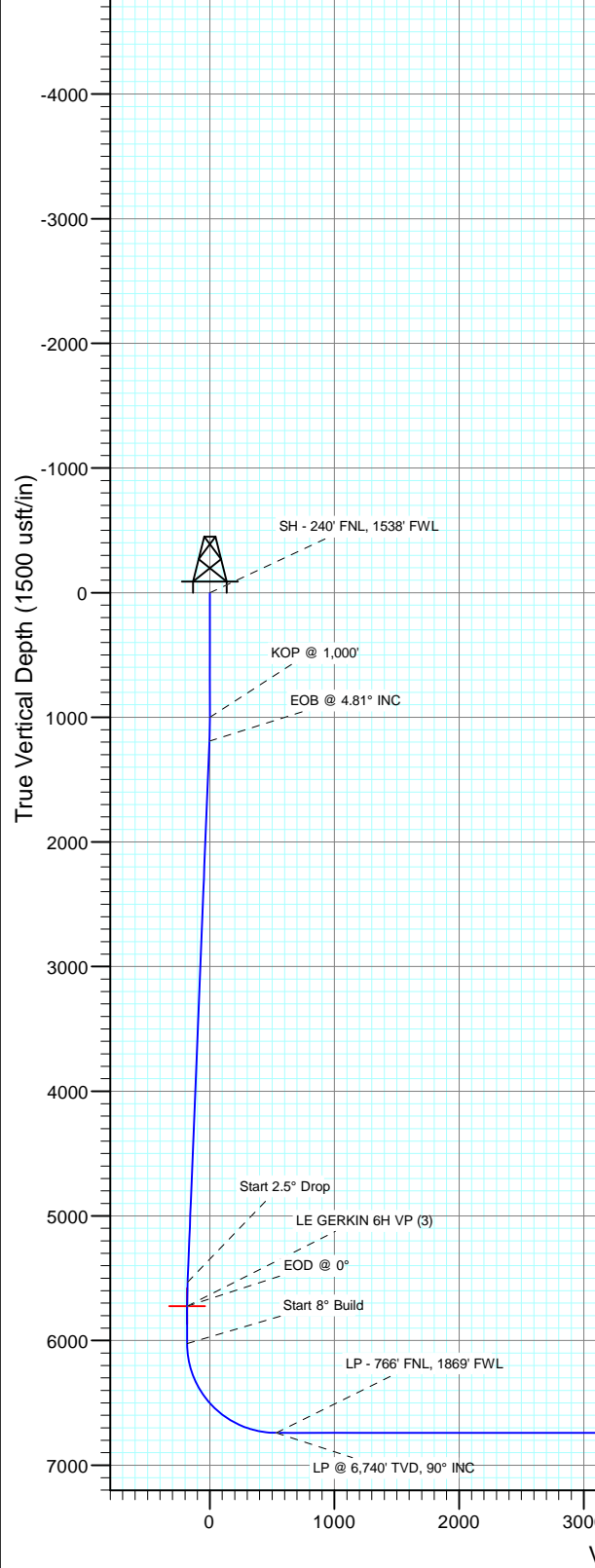




Project: Weld County, Colorado  
Site: S13-T2N-R64W (LE GERKIN PADS)  
Well: LE GERKIN 6H  
Wellbore: HZ  
Design: Plan #3

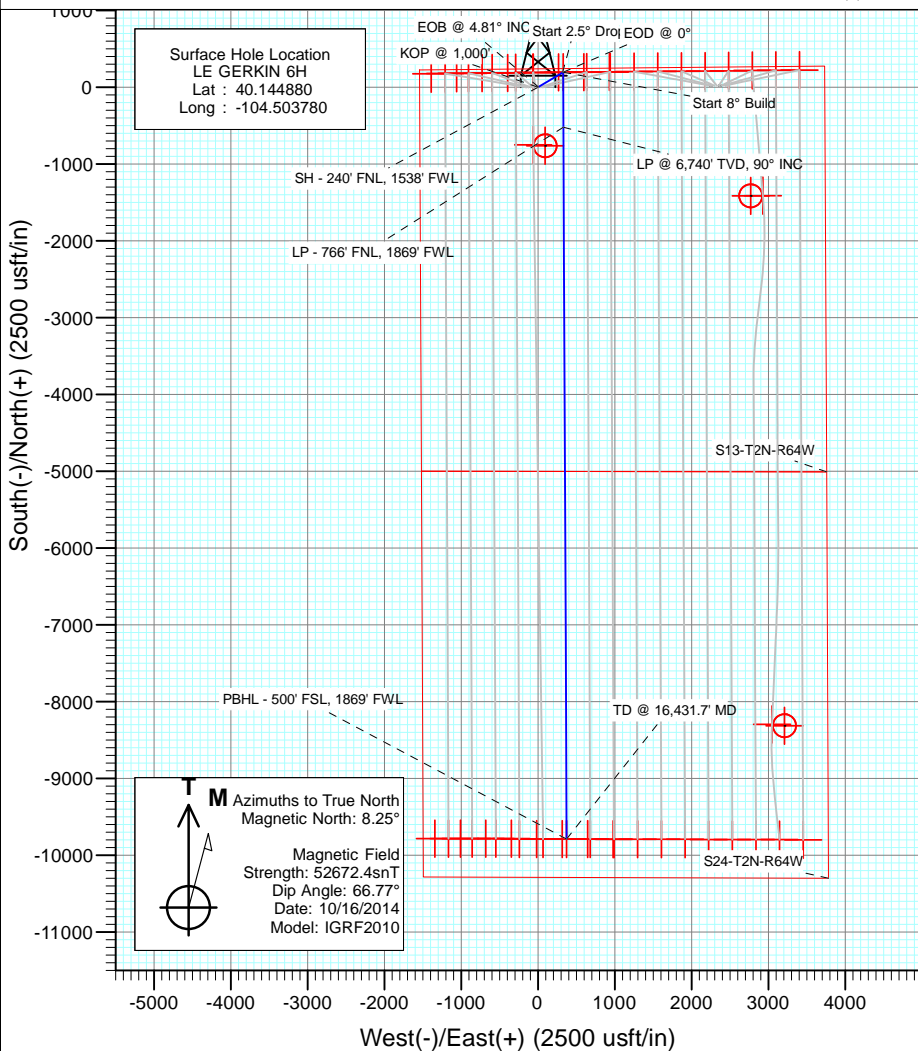


Plan #3  
LE GERKIN 6H  
145XXX; SC  
KB=20' @ 4926.9usft  
Ground Elevation @ 4906.9  
North American Datum 1983  
Well LE GERKIN 6H, True North



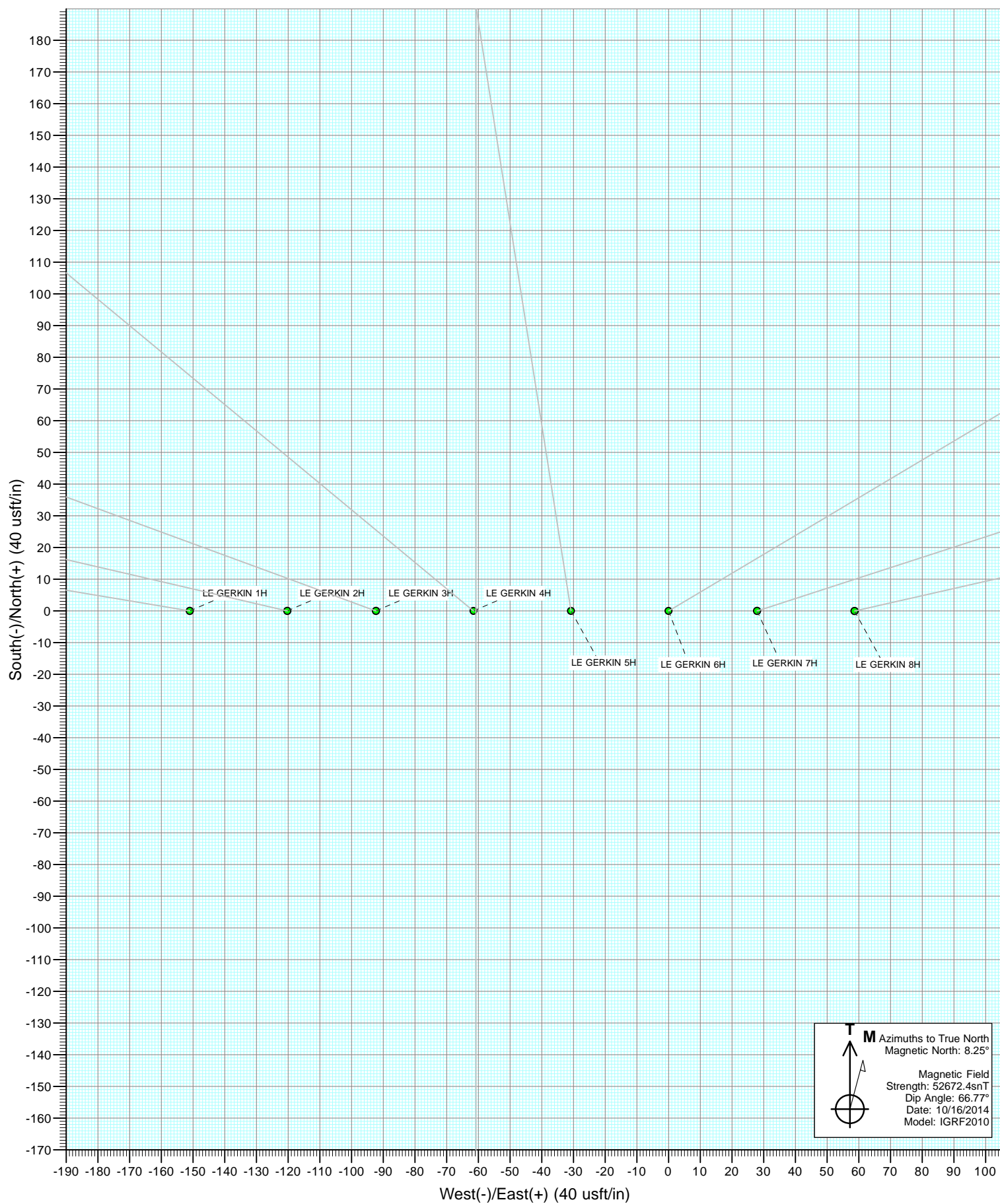
#### SECTION DETAILS

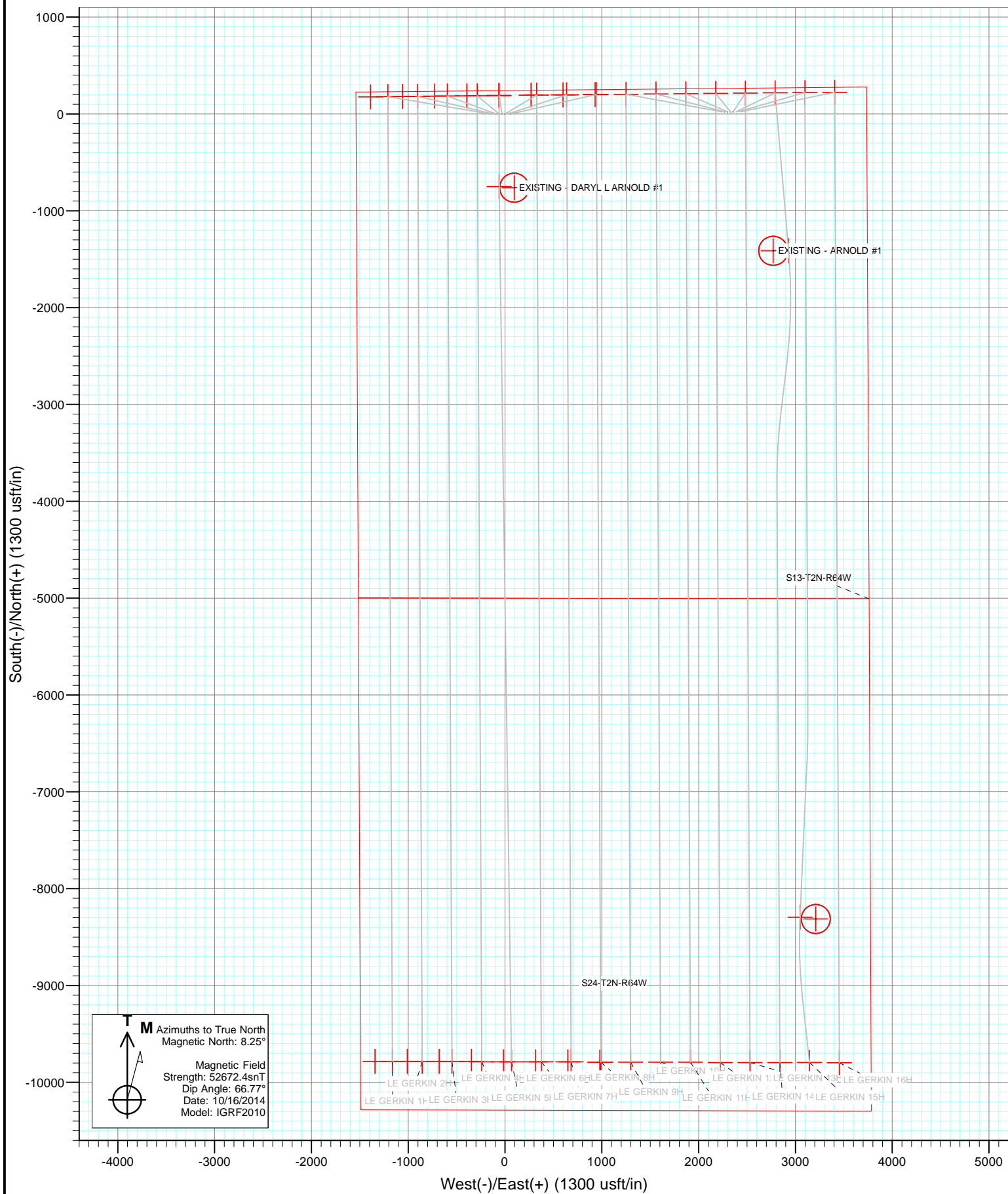
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	1000.0	0.00	0.00	1000.0	0.0	0.0	0.00	0.00	0.0	
3	1192.4	4.81	59.24	1192.2	4.1	6.9	2.50	59.24	-3.9	
4	5547.2	4.81	59.24	5531.6	190.9	320.8	0.00	0.00	-178.5	
5	5739.6	0.00	0.00	5723.8	195.0	327.7	2.50	180.00	-182.3	LE GERKIN 6H VP (3)
6	6039.6	0.00	0.00	6023.8	195.0	327.7	0.00	0.00	-182.3	
7	7164.6	90.00	179.73	6740.0	-521.2	331.1	8.00	179.73	533.5	
8	16431.7	90.00	179.73	6740.0	-9788.2	374.8	0.00	0.00	9795.4	LE GERKIN 6H PBHL (3)



#### DESIGN TARGET DETAILS

Name	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
LE GERKIN 6H VP (3)	195.0	327.7	1297386.32	3278821.32	40.145415	-104.502608
LE GERKIN 6H PBHL (3)	-9788.2	374.8	1287404.29	3278980.53	40.118010	-104.502440





## Planning Report

<b>Database:</b>	USA EDM 5000 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well LE GERKIN 6H
<b>Company:</b>	Red Hawk Petroleum	<b>TVD Reference:</b>	KB=20' @ 4926.9usft
<b>Project:</b>	Weld County, Colorado	<b>MD Reference:</b>	KB=20' @ 4926.9usft
<b>Site:</b>	S13-T2N-R64W (LE GERKIN PADS)	<b>North Reference:</b>	True
<b>Well:</b>	LE GERKIN 6H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	HZ		
<b>Design:</b>	Plan #3		

<b>Project</b>	Weld County, Colorado		
<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 Northern Zone		

Site		S13-T2N-R64W (LE GERKIN PADS)			
Site Position:		Northing:	1,297,185.96 usft	Latitude:	40.144880
From:	Lat/Long	Easting:	3,278,344.88 usft	Longitude:	-104.504320
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.64 °

Well	LE GERKIN 6H					
Well Position	+N/-S	0.0 usft	Northing:	1,297,187.65 usft	Latitude:	40.144880
	+E/-W	0.0 usft	Easting:	3,278,495.83 usft	Longitude:	-104.503780
Position Uncertainty		0.0 usft	Wellhead Elevation:	0.0 usft	Ground Level:	4,906.9 usft

<b>Wellbore</b>	HZ				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	10/16/2014	8.25	66.77	52,672

<b>Design</b>	Plan #3			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>
	0.0	0.0	0.0	177.81

<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
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,192.4	4.81	59.24	1,192.2	4.1	6.9	2.50	2.50	0.00	59.24	
5,547.2	4.81	59.24	5,531.6	190.9	320.8	0.00	0.00	0.00	0.00	
5,739.6	0.00	0.00	5,723.8	195.0	327.7	2.50	-2.50	0.00	180.00	LE GERKIN 6H VP (3
6,039.6	0.00	0.00	6,023.8	195.0	327.7	0.00	0.00	0.00	0.00	
7,164.6	90.00	179.73	6,740.0	-521.2	331.1	8.00	8.00	15.98	179.73	
16,431.7	90.00	179.73	6,740.0	-9,788.2	374.8	0.00	0.00	0.00	0.00	LE GERKIN 6H PBHL

# Planning Report

**Database:** USA EDM 5000 Multi Users DB  
**Company:** Red Hawk Petroleum  
**Project:** Weld County, Colorado  
**Site:** S13-T2N-R64W (LE GERKIN PADS)  
**Well:** LE GERKIN 6H  
**Wellbore:** HZ  
**Design:** Plan #3

**Local Co-ordinate Reference:** Well LE GERKIN 6H  
**TVD Reference:** KB=20' @ 4926.9usft  
**MD Reference:** KB=20' @ 4926.9usft  
**North Reference:** True  
**Survey Calculation Method:** Minimum Curvature

## Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100u)	Comments / Formations
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
0.5	0.00	0.00	0.5	0.0	0.0	0.0	0.00	0.00	SH - 240' FNL, 1538' FWL
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	KOP @ 1,000'
1,100.0	2.50	59.24	1,100.0	1.1	1.9	-1.0	2.50	2.50	
1,192.4	4.81	59.24	1,192.2	4.1	6.9	-3.9	2.50	2.50	EOB @ 4.81° INC
1,200.0	4.81	59.24	1,199.7	4.5	7.5	-4.2	0.01	0.01	
1,300.0	4.81	59.24	1,299.4	8.7	14.7	-8.2	0.00	0.00	
1,400.0	4.81	59.24	1,399.0	13.0	21.9	-12.2	0.00	0.00	
1,500.0	4.81	59.24	1,498.7	17.3	29.1	-16.2	0.00	0.00	
1,600.0	4.81	59.24	1,598.3	21.6	36.3	-20.2	0.00	0.00	
1,700.0	4.81	59.24	1,698.0	25.9	43.5	-24.2	0.00	0.00	
1,800.0	4.81	59.24	1,797.6	30.2	50.7	-28.2	0.00	0.00	
1,900.0	4.81	59.24	1,897.3	34.5	57.9	-32.2	0.00	0.00	
2,000.0	4.81	59.24	1,996.9	38.8	65.1	-36.2	0.00	0.00	
2,100.0	4.81	59.24	2,096.6	43.0	72.3	-40.2	0.00	0.00	
2,200.0	4.81	59.24	2,196.2	47.3	79.5	-44.3	0.00	0.00	
2,300.0	4.81	59.24	2,295.9	51.6	86.8	-48.3	0.00	0.00	
2,400.0	4.81	59.24	2,395.5	55.9	94.0	-52.3	0.00	0.00	
2,500.0	4.81	59.24	2,495.2	60.2	101.2	-56.3	0.00	0.00	
2,600.0	4.81	59.24	2,594.8	64.5	108.4	-60.3	0.00	0.00	
2,700.0	4.81	59.24	2,694.5	68.8	115.6	-64.3	0.00	0.00	
2,800.0	4.81	59.24	2,794.1	73.1	122.8	-68.3	0.00	0.00	
2,900.0	4.81	59.24	2,893.8	77.4	130.0	-72.3	0.00	0.00	
3,000.0	4.81	59.24	2,993.4	81.6	137.2	-76.3	0.00	0.00	
3,100.0	4.81	59.24	3,093.1	85.9	144.4	-80.3	0.00	0.00	
3,200.0	4.81	59.24	3,192.7	90.2	151.6	-84.4	0.00	0.00	
3,300.0	4.81	59.24	3,292.4	94.5	158.8	-88.4	0.00	0.00	
3,400.0	4.81	59.24	3,392.0	98.8	166.0	-92.4	0.00	0.00	
3,500.0	4.81	59.24	3,491.6	103.1	173.2	-96.4	0.00	0.00	
3,600.0	4.81	59.24	3,591.3	107.4	180.4	-100.4	0.00	0.00	
3,700.0	4.81	59.24	3,690.9	111.7	187.6	-104.4	0.00	0.00	
3,800.0	4.81	59.24	3,790.6	115.9	194.9	-108.4	0.00	0.00	
3,900.0	4.81	59.24	3,890.2	120.2	202.1	-112.4	0.00	0.00	
4,000.0	4.81	59.24	3,989.9	124.5	209.3	-116.4	0.00	0.00	
4,100.0	4.81	59.24	4,089.5	128.8	216.5	-120.4	0.00	0.00	
4,200.0	4.81	59.24	4,189.2	133.1	223.7	-124.4	0.00	0.00	
4,300.0	4.81	59.24	4,288.8	137.4	230.9	-128.5	0.00	0.00	
4,400.0	4.81	59.24	4,388.5	141.7	238.1	-132.5	0.00	0.00	
4,500.0	4.81	59.24	4,488.1	146.0	245.3	-136.5	0.00	0.00	
4,600.0	4.81	59.24	4,587.8	150.3	252.5	-140.5	0.00	0.00	
4,700.0	4.81	59.24	4,687.4	154.5	259.7	-144.5	0.00	0.00	
4,800.0	4.81	59.24	4,787.1	158.8	266.9	-148.5	0.00	0.00	
4,900.0	4.81	59.24	4,886.7	163.1	274.1	-152.5	0.00	0.00	

# Planning Report

<b>Database:</b>	USA EDM 5000 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well LE GERKIN 6H
<b>Company:</b>	Red Hawk Petroleum	<b>TVD Reference:</b>	KB=20' @ 4926.9usft
<b>Project:</b>	Weld County, Colorado	<b>MD Reference:</b>	KB=20' @ 4926.9usft
<b>Site:</b>	S13-T2N-R64W (LE GERKIN PADS)	<b>North Reference:</b>	True
<b>Well:</b>	LE GERKIN 6H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	HZ		
<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 (°/100u)	Comments / Formations
5,000.0	4.81	59.24	4,986.4	167.4	281.3	-156.5	0.00	0.00	
5,100.0	4.81	59.24	5,086.0	171.7	288.5	-160.5	0.00	0.00	
5,200.0	4.81	59.24	5,185.7	176.0	295.7	-164.5	0.00	0.00	
5,300.0	4.81	59.24	5,285.3	180.3	303.0	-168.5	0.00	0.00	
5,400.0	4.81	59.24	5,385.0	184.6	310.2	-172.6	0.00	0.00	
5,500.0	4.81	59.24	5,484.6	188.8	317.4	-176.6	0.00	0.00	
5,547.2	4.81	59.24	5,531.6	190.9	320.8	-178.5	0.00	0.00	Start 2.5° Drop
5,600.0	3.49	59.24	5,584.3	192.8	324.0	-180.3	2.50	-2.50	
5,700.0	0.99	59.24	5,684.2	194.8	327.4	-182.2	2.50	-2.50	
5,739.6	0.00	0.00	5,723.8	195.0	327.7	-182.3	2.50	-2.50	EOD @ 0°
5,800.0	0.00	0.00	5,784.2	195.0	327.7	-182.3	0.00	0.00	
5,900.0	0.00	0.00	5,884.2	195.0	327.7	-182.3	0.00	0.00	
6,000.0	0.00	0.00	5,984.2	195.0	327.7	-182.3	0.00	0.00	
6,039.6	0.00	0.00	6,023.8	195.0	327.7	-182.3	0.00	0.00	Start 8° Build
6,050.0	0.83	179.73	6,034.2	194.9	327.7	-182.2	8.01	8.01	
6,100.0	4.83	179.73	6,084.1	192.5	327.7	-179.8	8.00	8.00	
6,150.0	8.83	179.73	6,133.8	186.5	327.7	-173.8	8.00	8.00	
6,200.0	12.83	179.73	6,182.9	177.1	327.8	-164.4	8.00	8.00	
6,250.0	16.83	179.73	6,231.2	164.3	327.8	-151.7	8.00	8.00	
6,300.0	20.83	179.73	6,278.5	148.2	327.9	-135.5	8.00	8.00	
6,350.0	24.83	179.73	6,324.6	128.8	328.0	-116.1	8.00	8.00	
6,400.0	28.83	179.73	6,369.2	106.2	328.1	-93.6	8.00	8.00	
6,450.0	32.83	179.73	6,412.1	80.6	328.2	-68.0	8.00	8.00	
6,500.0	36.83	179.73	6,453.1	52.0	328.4	-39.4	8.00	8.00	
6,550.0	40.83	179.73	6,492.1	20.7	328.5	-8.1	8.00	8.00	
6,600.0	44.83	179.73	6,528.7	-13.3	328.7	25.9	8.00	8.00	
6,650.0	48.83	179.73	6,562.9	-49.8	328.9	62.3	8.00	8.00	
6,700.0	52.83	179.73	6,594.5	-88.5	329.0	101.0	8.00	8.00	
6,750.0	56.83	179.73	6,623.3	-129.4	329.2	141.9	8.00	8.00	
6,800.0	60.83	179.73	6,649.2	-172.1	329.4	184.6	8.00	8.00	
6,850.0	64.83	179.73	6,672.0	-216.6	329.6	229.1	8.00	8.00	
6,900.0	68.83	179.73	6,691.7	-262.6	329.9	275.0	8.00	8.00	
6,950.0	72.83	179.73	6,708.1	-309.8	330.1	322.2	8.00	8.00	
7,000.0	76.83	179.73	6,721.2	-358.0	330.3	370.4	8.00	8.00	
7,050.0	80.83	179.73	6,730.8	-407.1	330.5	419.4	8.00	8.00	
7,100.0	84.83	179.73	6,737.1	-456.7	330.8	469.0	8.00	8.00	
7,150.0	88.83	179.73	6,739.8	-506.6	331.0	518.9	8.00	8.00	
7,164.6	90.00	179.73	6,740.0	-521.2	331.1	533.5	7.99	7.99	LP @ 6,740' TVD, 90° INC - LP - 766' FNL, 186
7,200.0	90.00	179.73	6,740.0	-556.6	331.2	568.9	0.00	0.00	
7,300.0	90.00	179.73	6,740.0	-656.6	331.7	668.8	0.00	0.00	
7,400.0	90.00	179.73	6,740.0	-756.6	332.2	768.8	0.00	0.00	
7,500.0	90.00	179.73	6,740.0	-856.6	332.7	868.7	0.00	0.00	
7,600.0	90.00	179.73	6,740.0	-956.6	333.1	968.6	0.00	0.00	
7,700.0	90.00	179.73	6,740.0	-1,056.6	333.6	1,068.6	0.00	0.00	
7,800.0	90.00	179.73	6,740.0	-1,156.6	334.1	1,168.5	0.00	0.00	
7,900.0	90.00	179.73	6,740.0	-1,256.6	334.5	1,268.5	0.00	0.00	
8,000.0	90.00	179.73	6,740.0	-1,356.6	335.0	1,368.4	0.00	0.00	
8,100.0	90.00	179.73	6,740.0	-1,456.6	335.5	1,468.4	0.00	0.00	
8,200.0	90.00	179.73	6,740.0	-1,556.6	336.0	1,568.3	0.00	0.00	
8,300.0	90.00	179.73	6,740.0	-1,656.6	336.4	1,668.2	0.00	0.00	
8,400.0	90.00	179.73	6,740.0	-1,756.6	336.9	1,768.2	0.00	0.00	
8,500.0	90.00	179.73	6,740.0	-1,856.6	337.4	1,868.1	0.00	0.00	

# Planning Report

<b>Database:</b>	USA EDM 5000 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well LE GERKIN 6H
<b>Company:</b>	Red Hawk Petroleum	<b>TVD Reference:</b>	KB=20' @ 4926.9usft
<b>Project:</b>	Weld County, Colorado	<b>MD Reference:</b>	KB=20' @ 4926.9usft
<b>Site:</b>	S13-T2N-R64W (LE GERKIN PADS)	<b>North Reference:</b>	True
<b>Well:</b>	LE GERKIN 6H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	HZ		
<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 (°/100u)	Comments / Formations
8,600.0	90.00	179.73	6,740.0	-1,956.6	337.8	1,968.1	0.00	0.00	
8,700.0	90.00	179.73	6,740.0	-2,056.6	338.3	2,068.0	0.00	0.00	
8,800.0	90.00	179.73	6,740.0	-2,156.6	338.8	2,168.0	0.00	0.00	
8,900.0	90.00	179.73	6,740.0	-2,256.6	339.3	2,267.9	0.00	0.00	
9,000.0	90.00	179.73	6,740.0	-2,356.6	339.7	2,367.9	0.00	0.00	
9,100.0	90.00	179.73	6,740.0	-2,456.6	340.2	2,467.8	0.00	0.00	
9,200.0	90.00	179.73	6,740.0	-2,556.6	340.7	2,567.7	0.00	0.00	
9,300.0	90.00	179.73	6,740.0	-2,656.6	341.1	2,667.7	0.00	0.00	
9,400.0	90.00	179.73	6,740.0	-2,756.6	341.6	2,767.6	0.00	0.00	
9,500.0	90.00	179.73	6,740.0	-2,856.6	342.1	2,867.6	0.00	0.00	
9,600.0	90.00	179.73	6,740.0	-2,956.6	342.6	2,967.5	0.00	0.00	
9,700.0	90.00	179.73	6,740.0	-3,056.6	343.0	3,067.5	0.00	0.00	
9,800.0	90.00	179.73	6,740.0	-3,156.6	343.5	3,167.4	0.00	0.00	
9,900.0	90.00	179.73	6,740.0	-3,256.6	344.0	3,267.3	0.00	0.00	
10,000.0	90.00	179.73	6,740.0	-3,356.6	344.4	3,367.3	0.00	0.00	
10,100.0	90.00	179.73	6,740.0	-3,456.6	344.9	3,467.2	0.00	0.00	
10,200.0	90.00	179.73	6,740.0	-3,556.6	345.4	3,567.2	0.00	0.00	
10,300.0	90.00	179.73	6,740.0	-3,656.6	345.9	3,667.1	0.00	0.00	
10,400.0	90.00	179.73	6,740.0	-3,756.6	346.3	3,767.1	0.00	0.00	
10,500.0	90.00	179.73	6,740.0	-3,856.6	346.8	3,867.0	0.00	0.00	
10,600.0	90.00	179.73	6,740.0	-3,956.6	347.3	3,966.9	0.00	0.00	
10,700.0	90.00	179.73	6,740.0	-4,056.6	347.7	4,066.9	0.00	0.00	
10,800.0	90.00	179.73	6,740.0	-4,156.6	348.2	4,166.8	0.00	0.00	
10,900.0	90.00	179.73	6,740.0	-4,256.6	348.7	4,266.8	0.00	0.00	
11,000.0	90.00	179.73	6,740.0	-4,356.6	349.2	4,366.7	0.00	0.00	
11,100.0	90.00	179.73	6,740.0	-4,456.6	349.6	4,466.7	0.00	0.00	
11,200.0	90.00	179.73	6,740.0	-4,556.6	350.1	4,566.6	0.00	0.00	
11,300.0	90.00	179.73	6,740.0	-4,656.6	350.6	4,666.6	0.00	0.00	
11,400.0	90.00	179.73	6,740.0	-4,756.6	351.0	4,766.5	0.00	0.00	
11,500.0	90.00	179.73	6,740.0	-4,856.6	351.5	4,866.4	0.00	0.00	
11,600.0	90.00	179.73	6,740.0	-4,956.5	352.0	4,966.4	0.00	0.00	
11,700.0	90.00	179.73	6,740.0	-5,056.5	352.5	5,066.3	0.00	0.00	
11,800.0	90.00	179.73	6,740.0	-5,156.5	352.9	5,166.3	0.00	0.00	
11,900.0	90.00	179.73	6,740.0	-5,256.5	353.4	5,266.2	0.00	0.00	
12,000.0	90.00	179.73	6,740.0	-5,356.5	353.9	5,366.2	0.00	0.00	
12,100.0	90.00	179.73	6,740.0	-5,456.5	354.3	5,466.1	0.00	0.00	
12,200.0	90.00	179.73	6,740.0	-5,556.5	354.8	5,566.0	0.00	0.00	
12,300.0	90.00	179.73	6,740.0	-5,656.5	355.3	5,666.0	0.00	0.00	
12,400.0	90.00	179.73	6,740.0	-5,756.5	355.8	5,765.9	0.00	0.00	
12,500.0	90.00	179.73	6,740.0	-5,856.5	356.2	5,865.9	0.00	0.00	
12,600.0	90.00	179.73	6,740.0	-5,956.5	356.7	5,965.8	0.00	0.00	
12,700.0	90.00	179.73	6,740.0	-6,056.5	357.2	6,065.8	0.00	0.00	
12,800.0	90.00	179.73	6,740.0	-6,156.5	357.6	6,165.7	0.00	0.00	
12,900.0	90.00	179.73	6,740.0	-6,256.5	358.1	6,265.7	0.00	0.00	
13,000.0	90.00	179.73	6,740.0	-6,356.5	358.6	6,365.6	0.00	0.00	
13,100.0	90.00	179.73	6,740.0	-6,456.5	359.1	6,465.5	0.00	0.00	
13,200.0	90.00	179.73	6,740.0	-6,556.5	359.5	6,565.5	0.00	0.00	
13,300.0	90.00	179.73	6,740.0	-6,656.5	360.0	6,665.4	0.00	0.00	
13,400.0	90.00	179.73	6,740.0	-6,756.5	360.5	6,765.4	0.00	0.00	
13,500.0	90.00	179.73	6,740.0	-6,856.5	360.9	6,865.3	0.00	0.00	
13,600.0	90.00	179.73	6,740.0	-6,956.5	361.4	6,965.3	0.00	0.00	
13,700.0	90.00	179.73	6,740.0	-7,056.5	361.9	7,065.2	0.00	0.00	

## Planning Report

<b>Database:</b>	USA EDM 5000 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well LE GERKIN 6H
<b>Company:</b>	Red Hawk Petroleum	<b>TVD Reference:</b>	KB=20' @ 4926.9usft
<b>Project:</b>	Weld County, Colorado	<b>MD Reference:</b>	KB=20' @ 4926.9usft
<b>Site:</b>	S13-T2N-R64W (LE GERKIN PADS)	<b>North Reference:</b>	True
<b>Well:</b>	LE GERKIN 6H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	HZ		
<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 (°/100u)	Comments / Formations
13,800.0	90.00	179.73	6,740.0	-7,156.5	362.4	7,165.1	0.00	0.00	
13,900.0	90.00	179.73	6,740.0	-7,256.5	362.8	7,265.1	0.00	0.00	
14,000.0	90.00	179.73	6,740.0	-7,356.5	363.3	7,365.0	0.00	0.00	
14,100.0	90.00	179.73	6,740.0	-7,456.5	363.8	7,465.0	0.00	0.00	
14,200.0	90.00	179.73	6,740.0	-7,556.5	364.2	7,564.9	0.00	0.00	
14,300.0	90.00	179.73	6,740.0	-7,656.5	364.7	7,664.9	0.00	0.00	
14,400.0	90.00	179.73	6,740.0	-7,756.5	365.2	7,764.8	0.00	0.00	
14,500.0	90.00	179.73	6,740.0	-7,856.5	365.7	7,864.8	0.00	0.00	
14,600.0	90.00	179.73	6,740.0	-7,956.5	366.1	7,964.7	0.00	0.00	
14,700.0	90.00	179.73	6,740.0	-8,056.5	366.6	8,064.6	0.00	0.00	
14,800.0	90.00	179.73	6,740.0	-8,156.5	367.1	8,164.6	0.00	0.00	
14,900.0	90.00	179.73	6,740.0	-8,256.5	367.5	8,264.5	0.00	0.00	
15,000.0	90.00	179.73	6,740.0	-8,356.5	368.0	8,364.5	0.00	0.00	
15,100.0	90.00	179.73	6,740.0	-8,456.5	368.5	8,464.4	0.00	0.00	
15,200.0	90.00	179.73	6,740.0	-8,556.5	369.0	8,564.4	0.00	0.00	
15,300.0	90.00	179.73	6,740.0	-8,656.5	369.4	8,664.3	0.00	0.00	
15,400.0	90.00	179.73	6,740.0	-8,756.5	369.9	8,764.2	0.00	0.00	
15,500.0	90.00	179.73	6,740.0	-8,856.5	370.4	8,864.2	0.00	0.00	
15,600.0	90.00	179.73	6,740.0	-8,956.5	370.8	8,964.1	0.00	0.00	
15,700.0	90.00	179.73	6,740.0	-9,056.5	371.3	9,064.1	0.00	0.00	
15,800.0	90.00	179.73	6,740.0	-9,156.5	371.8	9,164.0	0.00	0.00	
15,900.0	90.00	179.73	6,740.0	-9,256.5	372.3	9,264.0	0.00	0.00	
16,000.0	90.00	179.73	6,740.0	-9,356.5	372.7	9,363.9	0.00	0.00	
16,100.0	90.00	179.73	6,740.0	-9,456.5	373.2	9,463.9	0.00	0.00	
16,200.0	90.00	179.73	6,740.0	-9,556.5	373.7	9,563.8	0.00	0.00	
16,300.0	90.00	179.73	6,740.0	-9,656.5	374.1	9,663.7	0.00	0.00	
16,400.0	90.00	179.73	6,740.0	-9,756.5	374.6	9,763.7	0.00	0.00	
16,431.7	90.00	179.73	6,740.0	-9,788.2	374.8	9,795.4	0.00	0.00	TD @ 16,431.7' MD - PBHL - 500' FSL, 1869' F

### Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
LE GERKIN 6H PBHL (3 - plan hits target center - Point	0.00	0.00	6,740.0	-9,788.2	374.8	1,287,404.29	3,278,980.53	40.118010	-104.502440
LE GERKIN 6H VP (3) - plan hits target center - Point	0.00	0.00	5,723.8	195.0	327.7	1,297,386.32	3,278,821.32	40.145415	-104.502608
LE GERKIN 6H PBHL (2 - plan misses target center by 58.7usft at 16431.4usft MD (6740.0 TVD, -9787.9 N, 374.8 E) - Point	0.00	0.00	6,740.0	-9,788.2	316.0	1,287,403.64	3,278,921.80	40.118010	-104.502650
LE GERKIN 6H VP (2) - plan misses target center by 58.8usft at 5739.1usft MD (5723.4 TVD, 195.0 N, 327.7 E) - Point	0.00	0.00	5,723.8	193.8	268.9	1,297,384.42	3,278,762.51	40.145412	-104.502818



## Planning Report

<b>Database:</b>	USA EDM 5000 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well LE GERKIN 6H
<b>Company:</b>	Red Hawk Petroleum	<b>TVD Reference:</b>	KB=20' @ 4926.9usft
<b>Project:</b>	Weld County, Colorado	<b>MD Reference:</b>	KB=20' @ 4926.9usft
<b>Site:</b>	S13-T2N-R64W (LE GERKIN PADS)	<b>North Reference:</b>	True
<b>Well:</b>	LE GERKIN 6H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	HZ		
<b>Design:</b>	Plan #3		

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
0.5	0.5	0.0	0.0	SH - 240' FNL, 1538' FWL
1,000.0	1,000.0	0.0	0.0	KOP @ 1,000'
1,192.4	1,192.2	4.1	6.9	EOB @ 4.81° INC
5,547.2	5,531.6	190.9	320.8	Start 2.5° Drop
5,739.6	5,723.8	195.0	327.7	EOD @ 0°
6,039.6	6,023.8	195.0	327.7	Start 8° Build
7,164.6	6,740.0	-521.2	331.1	LP @ 6,740' TVD, 90° INC
7,164.6	6,740.0	-521.2	331.1	LP - 766' FNL, 1869' FWL
16,431.7	6,740.0	-9,788.2	374.8	TD @ 16,431.7' MD
16,431.7	6,740.0	-9,788.2	374.8	PBHL - 500' FSL, 1869' FWL

# **Red Hawk Petroleum**

**Weld County, Colorado**

**S13-T2N-R64W (LE GERKIN PADS)**

**LE GERKIN 6H**

**HZ**

**Plan #3**

## **Anticollision Report**

**30 October, 2014**

# Anticollision Report

<b>Company:</b>	Red Hawk Petroleum	<b>Local Co-ordinate Reference:</b>	Well LE GERKIN 6H
<b>Project:</b>	Weld County, Colorado	<b>TVD Reference:</b>	KB=20' @ 4926.9usft
<b>Reference Site:</b>	S13-T2N-R64W (LE GERKIN PADS)	<b>MD Reference:</b>	KB=20' @ 4926.9usft
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	LE GERKIN 6H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #3	<b>Offset TVD Reference:</b>	Offset Datum

<b>Reference</b>	Plan #3		
<b>Filter type:</b>	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
<b>Interpolation Method:</b>	MD Interval 100.0usft	<b>Error Model:</b>	ISCWSA
<b>Depth Range:</b>	Unlimited	<b>Scan Method:</b>	Closest Approach 3D
<b>Results Limited by:</b>	Maximum center-center distance of 200.0usft	<b>Error Surface:</b>	Elliptical Conic
<b>Warning Levels Evaluated at:</b>	2.00 Sigma		

<b>Survey Tool Program</b>	<b>Date</b>	10/30/2014		
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
0.0	16,431.7	Plan #3 (HZ)	Geolink MWD	Geolink MWD

<b>Summary</b>						
<b>Site Name</b>	<b>Reference Measured Depth (usft)</b>	<b>Offset Measured Depth (usft)</b>	<b>Distance Between Centres (usft)</b>	<b>Distance Between Ellipses (usft)</b>	<b>Separation Factor</b>	<b>Warning</b>
<b>Offset Well - Wellbore - Design</b>						
S13-T2N-R64W (LE GERKIN PADS)						
EXISTING - ARNOLD #1 - EXISTING - EXISTING - NO S						Out of range
EXISTING - DARYL L ARNOLD #1 - EXISTING - EXISTI						Out of range
EXISTING - MCCLINTOCK ET AL #1 - EXISTING - EXIS						Out of range
LE GERKIN 10H - HZ - Plan #1						Out of range
LE GERKIN 11H - HZ - Plan #1						Out of range
LE GERKIN 12H - HZ - Plan #1						Out of range
LE GERKIN 13H - HZ - Plan #1						Out of range
LE GERKIN 14H - HZ - Plan #1						Out of range
LE GERKIN 15H - HZ - Plan #1						Out of range
LE GERKIN 16H - HZ - Plan #1						Out of range
LE GERKIN 1H - HZ - Plan #3	1,000.0	1,000.0	151.0	147.5	44.130	CC, ES
LE GERKIN 1H - HZ - Plan #3	1,200.0	1,186.6	166.5	162.4	40.691	SF
LE GERKIN 2H - HZ - Plan #3	1,000.0	1,000.0	120.2	116.8	35.140	CC, ES
LE GERKIN 2H - HZ - Plan #3	1,100.0	1,095.0	124.1	120.3	33.008	SF
LE GERKIN 3H - HZ - Plan #3	1,000.0	1,000.0	92.3	88.8	26.968	CC, ES
LE GERKIN 3H - HZ - Plan #3	1,100.0	1,096.2	96.1	92.3	25.544	SF
LE GERKIN 4H - HZ - Plan #3	1,000.0	1,000.0	61.5	58.1	17.979	CC, ES
LE GERKIN 4H - HZ - Plan #3	1,100.0	1,097.9	65.0	61.3	17.268	SF
LE GERKIN 5H - HZ - Plan #3	1,000.0	1,000.0	30.8	27.3	8.989	CC, ES
LE GERKIN 5H - HZ - Plan #3	1,100.0	1,099.7	33.0	29.2	8.749	SF
LE GERKIN 7H - HZ - Plan #3	1,000.0	1,000.0	28.0	24.5	8.172	CC
LE GERKIN 7H - HZ - Plan #3	1,100.0	1,098.9	28.1	24.4	7.469	ES
LE GERKIN 7H - HZ - Plan #3	1,200.0	1,197.7	28.7	24.6	6.981	SF
LE GERKIN 8H - HZ - Plan #3	1,000.0	1,000.0	58.7	55.3	17.162	CC
LE GERKIN 8H - HZ - Plan #3	1,100.0	1,097.6	58.9	55.1	15.649	ES
LE GERKIN 8H - HZ - Plan #3	1,300.0	1,292.5	62.8	58.4	14.078	SF
LE GERKIN 9H - HZ - Plan #1						Out of range

# Anticollision Report

<b>Company:</b>	Red Hawk Petroleum	<b>Local Co-ordinate Reference:</b>	Well LE GERKIN 6H
<b>Project:</b>	Weld County, Colorado	<b>TVD Reference:</b>	KB=20' @ 4926.9usft
<b>Reference Site:</b>	S13-T2N-R64W (LE GERKIN PADS)	<b>MD Reference:</b>	KB=20' @ 4926.9usft
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	LE GERKIN 6H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #3	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S13-T2N-R64W (LE GERKIN PADS) - LE GERKIN 1H - HZ - Plan #3													Offset Site Error:	0.0 usft
Survey Program: 0-Geolink MWD													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	-90.00	0.0	-151.0	151.0					
100.0	100.0	100.0	100.0	0.1	0.1	-90.00	0.0	-151.0	151.0	150.7	0.28	540.591		
200.0	200.0	200.0	200.0	0.3	0.3	-90.00	0.0	-151.0	151.0	150.3	0.63	240.263		
300.0	300.0	300.0	300.0	0.5	0.5	-90.00	0.0	-151.0	151.0	150.0	0.98	154.455		
400.0	400.0	400.0	400.0	0.7	0.7	-90.00	0.0	-151.0	151.0	149.6	1.33	113.809		
500.0	500.0	500.0	500.0	0.8	0.8	-90.00	0.0	-151.0	151.0	149.3	1.68	90.099		
600.0	600.0	600.0	600.0	1.0	1.0	-90.00	0.0	-151.0	151.0	148.9	2.02	74.564		
700.0	700.0	700.0	700.0	1.2	1.2	-90.00	0.0	-151.0	151.0	148.6	2.37	63.599		
800.0	800.0	800.0	800.0	1.4	1.4	-90.00	0.0	-151.0	151.0	148.2	2.72	55.445		
900.0	900.0	900.0	900.0	1.5	1.5	-90.00	0.0	-151.0	151.0	147.9	3.07	49.145		
1,000.0	1,000.0	1,000.0	1,000.0	1.7	1.7	-90.00	0.0	-151.0	151.0	147.5	3.42	44.130 CC, ES		
1,100.0	1,100.0	1,093.8	1,093.7	1.9	1.9	-149.46	0.3	-152.9	154.9	151.1	3.76	41.210		
1,200.0	1,199.7	1,186.6	1,186.4	2.1	2.0	-150.07	1.3	-158.5	166.5	162.4	4.09	40.691 SF		
1,300.0	1,299.4	1,278.3	1,277.6	2.3	2.2	-150.74	2.8	-167.6	183.7	179.3	4.43	41.456		

# Anticollision Report

<b>Company:</b>	Red Hawk Petroleum	<b>Local Co-ordinate Reference:</b>	Well LE GERKIN 6H
<b>Project:</b>	Weld County, Colorado	<b>TVD Reference:</b>	KB=20' @ 4926.9usft
<b>Reference Site:</b>	S13-T2N-R64W (LE GERKIN PADS)	<b>MD Reference:</b>	KB=20' @ 4926.9usft
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	LE GERKIN 6H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #3	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S13-T2N-R64W (LE GERKIN PADS) - LE GERKIN 2H - HZ - Plan #3												Offset Site Error: 0.0 usft	
Survey Program: 0-Geolink MWD												Offset Well Error: 0.0 usft	
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	
0.0	0.0	0.0	0.0	0.0	0.0	-90.00	0.0	-120.2	120.2				
100.0	100.0	100.0	100.0	0.1	0.1	-90.00	0.0	-120.2	120.2	119.9	0.28	430.470	
200.0	200.0	200.0	200.0	0.3	0.3	-90.00	0.0	-120.2	120.2	119.6	0.63	191.320	
300.0	300.0	300.0	300.0	0.5	0.5	-90.00	0.0	-120.2	120.2	119.2	0.98	122.992	
400.0	400.0	400.0	400.0	0.7	0.7	-90.00	0.0	-120.2	120.2	118.9	1.33	90.625	
500.0	500.0	500.0	500.0	0.8	0.8	-90.00	0.0	-120.2	120.2	118.5	1.68	71.745	
600.0	600.0	600.0	600.0	1.0	1.0	-90.00	0.0	-120.2	120.2	118.2	2.02	59.375	
700.0	700.0	700.0	700.0	1.2	1.2	-90.00	0.0	-120.2	120.2	117.8	2.37	50.644	
800.0	800.0	800.0	800.0	1.4	1.4	-90.00	0.0	-120.2	120.2	117.5	2.72	44.151	
900.0	900.0	900.0	900.0	1.5	1.5	-90.00	0.0	-120.2	120.2	117.1	3.07	39.134	
1,000.0	1,000.0	1,000.0	1,000.0	1.7	1.7	-90.00	0.0	-120.2	120.2	116.8	3.42	35.140 CC, ES	
1,100.0	1,100.0	1,095.0	1,095.0	1.9	1.9	-149.48	0.4	-122.1	124.1	120.3	3.76	33.008 SF	
1,200.0	1,199.7	1,189.1	1,188.9	2.1	2.1	-150.10	1.8	-127.8	135.8	131.7	4.10	33.139	
1,300.0	1,299.4	1,282.0	1,281.3	2.3	2.2	-150.70	3.9	-137.1	152.9	148.5	4.44	34.456	
1,400.0	1,399.0	1,373.4	1,371.8	2.5	2.5	-150.84	6.9	-149.8	173.9	169.2	4.78	36.379	
1,500.0	1,498.7	1,466.6	1,463.5	2.7	2.7	-150.70	10.6	-165.9	198.3	193.2	5.13	38.658	

# Anticollision Report

<b>Company:</b>	Red Hawk Petroleum	<b>Local Co-ordinate Reference:</b>	Well LE GERKIN 6H
<b>Project:</b>	Weld County, Colorado	<b>TVD Reference:</b>	KB=20' @ 4926.9usft
<b>Reference Site:</b>	S13-T2N-R64W (LE GERKIN PADS)	<b>MD Reference:</b>	KB=20' @ 4926.9usft
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	LE GERKIN 6H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #3	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S13-T2N-R64W (LE GERKIN PADS) - LE GERKIN 3H - HZ - Plan #3													Offset Site Error: 0.0 usft
Survey Program: 0-Geolink MWD													Offset Well Error: 0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Total Uncertainty Axis	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
0.0	0.0	0.0	0.0	0.0	0.0	-90.00	0.0	-92.3	92.3				
100.0	100.0	100.0	100.0	0.1	0.1	-90.00	0.0	-92.3	92.3	92.0	0.28	330.361	
200.0	200.0	200.0	200.0	0.3	0.3	-90.00	0.0	-92.3	92.3	91.6	0.63	146.827	
300.0	300.0	300.0	300.0	0.5	0.5	-90.00	0.0	-92.3	92.3	91.3	0.98	94.389	
400.0	400.0	400.0	400.0	0.7	0.7	-90.00	0.0	-92.3	92.3	90.9	1.33	69.550	
500.0	500.0	500.0	500.0	0.8	0.8	-90.00	0.0	-92.3	92.3	90.6	1.68	55.060	
600.0	600.0	600.0	600.0	1.0	1.0	-90.00	0.0	-92.3	92.3	90.2	2.02	45.567	
700.0	700.0	700.0	700.0	1.2	1.2	-90.00	0.0	-92.3	92.3	89.9	2.37	38.866	
800.0	800.0	800.0	800.0	1.4	1.4	-90.00	0.0	-92.3	92.3	89.5	2.72	33.883	
900.0	900.0	900.0	900.0	1.5	1.5	-90.00	0.0	-92.3	92.3	89.2	3.07	30.033	
1,000.0	1,000.0	1,000.0	1,000.0	1.7	1.7	-90.00	0.0	-92.3	92.3	88.8	3.42	26.968 CC, ES	
1,100.0	1,100.0	1,096.2	1,096.2	1.9	1.9	-149.42	0.7	-94.1	96.1	92.3	3.76	25.544 SF	
1,200.0	1,199.7	1,191.6	1,191.4	2.1	2.1	-149.87	2.8	-99.8	107.6	103.5	4.10	26.231	
1,300.0	1,299.4	1,286.3	1,285.5	2.3	2.2	-150.09	6.2	-109.0	124.5	120.0	4.45	27.982	
1,400.0	1,399.0	1,384.6	1,383.1	2.5	2.5	-150.03	10.2	-120.0	142.8	138.0	4.81	29.726	
1,500.0	1,498.7	1,482.9	1,480.7	2.7	2.7	-149.98	14.3	-131.1	161.2	156.0	5.16	31.214	
1,600.0	1,598.3	1,581.2	1,578.3	2.9	2.9	-149.94	18.3	-142.1	179.5	174.0	5.53	32.497	
1,700.0	1,698.0	1,679.5	1,675.9	3.1	3.1	-149.91	22.4	-153.1	197.9	192.0	5.89	33.613	

# Anticollision Report

<b>Company:</b>	Red Hawk Petroleum	<b>Local Co-ordinate Reference:</b>	Well LE GERKIN 6H
<b>Project:</b>	Weld County, Colorado	<b>TVD Reference:</b>	KB=20' @ 4926.9usft
<b>Reference Site:</b>	S13-T2N-R64W (LE GERKIN PADS)	<b>MD Reference:</b>	KB=20' @ 4926.9usft
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	LE GERKIN 6H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #3	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S13-T2N-R64W (LE GERKIN PADS) - LE GERKIN 4H - HZ - Plan #3													Offset Site Error:	0.0 usft
Survey Program: 0-Geolink MWD													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Distance				Total		Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Uncertainty Axis	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	-90.00	0.0	-61.5	61.5					
100.0	100.0	100.0	100.0	0.1	0.1	-90.00	0.0	-61.5	61.5	61.2	0.28	220.241		
200.0	200.0	200.0	200.0	0.3	0.3	-90.00	0.0	-61.5	61.5	60.9	0.63	97.885		
300.0	300.0	300.0	300.0	0.5	0.5	-90.00	0.0	-61.5	61.5	60.5	0.98	62.926		
400.0	400.0	400.0	400.0	0.7	0.7	-90.00	0.0	-61.5	61.5	60.2	1.33	46.366		
500.0	500.0	500.0	500.0	0.8	0.8	-90.00	0.0	-61.5	61.5	59.8	1.68	36.707		
600.0	600.0	600.0	600.0	1.0	1.0	-90.00	0.0	-61.5	61.5	59.5	2.02	30.378		
700.0	700.0	700.0	700.0	1.2	1.2	-90.00	0.0	-61.5	61.5	59.1	2.37	25.911		
800.0	800.0	800.0	800.0	1.4	1.4	-90.00	0.0	-61.5	61.5	58.8	2.72	22.589		
900.0	900.0	900.0	900.0	1.5	1.5	-90.00	0.0	-61.5	61.5	58.4	3.07	20.022		
1,000.0	1,000.0	1,000.0	1,000.0	1.7	1.7	-90.00	0.0	-61.5	61.5	58.1	3.42	17.979 CC, ES		
1,100.0	1,100.0	1,097.9	1,097.8	1.9	1.9	-148.99	1.3	-63.1	65.0	61.3	3.77	17.268 SF		
1,200.0	1,199.7	1,196.2	1,196.0	2.1	2.1	-148.59	5.0	-67.6	75.1	71.0	4.11	18.274		
1,300.0	1,299.4	1,295.5	1,295.1	2.3	2.2	-148.80	9.1	-72.5	87.3	82.8	4.47	19.527		
1,400.0	1,399.0	1,394.7	1,394.1	2.5	2.4	-148.95	13.2	-77.4	99.4	94.6	4.83	20.583		
1,500.0	1,498.7	1,494.0	1,493.2	2.7	2.6	-149.08	17.2	-82.3	111.5	106.3	5.19	21.483		
1,600.0	1,598.3	1,593.3	1,592.2	2.9	2.8	-149.17	21.3	-87.2	123.6	118.1	5.55	22.258		
1,700.0	1,698.0	1,692.5	1,691.3	3.1	3.0	-149.26	25.4	-92.1	135.8	129.8	5.92	22.931		
1,800.0	1,797.6	1,791.8	1,790.4	3.3	3.2	-149.32	29.4	-97.0	147.9	141.6	6.29	23.522		
1,900.0	1,897.3	1,891.0	1,889.4	3.5	3.4	-149.38	33.5	-101.9	160.0	153.3	6.65	24.044		
2,000.0	1,996.9	1,990.3	1,988.5	3.7	3.6	-149.43	37.6	-106.8	172.1	165.1	7.02	24.508		
2,100.0	2,096.6	2,089.6	2,087.5	3.9	3.8	-149.47	41.7	-111.7	184.3	176.9	7.39	24.923		
2,200.0	2,196.2	2,188.8	2,186.6	4.2	4.0	-149.51	45.7	-116.6	196.4	188.6	7.76	25.296		

# Anticollision Report

<b>Company:</b>	Red Hawk Petroleum	<b>Local Co-ordinate Reference:</b>	Well LE GERKIN 6H
<b>Project:</b>	Weld County, Colorado	<b>TVD Reference:</b>	KB=20' @ 4926.9usft
<b>Reference Site:</b>	S13-T2N-R64W (LE GERKIN PADS)	<b>MD Reference:</b>	KB=20' @ 4926.9usft
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	LE GERKIN 6H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #3	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S13-T2N-R64W (LE GERKIN PADS) - LE GERKIN 5H - HZ - Plan #3													Offset Site Error:	0.0 usft
Survey Program: 0-Geolink MWD													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Total Uncertainty Axis	Separation Factor	Warning			
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)						
0.0	0.0	0.0	0.0	0.0	0.0	-90.00	0.0	-30.8	30.8					
100.0	100.0	100.0	100.0	0.1	0.1	-90.00	0.0	-30.8	30.8	30.5	0.28	110.120		
200.0	200.0	200.0	200.0	0.3	0.3	-90.00	0.0	-30.8	30.8	30.1	0.63	48.942		
300.0	300.0	300.0	300.0	0.5	0.5	-90.00	0.0	-30.8	30.8	29.8	0.98	31.463		
400.0	400.0	400.0	400.0	0.7	0.7	-90.00	0.0	-30.8	30.8	29.4	1.33	23.183		
500.0	500.0	500.0	500.0	0.8	0.8	-90.00	0.0	-30.8	30.8	29.1	1.68	18.353		
600.0	600.0	600.0	600.0	1.0	1.0	-90.00	0.0	-30.8	30.8	28.7	2.02	15.189		
700.0	700.0	700.0	700.0	1.2	1.2	-90.00	0.0	-30.8	30.8	28.4	2.37	12.955		
800.0	800.0	800.0	800.0	1.4	1.4	-90.00	0.0	-30.8	30.8	28.0	2.72	11.294		
900.0	900.0	900.0	900.0	1.5	1.5	-90.00	0.0	-30.8	30.8	27.7	3.07	10.011		
1,000.0	1,000.0	1,000.0	1,000.0	1.7	1.7	-90.00	0.0	-30.8	30.8	27.3	3.42	8.989 CC, ES		
1,100.0	1,100.0	1,099.7	1,099.7	1.9	1.9	-147.43	2.1	-31.1	33.0	29.2	3.77	8.749 SF		
1,200.0	1,199.7	1,199.5	1,199.4	2.1	2.1	-146.50	6.3	-31.7	39.3	35.1	4.12	9.528		
1,300.0	1,299.4	1,299.2	1,299.0	2.3	2.2	-147.16	10.4	-32.4	47.1	42.6	4.48	10.515		
1,400.0	1,399.0	1,398.9	1,398.6	2.5	2.4	-147.63	14.5	-33.0	54.9	50.1	4.84	11.349		
1,500.0	1,498.7	1,498.6	1,498.2	2.7	2.6	-147.98	18.6	-33.7	62.8	57.6	5.21	12.063		
1,600.0	1,598.3	1,598.3	1,597.8	2.9	2.8	-148.25	22.7	-34.3	70.6	65.1	5.57	12.679		
1,700.0	1,698.0	1,698.0	1,697.4	3.1	3.0	-148.47	26.8	-35.0	78.5	72.5	5.94	13.217		
1,800.0	1,797.6	1,797.7	1,797.0	3.3	3.2	-148.65	30.9	-35.6	86.3	80.0	6.31	13.689		
1,900.0	1,897.3	1,897.4	1,896.6	3.5	3.3	-148.80	35.0	-36.3	94.2	87.5	6.68	14.108		
2,000.0	1,996.9	1,997.1	1,996.3	3.7	3.5	-148.93	39.1	-36.9	102.0	95.0	7.05	14.481		
2,100.0	2,096.6	2,096.8	2,095.9	3.9	3.7	-149.03	43.3	-37.5	109.9	102.5	7.42	14.815		
2,200.0	2,196.2	2,196.4	2,195.5	4.2	3.9	-149.13	47.4	-38.2	117.7	110.0	7.79	15.117		
2,300.0	2,295.9	2,296.1	2,295.1	4.4	4.1	-149.21	51.5	-38.8	125.6	117.4	8.16	15.390		
2,400.0	2,395.5	2,395.8	2,394.7	4.6	4.3	-149.28	55.6	-39.5	133.4	124.9	8.53	15.639		
2,500.0	2,495.2	2,495.5	2,494.3	4.8	4.5	-149.35	59.7	-40.1	141.3	132.4	8.91	15.866		
2,600.0	2,594.8	2,595.2	2,593.9	5.0	4.6	-149.40	63.8	-40.8	149.2	139.9	9.28	16.074		
2,700.0	2,694.5	2,694.9	2,693.5	5.3	4.8	-149.46	67.9	-41.4	157.0	147.4	9.65	16.266		
2,800.0	2,794.1	2,794.6	2,793.1	5.5	5.0	-149.50	72.0	-42.1	164.9	154.8	10.03	16.443		
2,900.0	2,893.8	2,894.3	2,892.7	5.7	5.2	-149.55	76.1	-42.7	172.7	162.3	10.40	16.606		
3,000.0	2,993.4	2,994.0	2,992.3	5.9	5.4	-149.58	80.2	-43.4	180.6	169.8	10.77	16.759		
3,100.0	3,093.1	3,093.7	3,091.9	6.2	5.6	-149.62	84.4	-44.0	188.4	177.3	11.15	16.900		
3,200.0	3,192.7	3,193.4	3,191.5	6.4	5.8	-149.65	88.5	-44.6	196.3	184.7	11.52	17.033		



# Anticollision Report

<b>Company:</b>	Red Hawk Petroleum	<b>Local Co-ordinate Reference:</b>	Well LE GERKIN 6H
<b>Project:</b>	Weld County, Colorado	<b>TVD Reference:</b>	KB=20' @ 4926.9usft
<b>Reference Site:</b>	S13-T2N-R64W (LE GERKIN PADS)	<b>MD Reference:</b>	KB=20' @ 4926.9usft
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	LE GERKIN 6H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #3	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S13-T2N-R64W (LE GERKIN PADS) - LE GERKIN 7H - HZ - Plan #3													Offset Site Error:	0.0 usft
Survey Program: 0-Geolink MWD													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Total Uncertainty Axis	Separation Factor	Warning			
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)						
0.0	0.0	0.0	0.0	0.0	0.0	90.00	0.0	28.0	28.0					
100.0	100.0	100.0	100.0	0.1	0.1	90.00	0.0	28.0	28.0	27.7	0.28	100.109		
200.0	200.0	200.0	200.0	0.3	0.3	90.00	0.0	28.0	28.0	27.3	0.63	44.493		
300.0	300.0	300.0	300.0	0.5	0.5	90.00	0.0	28.0	28.0	27.0	0.98	28.603		
400.0	400.0	400.0	400.0	0.7	0.7	90.00	0.0	28.0	28.0	26.6	1.33	21.076		
500.0	500.0	500.0	500.0	0.8	0.8	90.00	0.0	28.0	28.0	26.3	1.68	16.685		
600.0	600.0	600.0	600.0	1.0	1.0	90.00	0.0	28.0	28.0	25.9	2.02	13.808		
700.0	700.0	700.0	700.0	1.2	1.2	90.00	0.0	28.0	28.0	25.6	2.37	11.778		
800.0	800.0	800.0	800.0	1.4	1.4	90.00	0.0	28.0	28.0	25.2	2.72	10.268		
900.0	900.0	900.0	900.0	1.5	1.5	90.00	0.0	28.0	28.0	24.9	3.07	9.101		
1,000.0	1,000.0	1,000.0	1,000.0	1.7	1.7	90.00	0.0	28.0	28.0	24.5	3.42	8.172 CC		
1,100.0	1,100.0	1,098.9	1,098.8	1.9	1.9	31.66	0.7	30.0	28.1	24.4	3.77	7.469 ES		
1,200.0	1,199.7	1,197.7	1,197.4	2.1	2.1	34.28	2.6	36.1	28.7	24.6	4.11	6.981 SF		
1,300.0	1,299.4	1,296.4	1,295.6	2.3	2.3	35.65	5.9	46.2	31.8	27.4	4.47	7.113		
1,400.0	1,399.0	1,395.8	1,394.0	2.5	2.5	34.70	10.3	59.5	38.1	33.2	4.84	7.869		
1,500.0	1,498.7	1,495.6	1,492.7	2.7	2.7	33.89	14.7	73.2	44.6	39.4	5.20	8.564		
1,600.0	1,598.3	1,595.4	1,591.5	2.9	3.0	33.29	19.1	86.9	51.1	45.5	5.57	9.166		
1,700.0	1,698.0	1,695.1	1,690.2	3.1	3.3	32.82	23.6	100.5	57.6	51.7	5.94	9.692		
1,800.0	1,797.6	1,794.9	1,788.9	3.3	3.5	32.45	28.0	114.2	64.1	57.8	6.31	10.156		
1,900.0	1,897.3	1,894.7	1,887.7	3.5	3.8	32.14	32.5	127.9	70.6	63.9	6.68	10.567		
2,000.0	1,996.9	1,994.5	1,986.4	3.7	4.1	31.89	36.9	141.5	77.1	70.1	7.06	10.933		
2,100.0	2,096.6	2,094.3	2,085.2	3.9	4.4	31.68	41.3	155.2	83.7	76.2	7.43	11.263		
2,200.0	2,196.2	2,194.1	2,183.9	4.2	4.7	31.50	45.8	168.9	90.2	82.4	7.80	11.560		
2,300.0	2,295.9	2,293.9	2,282.7	4.4	5.0	31.34	50.2	182.6	96.7	88.5	8.18	11.830		
2,400.0	2,395.5	2,393.7	2,381.4	4.6	5.3	31.20	54.7	196.2	103.2	94.7	8.55	12.076		
2,500.0	2,495.2	2,493.4	2,480.2	4.8	5.5	31.08	59.1	209.9	109.8	100.8	8.92	12.301		
2,600.0	2,594.8	2,593.2	2,578.9	5.0	5.8	30.97	63.5	223.6	116.3	107.0	9.30	12.507		
2,700.0	2,694.5	2,693.0	2,677.7	5.3	6.1	30.88	68.0	237.2	122.8	113.1	9.67	12.698		
2,800.0	2,794.1	2,792.8	2,776.4	5.5	6.4	30.79	72.4	250.9	129.3	119.3	10.05	12.873		
2,900.0	2,893.8	2,892.6	2,875.2	5.7	6.7	30.71	76.9	264.6	135.9	125.4	10.42	13.036		
3,000.0	2,993.4	2,992.4	2,973.9	5.9	7.0	30.64	81.3	278.2	142.4	131.6	10.80	13.188		
3,100.0	3,093.1	3,092.2	3,072.6	6.2	7.3	30.58	85.7	291.9	148.9	137.7	11.17	13.329		
3,200.0	3,192.7	3,191.9	3,171.4	6.4	7.6	30.52	90.2	305.6	155.4	143.9	11.55	13.461		
3,300.0	3,292.4	3,291.7	3,270.1	6.6	7.9	30.46	94.6	319.3	162.0	150.0	11.92	13.584		
3,400.0	3,392.0	3,391.5	3,368.9	6.8	8.2	30.41	99.1	332.9	168.5	156.2	12.30	13.700		
3,500.0	3,491.6	3,491.3	3,467.6	7.1	8.5	30.37	103.5	346.6	175.0	162.3	12.67	13.809		
3,600.0	3,591.3	3,591.1	3,566.4	7.3	8.8	30.32	107.9	360.3	181.5	168.5	13.05	13.911		
3,700.0	3,690.9	3,690.9	3,665.1	7.5	9.1	30.28	112.4	373.9	188.1	174.6	13.43	14.008		
3,800.0	3,790.6	3,790.7	3,763.9	7.7	9.4	30.25	116.8	387.6	194.6	180.8	13.80	14.099		

# Anticollision Report

<b>Company:</b>	Red Hawk Petroleum	<b>Local Co-ordinate Reference:</b>	Well LE GERKIN 6H
<b>Project:</b>	Weld County, Colorado	<b>TVD Reference:</b>	KB=20' @ 4926.9usft
<b>Reference Site:</b>	S13-T2N-R64W (LE GERKIN PADS)	<b>MD Reference:</b>	KB=20' @ 4926.9usft
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	LE GERKIN 6H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #3	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design S13-T2N-R64W (LE GERKIN PADS) - LE GERKIN 8H - HZ - Plan #3													Offset Site Error:	0.0 usft
Survey Program: 0-Geolink MWD													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Distance		Total		Separation		Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Uncertainty Axis			
0.0	0.0	0.0	0.0	0.0	0.0	90.00	0.0	58.7	58.7					
100.0	100.0	100.0	100.0	0.1	0.1	90.00	0.0	58.7	58.7	58.4	0.28	210.230		
200.0	200.0	200.0	200.0	0.3	0.3	90.00	0.0	58.7	58.7	58.1	0.63	93.435		
300.0	300.0	300.0	300.0	0.5	0.5	90.00	0.0	58.7	58.7	57.7	0.98	60.066		
400.0	400.0	400.0	400.0	0.7	0.7	90.00	0.0	58.7	58.7	57.4	1.33	44.259		
500.0	500.0	500.0	500.0	0.8	0.8	90.00	0.0	58.7	58.7	57.0	1.68	35.038		
600.0	600.0	600.0	600.0	1.0	1.0	90.00	0.0	58.7	58.7	56.7	2.02	28.997		
700.0	700.0	700.0	700.0	1.2	1.2	90.00	0.0	58.7	58.7	56.3	2.37	24.733		
800.0	800.0	800.0	800.0	1.4	1.4	90.00	0.0	58.7	58.7	56.0	2.72	21.562		
900.0	900.0	900.0	900.0	1.5	1.5	90.00	0.0	58.7	58.7	55.6	3.07	19.112		
1,000.0	1,000.0	1,000.0	1,000.0	1.7	1.7	90.00	0.0	58.7	58.7	55.3	3.42	17.162 CC		
1,100.0	1,100.0	1,097.6	1,097.5	1.9	1.9	31.37	0.5	60.7	58.9	55.1	3.76	15.649 ES		
1,200.0	1,199.7	1,195.1	1,194.9	2.1	2.1	33.16	1.8	66.8	59.6	55.5	4.11	14.499		
1,300.0	1,299.4	1,292.5	1,291.7	2.3	2.3	34.76	4.1	76.9	62.8	58.4	4.46	14.078 SF		
1,400.0	1,399.0	1,389.6	1,387.7	2.5	2.5	35.14	7.3	90.9	70.2	65.4	4.82	14.551		
1,500.0	1,498.7	1,486.0	1,482.4	2.7	2.8	34.57	11.4	108.8	81.5	76.4	5.18	15.726		
1,600.0	1,598.3	1,585.1	1,579.3	2.9	3.1	33.80	15.9	129.0	94.8	89.2	5.55	17.066		
1,700.0	1,698.0	1,684.2	1,676.2	3.1	3.4	33.22	20.5	149.2	108.0	102.1	5.92	18.239		
1,800.0	1,797.6	1,783.3	1,773.1	3.3	3.8	32.76	25.1	169.4	121.3	115.0	6.29	19.272		
1,900.0	1,897.3	1,882.5	1,870.1	3.5	4.1	32.39	29.7	189.6	134.5	127.9	6.66	20.189		
2,000.0	1,996.9	1,981.6	1,967.0	3.7	4.5	32.09	34.3	209.8	147.8	140.7	7.03	21.009		
2,100.0	2,096.6	2,080.7	2,063.9	3.9	4.9	31.84	38.9	230.0	161.0	153.6	7.41	21.745		
2,200.0	2,196.2	2,179.8	2,160.8	4.2	5.3	31.63	43.4	250.2	174.3	166.5	7.78	22.410		
2,300.0	2,295.9	2,278.9	2,257.8	4.4	5.6	31.45	48.0	270.4	187.6	179.4	8.15	23.014		

## Anticollision Report

<b>Company:</b>	Red Hawk Petroleum	<b>Local Co-ordinate Reference:</b>	Well LE GERKIN 6H
<b>Project:</b>	Weld County, Colorado	<b>TVD Reference:</b>	KB=20' @ 4926.9usft
<b>Reference Site:</b>	S13-T2N-R64W (LE GERKIN PADS)	<b>MD Reference:</b>	KB=20' @ 4926.9usft
<b>Site Error:</b>	0.0usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	LE GERKIN 6H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #3	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to KB=20' @ 4926.9usft

Offset Depths are relative to Offset Datum

Central Meridian is -105.500000 °

Coordinates are relative to: LE GERKIN 6H

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.64°

