.78	2,381.31	1.60	1.60	-0.05
13,481.00	90.88	359.17	11,196.19	2,476.26	-2.32	2,476.26	1.96	-1.65	-1.06
13,576.00	91.36	358.03	11,194.34	2,571.21	-4.64	2,571.21	1.30	0.51	-1.20
13,670.00	90.85	358.20	11,192.52	2,665.15	-7.73	2,665.14	0.57	-0.54	0.18
13,765.00	91.29	358.62	11,190.75	2,760.09	-10.37	2,760.09	0.64	0.46	0.44
13,860.00	89.90	0.20	11,189.76	2,855.08	-11.35	2,855.07	2.22	-1.46	1.66
13,954.00	91.19	359.90	11,188.87	2,949.07	-11.26	2,949.07	1.41	1.37	-0.32
14,049.00	91.38	358.59	11,186.74	3,044.04	-12.52	3,044.03	1.39	0.20	-1.38
14,143.00	92.90	359.86	11,183.23	3,137.96	-13.79	3,137.95	2.11	1.62	1.35
14,238.00	91.18	0.33	11,179.85	3,232.89	-13.63	3,232.89	1.88	-1.81	0.49
14,333.00	91.87	359.56	11,177.32	3,327.86	-13.72	3,327.85	1.09	0.73	-0.81
14,427.00	91.04	0.30	11,174.93	3,421.83	-13.84	3,421.82	1.18	-0.88	0.79
14,522.00	92.36	0.49	11,172.11	3,516.78	-13.18	3,516.77	1.40	1.39	0.20
14,616.00	91.05	0.37	11,169.32	3,610.73	-12.48	3,610.73	1.40	-1.39	-0.13
14,711.00	92.34	0.04	11,166.51	3,705.69	-12.14	3,705.68	1.40	1.36	-0.35
14,806.00	90.85	1.26	11,163.86	3,800.64	-11.06	3,800.64	2.03	-1.57	1.28
14,900.00	92.41	1.40	11,161.19	3,894.58	-8.88	3,894.57	1.67	1.66	0.15
14,995.00	91.50	1.93	11,157.95	3,989.48	-6.12	3,989.48	1.11	-0.96	0.56
15,033.00	90.12	1.82	11,157.41	4,027.45	-4.88	4,027.45	3.64	-3.63	-0.29
15,184.00	91.44	1.55	11,155.36	4,178.37	-0.44	4,178.37	0.89	0.87	-0.18
15,279.00	90.93	359.35	11,153.39	4,273.34	0.31	4,273.34	2.38	-0.54	-2.32
15,373.00	92.36	358.71	11,150.69	4,367.29	-1.28	4,367.29	1.67	1.52	-0.68
15,468.00	91.05	0.11	11,147.87	4,462.23	-2.26	4,462.23	2.02	-1.38	1.47
15,563.00	88.90	0.88	11,147.91	4,557.22	-1.44	4,557.22	2.40	-2.26	0.81
15,633.00	89.62	0.63	11,148.81	4,627.21	-0.51	4,627.21	1.09	1.03	-0.36
15,728.00	92.08	0.82	11,147.40	4,722.19	0.69	4,722.19	2.60	2.59	0.20
15,735.00	92.19	0.82	11,147.14	4,729.18	0.79	4,729.18	1.57	1.57	0.00
Final Phoenix MWD Survey									
15,742.00	92.19	0.82	11,146.87	4,736.18	0.89	4,736.18	0.00	0.00	0.00
HL: 15742' MD, 92.19° Inc, 0.82° Azi									
15,791.00	92.19	0.82	11,145.00	4,785.13	1.59	4,785.13	0.00	0.00	0.00
PTD: 15791' MD, 92.19° Inc, 0.82° Azi									

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Wellbore:	ST01 / Job #61822	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)	
10,700.00	10,698.74	-3.09	-7.87	Tie In
10,812.00	10,810.26	5.45	-9.31	First Phoenix MWD Survey
11,059.00	11,027.05	115.30	1.71	HL: 11059' MD, 41.15° Inc, 9.66° Azi
15,735.00	11,147.14	4,729.18	0.79	Final Phoenix MWD Survey
15,742.00	11,146.87	4,736.18	0.89	HL: 15742' MD, 92.19° Inc, 0.82° Azi
15,791.00	11,145.00	4,785.13	1.59	PTD: 15791' MD, 92.19° Inc, 0.82° Azi