

33.05715



Antero Resources

Harrison County West Virginia
Cleta / Opie / Maude Pad
Truman Unit 2H

Original Wellpath

Design: As Drilled

Standard Survey Report

30 July, 2014



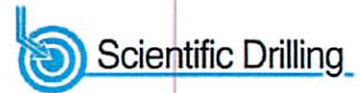
12/05/2014

33-05715



Scientific Drilling International

Survey Report



Company:	Antero Resources	Local Co-ordinate Reference:	Well Truman Unit 2H
Project:	Harrison County West Virginia	TVD Reference:	Patterson: Truman 2H 1405 GL + 25 KB @ 1430.0usft
Site:	Cleta / Opie / Maude Pad	MD Reference:	Patterson: Truman 2H 1405 GL + 25 KB @ 1430.0usft
Well:	Truman Unit 2H	North Reference:	Grid
Wellbore:	Original Wellpath	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Oklahoma District

Project	Harrison County West Virginia, Harrison County, USA		
Map System:	Universal Transverse Mercator (US Survey Fee	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	Zone 17N (84 W to 78 W)		

Site	Cleta / Opie / Maude Pad, SHL Cleta Unit 1H				
Site Position:		Northing:	14,243,194.63 usft	Latitude:	39° 13' 20.344 N
From:	Map	Easting:	1,766,859.11 usft	Longitude:	80° 33' 12.736 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.28 °

Well	Truman Unit 2H, Marcellus					
Well Position	+N/-S	0.0 usft	Northing:	14,243,219.48 usft	Latitude:	39° 13' 20.594 N
	+E/-W	0.0 usft	Easting:	1,766,783.11 usft	Longitude:	80° 33' 13.701 W
Position Uncertainty		2.0 usft	Wellhead Elevation:	1,430.0 usft	Ground Level:	1,405.0 usft

Wellbore	Original Wellpath				
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	2/27/2014	-8.61	66.76	52,267

Design	As Drilled				
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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	308.60

Survey Program	Date	7/30/2014			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
112.0	6,716.0	Survey #6 Final Gyro (Original Wellpath)	SDI Standard Keeper	Scientific Drilling Intl. Standard Wireline Keeper	
6,808.0	14,768.0	Survey #7 MWD (Original Wellpath)	SDI MWD	Scientific Drilling Intl. MWD - Standard ver 1.0.1	

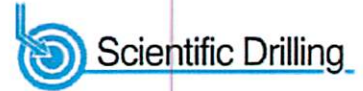
Survey	Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
	0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
	112.0	0.20	174.14	112.0	-0.2	0.0	-0.1	0.18	0.18	0.00
	212.0	0.27	206.27	212.0	-0.6	-0.1	-0.3	0.15	0.07	32.13
	312.0	0.16	160.66	312.0	-0.9	-0.1	-0.5	0.20	-0.11	-45.61
	412.0	0.37	158.43	412.0	-1.4	0.0	-0.9	0.21	0.21	-2.23
	512.0	0.26	164.57	512.0	-1.9	0.2	-1.3	0.11	-0.11	6.14
	612.0	0.20	103.43	612.0	-2.1	0.4	-1.7	0.24	-0.06	-61.14
	712.0	0.39	126.09	712.0	-2.4	0.9	-2.2	0.22	0.19	22.66

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Well:	Truman Unit 2H	North Reference:	Grid
Wellbore:	Original Wellpath	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Oklahoma District

Survey

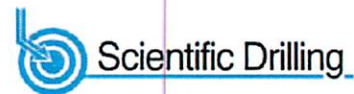
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
812.0	0.26	125.76	812.0	-2.7	1.4	-2.7	0.13	-0.13	-0.33
912.0	0.45	118.85	912.0	-3.0	1.9	-3.4	0.19	0.19	-6.91
1,012.0	0.34	135.20	1,012.0	-3.4	2.4	-4.0	0.16	-0.11	16.35
1,112.0	0.33	123.34	1,112.0	-3.8	2.9	-4.6	0.07	-0.01	-11.86
1,212.0	0.42	125.97	1,212.0	-4.2	3.4	-5.3	0.09	0.09	2.63
1,312.0	3.50	284.24	1,311.9	-3.6	0.8	-2.9	3.89	3.08	158.27
1,412.0	6.43	290.26	1,411.5	-0.9	-7.5	5.2	2.97	2.93	6.02
1,512.0	6.93	290.83	1,510.9	3.1	-18.3	16.3	0.50	0.50	0.57
1,612.0	6.04	298.71	1,610.2	7.8	-28.6	27.2	1.26	-0.89	7.88
1,712.0	4.20	316.42	1,709.8	13.0	-35.7	36.0	2.40	-1.84	17.71
1,812.0	3.92	317.12	1,809.6	18.2	-40.6	43.0	0.28	-0.28	0.70
1,912.0	3.46	320.58	1,909.4	23.0	-44.8	49.4	0.51	-0.46	3.46
2,012.0	3.25	322.99	2,009.2	27.6	-48.5	55.1	0.25	-0.21	2.41
2,112.0	2.92	322.27	2,109.1	31.9	-51.7	60.3	0.33	-0.33	-0.72
2,212.0	2.80	324.03	2,208.9	35.9	-54.7	65.1	0.15	-0.12	1.76
2,312.0	2.61	325.04	2,308.8	39.7	-57.5	69.7	0.20	-0.19	1.01
2,412.0	2.33	329.79	2,408.7	43.3	-59.8	73.7	0.35	-0.28	4.75
2,512.0	2.21	331.81	2,508.6	46.8	-61.7	77.4	0.14	-0.12	2.02
2,612.0	1.63	336.06	2,608.6	49.8	-63.2	80.4	0.60	-0.58	4.25
2,712.0	1.33	330.00	2,708.6	52.1	-64.4	82.8	0.34	-0.30	-6.06
2,812.0	0.81	345.00	2,808.5	53.8	-65.1	84.4	0.59	-0.52	15.00
2,912.0	0.48	353.84	2,908.5	54.9	-65.3	85.3	0.34	-0.33	8.84
3,012.0	0.59	334.06	3,008.5	55.7	-65.6	86.1	0.21	0.11	-19.78
3,112.0	0.31	357.81	3,108.5	56.5	-65.9	86.7	0.33	-0.28	23.75
3,212.0	0.41	344.59	3,208.5	57.1	-66.0	87.2	0.13	0.10	-13.22
3,312.0	0.25	54.50	3,308.5	57.6	-65.9	87.4	0.40	-0.16	69.91
3,412.0	0.23	37.25	3,408.5	57.8	-65.6	87.3	0.07	-0.02	-17.25
3,512.0	0.11	19.05	3,508.5	58.1	-65.4	87.4	0.13	-0.12	-18.20
3,612.0	0.17	345.15	3,608.5	58.3	-65.4	87.5	0.10	0.06	-33.90
3,712.0	0.09	45.17	3,708.5	58.5	-65.4	87.6	0.15	-0.08	60.02
3,812.0	0.17	76.27	3,808.5	58.6	-65.2	87.5	0.10	0.08	31.10
3,912.0	0.13	25.91	3,908.5	58.8	-65.0	87.5	0.13	-0.04	-50.36
4,012.0	0.20	66.27	4,008.5	58.9	-64.8	87.4	0.13	0.07	40.36
4,112.0	0.22	110.61	4,108.5	58.9	-64.5	87.2	0.16	0.02	44.34
4,212.0	0.15	96.45	4,208.5	58.9	-64.2	86.9	0.08	-0.07	-14.16
4,312.0	0.13	107.90	4,308.5	58.8	-63.9	86.6	0.03	-0.02	11.45
4,412.0	0.15	102.63	4,408.5	58.7	-63.7	86.4	0.02	0.02	-5.27
4,512.0	0.20	81.93	4,508.5	58.7	-63.4	86.2	0.08	0.05	-20.70
4,612.0	0.48	114.90	4,608.5	58.6	-62.8	85.7	0.33	0.28	32.97
4,712.0	0.30	73.23	4,708.5	58.5	-62.2	85.1	0.32	-0.18	-41.67
4,812.0	0.36	67.51	4,808.5	58.7	-61.7	84.8	0.07	0.06	-5.72
4,912.0	2.35	228.46	4,908.5	57.4	-62.9	85.0	2.69	1.99	160.95

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Survey Report



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Survey

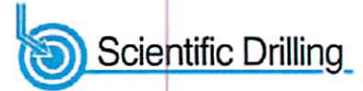
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,012.0	6.62	228.38	5,008.2	52.2	-68.8	86.3	4.27	4.27	-0.08
5,112.0	10.30	223.40	5,107.1	41.9	-79.2	88.1	3.75	3.68	-4.98
5,212.0	12.16	223.44	5,205.1	27.8	-92.6	89.7	1.86	1.86	0.04
5,312.0	14.65	223.20	5,302.4	10.9	-108.5	91.6	2.49	2.49	-0.24
5,412.0	15.91	221.14	5,398.9	-8.6	-126.2	93.2	1.37	1.26	-2.06
5,512.0	15.35	210.59	5,495.2	-30.4	-141.9	92.0	2.89	-0.56	-10.55
5,612.0	14.47	211.19	5,591.8	-52.4	-155.1	88.5	0.89	-0.88	0.60
5,712.0	17.76	208.39	5,687.9	-76.5	-168.9	84.2	3.38	3.29	-2.80
5,812.0	19.45	203.20	5,782.7	-105.3	-182.7	77.1	2.36	1.69	-5.19
5,912.0	20.26	206.92	5,876.7	-136.0	-197.1	69.2	1.50	0.81	3.72
6,012.0	20.29	207.72	5,970.5	-166.8	-213.0	62.4	0.28	0.03	0.80
6,112.0	20.98	207.34	6,064.1	-198.1	-229.3	55.6	0.70	0.69	-0.38
6,212.0	22.48	207.18	6,157.0	-231.0	-246.2	48.3	1.50	1.50	-0.16
6,312.0	25.23	203.15	6,248.4	-267.6	-263.3	38.9	3.20	2.75	-4.03
6,412.0	23.11	201.31	6,339.7	-305.5	-278.8	27.4	2.25	-2.12	-1.84
6,512.0	20.96	201.34	6,432.4	-340.4	-292.5	16.2	2.15	-2.15	0.03
6,612.0	20.55	202.80	6,525.9	-373.2	-305.8	6.1	0.66	-0.41	1.46
6,712.0	20.18	202.79	6,619.6	-405.3	-319.3	-3.4	0.37	-0.37	-0.01
6,716.0	20.11	203.07	6,623.4	-406.6	-319.8	-3.7	2.98	-1.75	7.00
6,832.0	18.08	211.43	6,733.0	-440.3	-337.0	-11.3	2.93	-1.75	7.21
6,891.0	19.94	210.21	6,788.8	-456.8	-346.9	-13.9	3.22	3.15	-2.07
6,921.0	23.31	209.18	6,816.7	-466.4	-352.3	-15.6	11.30	11.23	-3.44
Sycamore									
6,922.0	23.42	209.15	6,817.6	-466.8	-352.5	-15.7	11.30	11.24	-2.95
6,953.0	27.55	208.03	6,845.6	-478.5	-358.9	-18.0	13.41	13.32	-3.61
6,985.0	31.44	205.99	6,873.4	-492.5	-366.0	-21.2	12.55	12.16	-6.38
7,016.0	34.95	202.89	6,899.4	-508.0	-373.0	-25.4	12.57	11.32	-10.00
7,048.0	37.06	201.26	6,925.2	-525.4	-380.1	-30.7	7.24	6.59	-5.09
7,079.0	38.10	200.47	6,949.8	-543.1	-386.8	-36.5	3.70	3.35	-2.55
7,110.0	37.25	205.21	6,974.4	-560.5	-394.2	-41.7	9.74	-2.74	15.29
7,142.0	35.70	213.45	7,000.1	-577.1	-403.4	-44.7	16.04	-4.84	25.75
7,173.0	34.78	222.47	7,025.4	-591.2	-414.4	-44.9	17.04	-2.97	29.10
7,189.0	34.87	227.24	7,038.6	-597.6	-420.9	-44.0	17.05	0.59	29.84
Middlesex									
7,204.0	35.13	231.68	7,050.9	-603.2	-427.4	-42.3	17.05	1.71	29.57
7,236.0	35.74	235.59	7,076.9	-614.2	-442.3	-37.5	7.34	1.91	12.22
7,267.0	36.60	239.82	7,102.0	-624.0	-457.8	-31.5	8.52	2.77	13.65
7,299.0	37.55	244.09	7,127.5	-633.0	-474.8	-23.9	8.56	2.97	13.33
7,330.0	39.04	248.85	7,151.8	-640.7	-492.4	-14.9	10.67	4.81	15.37
7,362.0	40.30	253.01	7,176.5	-647.4	-511.7	-4.0	9.18	3.94	13.00
7,372.0	40.76	254.61	7,184.1	-649.2	-518.0	-0.2	11.38	4.58	16.03
Burkett									
7,393.0	41.79	257.88	7,199.9	-652.5	-531.4	8.2	11.38	4.91	15.56

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Survey Report



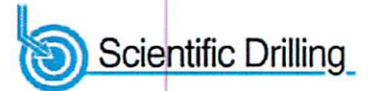
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7,408.0	42.75	259.93	7,211.0	-654.4	-541.3	14.8	11.22	6.42	13.68	
Tully										
7,424.0	43.82	262.04	7,222.6	-656.1	-552.1	22.2	11.22	6.67	13.17	
7,455.0	46.66	266.82	7,244.4	-658.2	-574.0	38.0	14.27	9.16	15.42	
7,487.0	49.88	272.53	7,265.7	-658.3	-597.9	56.5	16.68	10.06	17.84	
7,518.0	53.25	277.14	7,285.0	-656.3	-622.1	76.7	15.93	10.87	14.87	
7,550.0	56.13	280.74	7,303.5	-652.2	-647.9	99.4	12.85	9.00	11.25	
7,575.0	58.32	283.57	7,317.1	-647.8	-668.4	118.2	12.93	8.74	11.32	
Hamilton										
7,581.0	58.85	284.23	7,320.2	-646.5	-673.4	122.9	12.93	8.90	10.99	
7,612.0	63.30	287.54	7,335.2	-639.1	-699.5	147.9	17.13	14.35	10.68	
7,644.0	67.84	290.44	7,348.4	-629.6	-727.0	175.4	16.41	14.19	9.06	
7,675.0	69.52	290.71	7,359.7	-619.5	-754.0	202.8	5.48	5.42	0.87	
7,707.0	71.06	291.78	7,370.5	-608.5	-782.1	231.6	5.75	4.81	3.34	
7,728.0	71.74	293.18	7,377.2	-600.9	-800.5	250.7	7.08	3.21	6.66	
Marcellus										
7,738.0	72.06	293.84	7,380.3	-597.1	-809.2	259.9	7.08	3.25	6.62	
7,770.0	73.93	298.11	7,389.6	-583.7	-836.7	289.7	14.03	5.84	13.34	
7,801.0	76.15	302.16	7,397.6	-568.7	-862.6	319.3	14.51	7.16	13.06	
7,832.0	78.51	304.62	7,404.4	-552.1	-887.8	349.4	10.86	7.61	7.94	
7,864.0	83.23	306.81	7,409.5	-533.6	-913.5	381.0	16.22	14.75	6.84	
7,883.0	84.47	306.86	7,411.6	-522.3	-928.6	399.9	6.53	6.53	0.26	
7,977.0	86.55	306.71	7,418.9	-466.2	-1,003.6	493.5	2.22	2.21	-0.16	
8,071.0	88.59	306.45	7,422.9	-410.2	-1,079.1	587.4	2.19	2.17	-0.28	
8,166.0	89.73	308.92	7,424.3	-352.2	-1,154.2	682.4	2.86	1.20	2.60	
8,260.0	89.36	308.69	7,425.0	-293.2	-1,227.5	776.3	0.46	-0.39	-0.24	
8,354.0	90.37	308.38	7,425.3	-234.7	-1,301.0	870.3	1.12	1.07	-0.33	
8,448.0	90.80	310.13	7,424.3	-175.2	-1,373.8	964.3	1.92	0.46	1.86	
8,543.0	89.53	309.50	7,424.0	-114.4	-1,446.8	1,059.3	1.49	-1.34	-0.66	
8,637.0	89.13	308.77	7,425.1	-55.1	-1,519.7	1,153.3	0.89	-0.43	-0.78	
8,731.0	88.59	307.57	7,427.0	3.0	-1,593.5	1,247.3	1.40	-0.57	-1.28	
8,825.0	88.89	306.77	7,429.1	59.8	-1,668.4	1,341.2	0.91	0.32	-0.85	
8,919.0	87.55	307.79	7,432.0	116.7	-1,743.2	1,435.1	1.79	-1.43	1.09	
9,013.0	86.91	308.26	7,436.5	174.5	-1,817.1	1,529.0	0.84	-0.68	0.50	
9,108.0	87.45	309.40	7,441.2	234.0	-1,891.1	1,623.9	1.33	0.57	1.20	
9,202.0	88.63	309.84	7,444.4	293.9	-1,963.4	1,717.8	1.34	1.26	0.47	
9,292.0	89.03	307.85	7,446.3	350.4	-2,033.5	1,807.8	2.25	0.44	-2.21	
9,383.0	88.93	310.53	7,447.9	407.9	-2,104.0	1,898.8	2.95	-0.11	2.95	
9,474.0	88.99	311.69	7,449.5	467.7	-2,172.6	1,989.7	1.28	0.07	1.27	
9,567.0	89.97	310.94	7,450.4	529.1	-2,242.4	2,082.6	1.33	1.05	-0.81	
9,659.0	89.40	310.08	7,450.9	588.8	-2,312.4	2,174.5	1.12	-0.62	-0.93	
9,752.0	88.99	307.39	7,452.2	647.0	-2,384.9	2,267.5	2.93	-0.44	-2.89	

33.05715



Scientific Drilling International
Survey Report



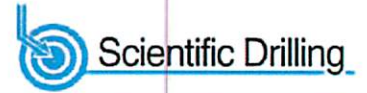
Company:	Antero Resources	Local Co-ordinate Reference:	Well Truman Unit 2H
Project:	Harrison County West Virginia	TVD Reference:	Patterson: Truman 2H 1405 GL + 25 KB @ 1430.0usft
Site:	Cleta / Opie / Maude Pad	MD Reference:	Patterson: Truman 2H 1405 GL + 25 KB @ 1430.0usft
Well:	Truman Unit 2H	North Reference:	Grid
Wellbore:	Original Wellpath	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Oklahoma District

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)
9,844.0	89.63	308.38	7,453.3	703.5	-2,457.5	2,359.5	1.28	0.70	1.08
9,937.0	89.83	309.31	7,453.7	761.8	-2,529.9	2,452.5	1.02	0.22	1.00
10,029.0	88.29	308.93	7,455.2	819.9	-2,601.3	2,544.5	1.72	-1.67	-0.41
10,121.0	88.06	309.54	7,458.2	878.0	-2,672.5	2,636.4	0.71	-0.25	0.66
10,213.0	88.49	310.58	7,460.9	937.2	-2,742.9	2,728.3	1.22	0.47	1.13
10,305.0	88.52	309.47	7,463.3	996.4	-2,813.3	2,820.3	1.21	0.03	-1.21
10,399.0	88.80	308.07	7,465.5	1,055.2	-2,886.6	2,914.3	1.52	0.30	-1.49
10,493.0	89.03	307.11	7,467.3	1,112.5	-2,961.1	3,008.2	1.05	0.24	-1.02
10,587.0	90.80	307.39	7,467.5	1,169.4	-3,035.9	3,102.2	1.91	1.88	0.30
10,681.0	90.90	306.86	7,466.1	1,226.2	-3,110.8	3,196.1	0.57	0.11	-0.56
10,776.0	90.87	306.62	7,464.6	1,283.0	-3,186.9	3,291.1	0.25	-0.03	-0.25
10,870.0	89.90	307.79	7,464.0	1,339.8	-3,261.8	3,385.1	1.62	-1.03	1.24
10,964.0	89.63	303.84	7,464.3	1,394.8	-3,338.0	3,478.9	4.21	-0.29	-4.20
11,058.0	88.82	305.69	7,465.6	1,448.4	-3,415.2	3,572.7	2.15	-0.86	1.97
11,152.0	88.29	307.25	7,468.0	1,504.3	-3,490.8	3,666.6	1.75	-0.56	1.66
11,246.0	89.13	309.99	7,470.1	1,562.9	-3,564.2	3,760.6	3.05	0.89	2.91
11,340.0	88.56	310.43	7,472.0	1,623.6	-3,636.0	3,854.5	0.77	-0.61	0.47
11,434.0	88.52	310.50	7,474.4	1,684.6	-3,707.5	3,948.4	0.09	-0.04	0.07
11,528.0	88.83	310.01	7,476.6	1,745.3	-3,779.2	4,042.4	0.62	0.33	-0.52
11,623.0	88.39	310.19	7,478.9	1,806.5	-3,851.8	4,137.3	0.50	-0.46	0.19
11,717.0	87.89	309.37	7,481.9	1,866.6	-3,924.0	4,231.2	1.02	-0.53	-0.87
11,811.0	88.32	310.59	7,485.0	1,926.9	-3,996.0	4,325.2	1.38	0.46	1.30
11,905.0	88.59	308.27	7,487.6	1,986.6	-4,068.6	4,419.1	2.48	0.29	-2.47
11,999.0	89.46	308.21	7,489.2	2,044.8	-4,142.4	4,513.1	0.93	0.93	-0.06
12,093.0	89.83	308.01	7,489.8	2,102.8	-4,216.4	4,607.1	0.45	0.39	-0.21
12,187.0	89.80	307.78	7,490.1	2,160.5	-4,290.6	4,701.1	0.25	-0.03	-0.24
12,282.0	90.54	308.88	7,489.8	2,219.5	-4,365.1	4,796.1	1.40	0.78	1.16
12,376.0	91.01	308.98	7,488.5	2,278.5	-4,438.2	4,890.1	0.51	0.50	0.11
12,470.0	89.87	308.02	7,487.8	2,337.0	-4,511.7	4,984.1	1.59	-1.21	-1.02
12,564.0	88.62	309.11	7,489.0	2,395.6	-4,585.2	5,078.0	1.76	-1.33	1.16
12,658.0	88.59	309.36	7,491.3	2,455.1	-4,658.0	5,172.0	0.27	-0.03	0.27
12,752.0	88.69	308.13	7,493.5	2,513.9	-4,731.3	5,266.0	1.31	0.11	-1.31
12,846.0	87.82	306.78	7,496.4	2,571.0	-4,805.9	5,359.9	1.71	-0.93	-1.44
12,940.0	87.48	306.98	7,500.3	2,627.4	-4,881.0	5,453.8	0.42	-0.36	0.21
13,034.0	88.46	308.25	7,503.6	2,684.7	-4,955.4	5,547.7	1.71	1.04	1.35
13,128.0	88.79	305.42	7,505.8	2,741.0	-5,030.6	5,641.6	3.03	0.35	-3.01
13,222.0	88.79	305.55	7,507.8	2,795.6	-5,107.2	5,735.5	0.14	0.00	0.14
13,316.0	88.46	308.41	7,510.1	2,852.1	-5,182.2	5,829.4	3.06	-0.35	3.04
13,410.0	87.89	309.13	7,513.1	2,911.0	-5,255.5	5,923.4	0.98	-0.61	0.77
13,504.0	88.25	310.00	7,516.2	2,970.8	-5,327.9	6,017.3	1.00	0.38	0.93
13,598.0	88.15	309.90	7,519.2	3,031.1	-5,399.9	6,111.2	0.15	-0.11	-0.11
13,692.0	88.89	309.68	7,521.6	3,091.3	-5,472.1	6,205.2	0.82	0.79	-0.23



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Site:	Cleta / Opie / Maude Pad	MD Reference:	Patterson: Truman 2H 1405 GL + 25 KB @ 1430.0usft
Well:	Truman Unit 2H	North Reference:	Grid
Wellbore:	Original Wellpath	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Oklahoma District

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)
13,787.0	89.40	310.32	7,523.0	3,152.3	-5,544.9	6,300.1	0.86	0.54	0.67
13,881.0	90.17	309.65	7,523.4	3,212.7	-5,616.9	6,394.1	1.09	0.82	-0.71
13,975.0	90.97	308.87	7,522.5	3,272.2	-5,689.7	6,488.1	1.19	0.85	-0.83
14,069.0	89.87	309.94	7,521.8	3,331.9	-5,762.3	6,582.1	1.63	-1.17	1.14
14,164.0	91.81	310.23	7,520.4	3,393.0	-5,835.0	6,677.0	2.06	2.04	0.31
14,258.0	92.59	310.75	7,516.8	3,454.0	-5,906.4	6,770.9	1.00	0.83	0.55
14,351.0	92.72	310.95	7,512.5	3,514.8	-5,976.7	6,863.7	0.26	0.14	0.22
14,446.0	93.02	310.53	7,507.7	3,576.7	-6,048.6	6,958.5	0.54	0.32	-0.44
14,540.0	92.18	309.19	7,503.4	3,636.9	-6,120.7	7,052.4	1.68	-0.89	-1.43
14,634.0	92.48	308.47	7,499.6	3,695.8	-6,193.8	7,146.3	0.83	0.32	-0.77
14,693.0	92.48	308.47	7,497.1	3,732.5	-6,240.0	7,205.3	0.00	0.00	0.00
14,709.0	92.42	307.34	7,496.4	3,742.3	-6,252.6	7,221.3	7.07	-0.38	-7.06
14,768.0	92.42	307.34	7,493.9	3,778.0	-6,299.5	7,280.2	0.00	0.00	0.00

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
6,921.0	6,817.0	Sycamore		0.00	
7,189.0	7,038.9	Middlesex		0.00	
7,372.0	7,184.4	Burkett		0.00	
7,408.0	7,211.3	Tully		0.00	
7,575.0	7,317.4	Hamilton		0.00	
7,728.0	7,377.5	Marcellus		0.00	

Checked By: _____ Approved By: _____ Date: _____