

Project: Garfield County, CO  
Site: Sec 8, T6S, R94W  
Well: NR 414-4  
Wellbore: Wellbore #1  
Design: Plan #3  
Latitude: 39.539307  
Longitude: -107.903787  
Ground Level: 5979.60  
KB=24' @ 6003.60usft (H&P #318)

PROJECT DETAILS: Garfield County, CO  
Geodetic System: US State Plane 1983  
Datum: North American Datum 1983  
Ellipsoid: GRS 1980  
Zone: Colorado Central Zone  
System Datum: Mean Sea Level

## REFERENCE INFORMATION

Co-ordinate (N/E) Reference: Well NR 414-4, True North  
Vertical (VD) Reference: KB=24' @ 6003.60usft (H&P #318)  
Section (VS) Reference: Slot - (0.001, 0.00E)  
Measured Depth Reference: KB=24' @ 6003.60usft (H&P #318)  
Calculation Method: Minimum Curvature

## WELL DETAILS: NR 414-4

0.00 +N/-S 0.00 +E/-W Northing 1630289.56 Easting 2322146.67 Latitude 39.539307 Longitude -107.903787

## WELLBORE TARGET DETAILS (MAP CO-ORDINATES AND LAT/LONG)

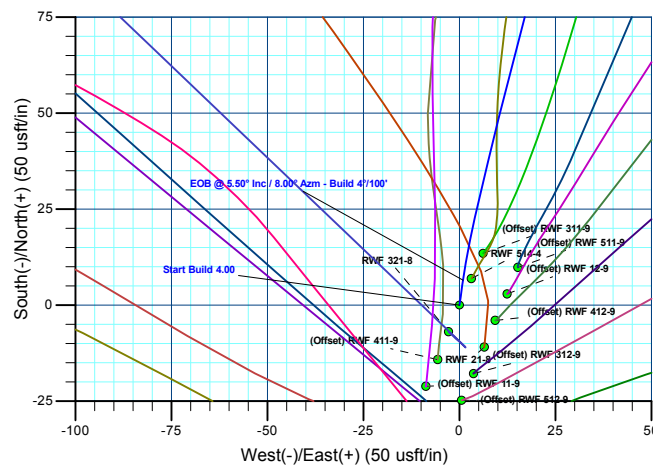
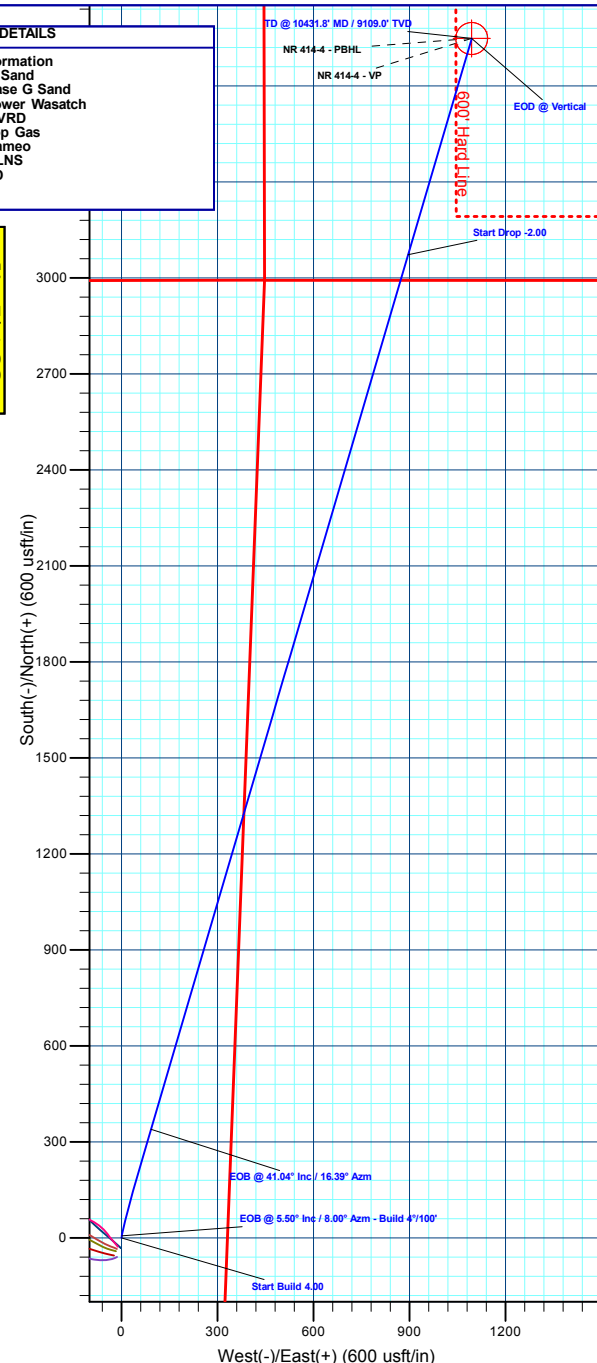
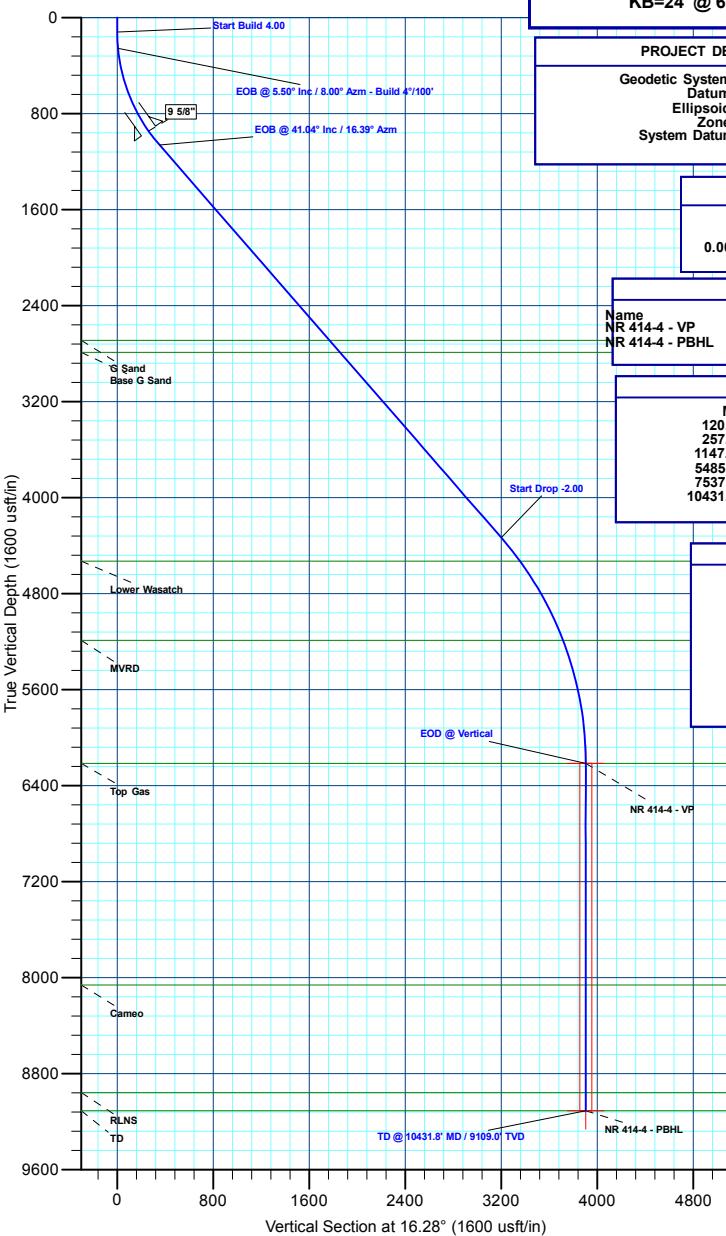
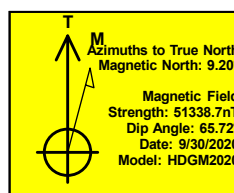
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
NR 414-4 - VP	6215.00	3748.12	1094.39	1634007.41	2323339.83	39.549597	-107.899906	Point
NR 414-4 - PBHL	9109.00	3748.12	1094.39	1634007.41	2323339.83	39.549597	-107.899906	Circle (Radius: 50.00)

## ANNOTATIONS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Vsect	Departure	Annotation
120.00	0.00	0.00	120.00	0.00	0.00	0.00	0.00	Start Build 4.00
257.50	5.50	8.00	257.29	6.53	0.92	6.53	6.59	EOB @ 5.50° Inc / 8.00° Azm - Build 4°/100'
1147.70	41.04	16.39	1062.12	339.97	92.26	352.20	352.41	EOB @ 41.04° Inc / 16.39° Azm
5485.67	41.04	16.39	4333.95	3072.64	895.77	3200.55	3200.76	Start Drop -2.00
7537.76	0.00	0.00	6215.00	3748.12	1094.39	3904.62	3904.84	EOD @ Vertical
10431.76	0.00	0.00	9109.00	3748.12	1094.39	3904.62	3904.84	TD @ 10431.8' MD / 9109.0' TVD

## FORMATION TOP DETAILS

TVDPath	MDPath	Formation
2690.00	3306.03	G Sand
2790.00	3438.62	Base G Sand
4530.00	5736.38	Lower Wasatch
5190.00	6489.53	MVRD
6215.00	7537.76	Top Gas
8062.00	9384.76	Cameo
8959.00	10281.76	RLNS
9109.00	10431.76	TD



Plan: Plan #3 (NR 414-4/Wellbore #1)

Created By: Chase Chambers Date: 11:26, November 10 2020





# **Terra Energy Partners, LLP**

**Garfield County, CO**

**Sec 8, T6S, R94W**

**NR 414-4**

**Wellbore #1**

**Plan: Plan #3**

## **QES Well Planning Report**

**10 November, 2020**



<b>Database:</b>	EDM 5000.1 Single User Db	<b>Local Co-ordinate Reference:</b>	Well NR 414-4
<b>Company:</b>	Terra Energy Partners, LLP	<b>TVD Reference:</b>	KB=24' @ 6003.60usft (H&P #318)
<b>Project:</b>	Garfield County, CO	<b>MD Reference:</b>	KB=24' @ 6003.60usft (H&P #318)
<b>Site:</b>	Sec 8, T6S, R94W	<b>North Reference:</b>	True
<b>Well:</b>	NR 414-4	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #3		

<b>Project</b>	Garfield County, CO		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	Colorado Central Zone		

Site		Sec 8, T6S, R94W			
Site Position:		Northing:	1,630,278.47 usft	Latitude:	39.539277
From:	Lat/Long	Easting:	2,322,152.86 usft	Longitude:	-107.903764
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	-1.52 °

Well	NR 414-4					
Well Position	+N/-S	10.91 usft	Northing:	1,630,289.56 usft	Latitude:	39.539307
	+E/-W	-6.49 usft	Easting:	2,322,146.67 usft	Longitude:	-107.903787
Position Uncertainty		0.00 usft	Wellhead Elevation:		Ground Level:	5,979.60 usft

<b>Wellbore</b>	Wellbore #1				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	HDGM2020	9/30/2020	9.20	65.72	51,338.70000000

<b>Design</b>	Plan #3			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>
	0.00	0.00	0.00	16.28

<b>Plan Sections</b>										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
120.00	0.00	0.00	120.00	0.00	0.00	0.00	0.00	0.00	0.00	
257.50	5.50	8.00	257.29	6.53	0.92	4.00	4.00	0.00	8.00	
1,147.70	41.04	16.39	1,062.12	339.97	92.26	4.00	3.99	0.94	9.47	
5,485.67	41.04	16.39	4,333.95	3,072.64	895.77	0.00	0.00	0.00	0.00	
7,537.76	0.00	0.00	6,215.00	3,748.12	1,094.39	2.00	-2.00	0.00	180.00	NR 414-4 - VP
10,431.76	0.00	0.00	9,109.00	3,748.12	1,094.39	0.00	0.00	0.00	0.00	NR 414-4 - PBHL

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<b>Company:</b>	Terra Energy Partners, LLP	<b>TVD Reference:</b>	KB=24' @ 6003.60usft (H&P #318)
<b>Project:</b>	Garfield County, CO	<b>MD Reference:</b>	KB=24' @ 6003.60usft (H&P #318)
<b>Site:</b>	Sec 8, T6S, R94W	<b>North Reference:</b>	True
<b>Well:</b>	NR 414-4	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #3		

Planned 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	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Start Build 4.00</b>									
120.00	0.00	0.00	120.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	3.20	8.00	199.96	2.21	0.31	2.21	4.00	4.00	0.00
<b>EOB @ 5.50° Inc / 8.00° Azm - Build 4°/100'</b>									
257.50	5.50	8.00	257.29	6.53	0.92	6.53	4.00	4.00	0.00
300.00	7.18	10.24	299.53	11.16	1.67	11.18	4.00	3.96	5.26
400.00	11.16	12.84	398.23	26.76	4.94	27.07	4.00	3.98	2.60
500.00	15.15	14.09	495.59	48.88	10.27	49.80	4.00	3.99	1.25
600.00	19.15	14.82	591.12	77.42	17.65	79.26	4.00	3.99	0.73
700.00	23.14	15.31	684.37	112.24	27.04	115.32	4.00	4.00	0.49
800.00	27.14	15.66	774.88	153.17	38.39	157.79	4.00	4.00	0.35
900.00	31.14	15.93	862.20	200.01	51.64	206.47	4.00	4.00	0.27
<b>9 5/8"</b>									
1,000.00	35.14	16.14	945.92	252.54	66.74	261.12	4.00	4.00	0.21
1,100.00	39.13	16.31	1,025.63	310.49	83.61	321.48	4.00	4.00	0.17
<b>EOB @ 41.04° Inc / 16.39° Azm</b>									
1,147.70	41.04	16.39	1,062.12	339.97	92.26	352.20	4.00	4.00	0.15
1,200.00	41.04	16.39	1,101.57	372.91	101.95	386.54	0.00	0.00	0.00
1,300.00	41.04	16.39	1,176.99	435.90	120.47	452.20	0.00	0.00	0.00
1,400.00	41.04	16.39	1,252.41	498.90	138.99	517.86	0.00	0.00	0.00
1,500.00	41.04	16.39	1,327.84	561.89	157.51	583.52	0.00	0.00	0.00
1,600.00	41.04	16.39	1,403.26	624.89	176.04	649.18	0.00	0.00	0.00
1,700.00	41.04	16.39	1,478.68	687.88	194.56	714.84	0.00	0.00	0.00
1,800.00	41.04	16.39	1,554.11	750.88	213.08	780.50	0.00	0.00	0.00
1,900.00	41.04	16.39	1,629.53	813.87	231.60	846.16	0.00	0.00	0.00
2,000.00	41.04	16.39	1,704.95	876.86	250.13	911.82	0.00	0.00	0.00
2,100.00	41.04	16.39	1,780.37	939.86	268.65	977.48	0.00	0.00	0.00
2,200.00	41.04	16.39	1,855.80	1,002.85	287.17	1,043.15	0.00	0.00	0.00
2,300.00	41.04	16.39	1,931.22	1,065.85	305.70	1,108.81	0.00	0.00	0.00
2,400.00	41.04	16.39	2,006.64	1,128.84	324.22	1,174.47	0.00	0.00	0.00
2,500.00	41.04	16.39	2,082.07	1,191.84	342.74	1,240.13	0.00	0.00	0.00
2,600.00	41.04	16.39	2,157.49	1,254.83	361.26	1,305.79	0.00	0.00	0.00
2,700.00	41.04	16.39	2,232.91	1,317.82	379.79	1,371.45	0.00	0.00	0.00
2,800.00	41.04	16.39	2,308.34	1,380.82	398.31	1,437.11	0.00	0.00	0.00
2,900.00	41.04	16.39	2,383.76	1,443.81	416.83	1,502.77	0.00	0.00	0.00
3,000.00	41.04	16.39	2,459.18	1,506.81	435.35	1,568.43	0.00	0.00	0.00
3,100.00	41.04	16.39	2,534.61	1,569.80	453.88	1,634.09	0.00	0.00	0.00
3,200.00	41.04	16.39	2,610.03	1,632.79	472.40	1,699.75	0.00	0.00	0.00
3,300.00	41.04	16.39	2,685.45	1,695.79	490.92	1,765.41	0.00	0.00	0.00
<b>G Sand</b>									
3,306.03	41.04	16.39	2,690.00	1,699.59	492.04	1,769.37	0.00	0.00	0.00
3,400.00	41.04	16.39	2,760.87	1,758.78	509.45	1,831.08	0.00	0.00	0.00
<b>Base G Sand</b>									
3,438.62	41.04	16.39	2,790.00	1,783.11	516.60	1,856.43	0.00	0.00	0.00
3,500.00	41.04	16.39	2,836.30	1,821.78	527.97	1,896.74	0.00	0.00	0.00
3,600.00	41.04	16.39	2,911.72	1,884.77	546.49	1,962.40	0.00	0.00	0.00
3,700.00	41.04	16.39	2,987.14	1,947.77	565.01	2,028.06	0.00	0.00	0.00
3,800.00	41.04	16.39	3,062.57	2,010.76	583.54	2,093.72	0.00	0.00	0.00
3,900.00	41.04	16.39	3,137.99	2,073.75	602.06	2,159.38	0.00	0.00	0.00
4,000.00	41.04	16.39	3,213.41	2,136.75	620.58	2,225.04	0.00	0.00	0.00
4,100.00	41.04	16.39	3,288.84	2,199.74	639.10	2,290.70	0.00	0.00	0.00

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<b>Project:</b>	Garfield County, CO	<b>MD Reference:</b>	KB=24' @ 6003.60usft (H&P #318)
<b>Site:</b>	Sec 8, T6S, R94W	<b>North Reference:</b>	True
<b>Well:</b>	NR 414-4	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #3		

Planned 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)
4,200.00	41.04	16.39	3,364.26	2,262.74	657.63	2,356.36	0.00	0.00	0.00
4,300.00	41.04	16.39	3,439.68	2,325.73	676.15	2,422.02	0.00	0.00	0.00
4,400.00	41.04	16.39	3,515.11	2,388.73	694.67	2,487.68	0.00	0.00	0.00
4,500.00	41.04	16.39	3,590.53	2,451.72	713.20	2,553.34	0.00	0.00	0.00
4,600.00	41.04	16.39	3,665.95	2,514.71	731.72	2,619.01	0.00	0.00	0.00
4,700.00	41.04	16.39	3,741.37	2,577.71	750.24	2,684.67	0.00	0.00	0.00
4,800.00	41.04	16.39	3,816.80	2,640.70	768.76	2,750.33	0.00	0.00	0.00
4,900.00	41.04	16.39	3,892.22	2,703.70	787.29	2,815.99	0.00	0.00	0.00
5,000.00	41.04	16.39	3,967.64	2,766.69	805.81	2,881.65	0.00	0.00	0.00
5,100.00	41.04	16.39	4,043.07	2,829.68	824.33	2,947.31	0.00	0.00	0.00
5,200.00	41.04	16.39	4,118.49	2,892.68	842.85	3,012.97	0.00	0.00	0.00
5,300.00	41.04	16.39	4,193.91	2,955.67	861.38	3,078.63	0.00	0.00	0.00
5,400.00	41.04	16.39	4,269.34	3,018.67	879.90	3,144.29	0.00	0.00	0.00
<b>Start Drop -2.00</b>									
5,485.67	41.04	16.39	4,333.95	3,072.64	895.77	3,200.55	0.00	0.00	0.00
5,500.00	40.76	16.39	4,344.78	3,081.64	898.41	3,209.93	2.00	-2.00	0.00
5,600.00	38.76	16.39	4,421.66	3,142.99	916.45	3,273.87	2.00	-2.00	0.00
5,700.00	36.76	16.39	4,500.72	3,201.73	933.73	3,335.10	2.00	-2.00	0.00
<b>Lower Wasatch</b>									
5,736.38	36.03	16.39	4,530.00	3,222.43	939.81	3,356.68	2.00	-2.00	0.00
5,800.00	34.76	16.39	4,581.86	3,257.78	950.21	3,393.53	2.00	-2.00	0.00
5,900.00	32.76	16.39	4,665.00	3,311.09	965.88	3,449.09	2.00	-2.00	0.00
6,000.00	30.76	16.39	4,750.03	3,361.58	980.73	3,501.72	2.00	-2.00	0.00
6,100.00	28.76	16.39	4,836.84	3,409.19	994.73	3,551.34	2.00	-2.00	0.00
6,200.00	26.76	16.39	4,925.33	3,453.86	1,007.86	3,597.91	2.00	-2.00	0.00
6,300.00	24.76	16.39	5,015.39	3,495.55	1,020.12	3,641.36	2.00	-2.00	0.00
6,400.00	22.76	16.39	5,106.91	3,534.19	1,031.48	3,681.64	2.00	-2.00	0.00
<b>MVRD</b>									
6,489.53	20.96	16.39	5,190.00	3,566.17	1,040.89	3,714.98	2.00	-2.00	0.00
6,500.00	20.76	16.39	5,199.79	3,569.75	1,041.94	3,718.70	2.00	-2.00	0.00
6,600.00	18.76	16.39	5,293.90	3,602.18	1,051.47	3,752.50	2.00	-2.00	0.00
6,700.00	16.76	16.39	5,389.13	3,631.43	1,060.08	3,783.00	2.00	-2.00	0.00
6,800.00	14.76	16.39	5,485.37	3,657.48	1,067.74	3,810.15	2.00	-2.00	0.00
6,900.00	12.76	16.39	5,582.49	3,680.29	1,074.44	3,833.92	2.00	-2.00	0.00
7,000.00	10.76	16.39	5,680.39	3,699.84	1,080.19	3,854.30	2.00	-2.00	0.00
7,100.00	8.76	16.39	5,778.94	3,716.09	1,084.97	3,871.24	2.00	-2.00	0.00
7,200.00	6.76	16.39	5,878.02	3,729.04	1,088.78	3,884.73	2.00	-2.00	0.00
7,300.00	4.76	16.39	5,977.51	3,738.66	1,091.60	3,894.76	2.00	-2.00	0.00
7,400.00	2.76	16.39	6,077.29	3,744.94	1,093.45	3,901.31	2.00	-2.00	0.00
7,500.00	0.76	16.39	6,177.24	3,747.88	1,094.32	3,904.37	2.00	-2.00	0.00
<b>EOD @ Vertical - Top Gas</b>									
7,537.76	0.00	0.00	6,215.00	3,748.12	1,094.39	3,904.62	2.00	-2.00	0.00
7,600.00	0.00	0.00	6,277.24	3,748.12	1,094.39	3,904.62	0.00	0.00	0.00
7,700.00	0.00	0.00	6,377.24	3,748.12	1,094.39	3,904.62	0.00	0.00	0.00
7,800.00	0.00	0.00	6,477.24	3,748.12	1,094.39	3,904.62	0.00	0.00	0.00
7,900.00	0.00	0.00	6,577.24	3,748.12	1,094.39	3,904.62	0.00	0.00	0.00
8,000.00	0.00	0.00	6,677.24	3,748.12	1,094.39	3,904.62	0.00	0.00	0.00
8,100.00	0.00	0.00	6,777.24	3,748.12	1,094.39	3,904.62	0.00	0.00	0.00
8,200.00	0.00	0.00	6,877.24	3,748.12	1,094.39	3,904.62	0.00	0.00	0.00
8,300.00	0.00	0.00	6,977.24	3,748.12	1,094.39	3,904.62	0.00	0.00	0.00
8,400.00	0.00	0.00	7,077.24	3,748.12	1,094.39	3,904.62	0.00	0.00	0.00
8,500.00	0.00	0.00	7,177.24	3,748.12	1,094.39	3,904.62	0.00	0.00	0.00
8,600.00	0.00	0.00	7,277.24	3,748.12	1,094.39	3,904.62	0.00	0.00	0.00

<b>Database:</b>	EDM 5000.1 Single User Db	<b>Local Co-ordinate Reference:</b>	Well NR 414-4
<b>Company:</b>	Terra Energy Partners, LLP	<b>TVD Reference:</b>	KB=24' @ 6003.60usft (H&P #318)
<b>Project:</b>	Garfield County, CO	<b>MD Reference:</b>	KB=24' @ 6003.60usft (H&P #318)
<b>Site:</b>	Sec 8, T6S, R94W	<b>North Reference:</b>	True
<b>Well:</b>	NR 414-4	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #3		

Planned 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)
8,700.00	0.00	0.00	7,377.24	3,748.12	1,094.39	3,904.62	0.00	0.00	0.00
8,800.00	0.00	0.00	7,477.24	3,748.12	1,094.39	3,904.62	0.00	0.00	0.00
8,900.00	0.00	0.00	7,577.24	3,748.12	1,094.39	3,904.62	0.00	0.00	0.00
9,000.00	0.00	0.00	7,677.24	3,748.12	1,094.39	3,904.62	0.00	0.00	0.00
9,100.00	0.00	0.00	7,777.24	3,748.12	1,094.39	3,904.62	0.00	0.00	0.00
9,200.00	0.00	0.00	7,877.24	3,748.12	1,094.39	3,904.62	0.00	0.00	0.00
9,300.00	0.00	0.00	7,977.24	3,748.12	1,094.39	3,904.62	0.00	0.00	0.00
Cameo									
9,384.76	0.00	0.00	8,062.00	3,748.12	1,094.39	3,904.62	0.00	0.00	0.00
9,400.00	0.00	0.00	8,077.24	3,748.12	1,094.39	3,904.62	0.00	0.00	0.00
9,500.00	0.00	0.00	8,177.24	3,748.12	1,094.39	3,904.62	0.00	0.00	0.00
9,600.00	0.00	0.00	8,277.24	3,748.12	1,094.39	3,904.62	0.00	0.00	0.00
9,700.00	0.00	0.00	8,377.24	3,748.12	1,094.39	3,904.62	0.00	0.00	0.00
9,800.00	0.00	0.00	8,477.24	3,748.12	1,094.39	3,904.62	0.00	0.00	0.00
9,900.00	0.00	0.00	8,577.24	3,748.12	1,094.39	3,904.62	0.00	0.00	0.00
10,000.00	0.00	0.00	8,677.24	3,748.12	1,094.39	3,904.62	0.00	0.00	0.00
10,100.00	0.00	0.00	8,777.24	3,748.12	1,094.39	3,904.62	0.00	0.00	0.00
10,200.00	0.00	0.00	8,877.24	3,748.12	1,094.39	3,904.62	0.00	0.00	0.00
RLNS									
10,281.76	0.00	0.00	8,959.00	3,748.12	1,094.39	3,904.62	0.00	0.00	0.00
10,300.00	0.00	0.00	8,977.24	3,748.12	1,094.39	3,904.62	0.00	0.00	0.00
10,400.00	0.00	0.00	9,077.24	3,748.12	1,094.39	3,904.62	0.00	0.00	0.00
TD @ 10431.8' MD / 9109.0' TVD - TD									
10,431.76	0.00	0.00	9,109.00	3,748.12	1,094.39	3,904.62	0.00	0.00	0.00

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
NR 414-4 - VP	0.00	0.00	6,215.00	3,748.12	1,094.39	1,634,007.41	2,323,339.83	39.549597	-107.899906
- hit/miss target									
- plan hits target center									
- Point									
NR 414-4 - PBHL	0.00	0.00	9,109.00	3,748.12	1,094.39	1,634,007.41	2,323,339.83	39.549597	-107.899906
- plan hits target center									
- Circle (radius 50.00)									

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,000.00	945.92	9 5/8"	9-5/8	12-1/4	

<b>Database:</b>	EDM 5000.1 Single User Db	<b>Local Co-ordinate Reference:</b>	Well NR 414-4
<b>Company:</b>	Terra Energy Partners, LLP	<b>TVD Reference:</b>	KB=24' @ 6003.60usft (H&P #318)
<b>Project:</b>	Garfield County, CO	<b>MD Reference:</b>	KB=24' @ 6003.60usft (H&P #318)
<b>Site:</b>	Sec 8, T6S, R94W	<b>North Reference:</b>	True
<b>Well:</b>	NR 414-4	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #3		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
3,306.03	2,690.00	G Sand				
3,438.62	2,790.00	Base G Sand				
5,736.38	4,530.00	Lower Wasatch				
6,489.53	5,190.00	MVRD				
7,537.76	6,215.00	Top Gas				
9,384.76	8,062.00	Cameo				
10,281.76	8,959.00	RLNS				
10,431.76	9,109.00	TD				

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
120.00	120.00	0.00	0.00	Start Build 4.00	
257.50	257.29	6.53	0.92	EOB @ 5.50° Inc / 8.00° Azm - Build 4°/100'	
1,147.70	1,062.12	339.97	92.26	EOB @ 41.04° Inc / 16.39° Azm	
5,485.67	4,333.95	3,072.64	895.77	Start Drop -2.00	
7,537.76	6,215.00	3,748.12	1,094.39	EOD @ Vertical	
10,431.76	9,109.00	3,748.12	1,094.39	TD @ 10431.8' MD / 9109.0' TVD	





# **Terra Energy Partners, LLP**

**Garfield County, CO**

**Sec 8, T6S, R94W**

**NR 414-4**

**Wellbore #1**

**Plan #3**

## **QES Anticollision Report**

**09 November, 2020**



<b>Company:</b>	Terra Energy Partners, LLP	<b>Local Co-ordinate Reference:</b>	Well NR 414-4
<b>Project:</b>	Garfield County, CO	<b>TVD Reference:</b>	KB=24' @ 6003.6usft (H&P #318)
<b>Reference Site:</b>	Sec 8, T6S, R94W	<b>MD Reference:</b>	KB=24' @ 6003.6usft (H&P #318)
<b>Site Error:</b>	0.0 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	NR 414-4	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDM 5000.1 Single User Db
<b>Reference Design:</b>	Plan #3	<b>Offset TVD Reference:</b>	Offset Datum

Reference	Plan #3		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD Interval 100.0usft	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum separation factor of 6.00	Error Surface:	Pedal Curve
Warning Levels Evaluated at:	2.00 Sigma		

Survey Tool Program		Date	11/9/2020	
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.0	10,431.8	Plan #3 (Wellbore #1)	OWSG (REV5) MWD HDGM	OWSG MWD - Standard

Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Sec 8, T6S, R94W						
(Offset) RWF 11-9 - Wellbore #1 - Wellbore #1	400.0	403.8	26.7	20.6	4.388	CC, ES
(Offset) RWF 11-9 - Wellbore #1 - Wellbore #1	500.0	504.8	32.2	22.8	3.425	SF
(Offset) RWF 12-9 - Wellbore #1 - Wellbore #1	400.0	399.2	18.6	14.9	4.979	CC, ES
(Offset) RWF 12-9 - Wellbore #1 - Wellbore #1	500.0	498.9	27.1	20.8	4.307	SF
(Offset) RWF 23-9 - Wellbore #1 - Wellbore #1						Out of range
(Offset) RWF 311-9 - Wellbore #1 - Wellbore #1	500.0	497.4	13.1	5.7	1.755	Collision Risk Procedures Req., ES
(Offset) RWF 311-9 - Wellbore #1 - Wellbore #1	564.7	561.9	12.8	6.8	2.142	CC
(Offset) RWF 311-9 - Wellbore #1 - Wellbore #1	700.0	696.8	16.9	5.9	1.537	Collision Risk Procedures Req., ES
(Offset) RWF 312-9 - Wellbore #1 - Wellbore #1						Out of range
(Offset) RWF 322-9 - Wellbore #1 - Wellbore #1						Out of range
(Offset) RWF 411-9 - Wellbore #1 - Wellbore #1	300.0	301.8	9.3	5.6	2.557	CC, ES
(Offset) RWF 411-9 - Wellbore #1 - Wellbore #1	400.0	401.8	12.1	7.0	2.378	SF
(Offset) RWF 412-9 - Wellbore #1 - Wellbore #1	400.0	399.4	24.8	20.5	5.791	CC, ES
(Offset) RWF 412-9 - Wellbore #1 - Wellbore #1	500.0	499.2	35.6	29.1	5.494	SF
(Offset) RWF 511-9 - Wellbore #1 - Wellbore #1	400.0	397.3	23.2	19.0	5.538	CC, ES
(Offset) RWF 511-9 - Wellbore #1 - Wellbore #1	800.0	793.6	39.7	29.6	3.956	SF
(Offset) RWF 512-9 - Wellbore #1 - Wellbore #1						Out of range
(Offset) RWF 513-9 - Wellbore #1 - Wellbore #1						Out of range
(Offset) RWF 522-9 - Wellbore #1 - Wellbore #1						Out of range
RWF 21-8 - Wellbore #1 - Plan #2	200.0	200.4	13.1	10.1	4.402	CC, ES
RWF 21-8 - Wellbore #1 - Plan #2	300.0	300.5	16.2	11.7	3.611	SF
RWF 22-8 - Wellbore #1 - Wellbore #1						Out of range
RWF 321-8 - Wellbore #1 - Plan #2	200.0	199.7	10.4	7.5	3.535	CC, ES, SF
RWF 322-8 - Wellbore #1 - Wellbore #1						Out of range
RWF 421-8 - Wellbore #1 - Plan #2						Out of range
RWF 422-8 - Wellbore #1 - Wellbore #1						Out of range
RWF 514-4 - Wellbore #1 - Plan #2	300.0	299.5	4.6	1.5	1.499	Collision Avoidance Req., ES
RWF 514-4 - Wellbore #1 - Plan #2	312.1	311.5	4.5	1.7	1.584	Collision Risk Procedures Req., ES
RWF 521-8 - Wellbore #1 - Wellbore #1	300.0	300.7	35.2	28.5	5.252	CC, ES
RWF 521-8 - Wellbore #1 - Wellbore #1	400.0	400.1	47.3	37.9	5.046	SF
RWF 522-8 - Wellbore #1 - Wellbore #1						Out of range

<b>Company:</b>	Terra Energy Partners, LLP	<b>Local Co-ordinate Reference:</b>	Well NR 414-4
<b>Project:</b>	Garfield County, CO	<b>TVD Reference:</b>	KB=24' @ 6003.6usft (H&P #318)
<b>Reference Site:</b>	Sec 8, T6S, R94W	<b>MD Reference:</b>	KB=24' @ 6003.6usft (H&P #318)
<b>Site Error:</b>	0.0 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	NR 414-4	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDM 5000.1 Single User Db
<b>Reference Design:</b>	Plan #3	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b> Sec 8, T6S, R94W - (Offset) RWF 11-9 - Wellbore #1 - Wellbore #1												<b>Offset Site Error:</b>	0.0 usft
<b>Survey Program:</b> 68-GYRO-NS, 427-OWSG (REV5) MWD HDGM Standard												<b>Offset Well Error:</b>	0.0 usft
Reference Measured Depth (usft)	Vertical Depth (usft)	Offset Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Distance Between Centres (usft)	Between Ellipses (usft)	Separation Factor	Warning	
400.0	398.2	403.8	402.6	4.6	1.7	-167.06	3.0	-6.6	26.7	20.6	4.388	CC, ES	
500.0	495.6	504.8	501.8	6.6	3.3	-162.89	21.8	-6.3	32.2	22.8	3.425	SF	
600.0	591.1	605.7	599.8	8.1	4.6	-157.89	45.3	-6.8	41.2	29.5	3.538		
700.0	684.4	706.6	696.9	9.4	5.4	-154.73	73.1	-7.0	53.3	39.9	3.996		
800.0	774.9	807.7	792.9	10.5	6.1	-153.67	104.7	-6.2	68.2	53.2	4.557		
900.0	862.2	908.9	887.5	11.5	6.8	-153.14	140.4	-5.0	85.9	69.3	5.168		
1,000.0	945.9	1,011.0	981.4	12.3	7.4	-153.28	180.6	-2.5	105.9	87.5	5.778		

<b>Company:</b>	Terra Energy Partners, LLP	<b>Local Co-ordinate Reference:</b>	Well NR 414-4
<b>Project:</b>	Garfield County, CO	<b>TVD Reference:</b>	KB=24' @ 6003.6usft (H&P #318)
<b>Reference Site:</b>	Sec 8, T6S, R94W	<b>MD Reference:</b>	KB=24' @ 6003.6usft (H&P #318)
<b>Site Error:</b>	0.0 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	NR 414-4	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDM 5000.1 Single User Db
<b>Reference Design:</b>	Plan #3	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b> Sec 8, T6S, R94W - (Offset) RWF 12-9 - Wellbore #1 - Wellbore #1												<b>Offset Site Error:</b>	0.0 usft
<b>Survey Program:</b> 99-GYRO-NS, 713-OWSG (REV5) MWD HDGM Standard												<b>Offset Well Error:</b>	0.0 usft
Reference Measured Depth (usft)	Vertical Depth (usft)	Offset Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Distance Between Centres (usft)	Between Ellipses (usft)	Separation Factor	Warning	
400.0	398.2	399.2	398.6	4.6	1.4	108.27	17.0	20.8	18.6	14.9	4.979	CC, ES	
500.0	495.6	498.9	497.3	6.6	2.0	123.44	28.8	28.4	27.1	20.8	4.307	SF	
600.0	591.1	599.1	595.3	8.1	2.7	130.38	46.3	39.2	38.0	29.4	4.417		
700.0	684.4	698.5	691.0	9.4	3.2	132.85	68.8	53.7	51.4	41.1	4.984		
800.0	774.9	797.3	785.3	10.5	3.5	135.65	93.1	70.6	68.9	57.0	5.781		

<b>Company:</b>	Terra Energy Partners, LLP	<b>Local Co-ordinate Reference:</b>	Well NR 414-4
<b>Project:</b>	Garfield County, CO	<b>TVD Reference:</b>	KB=24' @ 6003.6usft (H&P #318)
<b>Reference Site:</b>	Sec 8, T6S, R94W	<b>MD Reference:</b>	KB=24' @ 6003.6usft (H&P #318)
<b>Site Error:</b>	0.0 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	NR 414-4	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDM 5000.1 Single User Db
<b>Reference Design:</b>	Plan #3	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b> Sec 8, T6S, R94W - (Offset) RWF 311-9 - Wellbore #1 - Wellbore #1												<b>Offset Site Error:</b>	0.0 usft
<b>Survey Program:</b> 149-OWSG (REV5) MWD HDGM Standard												<b>Offset Well Error:</b>	0.0 usft
Reference Measured Depth (usft)	Vertical Depth (usft)	Offset Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning	
200.0	200.0	199.6	199.6	1.8	1.6	20.94	16.4	8.2	16.2	12.9	4.838		
300.0	299.5	298.7	298.4	2.9	3.3	30.50	22.9	11.8	15.6	9.8	2.678		
400.0	398.2	398.0	396.8	4.6	4.8	43.89	34.5	16.9	14.3	6.6	1.862	Collision Risk Procedures Req.	
500.0	495.6	497.4	494.6	6.6	5.9	63.81	51.5	23.1	13.1	5.7	1.755	Collision Risk Procedures Req., ES	
564.7	557.6	561.9	557.4	7.6	6.5	81.38	65.2	27.5	12.8	6.8	2.142	CC	
600.0	591.1	597.1	591.6	8.1	6.8	92.78	73.5	30.0	12.9	7.2	2.260		
700.0	684.4	696.8	687.5	9.4	7.5	125.07	99.6	37.9	16.9	5.9	1.537	Collision Risk Procedures Req., SF	
800.0	774.9	796.4	782.0	10.5	8.1	142.74	129.1	48.4	26.9	11.2	1.711	Collision Risk Procedures Req.	
900.0	862.2	896.4	875.1	11.5	8.8	149.63	162.6	62.2	40.8	22.3	2.207		
1,000.0	945.9	993.8	965.5	12.3	9.2	155.13	196.2	76.1	60.3	39.5	2.907		
1,100.0	1,025.6	1,090.3	1,055.1	13.1	9.5	159.23	229.2	90.4	86.6	64.1	3.845		
1,200.0	1,101.6	1,185.3	1,143.1	13.3	9.8	162.33	262.0	104.7	118.3	94.8	5.022		

<b>Company:</b>	Terra Energy Partners, LLP	<b>Local Co-ordinate Reference:</b>	Well NR 414-4
<b>Project:</b>	Garfield County, CO	<b>TVD Reference:</b>	KB=24' @ 6003.6usft (H&P #318)
<b>Reference Site:</b>	Sec 8, T6S, R94W	<b>MD Reference:</b>	KB=24' @ 6003.6usft (H&P #318)
<b>Site Error:</b>	0.0 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	NR 414-4	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDM 5000.1 Single User Db
<b>Reference Design:</b>	Plan #3	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b> Sec 8, T6S, R94W - (Offset) RWF 411-9 - Wellbore #1 - Wellbore #1											<b>Offset Site Error:</b>	0.0 usft
<b>Survey Program:</b> 99-GYRO-NS, 698-OWSG (REV5) MWD HDGM Standard											<b>Offset Well Error:</b>	0.0 usft
Reference Measured Depth (usft)	Vertical Depth (usft)	Offset Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Distance Between Centres (usft)	Between Ellipses (usft)	Separation Factor	Warning
200.0	200.0	201.4	201.2	1.8	0.6	-158.90	-7.3	-5.0	10.9	8.7	4.813	
297.8	297.3	299.6	298.8	2.9	1.2	-152.57	3.6	-3.9	9.3	5.7	2.599	
300.0	299.5	301.8	300.9	2.9	1.2	-153.01	3.9	-3.9	9.3	5.6	2.557	CC, ES
400.0	398.2	401.8	399.6	4.6	1.9	-133.76	20.6	-5.4	12.1	7.0	2.378	SF
500.0	495.6	502.1	497.3	6.6	2.7	-122.06	42.9	-8.0	19.3	12.8	2.955	
600.0	591.1	603.1	594.7	8.1	3.5	-123.31	69.4	-7.1	26.2	17.9	3.156	
700.0	684.4	703.9	691.4	9.4	3.9	-133.96	97.4	-1.4	32.8	22.3	3.113	
800.0	774.9	805.7	788.0	10.5	4.8	-149.45	127.3	9.8	40.6	27.1	3.011	
900.0	862.2	907.8	882.7	11.5	5.5	-162.29	162.3	25.0	50.3	33.6	3.015	
1,000.0	945.9	1,009.1	974.2	12.3	6.3	-172.34	201.7	43.5	62.5	43.1	3.230	
1,100.0	1,025.6	1,107.9	1,062.2	13.1	6.8	-179.81	241.9	63.3	80.2	59.2	3.826	
1,200.0	1,101.6	1,204.5	1,148.2	13.3	7.1	176.15	281.5	82.1	104.3	82.7	4.826	
1,300.0	1,177.0	1,300.5	1,234.0	13.6	7.4	174.45	321.0	99.3	129.9	107.6	5.840	

<b>Company:</b>	Terra Energy Partners, LLP	<b>Local Co-ordinate Reference:</b>	Well NR 414-4
<b>Project:</b>	Garfield County, CO	<b>TVD Reference:</b>	KB=24' @ 6003.6usft (H&P #318)
<b>Reference Site:</b>	Sec 8, T6S, R94W	<b>MD Reference:</b>	KB=24' @ 6003.6usft (H&P #318)
<b>Site Error:</b>	0.0 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	NR 414-4	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDM 5000.1 Single User Db
<b>Reference Design:</b>	Plan #3	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b>	Sec 8, T6S, R94W - (Offset) RWF 412-9 - Wellbore #1 - Wellbore #1										<b>Offset Site Error:</b>	0.0 usft
<b>Survey Program:</b>	100-GYRO-NS, 980-OWSG (REV5) MWD HDGM Standard										<b>Offset Well Error:</b>	0.0 usft
Reference Measured Depth (usft)	Vertical Depth (usft)	Offset Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Distance Between Centres (usft)	Between Ellipses (usft)	Separation Factor	Warning
400.0	398.2	399.4	398.5	4.6	1.5	117.43	10.5	23.7	24.8	20.5	5.791	CC, ES
500.0	495.6	499.2	497.1	6.6	2.1	123.78	22.3	33.9	35.6	29.1	5.494	SF
600.0	591.1	598.9	594.6	8.1	2.9	128.12	38.5	46.4	48.5	39.9	5.640	

<b>Company:</b>	Terra Energy Partners, LLP	<b>Local Co-ordinate Reference:</b>	Well NR 414-4
<b>Project:</b>	Garfield County, CO	<b>TVD Reference:</b>	KB=24' @ 6003.6usft (H&P #318)
<b>Reference Site:</b>	Sec 8, T6S, R94W	<b>MD Reference:</b>	KB=24' @ 6003.6usft (H&P #318)
<b>Site Error:</b>	0.0 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	NR 414-4	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDM 5000.1 Single User Db
<b>Reference Design:</b>	Plan #3	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b> Sec 8, T6S, R94W - (Offset) RWF 511-9 - Wellbore #1 - Wellbore #1												<b>Offset Site Error:</b>	0.0 usft
<b>Survey Program:</b> 67-GYRO-NS, 888-OWSG (REV5) MWD HDGM Standard												<b>Offset Well Error:</b>	0.0 usft
Reference Measured Depth (usft)	Vertical Depth (usft)	Offset Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Distance Between Centres (usft)	Between Ellipses (usft)	Separation Factor	Warning	
400.0	398.2	397.3	395.8	4.6	1.7	59.61	33.4	27.0	23.2	19.0	5.538	CC, ES	
500.0	495.6	496.4	492.7	6.6	2.5	66.35	52.6	35.3	25.6	20.1	4.643		
600.0	591.1	595.5	588.1	8.1	3.4	73.64	77.5	45.9	28.4	21.9	4.328		
700.0	684.4	694.5	682.2	9.4	4.4	85.66	105.2	58.5	32.4	24.8	4.254		
800.0	774.9	793.6	776.0	10.5	5.3	102.57	133.8	73.0	39.7	29.6	3.956	SF	
900.0	862.2	891.5	867.9	11.5	5.7	117.61	163.9	88.6	52.0	39.2	4.063		
1,000.0	945.9	989.1	959.0	12.3	5.9	129.74	194.5	105.2	70.8	55.8	4.703		
1,100.0	1,025.6	1,085.2	1,048.6	13.1	6.1	139.07	225.1	121.5	96.1	79.2	5.669		



<b>Company:</b>	Terra Energy Partners, LLP	<b>Local Co-ordinate Reference:</b>	Well NR 414-4
<b>Project:</b>	Garfield County, CO	<b>TVD Reference:</b>	KB=24' @ 6003.6usft (H&P #318)
<b>Reference Site:</b>	Sec 8, T6S, R94W	<b>MD Reference:</b>	KB=24' @ 6003.6usft (H&P #318)
<b>Site Error:</b>	0.0 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	NR 414-4	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDM 5000.1 Single User Db
<b>Reference Design:</b>	Plan #3	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b>												<b>Offset Site Error:</b>	0.0 usft
Sec 8, T6S, R94W - RWF 21-8 - Wellbore #1 - Plan #2												<b>Offset Well Error:</b>	0.0 usft
Survey Program: 0-OWSG (REV5) MWD HDGM Standard													
Reference Measured Depth (usft)	Vertical Depth (usft)	Offset Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Distance Between Centres (usft)	Between Ellipses (usft)	Separation Factor	Warning	
200.0	200.0	200.4	200.4	1.8	1.5	143.10	-9.2	6.6	13.1	10.1	4.402	CC, ES	
300.0	299.5	300.5	300.3	2.9	1.9	150.25	-4.1	7.1	16.2	11.7	3.611	SF	
400.0	398.2	400.0	399.7	4.6	2.3	161.34	1.1	7.5	25.8	19.1	3.865		
500.0	495.6	499.9	499.3	6.6	3.1	172.43	8.8	5.6	40.5	30.8	4.161		
600.0	591.1	599.0	597.6	8.1	4.6	-177.90	20.2	0.3	60.2	47.6	4.807		
700.0	684.4	696.9	693.9	9.4	5.9	-170.29	35.1	-8.4	85.5	71.2	5.989		

<b>Company:</b>	Terra Energy Partners, LLP	<b>Local Co-ordinate Reference:</b>	Well NR 414-4
<b>Project:</b>	Garfield County, CO	<b>TVD Reference:</b>	KB=24' @ 6003.6usft (H&P #318)
<b>Reference Site:</b>	Sec 8, T6S, R94W	<b>MD Reference:</b>	KB=24' @ 6003.6usft (H&P #318)
<b>Site Error:</b>	0.0 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	NR 414-4	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDM 5000.1 Single User Db
<b>Reference Design:</b>	Plan #3	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b> Sec 8, T6S, R94W - RWF 321-8 - Wellbore #1 - Plan #2												<b>Offset Site Error:</b>	0.0 usft
<b>Survey Program:</b> 0-OWSG (REV5) MWD HDGM Standard												<b>Offset Well Error:</b>	0.0 usft
Reference Measured Depth (usft)	Vertical Depth (usft)	Offset Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Distance Between Centres (usft)	Between Ellipses (usft)	Separation Factor	Warning	
200.0	200.0	199.7	199.7	1.8	1.5	-177.43	-8.1	-1.6	10.4	7.5	3.535	CC, ES, SF	
300.0	299.5	299.3	299.2	2.9	1.8	169.93	-11.0	1.6	22.2	17.8	5.038		
400.0	398.2	399.0	398.9	4.6	3.2	172.35	-10.8	1.4	37.7	30.3	5.107		
500.0	495.6	498.3	498.0	6.6	4.7	178.66	-7.1	-2.4	57.4	46.5	5.244		

<b>Company:</b>	Terra Energy Partners, LLP	<b>Local Co-ordinate Reference:</b>	Well NR 414-4
<b>Project:</b>	Garfield County, CO	<b>TVD Reference:</b>	KB=24' @ 6003.6usft (H&P #318)
<b>Reference Site:</b>	Sec 8, T6S, R94W	<b>MD Reference:</b>	KB=24' @ 6003.6usft (H&P #318)
<b>Site Error:</b>	0.0 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	NR 414-4	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDM 5000.1 Single User Db
<b>Reference Design:</b>	Plan #3	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design												Offset Site Error:	0.0 usft
Survey Program: 0-OWSG (REV5) MWD HDGM Standard												Offset Well Error:	0.0 usft
Reference Measured Depth (usft)	Vertical Depth (usft)	Offset Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Distance Between Centres (usft)	Between Ellipses (usft)	Separation Factor	Warning	
200.0	200.0	199.7	199.7	1.8	1.2	22.52	7.9	3.6	6.6	3.6	2.246		
300.0	299.5	299.5	299.4	2.9	1.7	66.50	12.2	6.2	4.6	1.5	1.499	Collision Avoidance Req., ES, SF	
312.1	311.5	311.5	311.4	3.1	1.7	78.42	12.8	6.5	4.5	1.7	1.584	Collision Risk Procedures Req., CC	
400.0	398.2	399.0	398.7	4.6	2.0	146.00	16.9	8.7	10.6	4.8	1.822	Collision Risk Procedures Req.	
500.0	495.6	499.3	498.5	6.6	3.5	166.66	26.4	10.0	22.7	12.7	2.262		
600.0	591.1	600.1	598.0	8.1	4.5	178.18	42.7	9.6	36.3	23.5	2.837		
700.0	684.4	702.0	697.2	9.4	5.6	-176.45	65.7	11.1	50.8	35.7	3.348		
800.0	774.9	805.1	795.8	10.5	7.3	-174.21	95.5	15.4	65.5	47.4	3.621		
900.0	862.2	909.3	893.1	11.5	8.7	-173.39	132.2	22.8	79.9	59.3	3.873		
1,000.0	945.9	1,014.7	988.5	12.3	9.9	-173.33	175.7	33.3	94.0	71.0	4.098		
1,100.0	1,025.6	1,121.3	1,081.3	13.1	11.0	-173.75	226.1	46.8	107.6	82.6	4.298		
1,200.0	1,101.6	1,229.1	1,171.2	13.3	12.0	-174.42	283.3	63.5	119.8	93.5	4.550		
1,300.0	1,177.0	1,337.4	1,256.6	13.6	12.6	-175.15	346.7	83.2	125.3	98.1	4.614		
1,400.0	1,252.4	1,437.3	1,333.7	13.8	12.9	-175.85	407.4	102.5	127.7	99.8	4.585		
1,500.0	1,327.8	1,537.3	1,410.7	14.1	13.2	-176.53	468.2	121.7	130.1	101.5	4.552		
1,600.0	1,403.3	1,637.2	1,487.7	14.3	13.5	-177.18	528.9	141.0	132.6	103.2	4.515		
1,700.0	1,478.7	1,737.2	1,564.7	14.6	13.8	-177.80	589.6	160.3	135.0	104.9	4.475		
1,800.0	1,554.1	1,837.1	1,641.8	14.9	14.1	-178.41	650.4	179.5	137.5	106.5	4.433		
1,900.0	1,629.5	1,937.1	1,718.8	15.3	14.4	-178.99	711.1	198.8	140.0	108.1	4.388		
2,000.0	1,705.0	2,037.1	1,795.8	16.1	14.9	-179.55	771.8	218.1	142.5	109.7	4.343		
2,100.0	1,780.4	2,137.0	1,872.8	17.2	15.7	-179.90	832.6	237.3	145.1	111.3	4.297		
2,200.0	1,855.8	2,237.0	1,949.8	18.3	16.7	-179.38	893.3	256.6	147.6	112.9	4.250		
2,300.0	1,931.2	2,336.9	2,026.9	19.4	17.7	-178.87	954.0	275.9	150.1	114.4	4.204		
2,400.0	2,006.6	2,436.9	2,103.9	20.5	18.7	-178.39	1,014.7	295.2	152.7	116.0	4.157		
2,500.0	2,082.1	2,536.9	2,180.9	21.6	19.8	-177.91	1,075.5	314.4	155.3	117.5	4.111		
2,600.0	2,157.5	2,636.8	2,257.9	22.7	20.9	-177.45	1,136.2	333.7	157.9	119.0	4.065		
2,700.0	2,232.9	2,736.8	2,334.9	23.8	21.9	-177.01	1,196.9	353.0	160.5	120.5	4.020		
2,800.0	2,308.3	2,836.7	2,412.0	25.0	23.0	-176.58	1,257.7	372.2	163.1	122.0	3.976		
2,900.0	2,383.8	2,936.7	2,489.0	26.1	24.0	-176.17	1,318.4	391.5	165.7	123.5	3.933		
3,000.0	2,459.2	3,036.7	2,566.0	27.2	25.1	-175.77	1,379.1	410.8	168.3	125.0	3.890		
3,100.0	2,534.6	3,136.6	2,643.0	28.3	26.2	-175.37	1,439.9	430.0	170.9	126.5	3.848		
3,200.0	2,610.0	3,236.6	2,720.1	29.4	27.2	-175.00	1,500.6	449.3	173.5	128.0	3.808		
3,300.0	2,685.5	3,336.5	2,797.1	30.5	28.3	-174.63	1,561.3	468.6	176.2	129.4	3.768		
3,400.0	2,760.9	3,436.5	2,874.1	31.6	29.4	-174.27	1,622.0	487.8	178.8	130.9	3.730		
3,500.0	2,836.3	3,536.4	2,951.1	32.7	30.5	-173.93	1,682.8	507.1	181.5	132.3	3.692		
3,600.0	2,911.7	3,636.4	3,028.1	33.8	31.5	-173.59	1,743.5	526.4	184.2	133.8	3.656		
3,700.0	2,987.1	3,736.4	3,105.2	35.0	32.6	-173.27	1,804.2	545.6	186.8	135.2	3.620		
3,800.0	3,062.6	3,836.3	3,182.2	36.1	33.7	-172.95	1,865.0	564.9	189.5	136.6	3.585		
3,900.0	3,138.0	3,936.3	3,259.2	37.2	34.8	-172.64	1,925.7	584.2	192.2	138.1	3.552		
4,000.0	3,213.4	4,036.2	3,336.2	38.3	35.8	-172.34	1,986.4	603.4	194.9	139.5	3.519		
4,100.0	3,288.8	4,136.2	3,413.2	39.4	36.9	-172.05	2,047.2	622.7	197.6	140.9	3.488		
4,200.0	3,364.3	4,236.2	3,490.3	40.5	38.0	-171.77	2,107.9	642.0	200.2	142.3	3.457		
4,300.0	3,439.7	4,336.1	3,567.3	41.6	39.1	-171.49	2,168.6	661.2	202.9	143.7	3.427		
4,400.0	3,515.1	4,436.1	3,644.3	42.7	40.1	-171.22	2,229.4	680.5	205.7	145.1	3.398		
4,500.0	3,590.5	4,536.0	3,721.3	43.8	41.2	-170.96	2,290.1	699.8	208.4	146.5	3.370		
4,600.0	3,666.0	4,636.0	3,798.4	45.0	42.3	-170.71	2,350.8	719.0	211.1	147.9	3.342		
4,700.0	3,741.4	4,736.0	3,875.4	46.1	43.4	-170.46	2,411.5	738.3	213.8	149.3	3.316		
4,800.0	3,816.8	4,835.9	3,952.4	47.2	44.4	-170.21	2,472.3	757.6	216.5	150.7	3.290		
4,900.0	3,892.2	4,935.9	4,029.4	48.3	45.5	-169.98	2,533.0	776.9	219.2	152.1	3.265		
5,000.0	3,967.6	5,035.8	4,106.4	49.4	46.6	-169.75	2,593.7	796.1	222.0	153.5	3.240		
5,100.0	4,043.1	5,135.8	4,183.5	50.5	47.7	-169.52	2,654.5	815.4	224.7	154.8	3.217		
5,200.0	4,118.5	5,235.7	4,260.5	51.6	48.8	-169.30	2,715.2	834.7	227.4	156.2	3.194		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

<b>Company:</b>	Terra Energy Partners, LLP	<b>Local Co-ordinate Reference:</b>	Well NR 414-4
<b>Project:</b>	Garfield County, CO	<b>TVD Reference:</b>	KB=24' @ 6003.6usft (H&P #318)
<b>Reference Site:</b>	Sec 8, T6S, R94W	<b>MD Reference:</b>	KB=24' @ 6003.6usft (H&P #318)
<b>Site Error:</b>	0.0 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	NR 414-4	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDM 5000.1 Single User Db
<b>Reference Design:</b>	Plan #3	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design											Offset Site Error:	0.0 usft
Survey Program:											Offset Well Error:	0.0 usft
Sec 8, T6S, R94W - RWF 514-4 - Wellbore #1 - Plan #2												
0-OWSG (REV5) MWD HDGM Standard												
Reference Measured Depth (usft)	Vertical Depth (usft)	Offset Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
5,300.0	4,193.9	5,335.7	4,337.5	52.8	49.8	169.09	2,775.9	853.9	230.2	157.6	3.171	
5,400.0	4,269.3	5,432.3	4,412.1	53.9	50.9	168.90	2,834.4	872.5	233.3	159.3	3.153	
5,500.0	4,344.8	5,524.7	4,485.1	55.0	51.8	168.86	2,888.4	889.6	239.0	163.7	3.172	
5,600.0	4,421.7	5,616.8	4,559.7	56.1	52.7	168.90	2,940.0	906.0	245.7	169.1	3.206	
5,700.0	4,500.7	5,708.8	4,635.8	57.1	53.6	168.93	2,989.1	921.6	252.2	174.3	3.237	
5,800.0	4,581.9	5,800.0	4,712.9	58.1	54.4	168.97	3,035.6	936.3	258.3	179.3	3.268	
5,900.0	4,665.0	5,892.2	4,792.4	59.0	55.2	169.00	3,080.2	950.5	264.2	184.0	3.297	
6,000.0	4,750.0	5,983.8	4,872.7	59.9	56.0	169.03	3,122.0	963.7	269.7	188.6	3.326	
6,100.0	4,836.8	6,075.1	4,954.3	60.8	56.7	169.05	3,161.2	976.2	275.0	193.0	3.355	
6,200.0	4,925.3	6,166.4	5,037.0	61.5	57.3	169.08	3,197.9	987.8	279.9	197.2	3.383	
6,300.0	5,015.4	6,257.5	5,120.7	62.3	57.9	169.11	3,232.1	998.6	284.5	201.1	3.412	
6,400.0	5,106.9	6,348.5	5,205.5	63.0	58.5	169.13	3,263.6	1,008.7	288.9	204.9	3.440	
6,500.0	5,199.8	6,439.4	5,291.2	63.6	59.0	169.15	3,292.6	1,017.8	292.8	208.4	3.469	
6,600.0	5,293.9	6,530.2	5,377.7	64.2	59.5	169.17	3,318.9	1,026.2	296.5	211.7	3.497	
6,700.0	5,389.1	6,620.9	5,464.9	64.7	59.9	169.19	3,342.5	1,033.7	299.8	214.8	3.526	
6,800.0	5,485.4	6,711.5	5,552.8	65.1	60.3	169.21	3,363.5	1,040.3	302.8	217.7	3.555	
6,900.0	5,582.5	6,800.0	5,639.3	65.5	60.6	169.23	3,381.5	1,046.0	305.5	220.5	3.595	
7,000.0	5,680.4	6,892.5	5,730.3	65.9	60.9	169.25	3,397.5	1,051.1	307.8	222.7	3.616	
7,100.0	5,778.9	6,983.0	5,819.7	66.2	61.1	169.27	3,410.4	1,055.2	309.8	224.9	3.647	
7,200.0	5,878.0	7,073.4	5,909.5	66.4	61.3	169.28	3,420.7	1,058.5	311.5	226.8	3.680	
7,300.0	5,977.5	7,163.7	5,999.5	66.6	61.4	169.30	3,428.2	1,060.9	312.8	228.6	3.715	
7,400.0	6,077.3	7,254.1	6,089.7	66.7	61.5	169.31	3,433.0	1,062.4	313.7	230.1	3.752	
7,500.0	6,177.2	7,344.4	6,179.9	66.7	61.6	169.32	3,435.1	1,063.1	314.3	231.5	3.796	
7,600.0	6,277.2	7,441.7	6,277.2	66.8	61.6	-174.29	3,435.2	1,063.1	314.4	231.9	3.810	
7,700.0	6,377.2	7,541.7	6,377.2	66.8	61.6	-174.29	3,435.2	1,063.1	314.4	231.9	3.807	
7,800.0	6,477.2	7,641.7	6,477.2	66.8	61.6	-174.29	3,435.2	1,063.1	314.4	231.8	3.805	
7,900.0	6,577.2	7,741.7	6,577.2	66.8	61.6	-174.29	3,435.2	1,063.1	314.4	231.8	3.802	
8,000.0	6,677.2	7,841.7	6,677.2	66.8	61.6	-174.29	3,435.2	1,063.1	314.4	231.7	3.800	
8,100.0	6,777.2	7,941.7	6,777.2	66.8	61.6	-174.29	3,435.2	1,063.1	314.4	231.6	3.798	
8,200.0	6,877.2	8,041.7	6,877.2	66.8	61.6	-174.29	3,435.2	1,063.1	314.4	231.6	3.795	
8,300.0	6,977.2	8,141.7	6,977.2	66.8	61.6	-174.29	3,435.2	1,063.1	314.4	231.5	3.793	
8,400.0	7,077.2	8,241.7	7,077.2	66.8	61.7	-174.29	3,435.2	1,063.1	314.4	231.5	3.790	
8,500.0	7,177.2	8,341.7	7,177.2	66.8	61.7	-174.29	3,435.2	1,063.1	314.4	231.4	3.788	
8,600.0	7,277.2	8,441.7	7,277.2	66.8	61.7	-174.29	3,435.2	1,063.1	314.4	231.4	3.785	
8,700.0	7,377.2	8,541.7	7,377.2	66.9	61.7	-174.29	3,435.2	1,063.1	314.4	231.3	3.782	
8,800.0	7,477.2	8,641.7	7,477.2	66.9	61.7	-174.29	3,435.2	1,063.1	314.4	231.3	3.780	
8,900.0	7,577.2	8,741.7	7,577.2	66.9	61.7	-174.29	3,435.2	1,063.1	314.4	231.2	3.777	
9,000.0	7,677.2	8,841.7	7,677.2	66.9	61.7	-174.29	3,435.2	1,063.1	314.4	231.1	3.775	
9,100.0	7,777.2	8,941.7	7,777.2	66.9	61.7	-174.29	3,435.2	1,063.1	314.4	231.1	3.772	
9,200.0	7,877.2	9,041.7	7,877.2	66.9	61.7	-174.29	3,435.2	1,063.1	314.4	231.0	3.770	
9,300.0	7,977.2	9,141.7	7,977.2	66.9	61.8	-174.29	3,435.2	1,063.1	314.4	231.0	3.767	
9,400.0	8,077.2	9,241.7	8,077.2	66.9	61.8	-174.29	3,435.2	1,063.1	314.4	230.9	3.765	
9,500.0	8,177.2	9,341.7	8,177.2	66.9	61.8	-174.29	3,435.2	1,063.1	314.4	230.9	3.762	
9,600.0	8,277.2	9,441.7	8,277.2	67.0	61.8	-174.29	3,435.2	1,063.1	314.4	230.8	3.759	
9,700.0	8,377.2	9,541.7	8,377.2	67.0	61.8	-174.29	3,435.2	1,063.1	314.4	230.7	3.757	
9,800.0	8,477.2	9,641.7	8,477.2	67.0	61.8	-174.29	3,435.2	1,063.1	314.4	230.7	3.754	
9,900.0	8,577.2	9,741.7	8,577.2	67.0	61.8	-174.29	3,435.2	1,063.1	314.4	230.6	3.751	
10,000.0	8,677.2	9,841.7	8,677.2	67.0	61.8	-174.29	3,435.2	1,063.1	314.4	230.6	3.749	
10,100.0	8,777.2	9,941.7	8,777.2	67.0	61.9	-174.29	3,435.2	1,063.1	314.4	230.5	3.746	
10,200.0	8,877.2	10,041.7	8,877.2	67.0	61.9	-174.29	3,435.2	1,063.1	314.4	230.4	3.743	
10,300.0	8,977.2	10,141.7	8,977.2	67.0	61.9	-174.29	3,435.2	1,063.1	314.4	230.4	3.741	
10,400.0	9,077.2	10,241.7	9,077.2	67.0	61.9	-174.29	3,435.2	1,063.1	314.4	230.3	3.738	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

<b>Company:</b>	Terra Energy Partners, LLP	<b>Local Co-ordinate Reference:</b>	Well NR 414-4
<b>Project:</b>	Garfield County, CO	<b>TVD Reference:</b>	KB=24' @ 6003.6usft (H&P #318)
<b>Reference Site:</b>	Sec 8, T6S, R94W	<b>MD Reference:</b>	KB=24' @ 6003.6usft (H&P #318)
<b>Site Error:</b>	0.0 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	NR 414-4	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDM 5000.1 Single User Db
<b>Reference Design:</b>	Plan #3	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b> Sec 8, T6S, R94W - RWF 514-4 - Wellbore #1 - Plan #2												<b>Offset Site Error:</b>	0.0 usft
<b>Survey Program:</b> 0-OWSG (REV5) MWD HDGM Standard												<b>Offset Well Error:</b>	0.0 usft
Reference Measured Depth (usft)	Vertical Depth (usft)	Offset Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning	
10,402.9	9,080.1	10,244.5	9,080.1	67.0	61.9	-174.29	3,435.2	1,063.1	314.4	230.3	3.738		
10,431.8	9,109.0	10,262.5	9,098.0	67.0	61.9	-174.29	3,435.2	1,063.1	314.6	232.0	3.809		

<b>Company:</b>	Terra Energy Partners, LLP	<b>Local Co-ordinate Reference:</b>	Well NR 414-4
<b>Project:</b>	Garfield County, CO	<b>TVD Reference:</b>	KB=24' @ 6003.6usft (H&P #318)
<b>Reference Site:</b>	Sec 8, T6S, R94W	<b>MD Reference:</b>	KB=24' @ 6003.6usft (H&P #318)
<b>Site Error:</b>	0.0 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	NR 414-4	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDM 5000.1 Single User Db
<b>Reference Design:</b>	Plan #3	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b>	Sec 8, T6S, R94W - RWF 521-8 - Wellbore #1 - Wellbore #1										<b>Offset Site Error:</b>	0.0 usft
<b>Survey Program:</b>	475-OWSG (REV5) MWD HDGM Standard										<b>Offset Well Error:</b>	0.0 usft
Reference Measured Depth (usft)	Vertical Depth (usft)	Offset Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Distance Between Centres (usft)	Between Ellipses (usft)	Separation Factor	Warning
300.0	299.5	300.7	300.1	2.9	4.2	-148.28	-15.1	-21.8	35.2	28.5	5.252	CC, ES
400.0	398.2	400.1	398.7	4.6	5.5	-145.29	-5.4	-29.7	47.3	37.9	5.046	SF
500.0	495.6	498.5	495.8	6.6	6.7	-143.17	6.9	-39.7	65.3	53.2	5.401	

<b>Company:</b>	Terra Energy Partners, LLP	<b>Local Co-ordinate Reference:</b>	Well NR 414-4
<b>Project:</b>	Garfield County, CO	<b>TVD Reference:</b>	KB=24' @ 6003.6usft (H&P #318)
<b>Reference Site:</b>	Sec 8, T6S, R94W	<b>MD Reference:</b>	KB=24' @ 6003.6usft (H&P #318)
<b>Site Error:</b>	0.0 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	NR 414-4	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDM 5000.1 Single User Db
<b>Reference Design:</b>	Plan #3	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to KB=24' @ 6003.6usft (H&P #318)

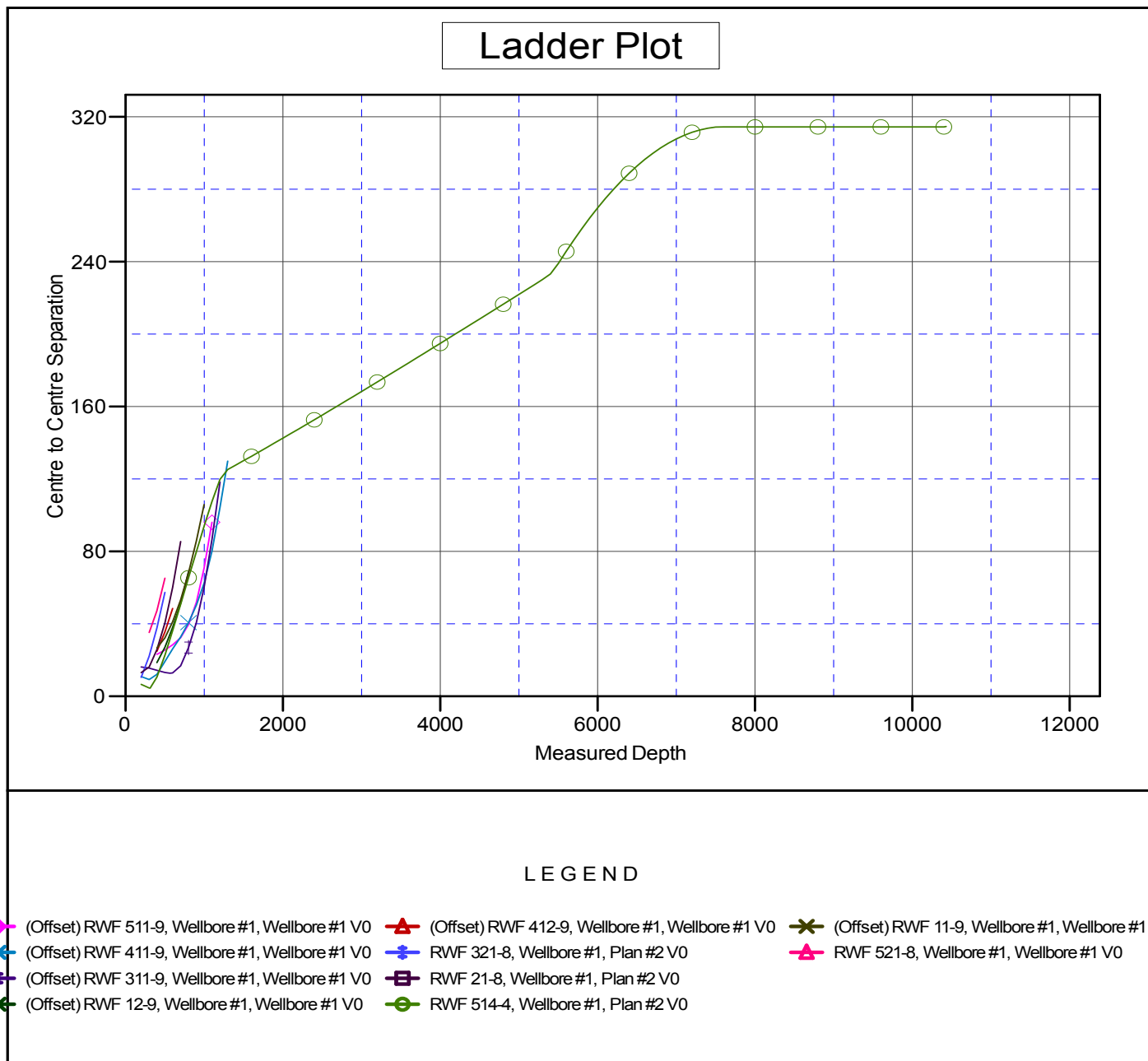
Offset Depths are relative to Offset Datum

Central Meridian is -105.500000

Coordinates are relative to: NR 414-4

Coordinate System is US State Plane 1983, Colorado Central Zone

Grid Convergence at Surface is: -1.52°

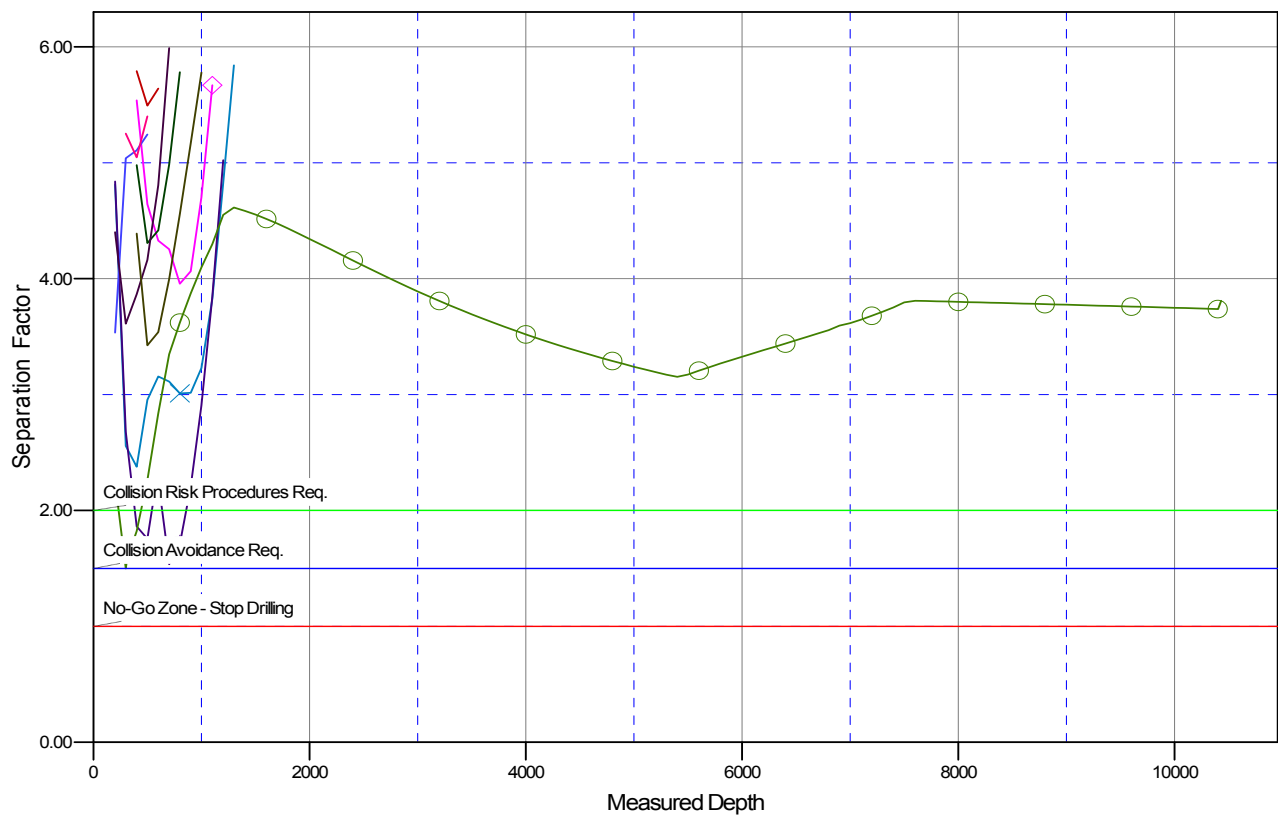


<b>Company:</b>	Terra Energy Partners, LLP	<b>Local Co-ordinate Reference:</b>	Well NR 414-4
<b>Project:</b>	Garfield County, CO	<b>TVD Reference:</b>	KB=24' @ 6003.6usft (H&P #318)
<b>Reference Site:</b>	Sec 8, T6S, R94W	<b>MD Reference:</b>	KB=24' @ 6003.6usft (H&P #318)
<b>Site Error:</b>	0.0 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	NR 414-4	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDM 5000.1 Single User Db
<b>Reference Design:</b>	Plan #3	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to KB=24' @ 6003.6usft (H&P #318)  
Offset Depths are relative to Offset Datum  
Central Meridian is -105.500000

Coordinates are relative to: NR 414-4  
Coordinate System is US State Plane 1983, Colorado Central Zone  
Grid Convergence at Surface is: -1.52°

## Separation Factor Plot



## LEGEND

- ◆ (Offset) RWF 511-9, Wellbore #1, Wellbore #1 V0
 ▲ (Offset) RWF 412-9, Wellbore #1, Wellbore #1 V0
 ✕ (Offset) RWF 11-9, Wellbore #1, Wellbore #1 V0
- ✕ (Offset) RWF 411-9, Wellbore #1, Wellbore #1 V0
 ✕ RWF 321-8, Wellbore #1, Plan #2 V0
 ▲ RWF 521-8, Wellbore #1, Wellbore #1 V0
- ✕ (Offset) RWF 311-9, Wellbore #1, Wellbore #1 V0
 ✕ RWF 21-8, Wellbore #1, Plan #2 V0
- ✕ (Offset) RWF 12-9, Wellbore #1, Wellbore #1 V0
 ○ RWF 514-4, Wellbore #1, Plan #2 V0