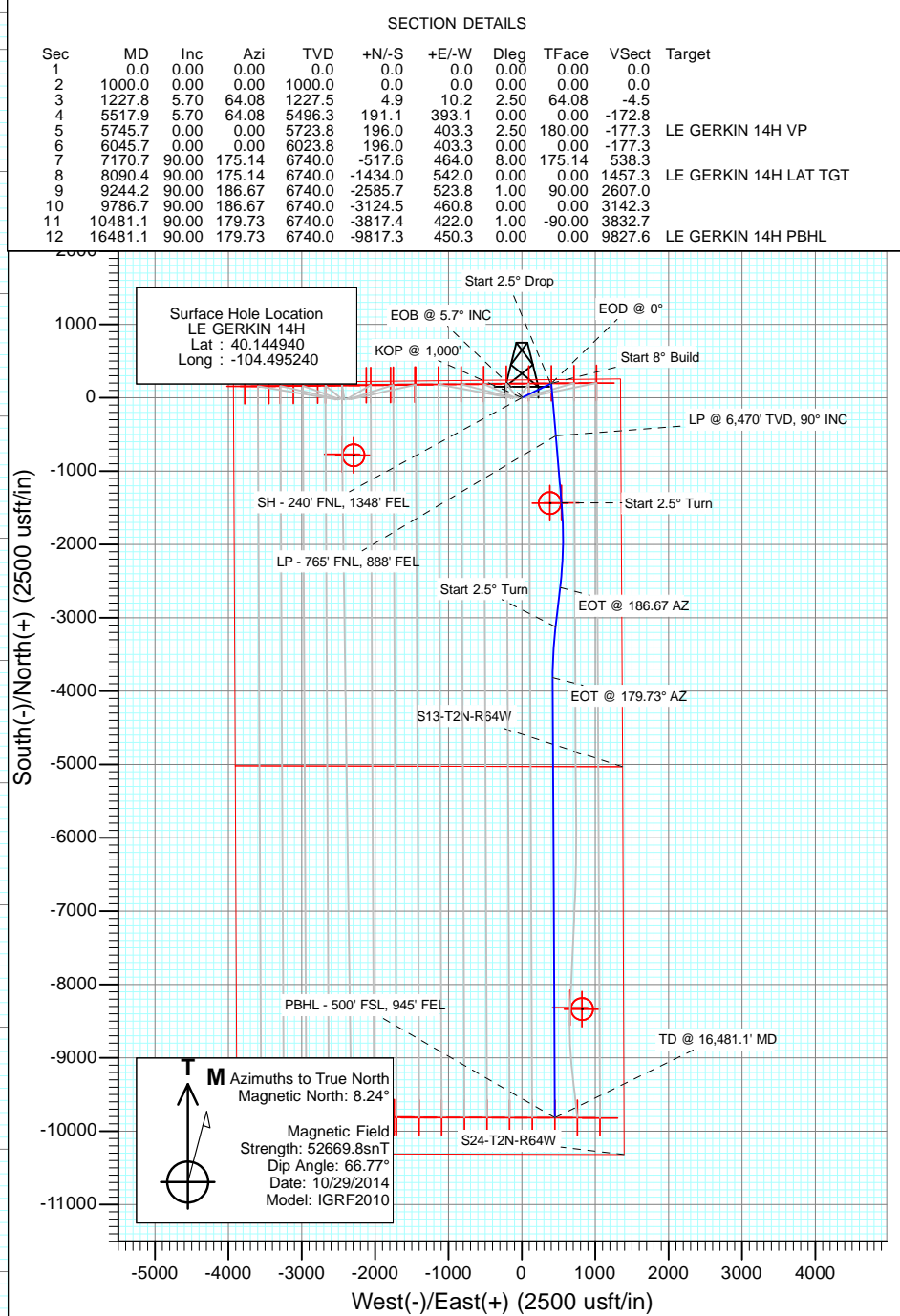
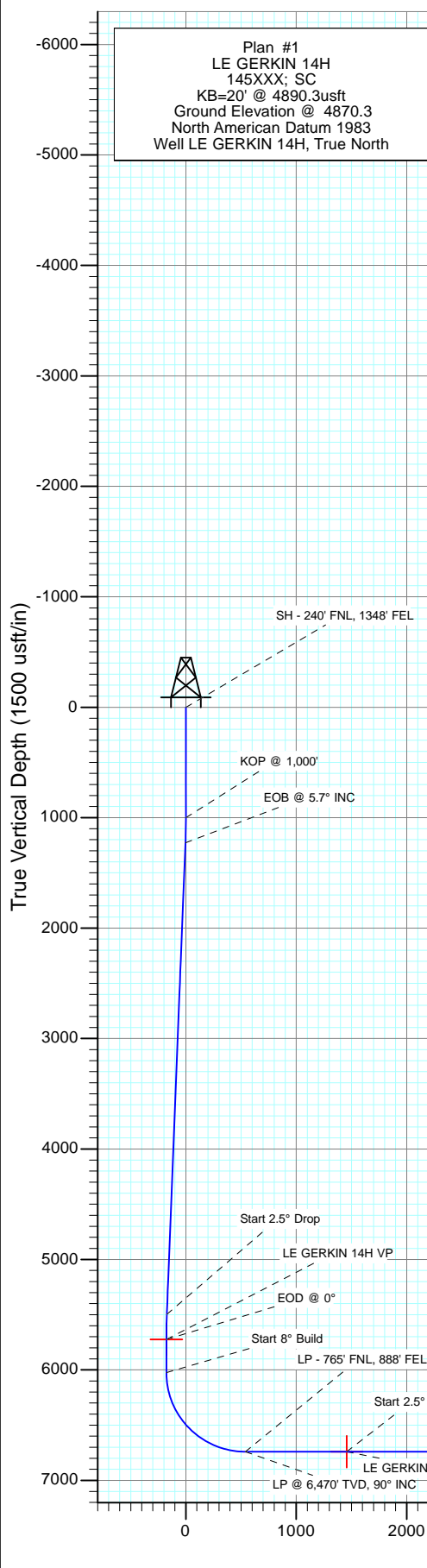


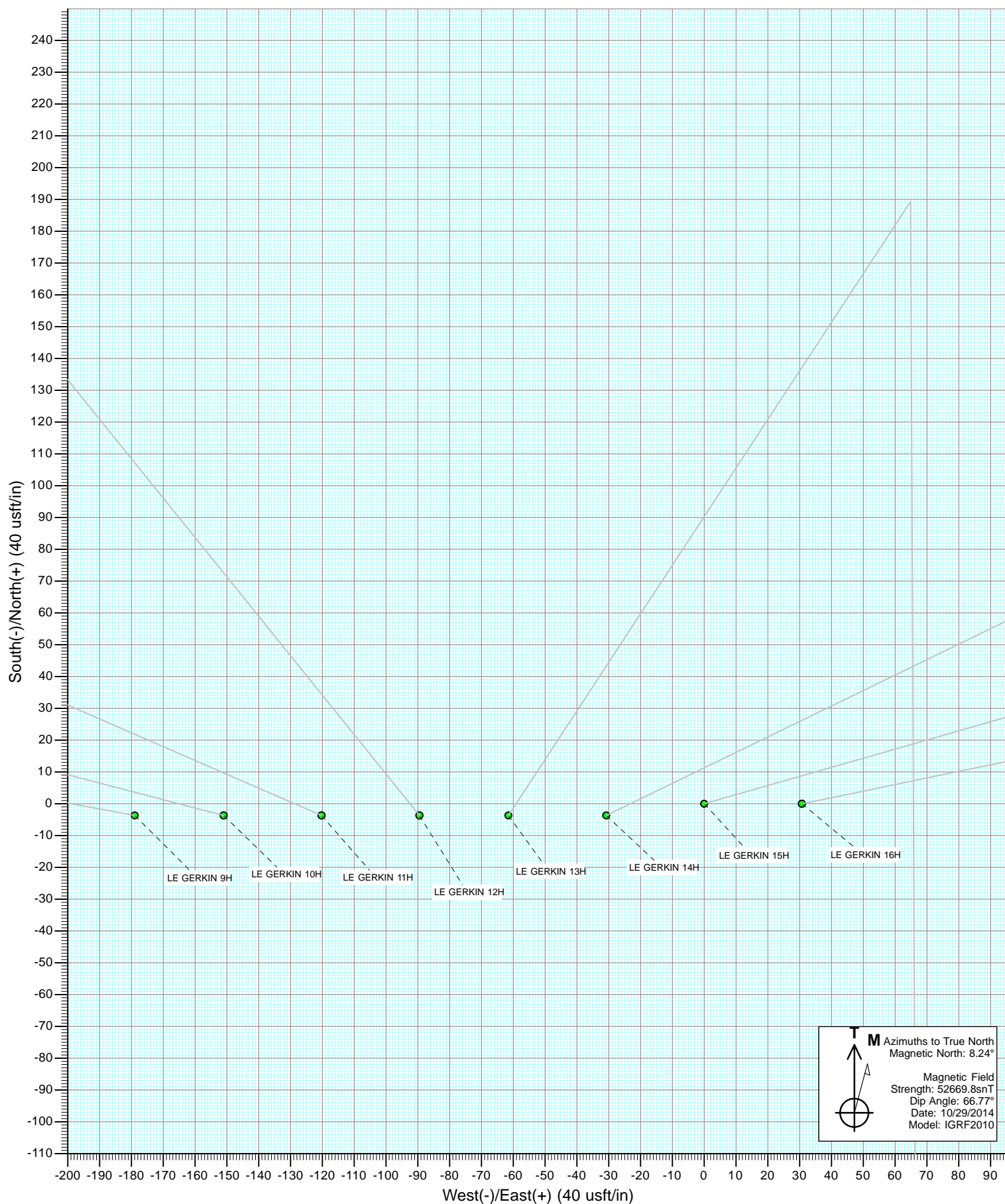


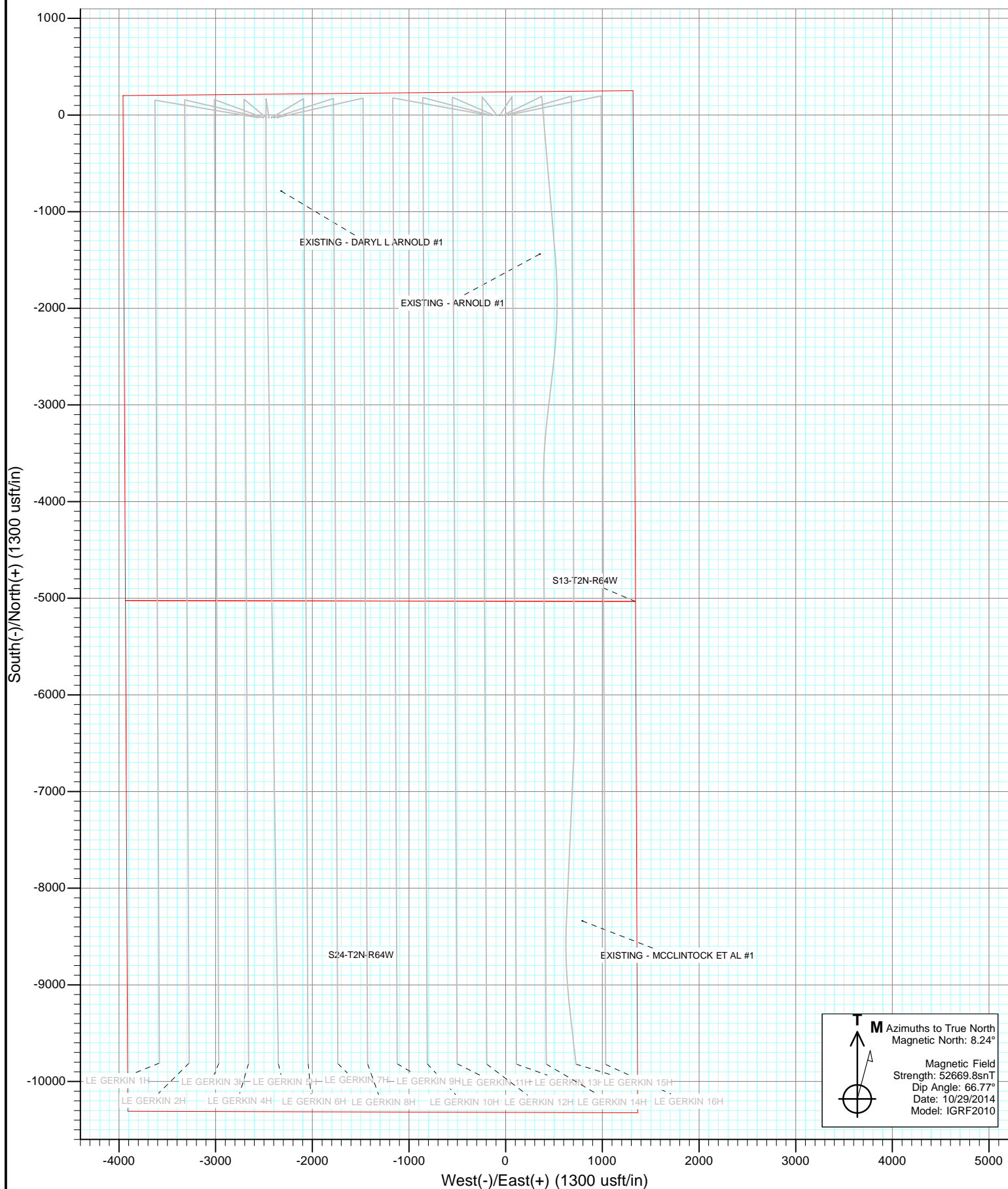
Project: Weld County, Colorado
Site: S13-T2N-R64W (LE GERKIN PADS)
Well: LE GERKIN 14H
Wellbore: HZ
Design: Plan #1



DESIGN TARGET DETAILS

Name	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
LE GERKIN 14H VP	196.0	403.3	1297437.00	3281283.92	40.145478	-104.493797
LE GERKIN 14H LAT TGT	-1434.0	542.0	1295808.67	3281441.08	40.141003	-104.493301
LE GERKIN 14H PBHL	-9817.3	450.3	1287424.85	3281444.34	40.117990	-104.493630





Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well LE GERKIN 14H
Company:	Red Hawk Petroleum	TVD Reference:	KB=20' @ 4890.3usft
Project:	Weld County, Colorado	MD Reference:	KB=20' @ 4890.3usft
Site:	S13-T2N-R64W (LE GERKIN PADS)	North Reference:	True
Well:	LE GERKIN 14H	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #1		

Project	Weld County, Colorado		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	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 14H					
Well Position	+N/-S	0.0 usft	Northing:	1,297,236.44 usft	Latitude:	40.144940
	+E/-W	0.0 usft	Easting:	3,280,882.86 usft	Longitude:	-104.495240
Position Uncertainty		0.0 usft	Wellhead Elevation:	0.0 usft	Ground Level:	4,870.3 usft

Wellbore	HZ				
Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
			(°)	(°)	(nT)
	IGRF2010	10/29/2014	8.24	66.77	52,670

Design	Plan #1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(usft)	(usft)	(usft)	(°)
	0.0	0.0	0.0	177.37

Plan Sections										
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	
1,227.8	5.70	64.08	1,227.5	4.9	10.2	2.50	2.50	0.00	64.08	
5,517.9	5.70	64.08	5,496.3	191.1	393.1	0.00	0.00	0.00	0.00	
5,745.7	0.00	0.00	5,723.8	196.0	403.3	2.50	-2.50	0.00	180.00	LE GERKIN 14H VP
6,045.7	0.00	0.00	6,023.8	196.0	403.3	0.00	0.00	0.00	0.00	
7,170.7	90.00	175.14	6,740.0	-517.6	464.0	8.00	8.00	15.57	175.14	
8,090.4	90.00	175.14	6,740.0	-1,434.0	542.0	0.00	0.00	0.00	0.00	LE GERKIN 14H LAT
9,244.2	90.00	186.67	6,740.0	-2,585.7	523.8	1.00	0.00	1.00	90.00	
9,786.7	90.00	186.67	6,740.0	-3,124.5	460.8	0.00	0.00	0.00	0.00	
10,481.1	90.00	179.73	6,740.0	-3,817.4	422.0	1.00	0.00	-1.00	-90.00	
16,481.1	90.00	179.73	6,740.0	-9,817.3	450.3	0.00	0.00	0.00	0.00	LE GERKIN 14H PBH

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well LE GERKIN 14H
Company:	Red Hawk Petroleum	TVD Reference:	KB=20' @ 4890.3usft
Project:	Weld County, Colorado	MD Reference:	KB=20' @ 4890.3usft
Site:	S13-T2N-R64W (LE GERKIN PADS)	North Reference:	True
Well:	LE GERKIN 14H	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #1		

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, 1348' FEL
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	64.08	1,100.0	1.0	2.0	-0.9	2.50	2.50	
1,200.0	5.00	64.08	1,199.7	3.8	7.8	-3.4	2.50	2.50	
1,227.8	5.70	64.08	1,227.5	4.9	10.2	-4.5	2.50	2.50	EOB @ 5.7° INC
1,300.0	5.70	64.08	1,299.3	8.1	16.6	-7.3	0.00	0.00	
1,400.0	5.70	64.08	1,398.8	12.4	25.5	-11.2	0.00	0.00	
1,500.0	5.70	64.08	1,498.3	16.8	34.5	-15.2	0.00	0.00	
1,600.0	5.70	64.08	1,597.8	21.1	43.4	-19.1	0.00	0.00	
1,700.0	5.70	64.08	1,697.3	25.4	52.3	-23.0	0.00	0.00	
1,800.0	5.70	64.08	1,796.8	29.8	61.3	-26.9	0.00	0.00	
1,900.0	5.70	64.08	1,896.3	34.1	70.2	-30.9	0.00	0.00	
2,000.0	5.70	64.08	1,995.8	38.4	79.1	-34.8	0.00	0.00	
2,100.0	5.70	64.08	2,095.3	42.8	88.0	-38.7	0.00	0.00	
2,200.0	5.70	64.08	2,194.8	47.1	97.0	-42.6	0.00	0.00	
2,300.0	5.70	64.08	2,294.3	51.5	105.9	-46.6	0.00	0.00	
2,400.0	5.70	64.08	2,393.8	55.8	114.8	-50.5	0.00	0.00	
2,500.0	5.70	64.08	2,493.3	60.1	123.7	-54.4	0.00	0.00	
2,600.0	5.70	64.08	2,592.9	64.5	132.7	-58.3	0.00	0.00	
2,700.0	5.70	64.08	2,692.4	68.8	141.6	-62.3	0.00	0.00	
2,800.0	5.70	64.08	2,791.9	73.1	150.5	-66.2	0.00	0.00	
2,900.0	5.70	64.08	2,891.4	77.5	159.4	-70.1	0.00	0.00	
3,000.0	5.70	64.08	2,990.9	81.8	168.4	-74.0	0.00	0.00	
3,100.0	5.70	64.08	3,090.4	86.2	177.3	-77.9	0.00	0.00	
3,200.0	5.70	64.08	3,189.9	90.5	186.2	-81.9	0.00	0.00	
3,300.0	5.70	64.08	3,289.4	94.8	195.1	-85.8	0.00	0.00	
3,400.0	5.70	64.08	3,388.9	99.2	204.1	-89.7	0.00	0.00	
3,500.0	5.70	64.08	3,488.4	103.5	213.0	-93.6	0.00	0.00	
3,600.0	5.70	64.08	3,587.9	107.9	221.9	-97.6	0.00	0.00	
3,700.0	5.70	64.08	3,687.4	112.2	230.9	-101.5	0.00	0.00	
3,800.0	5.70	64.08	3,786.9	116.5	239.8	-105.4	0.00	0.00	
3,900.0	5.70	64.08	3,886.4	120.9	248.7	-109.3	0.00	0.00	
4,000.0	5.70	64.08	3,985.9	125.2	257.6	-113.3	0.00	0.00	
4,100.0	5.70	64.08	4,085.4	129.5	266.6	-117.2	0.00	0.00	
4,200.0	5.70	64.08	4,185.0	133.9	275.5	-121.1	0.00	0.00	
4,300.0	5.70	64.08	4,284.5	138.2	284.4	-125.0	0.00	0.00	
4,400.0	5.70	64.08	4,384.0	142.6	293.3	-129.0	0.00	0.00	
4,500.0	5.70	64.08	4,483.5	146.9	302.3	-132.9	0.00	0.00	
4,600.0	5.70	64.08	4,583.0	151.2	311.2	-136.8	0.00	0.00	
4,700.0	5.70	64.08	4,682.5	155.6	320.1	-140.7	0.00	0.00	
4,800.0	5.70	64.08	4,782.0	159.9	329.0	-144.7	0.00	0.00	
4,900.0	5.70	64.08	4,881.5	164.2	338.0	-148.6	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well LE GERKIN 14H
Company:	Red Hawk Petroleum	TVD Reference:	KB=20' @ 4890.3usft
Project:	Weld County, Colorado	MD Reference:	KB=20' @ 4890.3usft
Site:	S13-T2N-R64W (LE GERKIN PADS)	North Reference:	True
Well:	LE GERKIN 14H	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #1		

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	5.70	64.08	4,981.0	168.6	346.9	-152.5	0.00	0.00	
5,100.0	5.70	64.08	5,080.5	172.9	355.8	-156.4	0.00	0.00	
5,200.0	5.70	64.08	5,180.0	177.3	364.7	-160.4	0.00	0.00	
5,300.0	5.70	64.08	5,279.5	181.6	373.7	-164.3	0.00	0.00	
5,400.0	5.70	64.08	5,379.0	185.9	382.6	-168.2	0.00	0.00	
5,500.0	5.70	64.08	5,478.5	190.3	391.5	-172.1	0.00	0.00	
5,517.9	5.70	64.08	5,496.3	191.1	393.1	-172.8	0.00	0.00	Start 2.5° Drop
5,600.0	3.64	64.08	5,578.2	194.0	399.1	-175.5	2.50	-2.50	
5,700.0	1.14	64.08	5,678.1	195.8	402.9	-177.1	2.50	-2.50	
5,745.7	0.00	0.00	5,723.8	196.0	403.3	-177.3	2.50	-2.50	EOD @ 0°
5,800.0	0.00	0.00	5,778.1	196.0	403.3	-177.3	0.00	0.00	
5,900.0	0.00	0.00	5,878.1	196.0	403.3	-177.3	0.00	0.00	
6,000.0	0.00	0.00	5,978.1	196.0	403.3	-177.3	0.00	0.00	
6,045.7	0.00	0.00	6,023.8	196.0	403.3	-177.3	0.00	0.00	Start 8° Build
6,050.0	0.34	175.14	6,028.1	196.0	403.3	-177.3	8.00	8.00	
6,100.0	4.34	175.14	6,078.0	194.0	403.5	-175.3	8.00	8.00	
6,150.0	8.34	175.14	6,127.7	188.5	403.9	-169.7	8.00	8.00	
6,200.0	12.34	175.14	6,176.9	179.5	404.7	-160.8	8.00	8.00	
6,250.0	16.34	175.14	6,225.3	167.2	405.8	-148.4	8.00	8.00	
6,300.0	20.34	175.14	6,272.8	151.5	407.1	-132.7	8.00	8.00	
6,350.0	24.34	175.14	6,319.0	132.6	408.7	-113.7	8.00	8.00	
6,400.0	28.34	175.14	6,363.8	110.5	410.6	-91.5	8.00	8.00	
6,450.0	32.34	175.14	6,406.9	85.3	412.7	-66.3	8.00	8.00	
6,500.0	36.34	175.14	6,448.2	57.2	415.1	-38.1	8.00	8.00	
6,550.0	40.34	175.14	6,487.4	26.3	417.7	-7.1	8.00	8.00	
6,600.0	44.34	175.14	6,524.4	-7.2	420.6	26.5	8.00	8.00	
6,650.0	48.34	175.14	6,558.9	-43.3	423.7	62.6	8.00	8.00	
6,700.0	52.34	175.14	6,590.8	-81.6	426.9	101.1	8.00	8.00	
6,750.0	56.34	175.14	6,619.9	-122.1	430.4	141.7	8.00	8.00	
6,800.0	60.34	175.14	6,646.2	-164.5	434.0	184.2	8.00	8.00	
6,850.0	64.34	175.14	6,669.4	-208.6	437.7	228.5	8.00	8.00	
6,900.0	68.34	175.14	6,689.4	-254.2	441.6	274.2	8.00	8.00	
6,950.0	72.34	175.14	6,706.3	-301.1	445.6	321.2	8.00	8.00	
7,000.0	76.34	175.14	6,719.7	-349.1	449.7	369.3	8.00	8.00	
7,050.0	80.34	175.14	6,729.8	-397.9	453.8	418.3	8.00	8.00	
7,100.0	84.34	175.14	6,736.5	-447.3	458.0	467.8	8.00	8.00	
7,150.0	88.34	175.14	6,739.7	-497.0	462.3	517.6	8.00	8.00	
7,170.7	90.00	175.14	6,740.0	-517.6	464.0	538.3	8.00	8.00	LP - 765' FNL, 888' FEL - LP @ 6,470' TVD, 90
7,200.0	90.00	175.14	6,740.0	-546.8	466.5	567.6	0.00	0.00	
7,300.0	90.00	175.14	6,740.0	-646.4	475.0	667.5	0.00	0.00	
7,400.0	90.00	175.14	6,740.0	-746.1	483.5	767.4	0.00	0.00	
7,500.0	90.00	175.14	6,740.0	-845.7	491.9	867.4	0.00	0.00	
7,600.0	90.00	175.14	6,740.0	-945.3	500.4	967.3	0.00	0.00	
7,700.0	90.00	175.14	6,740.0	-1,045.0	508.9	1,067.2	0.00	0.00	
7,800.0	90.00	175.14	6,740.0	-1,144.6	517.4	1,167.1	0.00	0.00	
7,900.0	90.00	175.14	6,740.0	-1,244.3	525.9	1,267.0	0.00	0.00	
8,000.0	90.00	175.14	6,740.0	-1,343.9	534.3	1,367.0	0.00	0.00	
8,090.4	90.00	175.14	6,740.0	-1,434.0	542.0	1,457.3	0.00	0.00	Start 2.5° Turn
8,100.0	90.00	175.23	6,740.0	-1,443.5	542.8	1,466.9	1.00	0.00	
8,200.0	90.00	176.23	6,740.0	-1,543.3	550.2	1,566.9	1.00	0.00	
8,300.0	90.00	177.23	6,740.0	-1,643.1	555.9	1,666.8	1.00	0.00	
8,400.0	90.00	178.23	6,740.0	-1,743.0	559.9	1,766.8	1.00	0.00	

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well LE GERKIN 14H
Company:	Red Hawk Petroleum	TVD Reference:	KB=20' @ 4890.3usft
Project:	Weld County, Colorado	MD Reference:	KB=20' @ 4890.3usft
Site:	S13-T2N-R64W (LE GERKIN PADS)	North Reference:	True
Well:	LE GERKIN 14H	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #1		

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
8,500.0	90.00	179.23	6,740.0	-1,843.0	562.1	1,866.8	1.00	0.00	
8,600.0	90.00	180.23	6,740.0	-1,943.0	562.6	1,966.7	1.00	0.00	
8,700.0	90.00	181.23	6,740.0	-2,043.0	561.3	2,066.6	1.00	0.00	
8,800.0	90.00	182.23	6,740.0	-2,142.9	558.3	2,166.3	1.00	0.00	
8,900.0	90.00	183.23	6,740.0	-2,242.8	553.5	2,265.8	1.00	0.00	
9,000.0	90.00	184.23	6,740.0	-2,342.6	547.0	2,365.2	1.00	0.00	
9,100.0	90.00	185.23	6,740.0	-2,442.3	538.8	2,464.4	1.00	0.00	
9,200.0	90.00	186.23	6,740.0	-2,541.8	528.8	2,563.3	1.00	0.00	
9,244.2	90.00	186.67	6,740.0	-2,585.7	523.8	2,607.0	1.00	0.00	EOT @ 186.67 AZ
9,300.0	90.00	186.67	6,740.0	-2,641.1	517.3	2,662.0	0.00	0.00	
9,400.0	90.00	186.67	6,740.0	-2,740.4	505.7	2,760.7	0.00	0.00	
9,500.0	90.00	186.67	6,740.0	-2,839.8	494.1	2,859.4	0.00	0.00	
9,600.0	90.00	186.67	6,740.0	-2,939.1	482.5	2,958.1	0.00	0.00	
9,700.0	90.00	186.67	6,740.0	-3,038.4	470.8	3,056.8	0.00	0.00	
9,786.7	90.00	186.67	6,740.0	-3,124.5	460.8	3,142.3	0.00	0.00	Start 2.5° Turn
9,800.0	90.00	186.54	6,740.0	-3,137.7	459.2	3,155.5	1.00	0.00	
9,900.0	90.00	185.54	6,740.0	-3,237.2	448.7	3,254.3	1.00	0.00	
10,000.0	90.00	184.54	6,740.0	-3,336.8	439.9	3,353.4	1.00	0.00	
10,100.0	90.00	183.54	6,740.0	-3,436.5	432.9	3,452.7	1.00	0.00	
10,200.0	90.00	182.54	6,740.0	-3,536.4	427.6	3,552.3	1.00	0.00	
10,300.0	90.00	181.54	6,740.0	-3,636.3	424.0	3,651.9	1.00	0.00	
10,400.0	90.00	180.54	6,740.0	-3,736.3	422.2	3,751.7	1.00	0.00	
10,481.1	90.00	179.73	6,740.0	-3,817.4	422.0	3,832.7	1.00	0.00	EOT @ 179.73° AZ
10,500.0	90.00	179.73	6,740.0	-3,836.3	422.1	3,851.6	0.00	0.00	
10,600.0	90.00	179.73	6,740.0	-3,936.3	422.6	3,951.5	0.00	0.00	
10,700.0	90.00	179.73	6,740.0	-4,036.3	423.0	4,051.4	0.00	0.00	
10,800.0	90.00	179.73	6,740.0	-4,136.3	423.5	4,151.4	0.00	0.00	
10,900.0	90.00	179.73	6,740.0	-4,236.3	424.0	4,251.3	0.00	0.00	
11,000.0	90.00	179.73	6,740.0	-4,336.3	424.4	4,351.2	0.00	0.00	
11,100.0	90.00	179.73	6,740.0	-4,436.3	424.9	4,451.1	0.00	0.00	
11,200.0	90.00	179.73	6,740.0	-4,536.3	425.4	4,551.0	0.00	0.00	
11,300.0	90.00	179.73	6,740.0	-4,636.3	425.9	4,650.9	0.00	0.00	
11,400.0	90.00	179.73	6,740.0	-4,736.3	426.3	4,750.8	0.00	0.00	
11,500.0	90.00	179.73	6,740.0	-4,836.3	426.8	4,850.8	0.00	0.00	
11,600.0	90.00	179.73	6,740.0	-4,936.3	427.3	4,950.7	0.00	0.00	
11,700.0	90.00	179.73	6,740.0	-5,036.3	427.7	5,050.6	0.00	0.00	
11,800.0	90.00	179.73	6,740.0	-5,136.3	428.2	5,150.5	0.00	0.00	
11,900.0	90.00	179.73	6,740.0	-5,236.3	428.7	5,250.4	0.00	0.00	
12,000.0	90.00	179.73	6,740.0	-5,336.3	429.2	5,350.3	0.00	0.00	
12,100.0	90.00	179.73	6,740.0	-5,436.3	429.6	5,450.3	0.00	0.00	
12,200.0	90.00	179.73	6,740.0	-5,536.3	430.1	5,550.2	0.00	0.00	
12,300.0	90.00	179.73	6,740.0	-5,636.3	430.6	5,650.1	0.00	0.00	
12,400.0	90.00	179.73	6,740.0	-5,736.3	431.0	5,750.0	0.00	0.00	
12,500.0	90.00	179.73	6,740.0	-5,836.3	431.5	5,849.9	0.00	0.00	
12,600.0	90.00	179.73	6,740.0	-5,936.3	432.0	5,949.8	0.00	0.00	
12,700.0	90.00	179.73	6,740.0	-6,036.3	432.4	6,049.7	0.00	0.00	
12,800.0	90.00	179.73	6,740.0	-6,136.3	432.9	6,149.7	0.00	0.00	
12,900.0	90.00	179.73	6,740.0	-6,236.3	433.4	6,249.6	0.00	0.00	
13,000.0	90.00	179.73	6,740.0	-6,336.3	433.9	6,349.5	0.00	0.00	
13,100.0	90.00	179.73	6,740.0	-6,436.3	434.3	6,449.4	0.00	0.00	
13,200.0	90.00	179.73	6,740.0	-6,536.3	434.8	6,549.3	0.00	0.00	
13,300.0	90.00	179.73	6,740.0	-6,636.3	435.3	6,649.2	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well LE GERKIN 14H
Company:	Red Hawk Petroleum	TVD Reference:	KB=20' @ 4890.3usft
Project:	Weld County, Colorado	MD Reference:	KB=20' @ 4890.3usft
Site:	S13-T2N-R64W (LE GERKIN PADS)	North Reference:	True
Well:	LE GERKIN 14H	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #1		

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
13,400.0	90.00	179.73	6,740.0	-6,736.3	435.7	6,749.2	0.00	0.00	
13,500.0	90.00	179.73	6,740.0	-6,836.3	436.2	6,849.1	0.00	0.00	
13,600.0	90.00	179.73	6,740.0	-6,936.3	436.7	6,949.0	0.00	0.00	
13,700.0	90.00	179.73	6,740.0	-7,036.3	437.2	7,048.9	0.00	0.00	
13,800.0	90.00	179.73	6,740.0	-7,136.3	437.6	7,148.8	0.00	0.00	
13,900.0	90.00	179.73	6,740.0	-7,236.3	438.1	7,248.7	0.00	0.00	
14,000.0	90.00	179.73	6,740.0	-7,336.3	438.6	7,348.7	0.00	0.00	
14,100.0	90.00	179.73	6,740.0	-7,436.3	439.0	7,448.6	0.00	0.00	
14,200.0	90.00	179.73	6,740.0	-7,536.3	439.5	7,548.5	0.00	0.00	
14,300.0	90.00	179.73	6,740.0	-7,636.3	440.0	7,648.4	0.00	0.00	
14,400.0	90.00	179.73	6,740.0	-7,736.3	440.5	7,748.3	0.00	0.00	
14,500.0	90.00	179.73	6,740.0	-7,836.3	440.9	7,848.2	0.00	0.00	
14,600.0	90.00	179.73	6,740.0	-7,936.3	441.4	7,948.1	0.00	0.00	
14,700.0	90.00	179.73	6,740.0	-8,036.3	441.9	8,048.1	0.00	0.00	
14,800.0	90.00	179.73	6,740.0	-8,136.3	442.3	8,148.0	0.00	0.00	
14,900.0	90.00	179.73	6,740.0	-8,236.3	442.8	8,247.9	0.00	0.00	
15,000.0	90.00	179.73	6,740.0	-8,336.2	443.3	8,347.8	0.00	0.00	
15,100.0	90.00	179.73	6,740.0	-8,436.2	443.8	8,447.7	0.00	0.00	
15,200.0	90.00	179.73	6,740.0	-8,536.2	444.2	8,547.6	0.00	0.00	
15,300.0	90.00	179.73	6,740.0	-8,636.2	444.7	8,647.6	0.00	0.00	
15,400.0	90.00	179.73	6,740.0	-8,736.2	445.2	8,747.5	0.00	0.00	
15,500.0	90.00	179.73	6,740.0	-8,836.2	445.6	8,847.4	0.00	0.00	
15,600.0	90.00	179.73	6,740.0	-8,936.2	446.1	8,947.3	0.00	0.00	
15,700.0	90.00	179.73	6,740.0	-9,036.2	446.6	9,047.2	0.00	0.00	
15,800.0	90.00	179.73	6,740.0	-9,136.2	447.1	9,147.1	0.00	0.00	
15,900.0	90.00	179.73	6,740.0	-9,236.2	447.5	9,247.0	0.00	0.00	
16,000.0	90.00	179.73	6,740.0	-9,336.2	448.0	9,347.0	0.00	0.00	
16,100.0	90.00	179.73	6,740.0	-9,436.2	448.5	9,446.9	0.00	0.00	
16,200.0	90.00	179.73	6,740.0	-9,536.2	448.9	9,546.8	0.00	0.00	
16,300.0	90.00	179.73	6,740.0	-9,636.2	449.4	9,646.7	0.00	0.00	
16,400.0	90.00	179.73	6,740.0	-9,736.2	449.9	9,746.6	0.00	0.00	
16,481.1	90.00	179.73	6,740.0	-9,817.3	450.3	9,827.6	0.00	0.00	TD @ 16,481.1' MD - PBHL - 500' FSL, 945' FE

Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
LE GERKIN 14H VP - hit/miss target - Shape - Point	0.00	0.00	5,723.8	196.0	403.3	1,297,437.00	3,281,283.92	40.145478	-104.493797
LE GERKIN 14H PBHL - plan hits target center - Point	0.00	0.00	6,740.0	-9,817.3	450.3	1,287,424.85	3,281,444.34	40.117990	-104.493630
LE GERKIN 14H LAT TC - plan hits target center - Point	0.00	0.00	6,740.0	-1,434.0	542.0	1,295,808.67	3,281,441.08	40.141003	-104.493301

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well LE GERKIN 14H
Company:	Red Hawk Petroleum	TVD Reference:	KB=20' @ 4890.3usft
Project:	Weld County, Colorado	MD Reference:	KB=20' @ 4890.3usft
Site:	S13-T2N-R64W (LE GERKIN PADS)	North Reference:	True
Well:	LE GERKIN 14H	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #1		

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, 1348' FEL
1,000.0	1,000.0	0.0	0.0	KOP @ 1,000'
1,227.8	1,227.5	4.9	10.2	EOB @ 5.7° INC
5,517.9	5,496.3	191.1	393.1	Start 2.5° Drop
5,745.7	5,723.8	196.0	403.3	EOD @ 0°
6,045.7	6,023.8	196.0	403.3	Start 8° Build
7,170.7	6,740.0	-517.6	464.0	LP - 765' FNL, 888' FEL
7,170.7	6,740.0	-517.6	464.0	LP @ 6,470' TVD, 90° INC
8,090.4	6,740.0	-1,434.0	542.0	Start 2.5° Turn
9,244.2	6,740.0	-2,585.7	523.8	EOT @ 186.67 AZ
9,786.7	6,740.0	-3,124.5	460.8	Start 2.5° Turn
10,481.1	6,740.0	-3,817.4	422.0	EOT @ 179.73° AZ
16,481.1	6,740.0	-9,817.3	450.3	TD @ 16,481.1' MD
16,481.1	6,740.0	-9,817.3	450.3	PBHL - 500' FSL, 945' FEL

Red Hawk Petroleum

Weld County, Colorado

S13-T2N-R64W (LE GERKIN PADS)

LE GERKIN 14H

HZ

Plan #1

Anticollision Report

30 October, 2014

Cathedral Energy Services

Anticollision Report

Company:	Red Hawk Petroleum	Local Co-ordinate Reference:	Well LE GERKIN 14H
Project:	Weld County, Colorado	TVD Reference:	KB=20' @ 4890.3usft
Reference Site:	S13-T2N-R64W (LE GERKIN PADS)	MD Reference:	KB=20' @ 4890.3usft
Site Error:	0.0usft	North Reference:	True
Reference Well:	LE GERKIN 14H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Reference	Plan #1		
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 center-center distance of 200.0usft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma		

Survey Tool Program		Date	10/30/2014		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.0	16,481.1	Plan #1 (HZ)	Geolink MWD	Geolink MWD	

Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
S13-T2N-R64W (LE GERKIN PADS)						
EXISTING - ARNOLD #1 - EXISTING - EXISTING - NO S	8,078.7	6,721.7	158.8	117.5	3.843	CC, ES, SF
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	1,000.0	1,000.0	120.2	116.8	35.140	CC, ES
LE GERKIN 10H - HZ - Plan #1	1,100.0	1,095.0	124.2	120.4	33.029	SF
LE GERKIN 11H - HZ - Plan #1	1,000.0	1,000.0	89.5	86.0	26.151	CC, ES
LE GERKIN 11H - HZ - Plan #1	1,100.0	1,096.4	93.3	89.6	24.812	SF
LE GERKIN 12H - HZ - Plan #1	1,000.0	1,000.0	58.7	55.3	17.162	CC, ES
LE GERKIN 12H - HZ - Plan #1	1,100.0	1,098.3	62.0	58.3	16.467	SF
LE GERKIN 13H - HZ - Plan #1	1,000.0	1,000.0	30.8	27.3	8.989	CC, ES
LE GERKIN 13H - HZ - Plan #1	1,100.0	1,100.7	31.5	27.8	8.359	SF
LE GERKIN 15H - HZ - Plan #1	1,000.0	1,000.0	31.0	27.5	9.052	CC
LE GERKIN 15H - HZ - Plan #1	1,200.0	1,197.4	31.3	27.1	7.607	ES
LE GERKIN 15H - HZ - Plan #1	8,900.0	8,928.8	168.8	85.0	2.014	SF
LE GERKIN 16H - HZ - Plan #1	1,000.0	1,000.0	61.6	58.2	18.010	CC
LE GERKIN 16H - HZ - Plan #1	1,200.0	1,194.8	62.0	57.9	15.103	ES
LE GERKIN 16H - HZ - Plan #1	1,300.0	1,292.2	63.6	59.1	14.275	SF
LE GERKIN 1H - HZ - Plan #3						Out of range
LE GERKIN 2H - HZ - Plan #3						Out of range
LE GERKIN 3H - HZ - Plan #3						Out of range
LE GERKIN 4H - HZ - Plan #3						Out of range
LE GERKIN 5H - HZ - Plan #3						Out of range
LE GERKIN 6H - HZ - Plan #3						Out of range
LE GERKIN 7H - HZ - Plan #3						Out of range
LE GERKIN 8H - HZ - Plan #3						Out of range
LE GERKIN 9H - HZ - Plan #1	1,000.0	1,000.0	148.2	144.7	43.313	CC, ES
LE GERKIN 9H - HZ - Plan #1	1,200.0	1,186.8	164.0	160.0	40.105	SF

Cathedral Energy Services

Anticollision Report

Company:	Red Hawk Petroleum	Local Co-ordinate Reference:	Well LE GERKIN 14H
Project:	Weld County, Colorado	TVD Reference:	KB=20' @ 4890.3usft
Reference Site:	S13-T2N-R64W (LE GERKIN PADS)	MD Reference:	KB=20' @ 4890.3usft
Site Error:	0.0usft	North Reference:	True
Reference Well:	LE GERKIN 14H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design												S13-T2N-R64W (LE GERKIN PADS) - EXISTING - ARNOLD #1 - EXISTING - EXISTING - NO SURVEY		Offset Site Error:		0.0 usft	
Survey Program:												7535-Geolink MWD		Offset Well Error:		0.0 usft	
Reference		Offset		Semi Major Axis			Distance							Warning			
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre	+N/-S	+E/-W	Between Centres	Between Ellipses	Total Uncertainty	Separation Factor				
(usft)	(usft)	(usft)	(usft)	(usft)	(usft)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)	Axis					
8,000.0	6,740.0	6,721.7	6,721.7	29.3	11.7	90.00	-1,435.6	382.7	177.2	137.1	40.05	4.425					
8,078.7	6,740.0	6,721.7	6,721.7	30.5	11.7	90.00	-1,435.6	382.7	158.8	117.5	41.31	3.843	CC, ES, SF				
8,100.0	6,740.0	6,721.7	6,721.7	30.8	11.7	90.00	-1,435.6	382.7	160.3	118.6	41.66	3.847					
8,200.0	6,740.0	6,721.7	6,721.7	32.4	11.7	90.00	-1,435.6	382.7	199.1	155.9	43.17	4.612					

Cathedral Energy Services

Anticollision Report

Company:	Red Hawk Petroleum	Local Co-ordinate Reference:	Well LE GERKIN 14H
Project:	Weld County, Colorado	TVD Reference:	KB=20' @ 4890.3usft
Reference Site:	S13-T2N-R64W (LE GERKIN PADS)	MD Reference:	KB=20' @ 4890.3usft
Site Error:	0.0usft	North Reference:	True
Reference Well:	LE GERKIN 14H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S13-T2N-R64W (LE GERKIN PADS) - LE GERKIN 10H - HZ - Plan #1													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	-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	-154.23	0.5	-122.1	124.2	120.4	3.76	33.029 SF	
1,200.0	1,199.7	1,189.1	1,188.9	2.1	2.1	-154.61	2.0	-127.8	136.0	132.0	4.09	33.225	
1,300.0	1,299.3	1,281.7	1,281.0	2.3	2.2	-155.08	4.4	-136.9	154.7	150.3	4.43	34.891	
1,400.0	1,398.8	1,372.8	1,371.2	2.5	2.5	-155.16	7.6	-149.5	177.3	172.5	4.78	37.120	

Cathedral Energy Services

Anticollision Report

Company:	Red Hawk Petroleum	Local Co-ordinate Reference:	Well LE GERKIN 14H
Project:	Weld County, Colorado	TVD Reference:	KB=20' @ 4890.3usft
Reference Site:	S13-T2N-R64W (LE GERKIN PADS)	MD Reference:	KB=20' @ 4890.3usft
Site Error:	0.0usft	North Reference:	True
Reference Well:	LE GERKIN 14H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S13-T2N-R64W (LE GERKIN PADS) - LE GERKIN 11H - HZ - Plan #1													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	-89.5	89.5					
100.0	100.0	100.0	100.0	0.1	0.1	-90.00	0.0	-89.5	89.5	89.2	0.28	320.350		
200.0	200.0	200.0	200.0	0.3	0.3	-90.00	0.0	-89.5	89.5	88.8	0.63	142.378		
300.0	300.0	300.0	300.0	0.5	0.5	-90.00	0.0	-89.5	89.5	88.5	0.98	91.529		
400.0	400.0	400.0	400.0	0.7	0.7	-90.00	0.0	-89.5	89.5	88.1	1.33	67.442		
500.0	500.0	500.0	500.0	0.8	0.8	-90.00	0.0	-89.5	89.5	87.8	1.68	53.392		
600.0	600.0	600.0	600.0	1.0	1.0	-90.00	0.0	-89.5	89.5	87.4	2.02	44.186		
700.0	700.0	700.0	700.0	1.2	1.2	-90.00	0.0	-89.5	89.5	87.1	2.37	37.688		
800.0	800.0	800.0	800.0	1.4	1.4	-90.00	0.0	-89.5	89.5	86.7	2.72	32.856		
900.0	900.0	900.0	900.0	1.5	1.5	-90.00	0.0	-89.5	89.5	86.4	3.07	29.123		
1,000.0	1,000.0	1,000.0	1,000.0	1.7	1.7	-90.00	0.0	-89.5	89.5	86.0	3.42	26.151 CC, ES		
1,100.0	1,100.0	1,096.4	1,096.4	1.9	1.9	-154.11	0.8	-91.3	93.3	89.6	3.76	24.812 SF		
1,200.0	1,199.7	1,191.9	1,191.7	2.1	2.1	-154.16	3.2	-96.8	105.0	100.9	4.10	25.600		
1,300.0	1,299.3	1,288.3	1,287.6	2.3	2.2	-154.23	7.0	-105.6	122.8	118.3	4.45	27.598		
1,400.0	1,398.8	1,386.6	1,385.4	2.5	2.5	-154.28	11.1	-115.0	141.1	136.3	4.80	29.377		
1,500.0	1,498.3	1,484.9	1,483.1	2.7	2.7	-154.31	15.2	-124.3	159.5	154.4	5.16	30.896		
1,600.0	1,597.8	1,583.2	1,580.9	2.9	2.9	-154.33	19.2	-133.7	177.9	172.4	5.52	32.205		
1,700.0	1,697.3	1,681.5	1,678.6	3.1	3.1	-154.36	23.3	-143.1	196.3	190.4	5.89	33.344		

Cathedral Energy Services

Anticollision Report

Company:	Red Hawk Petroleum	Local Co-ordinate Reference:	Well LE GERKIN 14H
Project:	Weld County, Colorado	TVD Reference:	KB=20' @ 4890.3usft
Reference Site:	S13-T2N-R64W (LE GERKIN PADS)	MD Reference:	KB=20' @ 4890.3usft
Site Error:	0.0usft	North Reference:	True
Reference Well:	LE GERKIN 14H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S13-T2N-R64W (LE GERKIN PADS) - LE GERKIN 12H - HZ - Plan #1													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	-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	210.229	
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, ES	
1,100.0	1,100.0	1,098.3	1,098.3	1.9	1.9	-153.39	1.6	-60.0	62.0	58.3	3.77	16.467 SF	
1,200.0	1,199.7	1,197.5	1,197.3	2.1	2.1	-152.44	5.6	-63.3	71.2	67.1	4.11	17.302	
1,300.0	1,299.3	1,296.7	1,296.4	2.3	2.2	-152.74	9.7	-66.6	83.2	78.8	4.47	18.632	
1,400.0	1,398.8	1,396.0	1,395.5	2.5	2.4	-153.03	13.8	-69.9	95.5	90.6	4.83	19.776	
1,500.0	1,498.3	1,495.2	1,494.6	2.7	2.6	-153.26	17.9	-73.2	107.7	102.5	5.19	20.751	
1,600.0	1,597.8	1,594.5	1,593.8	2.9	2.8	-153.45	22.0	-76.5	119.9	114.4	5.55	21.592	
1,700.0	1,697.3	1,693.7	1,692.9	3.1	3.0	-153.59	26.1	-79.8	132.2	126.2	5.92	22.324	
1,800.0	1,796.8	1,793.0	1,792.0	3.4	3.2	-153.72	30.2	-83.1	144.4	138.1	6.29	22.966	
1,900.0	1,896.3	1,892.2	1,891.1	3.6	3.4	-153.82	34.3	-86.4	156.6	150.0	6.66	23.534	
2,000.0	1,995.8	1,991.5	1,990.2	3.8	3.6	-153.91	38.4	-89.7	168.9	161.8	7.02	24.039	
2,100.0	2,095.3	2,090.7	2,089.3	4.0	3.7	-153.99	42.5	-93.0	181.1	173.7	7.39	24.492	
2,200.0	2,194.8	2,190.0	2,188.4	4.3	3.9	-154.05	46.6	-96.3	193.3	185.6	7.76	24.899	

Cathedral Energy Services

Anticollision Report

Company:	Red Hawk Petroleum	Local Co-ordinate Reference:	Well LE GERKIN 14H
Project:	Weld County, Colorado	TVD Reference:	KB=20' @ 4890.3usft
Reference Site:	S13-T2N-R64W (LE GERKIN PADS)	MD Reference:	KB=20' @ 4890.3usft
Site Error:	0.0usft	North Reference:	True
Reference Well:	LE GERKIN 14H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S13-T2N-R64W (LE GERKIN PADS) - LE GERKIN 13H - HZ - Plan #1													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	1,100.7	1,100.7	1.9	1.9	-152.45	1.9	-29.5	31.5	27.8	3.77	8.359 SF		
1,200.0	1,199.7	1,200.8	1,200.6	2.1	2.1	-150.44	6.0	-26.8	34.7	30.6	4.12	8.431		
1,300.0	1,299.3	1,300.6	1,300.3	2.3	2.2	-151.08	10.2	-24.1	40.8	36.3	4.48	9.104		
1,400.0	1,398.8	1,400.4	1,400.0	2.5	2.4	-151.67	14.3	-21.4	47.0	42.1	4.84	9.699		
1,500.0	1,498.3	1,500.2	1,499.7	2.7	2.6	-152.12	18.5	-18.6	53.1	47.9	5.21	10.206		
1,600.0	1,597.8	1,600.0	1,599.3	2.9	2.8	-152.48	22.7	-15.9	59.3	53.8	5.57	10.645		
1,700.0	1,697.3	1,699.8	1,699.0	3.1	3.0	-152.77	26.9	-13.2	65.5	59.6	5.94	11.027		
1,800.0	1,796.8	1,799.6	1,798.7	3.4	3.2	-153.01	31.0	-10.4	71.7	65.4	6.31	11.363		
1,900.0	1,896.3	1,899.4	1,898.4	3.6	3.4	-153.22	35.2	-7.7	77.9	71.2	6.68	11.660		
2,000.0	1,995.8	1,999.2	1,998.1	3.8	3.6	-153.39	39.4	-5.0	84.1	77.0	7.05	11.925		
2,100.0	2,095.3	2,099.0	2,097.8	4.0	3.8	-153.54	43.6	-2.2	90.3	82.9	7.42	12.162		
2,200.0	2,194.8	2,198.8	2,197.4	4.3	3.9	-153.67	47.7	0.5	96.5	88.7	7.80	12.376		
2,300.0	2,294.3	2,298.7	2,297.1	4.5	4.1	-153.78	51.9	3.2	102.7	94.5	8.17	12.570		
2,400.0	2,393.8	2,398.5	2,396.8	4.8	4.3	-153.88	56.1	6.0	108.9	100.3	8.54	12.746		
2,500.0	2,493.3	2,498.3	2,496.5	5.0	4.5	-153.97	60.3	8.7	115.1	106.1	8.91	12.907		
2,600.0	2,592.9	2,598.1	2,596.2	5.2	4.7	-154.05	64.4	11.4	121.3	112.0	9.29	13.055		
2,700.0	2,692.4	2,697.9	2,695.9	5.5	4.9	-154.13	68.6	14.2	127.5	117.8	9.66	13.191		
2,800.0	2,791.9	2,797.7	2,795.5	5.7	5.1	-154.19	72.8	16.9	133.6	123.6	10.04	13.316		
2,900.0	2,891.4	2,897.5	2,895.2	6.0	5.3	-154.25	77.0	19.7	139.8	129.4	10.41	13.433		
3,000.0	2,990.9	2,997.3	2,994.9	6.2	5.5	-154.31	81.1	22.4	146.0	135.3	10.79	13.540		
3,100.0	3,090.4	3,097.1	3,094.6	6.4	5.7	-154.36	85.3	25.1	152.2	141.1	11.16	13.641		
3,200.0	3,189.9	3,196.9	3,194.3	6.7	5.9	-154.41	89.5	27.9	158.4	146.9	11.54	13.735		
3,300.0	3,289.4	3,296.7	3,294.0	6.9	6.1	-154.45	93.7	30.6	164.6	152.7	11.91	13.823		
3,400.0	3,388.9	3,396.5	3,393.6	7.2	6.2	-154.49	97.8	33.3	170.8	158.5	12.29	13.905		
3,500.0	3,488.4	3,496.3	3,493.3	7.4	6.4	-154.53	102.0	36.1	177.0	164.4	12.66	13.982		
3,600.0	3,587.9	3,596.2	3,593.0	7.6	6.6	-154.56	106.2	38.8	183.2	170.2	13.04	14.055		
3,700.0	3,687.4	3,696.0	3,692.7	7.9	6.8	-154.60	110.4	41.5	189.4	176.0	13.41	14.123		
3,800.0	3,786.9	3,795.8	3,792.4	8.1	7.0	-154.63	114.5	44.3	195.6	181.8	13.79	14.188		

Cathedral Energy Services

Anticollision Report

Company:	Red Hawk Petroleum	Local Co-ordinate Reference:	Well LE GERKIN 14H
Project:	Weld County, Colorado	TVD Reference:	KB=20' @ 4890.3usft
Reference Site:	S13-T2N-R64W (LE GERKIN PADS)	MD Reference:	KB=20' @ 4890.3usft
Site Error:	0.0usft	North Reference:	True
Reference Well:	LE GERKIN 14H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S13-T2N-R64W (LE GERKIN PADS) - LE GERKIN 15H - HZ - Plan #1													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	83.24	3.6	30.8	31.0					
100.0	100.0	100.0	100.0	0.1	0.1	83.24	3.6	30.8	31.0	30.7	0.28	110.890		
200.0	200.0	200.0	200.0	0.3	0.3	83.24	3.6	30.8	31.0	30.3	0.63	49.285		
300.0	300.0	300.0	300.0	0.5	0.5	83.24	3.6	30.8	31.0	30.0	0.98	31.683		
400.0	400.0	400.0	400.0	0.7	0.7	83.24	3.6	30.8	31.0	29.6	1.33	23.345		
500.0	500.0	500.0	500.0	0.8	0.8	83.24	3.6	30.8	31.0	29.3	1.68	18.482		
600.0	600.0	600.0	600.0	1.0	1.0	83.24	3.6	30.8	31.0	28.9	2.02	15.295		
700.0	700.0	700.0	700.0	1.2	1.2	83.24	3.6	30.8	31.0	28.6	2.37	13.046		
800.0	800.0	800.0	800.0	1.4	1.4	83.24	3.6	30.8	31.0	28.2	2.72	11.373		
900.0	900.0	900.0	900.0	1.5	1.5	83.24	3.6	30.8	31.0	27.9	3.07	10.081		
1,000.0	1,000.0	1,000.0	1,000.0	1.7	1.7	83.24	3.6	30.8	31.0	27.5	3.42	9.052 CC		
1,100.0	1,100.0	1,098.7	1,098.7	1.9	1.9	19.84	4.2	32.8	31.0	27.3	3.77	8.241		
1,200.0	1,199.7	1,197.4	1,197.1	2.1	2.1	21.84	6.0	38.9	31.3	27.1	4.11	7.607 ES		
1,300.0	1,299.3	1,296.0	1,295.2	2.3	2.3	24.27	8.9	49.1	32.7	28.3	4.46	7.341		
1,400.0	1,398.8	1,394.8	1,392.9	2.5	2.5	24.83	13.0	63.2	38.1	33.3	4.82	7.913		
1,500.0	1,498.3	1,494.6	1,491.4	2.7	2.8	24.86	17.4	78.6	44.7	39.5	5.18	8.621		
1,600.0	1,597.8	1,594.4	1,589.9	2.9	3.0	24.88	21.8	94.0	51.2	45.7	5.55	9.232		
1,700.0	1,697.3	1,694.1	1,688.3	3.1	3.3	24.89	26.2	109.4	57.8	51.8	5.91	9.765		
1,800.0	1,796.8	1,793.9	1,786.8	3.4	3.6	24.90	30.6	124.8	64.3	58.0	6.28	10.233		
1,900.0	1,896.3	1,893.7	1,885.3	3.6	3.9	24.91	35.0	140.1	70.8	64.2	6.65	10.648		
2,000.0	1,995.8	1,993.5	1,983.8	3.8	4.2	24.92	39.4	155.5	77.4	70.3	7.02	11.017		
2,100.0	2,095.3	2,093.3	2,082.3	4.0	4.5	24.92	43.8	170.9	83.9	76.5	7.39	11.348		
2,200.0	2,194.8	2,193.1	2,180.8	4.3	4.8	24.93	48.2	186.3	90.4	82.7	7.77	11.647		
2,300.0	2,294.3	2,292.9	2,279.3	4.5	5.1	24.94	52.7	201.7	97.0	88.8	8.14	11.917		
2,400.0	2,393.8	2,392.7	2,377.8	4.8	5.5	24.94	57.1	217.1	103.5	95.0	8.51	12.162		
2,500.0	2,493.3	2,492.4	2,476.3	5.0	5.8	24.94	61.5	232.5	110.1	101.2	8.89	12.387		
2,600.0	2,592.9	2,592.2	2,574.8	5.2	6.1	24.95	65.9	247.8	116.6	107.3	9.26	12.592		
2,700.0	2,692.4	2,692.0	2,673.3	5.5	6.4	24.95	70.3	263.2	123.1	113.5	9.63	12.782		
2,800.0	2,791.9	2,791.8	2,771.8	5.7	6.7	24.95	74.7	278.6	129.7	119.7	10.01	12.956		
2,900.0	2,891.4	2,891.6	2,870.3	6.0	7.1	24.95	79.1	294.0	136.2	125.8	10.38	13.118		
3,000.0	2,990.9	2,991.4	2,968.8	6.2	7.4	24.96	83.5	309.4	142.8	132.0	10.76	13.268		
3,100.0	3,090.4	3,091.2	3,067.3	6.4	7.7	24.96	87.9	324.8	149.3	138.2	11.14	13.407		
3,200.0	3,189.9	3,190.9	3,165.8	6.7	8.0	24.96	92.4	340.2	155.8	144.3	11.51	13.538		
3,300.0	3,289.4	3,290.7	3,264.3	6.9	8.4	24.96	96.8	355.5	162.4	150.5	11.89	13.660		
3,400.0	3,388.9	3,390.5	3,362.7	7.2	8.7	24.96	101.2	370.9	168.9	156.6	12.26	13.774		
3,500.0	3,488.4	3,490.3	3,461.2	7.4	9.0	24.96	105.6	386.3	175.4	162.8	12.64	13.881		
3,600.0	3,587.9	3,590.1	3,559.7	7.6	9.3	24.97	110.0	401.7	182.0	169.0	13.02	13.982		
3,700.0	3,687.4	3,689.9	3,658.2	7.9	9.7	24.97	114.4	417.1	188.5	175.1	13.39	14.077		
3,800.0	3,786.9	3,789.7	3,756.7	8.1	10.0	24.97	118.8	432.5	195.1	181.3	13.77	14.166		
7,800.0	6,740.0	7,830.5	6,740.0	26.2	27.4	-90.00	-1,143.7	717.2	199.8	149.3	50.49	3.957		
7,900.0	6,740.0	7,930.1	6,740.0	27.7	28.8	-90.00	-1,243.4	717.6	191.8	138.2	53.64	3.575		
8,000.0	6,740.0	8,029.8	6,740.0	29.3	30.2	-90.00	-1,343.0	718.1	183.8	127.0	56.83	3.234		
8,100.0	6,740.0	8,129.5	6,740.0	30.8	31.7	-90.00	-1,442.7	718.6	175.8	115.8	60.03	2.928		
8,200.0	6,740.0	8,229.2	6,740.0	32.4	33.2	-90.00	-1,542.5	719.1	168.8	105.8	63.01	2.679		
8,300.0	6,740.0	8,329.1	6,740.0	34.0	34.7	-90.00	-1,642.3	719.5	163.6	97.6	66.00	2.479		
8,400.0	6,740.0	8,429.0	6,740.0	35.6	36.3	-90.00	-1,742.3	720.0	160.1	91.1	68.99	2.321		
8,500.0	6,740.0	8,529.0	6,740.0	37.2	37.8	-90.00	-1,842.2	720.5	158.4	86.4	71.97	2.200		
8,549.8	6,740.0	8,578.8	6,740.0	38.0	38.6	-90.00	-1,892.0	720.7	158.1	84.7	73.46	2.153		
8,600.0	6,740.0	8,629.0	6,740.0	38.8	39.4	-90.00	-1,942.2	720.9	158.4	83.4	74.96	2.113		
8,700.0	6,740.0	8,729.0	6,740.0	40.4	41.0	-90.00	-2,042.2	721.4	160.1	82.2	77.93	2.054		
8,800.0	6,740.0	8,828.9	6,740.0	42.0	42.6	-90.00	-2,142.2	721.9	163.6	82.7	80.90	2.022		
8,900.0	6,740.0	8,928.8	6,740.0	43.6	44.2	-90.00	-2,242.0	722.4	168.8	85.0	83.85	2.014 SF		

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

Cathedral Energy Services

Anticollision Report

Company:	Red Hawk Petroleum	Local Co-ordinate Reference:	Well LE GERKIN 14H
Project:	Weld County, Colorado	TVD Reference:	KB=20' @ 4890.3usft
Reference Site:	S13-T2N-R64W (LE GERKIN PADS)	MD Reference:	KB=20' @ 4890.3usft
Site Error:	0.0usft	North Reference:	True
Reference Well:	LE GERKIN 14H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													S13-T2N-R64W (LE GERKIN PADS) - LE GERKIN 15H - HZ - Plan #1		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					
9,000.0	6,740.0	9,028.6	6,740.0	45.3	45.9	-90.00	-2,341.8	722.8	175.8	89.0	86.79	2.026					
9,100.0	6,740.0	9,128.2	6,740.0	46.9	47.5	-90.00	-2,441.4	723.3	184.5	94.8	89.70	2.057					
9,200.0	6,740.0	9,227.6	6,740.0	48.5	49.1	-90.00	-2,540.8	723.8	195.0	102.4	92.59	2.106					

Cathedral Energy Services

Anticollision Report

Company:	Red Hawk Petroleum	Local Co-ordinate Reference:	Well LE GERKIN 14H
Project:	Weld County, Colorado	TVD Reference:	KB=20' @ 4890.3usft
Reference Site:	S13-T2N-R64W (LE GERKIN PADS)	MD Reference:	KB=20' @ 4890.3usft
Site Error:	0.0usft	North Reference:	True
Reference Well:	LE GERKIN 14H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S13-T2N-R64W (LE GERKIN PADS) - LE GERKIN 16H - HZ - Plan #1												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	86.61	3.6	61.5	61.6				
100.0	100.0	100.0	100.0	0.1	0.1	86.61	3.6	61.5	61.6	61.3	0.28	220.626	
200.0	200.0	200.0	200.0	0.3	0.3	86.61	3.6	61.5	61.6	61.0	0.63	98.056	
300.0	300.0	300.0	300.0	0.5	0.5	86.61	3.6	61.5	61.6	60.6	0.98	63.036	
400.0	400.0	400.0	400.0	0.7	0.7	86.61	3.6	61.5	61.6	60.3	1.33	46.448	
500.0	500.0	500.0	500.0	0.8	0.8	86.61	3.6	61.5	61.6	59.9	1.68	36.771	
600.0	600.0	600.0	600.0	1.0	1.0	86.61	3.6	61.5	61.6	59.6	2.02	30.431	
700.0	700.0	700.0	700.0	1.2	1.2	86.61	3.6	61.5	61.6	59.2	2.37	25.956	
800.0	800.0	800.0	800.0	1.4	1.4	86.61	3.6	61.5	61.6	58.9	2.72	22.628	
900.0	900.0	900.0	900.0	1.5	1.5	86.61	3.6	61.5	61.6	58.5	3.07	20.057	
1,000.0	1,000.0	1,000.0	1,000.0	1.7	1.7	86.61	3.6	61.5	61.6	58.2	3.42	18.010	CC
1,100.0	1,100.0	1,097.4	1,097.4	1.9	1.9	23.01	4.1	63.5	61.7	57.9	3.76	16.393	
1,200.0	1,199.7	1,194.8	1,194.6	2.1	2.1	24.43	5.3	69.6	62.0	57.9	4.10	15.103	ES
1,300.0	1,299.3	1,292.2	1,291.4	2.3	2.3	26.32	7.4	79.7	63.6	59.1	4.45	14.275	SF
1,400.0	1,398.8	1,389.3	1,387.4	2.5	2.5	27.35	10.3	93.8	69.2	64.4	4.81	14.388	
1,500.0	1,498.3	1,485.8	1,482.1	2.7	2.8	27.50	14.0	111.7	79.0	73.8	5.17	15.271	
1,600.0	1,597.8	1,583.6	1,577.5	2.9	3.1	27.12	18.5	133.1	92.0	86.5	5.53	16.631	
1,700.0	1,697.3	1,682.7	1,674.0	3.1	3.5	26.80	23.0	155.1	105.5	99.6	5.90	17.868	
1,800.0	1,796.8	1,781.7	1,770.5	3.4	3.8	26.54	27.6	177.1	118.9	112.6	6.27	18.956	
1,900.0	1,896.3	1,880.8	1,867.0	3.6	4.2	26.34	32.1	199.2	132.3	125.6	6.64	19.921	
2,000.0	1,995.8	1,979.9	1,963.5	3.8	4.6	26.17	36.7	221.2	145.7	138.7	7.01	20.782	
2,100.0	2,095.3	2,079.0	2,060.0	4.0	5.0	26.04	41.2	243.2	159.1	151.7	7.38	21.554	
2,200.0	2,194.8	2,178.1	2,156.5	4.3	5.4	25.92	45.8	265.2	172.5	164.8	7.75	22.252	
2,300.0	2,294.3	2,277.2	2,253.0	4.5	5.8	25.82	50.3	287.2	185.9	177.8	8.13	22.884	
2,400.0	2,393.8	2,376.3	2,349.6	4.8	6.2	25.73	54.9	309.2	199.4	190.9	8.50	23.460	

Cathedral Energy Services

Anticollision Report

Company:	Red Hawk Petroleum	Local Co-ordinate Reference:	Well LE GERKIN 14H
Project:	Weld County, Colorado	TVD Reference:	KB=20' @ 4890.3usft
Reference Site:	S13-T2N-R64W (LE GERKIN PADS)	MD Reference:	KB=20' @ 4890.3usft
Site Error:	0.0usft	North Reference:	True
Reference Well:	LE GERKIN 14H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S13-T2N-R64W (LE GERKIN PADS) - LE GERKIN 9H - HZ - Plan #1													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	-148.2	148.2				
100.0	100.0	100.0	100.0	0.1	0.1	-90.00	0.0	-148.2	148.2	147.9	0.28	530.579	
200.0	200.0	200.0	200.0	0.3	0.3	-90.00	0.0	-148.2	148.2	147.5	0.63	235.813	
300.0	300.0	300.0	300.0	0.5	0.5	-90.00	0.0	-148.2	148.2	147.2	0.98	151.594	
400.0	400.0	400.0	400.0	0.7	0.7	-90.00	0.0	-148.2	148.2	146.8	1.33	111.701	
500.0	500.0	500.0	500.0	0.8	0.8	-90.00	0.0	-148.2	148.2	146.5	1.68	88.430	
600.0	600.0	600.0	600.0	1.0	1.0	-90.00	0.0	-148.2	148.2	146.1	2.02	73.183	
700.0	700.0	700.0	700.0	1.2	1.2	-90.00	0.0	-148.2	148.2	145.8	2.37	62.421	
800.0	800.0	800.0	800.0	1.4	1.4	-90.00	0.0	-148.2	148.2	145.4	2.72	54.418	
900.0	900.0	900.0	900.0	1.5	1.5	-90.00	0.0	-148.2	148.2	145.1	3.07	48.235	
1,000.0	1,000.0	1,000.0	1,000.0	1.7	1.7	-90.00	0.0	-148.2	148.2	144.7	3.42	43.313 CC, ES	
1,100.0	1,100.0	1,093.9	1,093.8	1.9	1.9	-154.24	0.3	-150.1	152.1	148.4	3.76	40.489	
1,200.0	1,199.7	1,186.8	1,186.6	2.1	2.0	-154.68	1.4	-155.7	164.0	160.0	4.09	40.105 SF	
1,300.0	1,299.3	1,278.3	1,277.6	2.3	2.2	-155.28	3.0	-164.8	182.7	178.3	4.43	41.288	

Cathedral Energy Services

Anticollision Report

Company:	Red Hawk Petroleum	Local Co-ordinate Reference:	Well LE GERKIN 14H
Project:	Weld County, Colorado	TVD Reference:	KB=20' @ 4890.3usft
Reference Site:	S13-T2N-R64W (LE GERKIN PADS)	MD Reference:	KB=20' @ 4890.3usft
Site Error:	0.0usft	North Reference:	True
Reference Well:	LE GERKIN 14H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Reference Depths are relative to KB=20' @ 4890.3usft
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000 °

Coordinates are relative to: LE GERKIN 14H
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.65°

