



Triad Hunter

PHOENIX
TECHNOLOGY SERVICES



Azimuths to Grid North
True North: 0.90°
Magnetic North: -7.48°

Magnetic Field
Strength: 52538.8nT
Dip Angle: 67.08°
Date: 6/20/2013
Model: IGRF2010

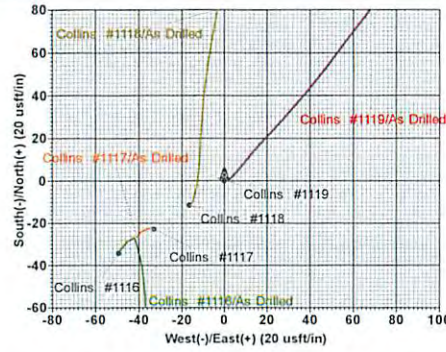
Collins #1119
Collins Unit - Tyler County, WV
20' RKB - 740' GL @ 760.0usft (Warren Drilling #12)
Latitude: 39° 29' 43.007 N
Longitude: 80° 55' 5.282 W
Northing: 365667.22
Easting: 1568320.98
Design #6

Map System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone Name: West Virginia Northern Zone
Local Origin: Well Collins #1119 - Slot #1119, Grid North

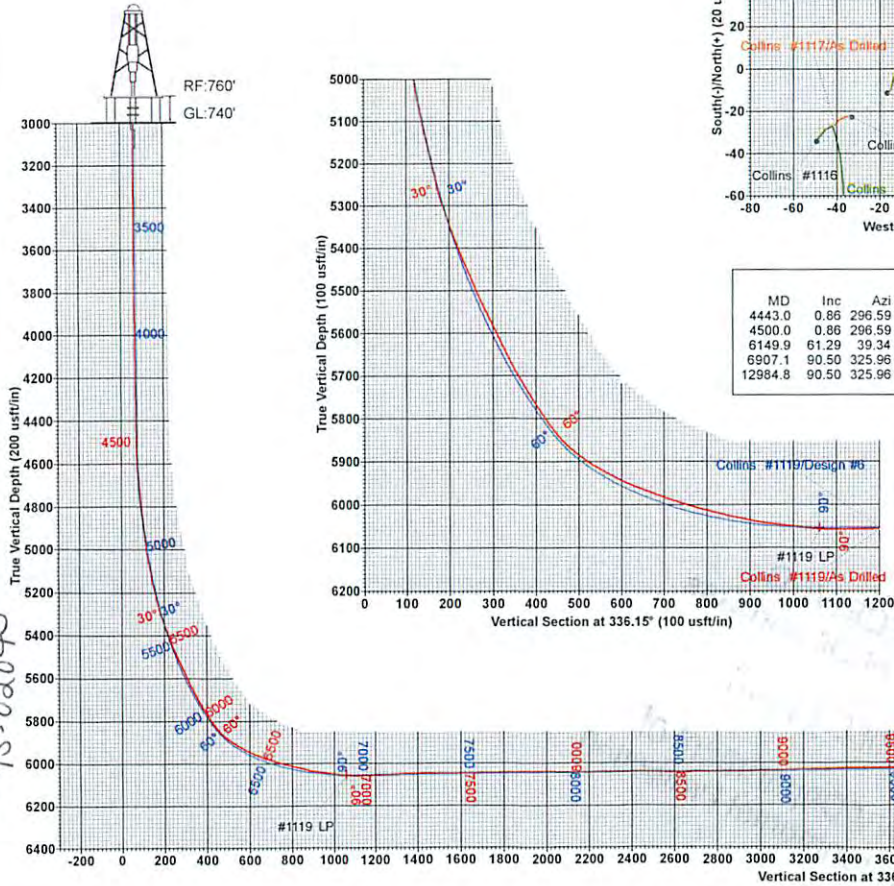
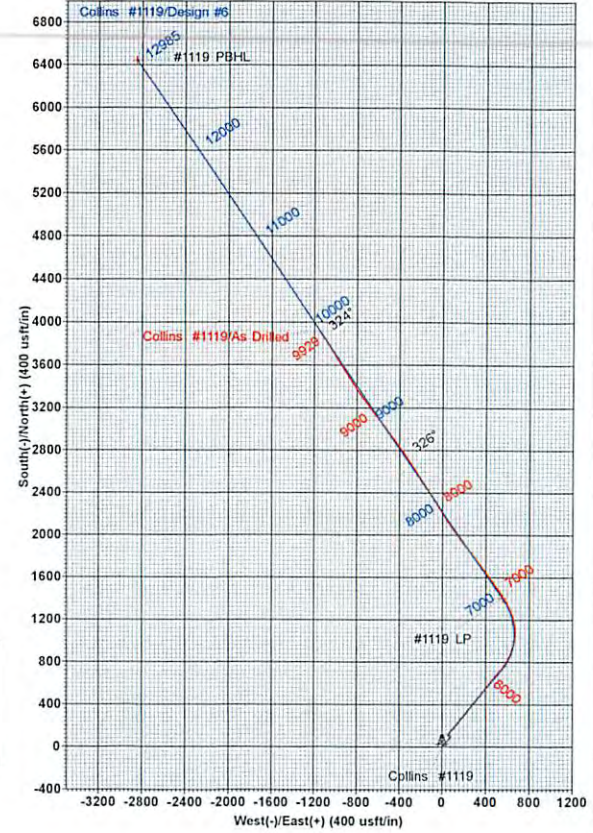
Grid East: 1568320.98
Grid North: 365667.22
Scale Factor: 1.000

Geomagnetic Model: IGRF2010
Sample Date: 20-Jun-13
Magnetic Declination: -8.38°
Dip Angle from Horizontal: 67.08°
Magnetic Field Strength: 52539

To convert a Magnetic Direction to a Grid Direction, Subtract 7.48°
To convert a Magnetic Direction to a True Direction, Subtract 8.38°
To convert a True Direction to a Grid Direction, Add 0.90°



SECTION DETAILS									
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Target
4443.0	0.86	296.59	4434.3	108.0	60.7	0.00	0.00	74.2	
4500.0	0.86	296.59	4491.3	108.4	59.9	0.00	0.00	74.9	
6149.9	61.29	39.34	5844.9	734.8	556.1	3.73	103.21	447.2	
6907.1	90.50	325.96	6055.0	1405.9	554.4	10.00	-81.39	1061.8	#1119 LP
12984.8	90.50	325.96	6002.0	6442.1	-2847.4	0.00	0.00	7043.4	#1119 PBHL



DESIGN TARGET DETAILS								
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
#1119 PBHL6002.0	6442.1	-2847.4	372109.37	1565473.54	39° 30' 46.226 N	80° 55' 42.909 W		Point
#1119 LP	6055.0	1405.9	554.4	367073.15	39° 29' 56.988 N	80° 54' 58.493 W		Point

Triad Hunter
Collins #1119

Drawn By: Chris Tenda
7:39, July 12, 2013

Phoenix Technology Services
Foster Plaza S, Suite 300 - 681 Hulskey Dr.
Pittsburgh, PA 15220

95.02043

PHOENIX
TECHNOLOGY SERVICES



Triad Hunter

Collins Unit
Collins Unit - Tyler County, WV
Collins #1119 - Slot #1119

Original Well

Design: As Drilled

Standard Survey Report

15 July, 2013

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Office of Oil and Gas

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WV Department of
Environmental Protection



Triad Hunter

02/06/2015



Company:	Triad Hunter	Local Co-ordinate Reference:	Well Collins #1119 - Slot #1119
Project:	Collins Unit	TVD Reference:	20' RKB - 740' GL @ 760.0usft (Warren Drilling #12)
Site:	Collins Unit - Tyler County, WV	MD Reference:	20' RKB - 740' GL @ 760.0usft (Warren Drilling #12)
Well:	Collins #1119	North Reference:	Grid
Wellbore:	Original Well	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Local database

Project	Collins Unit		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	West Virginia Northern Zone		

Site	Collins Unit - Tyler County, WV				
Site Position:		Northing:	365,633.03 usft	Latitude:	39° 29' 42.662 N
From:	Map	Easting:	1,568,271.67 usft	Longitude:	80° 55' 5.904 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	-0.90 °

Well	Collins #1119 - Slot #1119					
Well Position	+N/-S	0.0 usft	Northing:	365,667.22 usft	Latitude:	39° 29' 43.007 N
	+E/-W	0.0 usft	Easting:	1,568,320.98 usft	Longitude:	80° 55' 5.282 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level:	740.0 usft

Wellbore	Original Well				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	6/20/2013	-8.38	67.08	52,539

Design	As Drilled				
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	29.35	

Survey Program	Date	7/15/2013			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
108.0	4,443.0	Vaughn Gyro (Original Well)	GyroFlex		
4,500.0	12,984.0	Phoenix MWD (Original Well)	MWD		

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
108.0	0.21	94.78	108.0	0.0	0.2	0.1	0.19	0.19	0.00
208.0	0.22	92.26	208.0	0.0	0.6	0.2	0.01	0.01	-2.52
308.0	0.16	85.29	308.0	0.0	0.9	0.4	0.06	-0.06	-6.97
408.0	0.21	67.28	408.0	0.0	1.2	0.6	0.08	0.05	-18.01
508.0	0.84	60.33	508.0	0.5	2.0	1.4	0.63	0.63	-6.95
608.0	3.38	45.39	607.9	2.9	4.8	4.9	2.58	2.54	-14.94
708.0	6.29	38.15	707.6	9.3	10.2	13.1	2.97	2.91	-7.24



95.02043

Phoenix Technology Services
Survey Report



Company:	Triad Hunter	Local Co-ordinate Reference:	Well Collins #1119 - Slot #1119
Project:	Collins Unit	TVD Reference:	20' RKB - 740' GL @ 760.0usft (Warren Drilling #12)
Site:	Collins Unit - Tyler County, WV	MD Reference:	20' RKB - 740' GL @ 760.0usft (Warren Drilling #12)
Well:	Collins #1119	North Reference:	Grid
Wellbore:	Original Well	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Local database

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)	
808.0	7.83	43.02	806.8	18.6	18.3	25.2	1.65	1.54	4.87	
908.0	8.92	41.21	905.7	29.4	28.0	39.4	1.12	1.09	-1.81	
1,008.0	9.16	40.67	1,004.5	41.3	38.3	54.7	0.25	0.24	-0.54	
1,108.0	8.77	36.24	1,103.3	53.5	48.0	70.1	0.79	-0.39	-4.43	
1,208.0	8.68	37.16	1,202.1	65.6	57.1	85.2	0.17	-0.09	0.92	
1,308.0	8.88	37.04	1,300.9	77.8	66.3	100.3	0.20	0.20	-0.12	
1,408.0	5.85	35.83	1,400.1	88.1	73.9	113.0	3.03	-3.03	-1.21	
1,508.0	4.61	44.04	1,499.7	95.1	79.7	122.0	1.45	-1.24	8.21	
1,608.0	2.33	57.69	1,599.5	99.1	84.2	127.6	2.41	-2.28	13.65	
1,708.0	0.40	24.02	1,699.5	100.5	86.1	129.8	2.01	-1.93	-33.67	
1,808.0	0.80	299.90	1,799.5	101.2	85.6	130.1	0.86	0.40	-84.12	
1,908.0	0.58	285.57	1,899.4	101.6	84.5	130.0	0.28	-0.22	-14.33	
2,008.0	0.31	291.11	1,999.4	101.9	83.8	129.9	0.27	-0.27	5.54	
2,108.0	0.34	288.08	2,099.4	102.1	83.2	129.8	0.03	0.03	-3.03	
2,208.0	0.44	280.55	2,199.4	102.2	82.6	129.6	0.11	0.10	-7.53	
2,308.0	0.59	289.06	2,299.4	102.5	81.7	129.4	0.17	0.15	8.51	
2,408.0	0.56	291.28	2,399.4	102.8	80.8	129.2	0.04	-0.03	2.22	
2,508.0	0.62	301.84	2,499.4	103.3	79.9	129.2	0.12	0.06	10.56	
2,608.0	0.64	295.79	2,599.4	103.8	78.9	129.1	0.07	0.02	-6.05	
2,708.0	0.75	294.90	2,699.4	104.3	77.8	129.1	0.11	0.11	-0.89	
2,808.0	0.63	291.08	2,799.4	104.8	76.7	128.9	0.13	-0.12	-3.82	
2,908.0	0.57	284.22	2,899.4	105.1	75.7	128.7	0.09	-0.06	-6.86	
3,008.0	0.61	289.17	2,999.4	105.4	74.7	128.5	0.06	0.04	4.95	
3,108.0	0.36	283.06	3,099.4	105.7	73.9	128.3	0.25	-0.25	-6.11	
3,208.0	0.61	272.36	3,199.4	105.7	73.1	128.0	0.26	0.25	-10.70	
3,308.0	0.38	272.85	3,299.4	105.8	72.2	127.6	0.23	-0.23	0.49	
3,408.0	0.33	275.72	3,399.4	105.8	71.6	127.3	0.05	-0.05	2.87	
3,508.0	0.37	270.25	3,499.4	105.9	71.0	127.1	0.05	0.04	-5.47	
3,608.0	0.39	261.15	3,599.4	105.8	70.3	126.7	0.06	0.02	-9.10	
3,708.0	0.40	264.66	3,699.4	105.7	69.6	126.3	0.03	0.01	3.51	
3,808.0	0.69	269.45	3,799.4	105.7	68.7	125.8	0.29	0.29	4.79	
3,908.0	0.67	276.92	3,899.4	105.7	67.5	125.3	0.09	-0.02	7.47	
4,008.0	0.72	280.17	3,999.4	105.9	66.3	124.8	0.06	0.05	3.25	
4,108.0	0.71	290.15	4,099.3	106.3	65.1	124.5	0.12	-0.01	9.98	
4,208.0	0.87	289.88	4,199.3	106.7	63.8	124.3	0.16	0.16	-0.27	
4,308.0	0.79	291.46	4,299.3	107.2	62.5	124.1	0.08	-0.08	1.58	
4,408.0	0.80	293.11	4,399.3	107.8	61.2	123.9	0.02	0.01	1.65	
4,443.0	0.86	296.59	4,434.3	108.0	60.7	123.9	0.22	0.17	9.94	
4,500.0	0.86	296.59	4,491.3	108.4	59.9	123.8	0.00	0.00	0.00	
4,532.0	1.40	0.60	4,523.3	108.9	59.7	124.2	4.01	1.69	200.03	
4,564.0	2.30	14.40	4,555.3	109.9	59.9	125.1	3.12	2.81	43.13	
4,596.0	3.40	17.00	4,587.2	111.4	60.3	126.7	3.46	3.44	8.13	



Company:	Triad Hunter	Local Co-ordinate Reference:	Well Collins #1119 - Slot #1119
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Site:	Collins Unit - Tyler County, WV	MD Reference:	20' RKB - 740' GL @ 760.0usft (Warren Drilling #12)
Well:	Collins #1119	North Reference:	Grid
Wellbore:	Original Well	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Local database

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)	
4,627.0	4.50	17.20	4,618.2	113.4	61.0	128.8	3.55	3.55	0.65	
4,659.0	5.60	19.50	4,650.0	116.1	61.9	131.5	3.49	3.44	7.19	
4,691.0	6.60	22.10	4,681.9	119.3	63.1	134.9	3.24	3.13	8.13	
4,723.0	7.50	24.80	4,713.6	122.9	64.6	138.8	3.00	2.81	8.44	
4,754.0	8.50	28.00	4,744.3	126.7	66.6	143.1	3.53	3.23	10.32	
4,786.0	9.50	31.20	4,775.9	131.1	69.0	148.1	3.49	3.13	10.00	
4,818.0	10.70	33.00	4,807.4	135.8	72.0	153.7	3.88	3.75	5.63	
4,850.0	11.90	36.10	4,838.8	141.0	75.6	159.9	4.20	3.75	9.69	
4,881.0	13.60	38.10	4,869.0	146.5	79.7	166.7	5.66	5.48	6.45	
4,913.0	14.80	39.00	4,900.1	152.6	84.6	174.5	3.81	3.75	2.81	
4,945.0	16.20	39.00	4,930.9	159.2	90.0	182.9	4.38	4.38	0.00	
4,977.0	17.60	38.80	4,961.5	166.5	95.8	192.1	4.38	4.38	-0.63	
5,009.0	19.20	39.50	4,991.9	174.3	102.2	202.0	5.05	5.00	2.19	
5,041.0	20.50	39.80	5,022.0	182.7	109.1	212.7	4.07	4.06	0.94	
5,073.0	22.00	39.50	5,051.8	191.6	116.5	224.1	4.70	4.69	-0.94	
5,105.0	23.30	38.90	5,081.3	201.2	124.3	236.3	4.13	4.06	-1.88	
5,136.0	24.30	38.70	5,109.7	210.9	132.2	248.6	3.24	3.23	-0.65	
5,167.0	25.60	39.40	5,137.8	221.1	140.4	261.5	4.30	4.19	2.26	
5,199.0	26.70	40.30	5,166.5	231.9	149.4	275.4	3.65	3.44	2.81	
5,231.0	27.90	40.20	5,195.0	243.1	158.9	289.8	3.75	3.75	-0.31	
5,263.0	28.80	40.20	5,223.1	254.7	168.7	304.7	2.81	2.81	0.00	
5,295.0	29.80	40.20	5,251.0	266.6	178.8	320.1	3.13	3.13	0.00	
5,327.0	31.70	38.80	5,278.5	279.3	189.2	336.2	6.34	5.94	-4.38	
5,359.0	33.80	36.60	5,305.4	293.0	199.8	353.3	7.54	6.56	-6.88	
5,391.0	35.70	36.90	5,331.7	307.6	210.7	371.4	5.96	5.94	0.94	
5,423.0	37.40	37.90	5,357.4	322.7	222.3	390.3	5.63	5.31	3.13	
5,454.0	39.00	38.20	5,381.8	337.8	234.1	409.2	5.20	5.16	0.97	
5,486.0	40.30	38.00	5,406.4	353.9	246.7	429.4	4.08	4.06	-0.63	
5,518.0	41.40	38.80	5,430.6	370.3	259.7	450.1	3.81	3.44	2.50	
5,550.0	42.50	39.30	5,454.4	386.9	273.2	471.1	3.59	3.44	1.56	
5,582.0	42.70	39.40	5,478.0	403.7	286.9	492.5	0.66	0.63	0.31	
5,613.0	43.70	38.50	5,500.6	420.2	300.3	513.4	3.79	3.23	-2.90	
5,645.0	44.60	37.80	5,523.6	437.7	314.0	535.4	3.20	2.81	-2.19	
5,677.0	44.90	37.80	5,546.3	455.5	327.9	557.7	0.94	0.94	0.00	
5,709.0	45.50	37.90	5,568.8	473.4	341.8	580.2	1.89	1.88	0.31	
5,741.0	45.80	38.00	5,591.2	491.5	355.9	602.8	0.96	0.94	0.31	
5,772.0	45.50	38.60	5,612.9	508.9	369.6	624.7	1.69	-0.97	1.94	
5,804.0	45.90	38.40	5,635.2	526.8	383.9	647.3	1.33	1.25	-0.63	
5,836.0	46.90	38.30	5,657.3	545.0	398.2	670.2	3.13	3.13	-0.31	
5,868.0	48.40	38.10	5,678.8	563.5	412.9	693.6	4.71	4.69	-0.63	
5,900.0	49.50	37.60	5,699.9	582.6	427.7	717.4	3.63	3.44	-1.56	
5,932.0	51.00	38.00	5,720.3	602.0	442.7	741.8	4.78	4.69	1.25	

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Site:	Collins Unit - Tyler County, WV	MD Reference:	20' RKB - 740' GL @ 760.0usft (Warren Drilling #12)
Well:	Collins #1119	North Reference:	Grid
Wellbore:	Original Well	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Local database

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)	
5,964.0	52.70	38.50	5,740.1	621.8	458.3	766.6	5.45	5.31	1.56	
5,995.0	53.80	38.80	5,758.6	641.2	473.8	791.1	3.63	3.55	0.97	
6,027.0	54.50	38.30	5,777.4	661.5	490.0	816.7	2.53	2.19	-1.56	
6,059.0	56.00	38.80	5,795.6	682.0	506.4	842.7	4.86	4.69	1.56	
6,091.0	57.80	39.50	5,813.1	702.8	523.3	869.1	5.92	5.63	2.19	
6,122.0	59.80	39.60	5,829.2	723.3	540.2	895.2	6.46	6.45	0.32	
6,154.0	60.90	37.20	5,845.0	745.1	557.5	922.7	7.37	3.44	-7.50	
6,186.0	62.50	33.20	5,860.2	768.1	573.7	950.7	12.09	5.00	-12.50	
6,218.0	63.80	31.10	5,874.6	792.3	588.9	979.2	7.13	4.06	-6.56	
6,250.0	64.60	28.60	5,888.5	817.2	603.2	1,008.0	7.46	2.50	-7.81	
6,282.0	66.60	24.80	5,901.8	843.3	616.3	1,037.1	12.49	6.25	-11.88	
6,313.0	67.90	22.30	5,913.8	869.5	627.7	1,065.5	8.54	4.19	-8.06	
6,345.0	68.80	20.60	5,925.6	897.2	638.6	1,095.0	5.68	2.81	-5.31	
6,377.0	69.40	16.80	5,937.0	925.5	648.2	1,124.4	11.25	1.88	-11.88	
6,409.0	69.90	13.10	5,948.1	954.4	655.9	1,153.4	10.95	1.56	-11.56	
6,441.0	70.90	9.80	5,958.8	984.0	661.9	1,182.1	10.20	3.13	-10.31	
6,473.0	71.90	6.60	5,969.1	1,014.0	666.2	1,210.4	9.98	3.13	-10.00	
6,505.0	72.90	3.20	5,978.7	1,044.4	668.8	1,238.1	10.60	3.13	-10.63	
6,536.0	73.40	0.30	5,987.7	1,074.0	669.7	1,264.4	9.10	1.61	-9.35	
6,568.0	74.00	357.00	5,996.7	1,104.7	669.0	1,290.8	10.07	1.88	-10.31	
6,600.0	74.40	354.00	6,005.4	1,135.4	666.6	1,316.4	9.11	1.25	-9.38	
6,632.0	75.40	350.70	6,013.8	1,166.0	662.5	1,341.1	10.44	3.13	-10.31	
6,664.0	76.50	346.90	6,021.5	1,196.5	656.4	1,364.7	12.02	3.44	-11.88	
6,696.0	77.10	343.10	6,028.8	1,226.6	648.4	1,386.9	11.71	1.88	-11.88	
6,728.0	78.40	339.80	6,035.6	1,256.2	638.4	1,407.9	10.87	4.06	-10.31	
6,760.0	80.60	337.80	6,041.5	1,285.5	627.0	1,427.9	9.22	6.88	-6.25	
6,791.0	81.90	335.80	6,046.2	1,313.7	615.0	1,446.5	7.63	4.19	-6.45	
6,823.0	82.90	333.50	6,050.4	1,342.4	601.4	1,464.8	7.78	3.13	-7.19	
6,855.0	83.60	331.50	6,054.2	1,370.6	586.7	1,482.2	6.58	2.19	-6.25	
6,887.0	85.30	329.20	6,057.3	1,398.2	571.0	1,498.6	8.91	5.31	-7.19	
6,902.1	86.66	328.32	6,058.3	1,411.1	563.2	1,506.0	10.73	9.03	-5.81	
#1119 LP										
6,918.0	88.10	327.40	6,059.1	1,424.6	554.7	1,513.6	10.73	9.03	-5.80	
6,950.0	90.30	326.20	6,059.5	1,451.3	537.2	1,528.4	7.83	6.88	-3.75	
7,014.0	92.30	324.90	6,058.0	1,504.1	501.0	1,556.6	3.73	3.13	-2.03	
7,109.0	93.10	325.00	6,053.6	1,581.8	446.5	1,597.6	0.85	0.84	0.11	
7,204.0	92.40	324.80	6,049.0	1,659.4	391.9	1,638.5	0.77	-0.74	-0.21	
7,299.0	88.10	324.20	6,048.6	1,736.7	336.8	1,678.9	4.57	-4.53	-0.63	
7,394.0	89.80	323.30	6,050.3	1,813.3	280.6	1,718.2	2.02	1.79	-0.95	
7,490.0	91.80	322.70	6,049.0	1,890.0	222.9	1,756.7	2.18	2.08	-0.63	
7,586.0	91.30	324.80	6,046.4	1,967.4	166.1	1,796.3	2.25	-0.52	2.19	
7,677.0	90.60	325.70	6,044.9	2,042.1	114.3	1,836.1	1.25	-0.77	0.99	



Company:	Triad Hunter	Local Co-ordinate Reference:	Well Collins #1119 - Slot #1119
Project:	Collins Unit	TVD Reference:	20' RKB - 740' GL @ 760.0usft (Warren Drilling #12)
Site:	Collins Unit - Tyler County, WV	MD Reference:	20' RKB - 740' GL @ 760.0usft (Warren Drilling #12)
Well:	Collins #1119	North Reference:	Grid
Wellbore:	Original Well	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Local database

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)	
7,768.0	90.70	327.10	6,043.9	2,117.9	63.9	1,877.5	1.54	0.11	1.54	
7,857.0	89.60	328.30	6,043.6	2,193.1	16.3	1,919.7	1.83	-1.24	1.35	
7,948.0	88.70	327.70	6,045.0	2,270.3	-31.9	1,963.4	1.19	-0.99	-0.66	
8,039.0	90.90	328.30	6,045.3	2,347.5	-80.1	2,007.0	2.51	2.42	0.66	
8,132.0	90.60	327.30	6,044.1	2,426.2	-129.6	2,051.3	1.12	-0.32	-1.08	
8,223.0	90.80	326.90	6,043.0	2,502.6	-179.1	2,093.7	0.49	0.22	-0.44	
8,314.0	90.40	327.80	6,042.0	2,579.2	-228.2	2,136.4	1.08	-0.44	0.99	
8,405.0	88.80	325.80	6,042.6	2,655.3	-278.0	2,178.3	2.81	-1.76	-2.20	
8,496.0	90.40	328.10	6,043.3	2,731.6	-327.6	2,220.5	3.08	1.76	2.53	
8,592.0	90.80	324.00	6,042.3	2,811.2	-381.2	2,263.6	4.29	0.42	-4.27	
8,687.0	90.50	323.20	6,041.2	2,887.6	-437.6	2,302.6	0.90	-0.32	-0.84	
8,783.0	90.50	324.00	6,040.4	2,964.9	-494.5	2,342.1	0.83	0.00	0.83	
8,879.0	90.60	323.20	6,039.4	3,042.2	-551.5	2,381.5	0.84	0.10	-0.83	
8,974.0	92.80	322.20	6,036.6	3,117.7	-609.0	2,419.2	2.54	2.32	-1.05	
9,069.0	91.50	323.80	6,033.1	3,193.5	-666.2	2,457.2	2.17	-1.37	1.68	
9,165.0	91.00	324.60	6,031.0	3,271.4	-722.3	2,497.6	0.98	-0.52	0.83	
9,260.0	91.20	325.90	6,029.1	3,349.4	-776.5	2,539.1	1.38	0.21	1.37	
9,356.0	89.70	327.60	6,028.4	3,429.7	-829.1	2,583.3	2.36	-1.56	1.77	
9,451.0	91.70	327.00	6,027.2	3,509.6	-880.4	2,627.8	2.20	2.11	-0.63	
9,547.0	92.80	327.90	6,023.5	3,590.5	-932.0	2,673.0	1.48	1.15	0.94	
9,642.0	92.50	327.80	6,019.1	3,670.8	-982.5	2,718.3	0.33	-0.32	-0.11	
9,738.0	91.40	327.80	6,015.8	3,752.0	-1,033.6	2,764.0	1.15	-1.15	0.00	
9,833.0	91.70	326.10	6,013.2	3,831.6	-1,085.4	2,808.0	1.82	0.32	-1.79	
9,929.0	90.40	323.90	6,011.5	3,910.2	-1,140.5	2,849.5	2.66	-1.35	-2.29	
10,024.0	88.70	323.00	6,012.2	3,986.5	-1,197.0	2,888.3	2.02	-1.79	-0.95	
10,119.0	89.50	323.20	6,013.7	4,062.5	-1,254.1	2,926.6	0.87	0.84	0.21	
10,214.0	90.50	324.70	6,013.7	4,139.3	-1,310.0	2,966.1	1.90	1.05	1.58	
10,310.0	91.00	324.40	6,012.5	4,217.5	-1,365.7	3,007.0	0.61	0.52	-0.31	
10,406.0	90.80	325.50	6,010.9	4,296.1	-1,420.8	3,048.5	1.16	-0.21	1.15	
10,501.0	89.50	326.60	6,010.7	4,374.9	-1,473.8	3,091.2	1.79	-1.37	1.16	
10,597.0	90.20	326.00	6,010.9	4,454.7	-1,527.1	3,134.7	0.96	0.73	-0.63	
10,692.0	90.80	325.50	6,010.1	4,533.3	-1,580.6	3,176.9	0.82	0.63	-0.53	
10,788.0	90.80	327.80	6,008.8	4,613.4	-1,633.3	3,221.0	2.40	0.00	2.40	
10,883.0	90.20	327.60	6,007.9	4,693.7	-1,684.1	3,266.1	0.67	-0.63	-0.21	
10,979.0	90.70	326.90	6,007.2	4,774.5	-1,736.0	3,311.0	0.90	0.52	-0.73	
11,073.0	89.40	328.60	6,007.1	4,854.0	-1,786.2	3,355.7	2.28	-1.38	1.81	
11,169.0	90.00	327.00	6,007.6	4,935.2	-1,837.3	3,401.5	1.78	0.63	-1.67	
11,264.0	90.20	326.00	6,007.4	5,014.4	-1,889.8	3,444.8	1.07	0.21	-1.05	
11,360.0	91.20	325.80	6,006.3	5,093.9	-1,943.6	3,487.7	1.06	1.04	-0.21	
11,465.0	90.30	322.50	6,004.9	5,179.0	-2,005.1	3,531.8	3.26	-0.86	-3.14	
11,551.0	90.40	322.10	6,004.4	5,247.0	-2,057.7	3,565.3	0.48	0.12	-0.47	
11,647.0	91.10	322.50	6,003.1	5,323.0	-2,116.4	3,602.7	0.84	0.73	0.42	



Company:	Triad Hunter	Local Co-ordinate Reference:	Well Collins #1119 - Slot #1119
Project:	Collins Unit	TVD Reference:	20' RKB - 740' GL @ 760.0usft (Warren Drilling #12)
Site:	Collins Unit - Tyler County, WV	MD Reference:	20' RKB - 740' GL @ 760.0usft (Warren Drilling #12)
Well:	Collins #1119	North Reference:	Grid
Wellbore:	Original Well	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Local database

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)
11,742.0	91.40	322.00	6,001.0	5,398.1	-2,174.5	3,639.7	0.61	0.32	-0.53
11,838.0	91.50	324.40	5,998.6	5,474.9	-2,232.0	3,678.5	2.50	0.10	2.50
11,933.0	90.30	325.10	5,997.1	5,552.5	-2,286.8	3,719.3	1.46	-1.26	0.74
12,029.0	90.90	329.40	5,996.1	5,633.2	-2,338.7	3,764.2	4.52	0.63	4.48
12,124.0	90.40	327.90	5,995.0	5,714.3	-2,388.1	3,810.7	1.66	-0.53	-1.58
12,220.0	89.40	329.80	5,995.2	5,796.5	-2,437.8	3,857.9	2.24	-1.04	1.98
12,315.0	89.50	329.40	5,996.1	5,878.4	-2,485.9	3,905.8	0.43	0.11	-0.42
12,411.0	90.80	330.70	5,995.9	5,961.6	-2,533.8	3,954.8	1.92	1.35	1.35
12,507.0	89.40	330.40	5,995.7	6,045.2	-2,581.0	4,004.6	1.49	-1.46	-0.31
12,602.0	89.70	329.30	5,996.4	6,127.3	-2,628.7	4,052.8	1.20	0.32	-1.16
12,697.0	90.30	327.00	5,996.4	6,208.0	-2,678.8	4,098.5	2.50	0.63	-2.42
12,793.0	90.80	326.70	5,995.5	6,288.4	-2,731.3	4,142.9	0.61	0.52	-0.31
12,889.0	91.40	325.70	5,993.7	6,368.2	-2,784.7	4,186.2	1.21	0.63	-1.04
12,931.0	91.90	324.70	5,992.5	6,402.6	-2,808.7	4,204.5	2.66	1.19	-2.38
Final Survey									
12,984.0	91.90	324.70	5,990.7	6,445.9	-2,839.3	4,227.2	0.00	0.00	0.00
PROJ to Bit - #1119 PBHL									

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
12,931.0	5,992.5	6,402.6	-2,808.7	Final Survey
12,984.0	5,990.7	6,445.9	-2,839.3	PROJ to Bit

Checked By: _____ Approved By: _____ Date: _____