

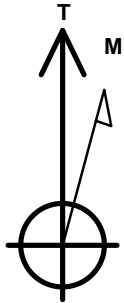
KP KAUFFMAN

Well Name: **Sunmarke 22-2H**

Surface Location: Sunmark Pad Sec.22-T4N-R67W
 North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone
 Ground Elevation: 4864.0
 +N/-S +E/-W Northing Easting Latitude Longitude Slot
 0.0 0.0 1350193.62 3173563.99 40.293010 -104.877790
 Original Well Elev WELL @ 4877.0ft (Original Well Elev)

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SHL 809'FSL & 2369'FWL, Sec.22	1.0	0.0	0.0	Point
BHL 2030'FSL & 2180'FEL, Sec.21	7266.0	1322.9	-4552.4	Point



Azimuths to True North
 Magnetic North: 8.61°

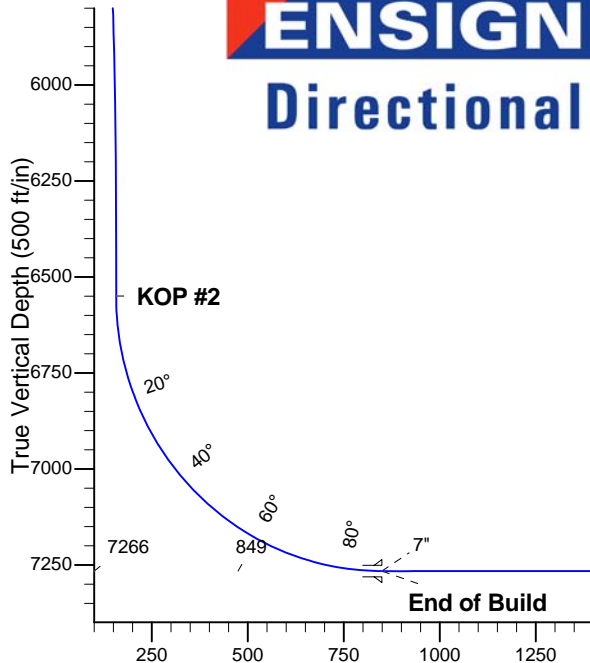
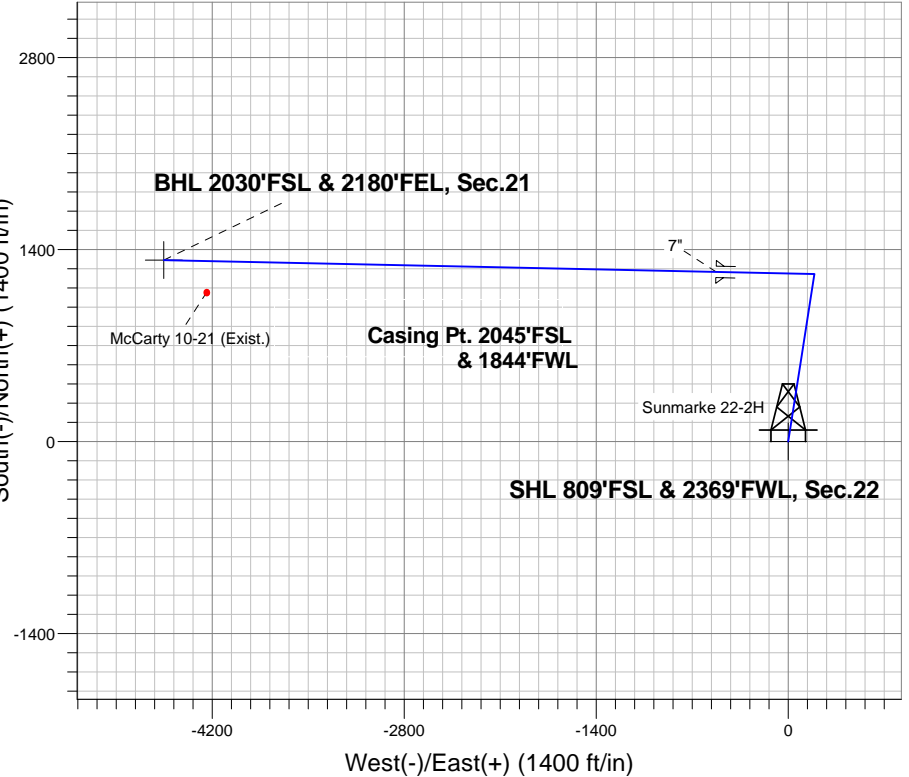
Magnetic Field
 Strength: 52825.0snT
 Dip Angle: 66.87°
 Date: 9/17/2013
 Model: IGRF2010

Sunmark Pad Sec.22-T4N-R67W
 Sunmarke 22-2H
 Plan #1 (9-17-13)
 9:13, September 18 2013

ANNOTATIONS

TVD	MD	Annotation
400.0	400.0	KOP #1
6549.8	6685.2	KOP #2
7266.0	7810.2	End of Build

South(-)/North(+) (1400 ft/in)



SECTION DETAILS

VSec

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0
2	400.0	0.00	0.00	400.0	0.0	0.0	0.00	0.00	0.0
3	1050.8	13.02	8.89	1045.2	72.7	11.4	2.00	8.89	9.4
4	5884.6	13.02	8.89	5754.8	1148.3	179.6	0.00	0.00	147.9
5	6535.4	0.00	0.00	6400.0	1221.0	191.0	2.00	180.00	157.3
6	6685.2	0.00	0.00	6549.8	1221.0	191.0	0.00	0.00	157.3
7	7810.2	90.00	271.23	7266.0	1236.4	-525.0	8.00	271.23	849.2
	81183.5	90.00	271.23	7266.0	1322.9	-4552.4	0.00	0.00	4740.7 BHL 2030'FSL & 2180'FEL, Sec.21

BHL 2030'FSL & 2180'FEL, Sec.21

Vertical Section at 286.20° (500 ft/in)



KP KAUFFMAN

Sec.22-T4N-T67W

Sunmark Pad Sec.22-T4N-R67W

Sunmarke 22-2H

Wellbore #1

Plan: Plan #1 (9-17-13)

Standard Planning Report

18 September, 2013

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
400.0	0.00	0.00	400.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,050.8	13.02	8.89	1,045.2	72.7	11.4	2.00	2.00	0.00	8.89	
5,884.6	13.02	8.89	5,754.8	1,148.3	179.6	0.00	0.00	0.00	0.00	
6,535.4	0.00	0.00	6,400.0	1,221.0	191.0	2.00	-2.00	0.00	180.00	
6,685.2	0.00	0.00	6,549.8	1,221.0	191.0	0.00	0.00	0.00	0.00	
7,810.2	90.00	271.23	7,266.0	1,236.4	-525.0	8.00	8.00	0.00	271.23	
11,838.5	90.00	271.23	7,266.0	1,322.9	-4,552.4	0.00	0.00	0.00	0.00	BHL 2030'FSL & 21

Database:	Landmark	Local Co-ordinate Reference:	Well Sunmarke 22-2H
Company:	KP KAUFFMAN	TVD Reference:	WELL @ 4877.0ft (Original Well Elev)
Project:	Sec.22-T4N-T67W	MD Reference:	WELL @ 4877.0ft (Original Well Elev)
Site:	Sunmarke Pad Sec.22-T4N-R67W	North Reference:	True
Well:	Sunmarke 22-2H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (9-17-13)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
1.0	0.00	0.00	1.0	0.0	0.0	0.0	0.00	0.00	0.00
SHL 809'FSL & 2369'FWL, Sec.22									
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
KOP #1									
500.0	2.00	8.89	500.0	1.7	0.3	0.2	2.00	2.00	0.00
600.0	4.00	8.89	599.8	6.9	1.1	0.9	2.00	2.00	0.00
700.0	6.00	8.89	699.5	15.5	2.4	2.0	2.00	2.00	0.00
800.0	8.00	8.89	798.7	27.5	4.3	3.5	2.00	2.00	0.00
900.0	10.00	8.89	897.5	43.0	6.7	5.5	2.00	2.00	0.00
1,000.0	12.00	8.89	995.6	61.9	9.7	8.0	2.00	2.00	0.00
1,050.8	13.02	8.89	1,045.2	72.7	11.4	9.4	2.00	2.00	0.00
1,100.0	13.02	8.89	1,093.2	83.7	13.1	10.8	0.00	0.00	0.00
1,200.0	13.02	8.89	1,190.6	105.9	16.6	13.6	0.00	0.00	0.00
1,300.0	13.02	8.89	1,288.0	128.2	20.0	16.5	0.00	0.00	0.00
1,400.0	13.02	8.89	1,385.4	150.4	23.5	19.4	0.00	0.00	0.00
1,500.0	13.02	8.89	1,482.9	172.7	27.0	22.2	0.00	0.00	0.00
1,600.0	13.02	8.89	1,580.3	194.9	30.5	25.1	0.00	0.00	0.00
1,700.0	13.02	8.89	1,677.7	217.2	34.0	28.0	0.00	0.00	0.00
1,800.0	13.02	8.89	1,775.2	239.4	37.5	30.8	0.00	0.00	0.00
1,900.0	13.02	8.89	1,872.6	261.7	40.9	33.7	0.00	0.00	0.00
2,000.0	13.02	8.89	1,970.0	283.9	44.4	36.6	0.00	0.00	0.00
2,100.0	13.02	8.89	2,067.5	306.2	47.9	39.4	0.00	0.00	0.00
2,200.0	13.02	8.89	2,164.9	328.4	51.4	42.3	0.00	0.00	0.00
2,300.0	13.02	8.89	2,262.3	350.7	54.9	45.2	0.00	0.00	0.00
2,400.0	13.02	8.89	2,359.8	372.9	58.3	48.0	0.00	0.00	0.00
2,500.0	13.02	8.89	2,457.2	395.2	61.8	50.9	0.00	0.00	0.00
2,600.0	13.02	8.89	2,554.6	417.4	65.3	53.8	0.00	0.00	0.00
2,700.0	13.02	8.89	2,652.0	439.7	68.8	56.6	0.00	0.00	0.00
2,800.0	13.02	8.89	2,749.5	461.9	72.3	59.5	0.00	0.00	0.00
2,900.0	13.02	8.89	2,846.9	484.2	75.7	62.4	0.00	0.00	0.00
3,000.0	13.02	8.89	2,944.3	506.4	79.2	65.2	0.00	0.00	0.00
3,100.0	13.02	8.89	3,041.8	528.7	82.7	68.1	0.00	0.00	0.00
3,200.0	13.02	8.89	3,139.2	550.9	86.2	71.0	0.00	0.00	0.00
3,300.0	13.02	8.89	3,236.6	573.2	89.7	73.8	0.00	0.00	0.00
3,400.0	13.02	8.89	3,334.1	595.4	93.1	76.7	0.00	0.00	0.00
3,500.0	13.02	8.89	3,431.5	617.7	96.6	79.6	0.00	0.00	0.00
3,600.0	13.02	8.89	3,528.9	639.9	100.1	82.4	0.00	0.00	0.00
3,700.0	13.02	8.89	3,626.4	662.2	103.6	85.3	0.00	0.00	0.00
3,800.0	13.02	8.89	3,723.8	684.4	107.1	88.2	0.00	0.00	0.00
3,900.0	13.02	8.89	3,821.2	706.7	110.5	91.0	0.00	0.00	0.00
4,000.0	13.02	8.89	3,918.6	728.9	114.0	93.9	0.00	0.00	0.00
4,100.0	13.02	8.89	4,016.1	751.2	117.5	96.8	0.00	0.00	0.00
4,200.0	13.02	8.89	4,113.5	773.4	121.0	99.6	0.00	0.00	0.00
4,300.0	13.02	8.89	4,210.9	795.7	124.5	102.5	0.00	0.00	0.00
4,400.0	13.02	8.89	4,308.4	818.0	128.0	105.4	0.00	0.00	0.00
4,500.0	13.02	8.89	4,405.8	840.2	131.4	108.2	0.00	0.00	0.00
4,600.0	13.02	8.89	4,503.2	862.5	134.9	111.1	0.00	0.00	0.00
4,700.0	13.02	8.89	4,600.7	884.7	138.4	114.0	0.00	0.00	0.00
4,800.0	13.02	8.89	4,698.1	907.0	141.9	116.8	0.00	0.00	0.00
4,900.0	13.02	8.89	4,795.5	929.2	145.4	119.7	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Sunmarke 22-2H
Company:	KP KAUFFMAN	TVD Reference:	WELL @ 4877.0ft (Original Well Elev)
Project:	Sec.22-T4N-T67W	MD Reference:	WELL @ 4877.0ft (Original Well Elev)
Site:	Sunmark Pad Sec.22-T4N-R67W	North Reference:	True
Well:	Sunmarke 22-2H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (9-17-13)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
5,000.0	13.02	8.89	4,893.0	951.5	148.8	122.6	0.00	0.00	0.00
5,100.0	13.02	8.89	4,990.4	973.7	152.3	125.4	0.00	0.00	0.00
5,200.0	13.02	8.89	5,087.8	996.0	155.8	128.3	0.00	0.00	0.00
5,300.0	13.02	8.89	5,185.2	1,018.2	159.3	131.2	0.00	0.00	0.00
5,400.0	13.02	8.89	5,282.7	1,040.5	162.8	134.0	0.00	0.00	0.00
5,500.0	13.02	8.89	5,380.1	1,062.7	166.2	136.9	0.00	0.00	0.00
5,600.0	13.02	8.89	5,477.5	1,085.0	169.7	139.8	0.00	0.00	0.00
5,700.0	13.02	8.89	5,575.0	1,107.2	173.2	142.6	0.00	0.00	0.00
5,800.0	13.02	8.89	5,672.4	1,129.5	176.7	145.5	0.00	0.00	0.00
5,884.6	13.02	8.89	5,754.8	1,148.3	179.6	147.9	0.00	0.00	0.00
5,900.0	12.71	8.89	5,769.8	1,151.7	180.2	148.4	2.00	-2.00	0.00
6,000.0	10.71	8.89	5,867.8	1,171.7	183.3	150.9	2.00	-2.00	0.00
6,100.0	8.71	8.89	5,966.3	1,188.4	185.9	153.1	2.00	-2.00	0.00
6,200.0	6.71	8.89	6,065.4	1,201.6	188.0	154.8	2.00	-2.00	0.00
6,300.0	4.71	8.89	6,164.9	1,211.5	189.5	156.1	2.00	-2.00	0.00
6,400.0	2.71	8.89	6,264.7	1,217.8	190.5	156.9	2.00	-2.00	0.00
6,500.0	0.71	8.89	6,364.6	1,220.8	191.0	157.3	2.00	-2.00	0.00
6,535.4	0.00	0.00	6,400.0	1,221.0	191.0	157.3	2.00	-2.00	0.00
6,600.0	0.00	0.00	6,464.6	1,221.0	191.0	157.3	0.00	0.00	0.00
6,685.2	0.00	0.00	6,549.8	1,221.0	191.0	157.3	0.00	0.00	0.00
KOP #2									
6,700.0	1.19	271.23	6,564.6	1,221.0	190.8	157.4	8.03	8.03	0.00
6,800.0	9.19	271.23	6,664.2	1,221.2	181.8	166.2	8.00	8.00	0.00
6,900.0	17.19	271.23	6,761.4	1,221.7	159.0	188.2	8.00	8.00	0.00
7,000.0	25.19	271.23	6,854.6	1,222.5	122.9	223.1	8.00	8.00	0.00
7,100.0	33.19	271.23	6,941.8	1,223.5	74.2	270.2	8.00	8.00	0.00
7,200.0	41.19	271.23	7,021.4	1,224.8	13.8	328.5	8.00	8.00	0.00
7,300.0	49.19	271.23	7,091.9	1,226.3	-57.0	397.0	8.00	8.00	0.00
7,400.0	57.19	271.23	7,151.7	1,228.0	-137.0	474.3	8.00	8.00	0.00
7,500.0	65.19	271.23	7,199.9	1,229.9	-224.6	558.8	8.00	8.00	0.00
7,600.0	73.19	271.23	7,235.4	1,231.9	-317.9	649.1	8.00	8.00	0.00
7,700.0	81.19	271.23	7,257.5	1,234.0	-415.3	743.2	8.00	8.00	0.00
7,800.0	89.19	271.23	7,265.9	1,236.2	-514.9	839.4	8.00	8.00	0.00
7,810.2	90.00	271.23	7,266.0	1,236.4	-525.1	849.2	7.96	7.96	0.00
End of Build - 7"									
7,900.0	90.00	271.23	7,266.0	1,238.3	-614.9	936.0	0.00	0.00	0.00
8,000.0	90.00	271.23	7,266.0	1,240.5	-714.8	1,032.6	0.00	0.00	0.00
8,100.0	90.00	271.23	7,266.0	1,242.6	-814.8	1,129.2	0.00	0.00	0.00
8,200.0	90.00	271.23	7,266.0	1,244.7	-914.8	1,225.8	0.00	0.00	0.00
8,300.0	90.00	271.23	7,266.0	1,246.9	-1,014.8	1,322.4	0.00	0.00	0.00
8,400.0	90.00	271.23	7,266.0	1,249.0	-1,114.7	1,419.0	0.00	0.00	0.00
8,500.0	90.00	271.23	7,266.0	1,251.2	-1,214.7	1,515.6	0.00	0.00	0.00
8,600.0	90.00	271.23	7,266.0	1,253.3	-1,314.7	1,612.2	0.00	0.00	0.00
8,700.0	90.00	271.23	7,266.0	1,255.5	-1,414.7	1,708.8	0.00	0.00	0.00
8,800.0	90.00	271.23	7,266.0	1,257.6	-1,514.7	1,805.4	0.00	0.00	0.00
8,900.0	90.00	271.23	7,266.0	1,259.8	-1,614.6	1,902.0	0.00	0.00	0.00
9,000.0	90.00	271.23	7,266.0	1,261.9	-1,714.6	1,998.6	0.00	0.00	0.00
9,100.0	90.00	271.23	7,266.0	1,264.1	-1,814.6	2,095.2	0.00	0.00	0.00
9,200.0	90.00	271.23	7,266.0	1,266.2	-1,914.6	2,191.8	0.00	0.00	0.00
9,300.0	90.00	271.23	7,266.0	1,268.4	-2,014.5	2,288.4	0.00	0.00	0.00
9,400.0	90.00	271.23	7,266.0	1,270.5	-2,114.5	2,385.0	0.00	0.00	0.00
9,500.0	90.00	271.23	7,266.0	1,272.7	-2,214.5	2,481.7	0.00	0.00	0.00
9,600.0	90.00	271.23	7,266.0	1,274.8	-2,314.5	2,578.3	0.00	0.00	0.00
9,700.0	90.00	271.23	7,266.0	1,276.9	-2,414.4	2,674.9	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Sunmarke 22-2H
Company:	KP KAUFFMAN	TVD Reference:	WELL @ 4877.0ft (Original Well Elev)
Project:	Sec.22-T4N-T67W	MD Reference:	WELL @ 4877.0ft (Original Well Elev)
Site:	Sunmark Pad Sec.22-T4N-R67W	North Reference:	True
Well:	Sunmarke 22-2H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (9-17-13)		

Planned Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
9,800.0	90.00	271.23	7,266.0	1,279.1	-2,514.4	2,771.5	0.00	0.00	0.00	
9,900.0	90.00	271.23	7,266.0	1,281.2	-2,614.4	2,868.1	0.00	0.00	0.00	
10,000.0	90.00	271.23	7,266.0	1,283.4	-2,714.4	2,964.7	0.00	0.00	0.00	
10,100.0	90.00	271.23	7,266.0	1,285.5	-2,814.4	3,061.3	0.00	0.00	0.00	
10,200.0	90.00	271.23	7,266.0	1,287.7	-2,914.3	3,157.9	0.00	0.00	0.00	
10,300.0	90.00	271.23	7,266.0	1,289.8	-3,014.3	3,254.5	0.00	0.00	0.00	
10,400.0	90.00	271.23	7,266.0	1,292.0	-3,114.3	3,351.1	0.00	0.00	0.00	
10,500.0	90.00	271.23	7,266.0	1,294.1	-3,214.3	3,447.7	0.00	0.00	0.00	
10,600.0	90.00	271.23	7,266.0	1,296.3	-3,314.2	3,544.3	0.00	0.00	0.00	
10,700.0	90.00	271.23	7,266.0	1,298.4	-3,414.2	3,640.9	0.00	0.00	0.00	
10,800.0	90.00	271.23	7,266.0	1,300.6	-3,514.2	3,737.5	0.00	0.00	0.00	
10,900.0	90.00	271.23	7,266.0	1,302.7	-3,614.2	3,834.1	0.00	0.00	0.00	
11,000.0	90.00	271.23	7,266.0	1,304.9	-3,714.1	3,930.7	0.00	0.00	0.00	
11,100.0	90.00	271.23	7,266.0	1,307.0	-3,814.1	4,027.3	0.00	0.00	0.00	
11,200.0	90.00	271.23	7,266.0	1,309.1	-3,914.1	4,123.9	0.00	0.00	0.00	
11,300.0	90.00	271.23	7,266.0	1,311.3	-4,014.1	4,220.5	0.00	0.00	0.00	
11,400.0	90.00	271.23	7,266.0	1,313.4	-4,114.1	4,317.1	0.00	0.00	0.00	
11,500.0	90.00	271.23	7,266.0	1,315.6	-4,214.0	4,413.7	0.00	0.00	0.00	
11,600.0	90.00	271.23	7,266.0	1,317.7	-4,314.0	4,510.4	0.00	0.00	0.00	
11,700.0	90.00	271.23	7,266.0	1,319.9	-4,414.0	4,607.0	0.00	0.00	0.00	
11,800.0	90.00	271.23	7,266.0	1,322.0	-4,514.0	4,703.6	0.00	0.00	0.00	
11,838.5	90.00	271.23	7,266.0	1,322.9	-4,552.4	4,740.7	0.00	0.00	0.00	
BHL 2030'FSL & 2180'FEL, Sec.21										

Targets										
Target Name	- hit/miss target	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
SHL 809'FSL & 2369'I	- plan hits target center	0.00	0.00	1.0	0.0	0.0	1,350,193.63	3,173,563.99	40.293010	-104.877790
	- Point									
BHL 2030'FSL & 2180'FEL, Sec.21	- plan hits target center	0.00	0.00	7,266.0	1,322.9	-4,552.4	1,351,484.45	3,169,002.60	40.296640	-104.894110
	- Point									

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
7,810.2	7,266.0	7"	7	7-1/2	

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Comment	
400.0	400.0	0.0	0.0	KOP #1	
6,685.2	6,549.8	1,221.0	191.0	KOP #2	
7,810.2	7,266.0	1,236.4	-525.1	End of Build	



KP KAUFFMAN

Sec.22-T4N-T67W

Sunmark Pad Sec.22-T4N-R67W

Sunmarke 22-2H

Wellbore #1

Plan #1 (9-17-13)

Anticollision Report

18 September, 2013

Sunmark Pad Sec.22-T4N-R67W - Sunmarke 22-1H - Wellbore #1 - Plan #1 (9-17-13)												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
0.0	0.0	0.0	0.0	0.0	0.0	0.00	25.5	0.0	25.5				
100.0	100.0	100.0	100.0	0.1	0.1	0.00	25.5	0.0	25.5	25.3	0.22	113.457	
200.0	200.0	200.0	200.0	0.3	0.3	0.00	25.5	0.0	25.5	24.8	0.67	37.819	CC, ES
300.0	300.0	299.1	299.1	0.6	0.6	0.50	27.2	0.2	27.2	26.1	1.12	24.207	
400.0	400.0	397.9	397.8	0.8	0.8	1.69	32.3	1.0	32.4	30.8	1.58	20.446	
500.0	500.0	496.5	495.9	1.0	1.0	-6.13	40.7	2.1	39.2	37.2	2.03	19.274	
600.0	599.8	594.8	593.5	1.2	1.3	-5.44	52.4	3.8	46.0	43.5	2.49	18.487	
700.0	699.5	692.9	690.4	1.5	1.6	-5.00	67.4	5.9	52.8	49.8	2.95	17.895	
800.0	798.7	790.7	786.6	1.7	2.0	-4.71	85.6	8.5	59.5	56.0	3.42	17.402	
900.0	897.5	888.4	881.8	2.0	2.4	-4.52	107.0	11.5	66.1	62.2	3.90	16.961	
1,000.0	995.6	987.4	977.7	2.4	2.9	-4.45	131.3	14.9	71.9	67.5	4.39	16.387	
1,100.0	1,093.2	1,087.3	1,074.4	2.8	3.3	-4.55	156.1	18.4	75.0	70.1	4.90	15.286	
1,200.0	1,190.6	1,187.3	1,171.2	3.2	3.8	-4.68	180.8	21.9	77.6	72.1	5.44	14.263	
1,300.0	1,288.0	1,287.2	1,268.0	3.6	4.3	-4.81	205.6	25.4	80.2	74.2	5.98	13.415	
1,400.0	1,385.4	1,387.2	1,364.8	4.1	4.8	-4.92	230.4	28.9	82.8	76.2	6.52	12.689	
1,500.0	1,482.9	1,487.2	1,461.6	4.5	5.3	-5.03	255.1	32.3	85.3	78.3	7.07	12.071	
1,600.0	1,580.3	1,587.1	1,558.4	5.0	5.8	-5.13	279.9	35.8	87.9	80.3	7.62	11.538	
1,700.0	1,677.7	1,687.1	1,655.2	5.4	6.3	-5.22	304.7	39.3	90.5	82.4	8.18	11.074	
1,800.0	1,775.2	1,787.1	1,751.9	5.9	6.8	-5.31	329.4	42.8	93.1	84.4	8.73	10.666	
1,900.0	1,872.6	1,887.0	1,848.7	6.4	7.3	-5.40	354.2	46.3	95.7	86.4	9.29	10.305	
2,000.0	1,970.0	1,987.0	1,945.5	6.8	7.9	-5.48	379.0	49.8	98.3	88.5	9.85	9.984	
2,100.0	2,067.5	2,087.0	2,042.3	7.3	8.4	-5.56	403.7	53.3	100.9	90.5	10.41	9.695	
2,200.0	2,164.9	2,186.9	2,139.1	7.7	8.9	-5.63	428.5	56.8	103.5	92.5	10.97	9.436	
2,300.0	2,262.3	2,286.9	2,235.9	8.2	9.4	-5.70	453.3	60.3	106.1	94.6	11.53	9.201	
2,400.0	2,359.8	2,386.9	2,332.7	8.7	9.9	-5.76	478.1	63.7	108.7	96.6	12.09	8.987	
2,500.0	2,457.2	2,486.8	2,429.4	9.1	10.4	-5.82	502.8	67.2	111.3	98.6	12.66	8.792	
2,600.0	2,554.6	2,586.8	2,526.2	9.6	10.9	-5.88	527.6	70.7	113.9	100.7	13.22	8.613	
2,700.0	2,652.0	2,686.8	2,623.0	10.1	11.4	-5.94	552.4	74.2	116.5	102.7	13.79	8.448	
2,800.0	2,749.5	2,786.7	2,719.8	10.5	11.9	-6.00	577.1	77.7	119.1	104.7	14.35	8.296	
2,900.0	2,846.9	2,886.7	2,816.6	11.0	12.5	-6.05	601.9	81.2	121.7	106.7	14.92	8.155	
3,000.0	2,944.3	2,986.7	2,913.4	11.5	13.0	-6.10	626.7	84.7	124.3	108.8	15.48	8.025	
3,100.0	3,041.8	3,086.6	3,010.2	12.0	13.5	-6.15	651.4	88.2	126.9	110.8	16.05	7.903	
3,200.0	3,139.2	3,186.6	3,107.0	12.4	14.0	-6.19	676.2	91.6	129.5	112.8	16.62	7.790	
3,300.0	3,236.6	3,286.6	3,203.7	12.9	14.5	-6.24	701.0	95.1	132.0	114.9	17.19	7.683	
3,400.0	3,334.1	3,386.5	3,300.5	13.4	15.0	-6.28	725.7	98.6	134.6	116.9	17.75	7.584	
3,500.0	3,431.5	3,486.5	3,397.3	13.8	15.5	-6.32	750.5	102.1	137.2	118.9	18.32	7.491	
3,600.0	3,528.9	3,586.5	3,494.1	14.3	16.0	-6.36	775.3	105.6	139.8	120.9	18.89	7.403	
3,700.0	3,626.4	3,686.4	3,590.9	14.8	16.6	-6.40	800.0	109.1	142.4	123.0	19.46	7.320	
3,800.0	3,723.8	3,786.4	3,687.7	15.2	17.1	-6.43	824.8	112.6	145.0	125.0	20.03	7.242	
3,900.0	3,821.2	3,886.4	3,784.5	15.7	17.6	-6.47	849.6	116.1	147.6	127.0	20.60	7.168	
4,000.0	3,918.6	3,986.3	3,881.2	16.2	18.1	-6.50	874.3	119.6	150.2	129.1	21.17	7.097	
4,100.0	4,016.1	4,086.3	3,978.0	16.6	18.6	-6.54	899.1	123.0	152.8	131.1	21.73	7.031	
4,200.0	4,113.5	4,186.3	4,074.8	17.1	19.1	-6.57	923.9	126.5	155.4	133.1	22.30	6.968	
4,300.0	4,210.9	4,286.2	4,171.6	17.6	19.6	-6.60	948.6	130.0	158.0	135.1	22.87	6.908	
4,400.0	4,308.4	4,386.2	4,268.4	18.1	20.1	-6.63	973.4	133.5	160.6	137.2	23.44	6.851	
4,500.0	4,405.8	4,486.2	4,365.2	18.5	20.7	-6.66	998.2	137.0	163.2	139.2	24.01	6.796	
4,600.0	4,503.2	4,586.1	4,462.0	19.0	21.2	-6.69	1,022.9	140.5	165.8	141.2	24.58	6.744	
4,700.0	4,600.7	4,686.1	4,558.8	19.5	21.7	-6.71	1,047.7	144.0	168.4	143.2	25.15	6.695	
4,800.0	4,698.1	4,786.1	4,655.5	19.9	22.2	-6.74	1,072.5	147.5	171.0	145.3	25.72	6.647	
4,900.0	4,795.5	4,886.0	4,752.3	20.4	22.7	-6.77	1,097.2	150.9	173.6	147.3	26.29	6.602	
5,000.0	4,893.0	4,986.0	4,849.1	20.9	23.2	-6.79	1,122.0	154.4	176.2	149.3	26.86	6.558	
5,100.0	4,990.4	5,086.0	4,945.9	21.4	23.7	-6.81	1,146.8	157.9	178.8	151.3	27.44	6.516	

Company:	KP KAUFFMAN	Local Co-ordinate Reference:	Well Sunmarke 22-2H
Project:	Sec.22-T4N-T67W	TVD Reference:	WELL @ 4877.0ft (Original Well Elev)
Reference Site:	Sunmark Pad Sec.22-T4N-R67W	MD Reference:	WELL @ 4877.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Sunmarke 22-2H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (9-17-13)	Offset TVD Reference:	Offset Datum

Offset Design Sunmark Pad Sec.22-T4N-R67W - Sunmarke 22-1H - Wellbore #1 - Plan #1 (9-17-13)												Offset Site Error:	0.0 ft
Survey Program: 0-MWDD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
5,200.0	5,087.8	5,185.9	5,042.7	21.8	24.2	-6.84	1,171.5	161.4	181.4	153.4	28.01	6.476	
5,300.0	5,185.2	5,285.9	5,139.5	22.3	24.8	-6.86	1,196.3	164.9	184.0	155.4	28.58	6.438	
5,400.0	5,282.7	5,385.9	5,236.3	22.8	25.3	-6.88	1,221.1	168.4	186.6	157.4	29.15	6.401	
5,500.0	5,380.1	5,485.8	5,333.0	23.2	25.8	-6.90	1,245.8	171.9	189.2	159.4	29.72	6.365	
5,600.0	5,477.5	5,585.8	5,429.8	23.7	26.3	-6.92	1,270.6	175.4	191.8	161.5	30.29	6.331	
5,700.0	5,575.0	5,689.0	5,529.9	24.2	26.8	-6.96	1,295.8	178.9	194.0	163.1	30.86	6.286	
5,800.0	5,672.4	5,796.2	5,634.5	24.7	27.2	-7.10	1,318.7	182.1	193.1	161.7	31.40	6.148	
5,900.0	5,769.8	5,903.2	5,739.8	25.1	27.5	-7.37	1,337.7	184.8	188.5	156.5	31.94	5.900	
6,000.0	5,867.8	6,009.8	5,845.3	25.5	27.8	-7.70	1,352.7	186.9	182.4	150.0	32.40	5.629	
6,100.0	5,966.3	6,116.2	5,951.1	25.8	28.0	-8.03	1,363.8	188.5	176.1	143.3	32.80	5.369	
6,200.0	6,065.4	6,222.4	6,057.0	26.0	28.2	-8.38	1,371.0	189.5	169.6	136.4	33.13	5.117	
6,300.0	6,164.9	6,328.2	6,162.8	26.3	28.4	-8.75	1,374.3	190.0	162.8	129.4	33.42	4.872	
6,400.0	6,264.7	6,430.1	6,264.7	26.4	28.5	-9.09	1,374.5	190.0	156.7	123.0	33.65	4.656	
6,500.0	6,364.6	6,530.1	6,364.6	26.6	28.6	-9.25	1,374.5	190.0	153.7	119.9	33.83	4.544	
6,557.1	6,421.7	6,587.1	6,421.7	26.6	28.6	-9.28	1,374.5	190.0	153.2	119.2	33.98	4.509	
6,600.0	6,464.6	6,629.9	6,464.5	26.7	28.7	-0.52	1,374.5	189.6	153.5	98.7	54.79	2.802	
6,700.0	6,564.6	6,728.1	6,562.1	26.8	28.8	84.56	1,374.7	179.6	154.2	119.1	35.09	4.394	
6,800.0	6,664.2	6,824.1	6,655.3	26.9	28.8	79.24	1,375.2	157.0	156.2	119.6	36.60	4.269	
6,900.0	6,761.4	6,918.3	6,743.1	26.9	28.9	74.31	1,375.9	122.9	159.5	121.5	37.98	4.199	
7,000.0	6,854.6	7,011.0	6,824.3	27.0	28.9	69.90	1,376.9	78.4	163.5	124.6	38.91	4.203	
7,100.0	6,941.8	7,102.2	6,898.0	27.0	29.0	66.05	1,378.0	24.7	168.1	128.8	39.26	4.281	
7,200.0	7,021.4	7,192.4	6,963.5	27.1	29.0	62.79	1,379.4	-37.0	172.7	133.6	39.11	4.415	
7,300.0	7,091.9	7,281.5	7,020.2	27.2	29.1	60.10	1,380.8	-105.7	177.1	138.5	38.66	4.581	
7,400.0	7,151.7	7,369.8	7,067.5	27.3	29.3	57.97	1,382.4	-180.2	181.1	142.7	38.33	4.725	
7,500.0	7,199.9	7,457.4	7,105.0	27.6	29.5	56.36	1,384.1	-259.3	184.3	145.8	38.51	4.786	
7,600.0	7,235.4	7,544.6	7,132.5	27.9	29.9	55.25	1,385.9	-342.0	186.7	147.1	39.60	4.714	
7,700.0	7,257.5	7,631.5	7,149.7	28.5	30.3	54.63	1,387.7	-427.1	188.1	146.3	41.82	4.498	
7,800.0	7,265.9	7,718.3	7,156.5	29.4	31.0	54.48	1,389.5	-513.5	188.4	143.3	45.14	4.174	
7,803.2	7,266.0	7,721.1	7,156.5	29.4	31.0	54.48	1,389.6	-516.3	188.4	143.2	45.24	4.165	
7,900.0	7,266.0	7,813.9	7,154.9	30.5	31.9	54.07	1,391.6	-609.1	189.4	141.2	48.15	3.933	
8,000.0	7,266.0	7,913.8	7,152.6	32.0	33.2	53.52	1,393.7	-709.0	190.7	139.5	51.26	3.721	
8,100.0	7,266.0	8,013.8	7,150.4	33.7	34.7	52.98	1,395.8	-808.9	192.1	137.5	54.51	3.523	
8,200.0	7,266.0	8,113.8	7,148.1	35.5	36.5	52.45	1,398.0	-908.9	193.4	135.5	57.86	3.342	
8,300.0	7,266.0	8,213.8	7,145.9	37.6	38.4	51.92	1,400.1	-1,008.8	194.8	133.5	61.30	3.178	
8,400.0	7,266.0	8,313.7	7,143.6	39.8	40.5	51.40	1,402.2	-1,108.7	196.2	131.4	64.79	3.028	
8,500.0	7,266.0	8,413.7	7,141.4	42.0	42.6	50.89	1,404.4	-1,208.6	197.6	129.3	68.31	2.892	
8,600.0	7,266.0	8,513.7	7,139.1	44.4	44.9	50.38	1,406.5	-1,308.6	199.0	127.1	71.86	2.769	
8,700.0	7,266.0	8,613.7	7,136.9	46.8	47.2	49.89	1,408.6	-1,408.5	200.4	125.0	75.41	2.658	
8,800.0	7,266.0	8,713.6	7,134.6	49.2	49.6	49.40	1,410.8	-1,508.4	201.9	122.9	78.97	2.557	
8,900.0	7,266.0	8,813.6	7,132.4	51.7	52.1	48.91	1,412.9	-1,608.3	203.3	120.8	82.51	2.464	
9,000.0	7,266.0	8,913.6	7,130.1	54.2	54.6	48.44	1,415.1	-1,708.3	204.8	118.8	86.04	2.380	
9,100.0	7,266.0	9,013.6	7,127.9	56.8	57.1	47.97	1,417.2	-1,808.2	206.3	116.8	89.56	2.304	
9,200.0	7,266.0	9,113.5	7,125.6	59.4	59.6	47.50	1,419.3	-1,908.1	207.8	114.8	93.05	2.233	
9,300.0	7,266.0	9,213.5	7,123.4	62.0	62.2	47.05	1,421.5	-2,008.1	209.3	112.8	96.52	2.169	
9,400.0	7,266.0	9,313.5	7,121.1	64.6	64.8	46.60	1,423.6	-2,108.0	210.9	110.9	99.95	2.110	
9,500.0	7,266.0	9,413.5	7,118.9	67.2	67.4	46.15	1,425.7	-2,207.9	212.4	109.1	103.36	2.055	
9,600.0	7,266.0	9,513.4	7,116.6	69.9	70.0	45.72	1,427.9	-2,307.8	214.0	107.2	106.74	2.005	
9,700.0	7,266.0	9,613.4	7,114.4	72.5	72.7	45.29	1,430.0	-2,407.8	215.5	105.5	110.08	1.958	
9,800.0	7,266.0	9,713.4	7,112.1	75.2	75.3	44.86	1,432.1	-2,507.7	217.1	103.7	113.39	1.915	
9,900.0	7,266.0	9,813.4	7,109.9	77.9	78.0	44.44	1,434.3	-2,607.6	218.7	102.1	116.66	1.875	
10,000.0	7,266.0	9,913.3	7,107.6	80.6	80.7	44.03	1,436.4	-2,707.5	220.3	100.4	119.90	1.838	
10,100.0	7,266.0	10,013.3	7,105.4	83.3	83.4	43.63	1,438.5	-2,807.5	221.9	98.8	123.11	1.803	

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

Company:	KP KAUFFMAN	Local Co-ordinate Reference:	Well Sunmarke 22-2H
Project:	Sec.22-T4N-T67W	TVD Reference:	WELL @ 4877.0ft (Original Well Elev)
Reference Site:	Sunmark Pad Sec.22-T4N-R67W	MD Reference:	WELL @ 4877.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Sunmarke 22-2H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (9-17-13)	Offset TVD Reference:	Offset Datum

Offset Design Sunmark Pad Sec.22-T4N-R67W - Sunmarke 22-1H - Wellbore #1 - Plan #1 (9-17-13)												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,200.0	7,266.0	10,113.3	7,103.1	86.0	86.1	43.23	1,440.7	-2,907.4	223.6	97.3	126.27	1.771	
10,300.0	7,266.0	10,213.3	7,100.9	88.7	88.8	42.83	1,442.8	-3,007.3	225.2	95.8	129.41	1.740	
10,400.0	7,266.0	10,313.2	7,098.6	91.4	91.5	42.44	1,444.9	-3,107.2	226.9	94.4	132.50	1.712	
10,500.0	7,266.0	10,413.2	7,096.4	94.1	94.2	42.06	1,447.1	-3,207.2	228.5	93.0	135.56	1.686	
10,600.0	7,266.0	10,513.2	7,094.1	96.9	96.9	41.68	1,449.2	-3,307.1	230.2	91.6	138.59	1.661	
10,700.0	7,266.0	10,613.2	7,091.9	99.6	99.6	41.31	1,451.3	-3,407.0	231.9	90.3	141.57	1.638	
10,800.0	7,266.0	10,713.1	7,089.6	102.3	102.4	40.94	1,453.5	-3,507.0	233.6	89.0	144.53	1.616	
10,900.0	7,266.0	10,813.1	7,087.4	105.1	105.1	40.58	1,455.6	-3,606.9	235.3	87.8	147.45	1.595	
11,000.0	7,266.0	10,913.1	7,085.1	107.8	107.8	40.23	1,457.7	-3,706.8	237.0	86.6	150.33	1.576	
11,100.0	7,266.0	11,013.1	7,082.9	110.6	110.6	39.88	1,459.9	-3,806.7	238.7	85.5	153.18	1.558	
11,200.0	7,266.0	11,113.0	7,080.6	113.3	113.3	39.53	1,462.0	-3,906.7	240.4	84.4	156.00	1.541	
11,300.0	7,266.0	11,213.0	7,078.4	116.1	116.1	39.19	1,464.1	-4,006.6	242.1	83.4	158.78	1.525	
11,400.0	7,266.0	11,313.0	7,076.1	118.8	118.8	38.85	1,466.3	-4,106.5	243.9	82.3	161.53	1.510	
11,500.0	7,266.0	11,413.0	7,073.9	121.6	121.6	38.52	1,468.4	-4,206.4	245.6	81.4	164.25	1.495 Level 3	
11,600.0	7,266.0	11,512.9	7,071.6	124.4	124.3	38.19	1,470.5	-4,306.4	247.4	80.4	166.94	1.482 Level 3	
11,700.0	7,266.0	11,612.9	7,069.4	127.1	127.1	37.87	1,472.7	-4,406.3	249.2	79.6	169.60	1.469 Level 3	
11,800.0	7,266.0	11,712.9	7,067.1	129.9	129.9	37.55	1,474.8	-4,506.2	250.9	78.7	172.22	1.457 Level 3	
11,838.5	7,266.0	11,751.3	7,066.2	131.0	130.9	37.43	1,475.6	-4,544.7	251.6	78.4	173.22	1.453 Level 3, SF	

Company:	KP KAUFFMAN	Local Co-ordinate Reference:	Well Sunmarke 22-2H
Project:	Sec.22-T4N-T67W	TVD Reference:	WELL @ 4877.0ft (Original Well Elev)
Reference Site:	Sunmark Pad Sec.22-T4N-R67W	MD Reference:	WELL @ 4877.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Sunmarke 22-2H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (9-17-13)	Offset TVD Reference:	Offset Datum

Offset Design Sunmark Pad Sec.22-T4N-R67W - Sunmarke 22-3H - Wellbore #1 - Plan #1 (9-17-13)													Offset Site Error:	0.0ft
Survey Program: 0-MWD													Offset Well Error:	0.0ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0.0	0.0	1.0	1.0	0.0	0.0	-180.00	-21.9	0.0	21.9	21.9	0.00	N/A		
100.0	100.0	101.0	101.0	0.1	0.1	-180.00	-21.9	0.0	21.9	21.6	0.23	96.286		
200.0	200.0	201.0	201.0	0.3	0.3	-180.00	-21.9	0.0	21.9	21.2	0.68	32.309		
300.0	300.0	301.0	301.0	0.6	0.6	-180.00	-21.9	0.0	21.9	20.7	1.13	19.411		
400.0	400.0	401.0	401.0	0.8	0.8	-180.00	-21.9	0.0	21.9	20.3	1.58	13.873 CC, ES		
500.0	500.0	501.0	501.0	1.0	1.0	171.76	-21.9	0.0	23.6	21.6	2.03	11.626		
600.0	599.8	600.8	600.8	1.2	1.2	173.24	-21.9	0.0	28.8	26.3	2.48	11.585		
700.0	699.5	700.5	700.5	1.5	1.5	174.80	-21.9	0.0	37.4	34.5	2.94	12.743		
800.0	798.7	799.7	799.7	1.7	1.7	176.06	-21.9	0.0	49.6	46.2	3.39	14.622		
900.0	897.5	898.5	898.5	2.0	1.9	176.98	-21.9	0.0	65.2	61.4	3.84	16.963		
1,000.0	995.6	996.6	996.6	2.4	2.1	177.65	-21.9	0.0	84.3	80.0	4.30	19.615		
1,100.0	1,093.2	1,097.7	1,097.7	2.8	2.4	178.05	-20.2	0.4	104.7	100.0	4.75	22.036		
1,200.0	1,190.6	1,200.2	1,200.1	3.2	2.6	178.16	-15.0	1.6	122.2	117.0	5.22	23.409		
1,300.0	1,288.0	1,303.9	1,303.3	3.6	2.8	178.08	-6.2	3.6	136.1	130.4	5.70	23.878		
1,400.0	1,385.4	1,408.5	1,407.1	4.1	3.1	177.87	6.5	6.5	146.4	140.2	6.19	23.645		
1,500.0	1,482.9	1,513.8	1,511.0	4.5	3.4	177.52	22.9	10.3	153.1	146.4	6.70	22.864		
1,600.0	1,580.3	1,615.2	1,610.6	5.0	3.7	177.09	41.4	14.5	157.2	149.9	7.20	21.817		
1,700.0	1,677.7	1,715.1	1,708.8	5.4	4.0	176.69	59.7	18.7	161.1	153.4	7.71	20.882		
1,800.0	1,775.2	1,815.0	1,806.9	5.9	4.3	176.31	78.0	22.9	165.0	156.8	8.23	20.051		
1,900.0	1,872.6	1,914.9	1,905.0	6.4	4.7	175.94	96.3	27.1	168.9	160.2	8.75	19.313		
2,000.0	1,970.0	2,014.8	2,003.2	6.8	5.0	175.59	114.6	31.4	172.9	163.6	9.27	18.648		
2,100.0	2,067.5	2,114.7	2,101.3	7.3	5.4	175.26	132.8	35.6	176.8	167.0	9.80	18.048		
2,200.0	2,164.9	2,214.7	2,199.4	7.7	5.8	174.94	151.1	39.8	180.8	170.5	10.33	17.505		
2,300.0	2,262.3	2,314.6	2,297.6	8.2	6.2	174.64	169.4	44.0	184.8	173.9	10.86	17.012		
2,400.0	2,359.8	2,414.5	2,395.7	8.7	6.5	174.35	187.7	48.2	188.7	177.3	11.40	16.561		
2,500.0	2,457.2	2,514.4	2,493.9	9.1	6.9	174.07	206.0	52.4	192.7	180.8	11.93	16.147		
2,600.0	2,554.6	2,614.3	2,592.0	9.6	7.3	173.80	224.3	56.6	196.7	184.2	12.47	15.767		
2,700.0	2,652.0	2,714.2	2,690.1	10.1	7.7	173.54	242.6	60.8	200.7	187.6	13.02	15.417		
2,800.0	2,749.5	2,814.2	2,788.3	10.5	8.1	173.29	260.9	65.0	204.6	191.1	13.56	15.093		
2,900.0	2,846.9	2,914.1	2,886.4	11.0	8.5	173.05	279.2	69.2	208.6	194.5	14.11	14.792		
3,000.0	2,944.3	3,014.0	2,984.5	11.5	8.9	172.82	297.5	73.4	212.6	198.0	14.65	14.512		
3,100.0	3,041.8	3,113.9	3,082.7	12.0	9.3	172.60	315.8	77.6	216.6	201.4	15.20	14.251		
3,200.0	3,139.2	3,213.8	3,180.8	12.4	9.7	172.39	334.1	81.8	220.6	204.9	15.75	14.007		
3,300.0	3,236.6	3,313.7	3,279.0	12.9	10.1	172.18	352.4	86.0	224.6	208.3	16.30	13.778		
3,400.0	3,334.1	3,413.7	3,377.1	13.4	10.5	171.98	370.7	90.2	228.6	211.8	16.86	13.564		
3,500.0	3,431.5	3,513.6	3,475.2	13.8	10.9	171.79	389.0	94.4	232.6	215.2	17.41	13.362		
3,600.0	3,528.9	3,613.5	3,573.4	14.3	11.3	171.61	407.3	98.6	236.6	218.7	17.97	13.172		
3,700.0	3,626.4	3,713.4	3,671.5	14.8	11.7	171.43	425.6	102.8	240.7	222.1	18.52	12.993		
3,800.0	3,723.8	3,813.3	3,769.6	15.2	12.1	171.26	443.9	107.1	244.7	225.6	19.08	12.824		
3,900.0	3,821.2	3,913.2	3,867.8	15.7	12.5	171.09	462.2	111.3	248.7	229.1	19.64	12.664		
4,000.0	3,918.6	4,013.2	3,965.9	16.2	12.9	170.93	480.5	115.5	252.7	232.5	20.20	12.512		
4,100.0	4,016.1	4,113.1	4,064.0	16.6	13.3	170.77	498.8	119.7	256.7	236.0	20.76	12.368		
4,200.0	4,113.5	4,213.0	4,162.2	17.1	13.7	170.62	517.1	123.9	260.8	239.4	21.32	12.231		
4,300.0	4,210.9	4,312.9	4,260.3	17.6	14.1	170.47	535.4	128.1	264.8	242.9	21.88	12.100		
4,400.0	4,308.4	4,412.8	4,358.5	18.1	14.5	170.33	553.7	132.3	268.8	246.4	22.45	11.976		
4,500.0	4,405.8	4,512.7	4,456.6	18.5	14.9	170.19	572.0	136.5	272.8	249.8	23.01	11.857		
4,600.0	4,503.2	4,612.7	4,554.7	19.0	15.3	170.05	590.3	140.7	276.9	253.3	23.57	11.744		
4,700.0	4,600.7	4,712.6	4,652.9	19.5	15.7	169.92	608.6	144.9	280.9	256.7	24.14	11.636		
4,800.0	4,698.1	4,812.5	4,751.0	19.9	16.1	169.80	626.9	149.1	284.9	260.2	24.71	11.533		
4,900.0	4,795.5	4,912.4	4,849.1	20.4	16.6	169.67	645.2	153.3	289.0	263.7	25.27	11.434		
5,000.0	4,893.0	5,012.3	4,947.3	20.9	17.0	169.55	663.5	157.5	293.0	267.1	25.84	11.339		
5,100.0	4,990.4	5,112.2	5,045.4	21.4	17.4	169.43	681.8	161.7	297.0	270.6	26.41	11.247		

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

Company:	KP KAUFFMAN	Local Co-ordinate Reference:	Well Sunmarke 22-2H
Project:	Sec.22-T4N-T67W	TVD Reference:	WELL @ 4877.0ft (Original Well Elev)
Reference Site:	Sunmark Pad Sec.22-T4N-R67W	MD Reference:	WELL @ 4877.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Sunmarke 22-2H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (9-17-13)	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.0ft
Survey Program: 0-MWD												Offset Well Error:	0.0ft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
5,200.0	5,087.8	5,212.2	5,143.6	21.8	17.8	169.32	700.1	165.9	301.1	274.1	26.98	11.160	
5,300.0	5,185.2	5,312.1	5,241.7	22.3	18.2	169.21	718.4	170.1	305.1	277.6	27.55	11.076	
5,400.0	5,282.7	5,412.0	5,339.8	22.8	18.6	169.10	736.7	174.3	309.1	281.0	28.12	10.995	
5,500.0	5,380.1	5,511.9	5,438.0	23.2	19.0	169.00	755.0	178.6	313.2	284.5	28.69	10.917	
5,600.0	5,477.5	5,600.0	5,524.6	23.7	19.3	168.94	770.4	182.1	318.1	288.9	29.20	10.895	
5,700.0	5,575.0	5,694.4	5,618.0	24.2	19.6	169.01	784.2	185.3	326.0	296.3	29.67	10.987	
5,800.0	5,672.4	5,783.8	5,706.7	24.7	19.8	169.21	794.5	187.6	336.8	306.7	30.10	11.191	
5,900.0	5,769.8	5,872.6	5,795.1	25.1	20.0	169.51	802.0	189.4	350.6	320.1	30.50	11.495	
6,000.0	5,867.8	5,960.8	5,883.2	25.5	20.2	169.88	806.8	190.5	365.3	334.4	30.85	11.839	
6,100.0	5,966.3	6,048.6	5,971.0	25.8	20.3	170.25	809.0	191.0	379.4	348.3	31.15	12.181	
6,200.0	6,065.4	6,144.0	6,066.4	26.0	20.4	170.60	809.1	191.0	392.5	361.1	31.44	12.486	
6,300.0	6,164.9	6,243.5	6,165.9	26.3	20.6	170.87	809.1	191.0	402.3	370.6	31.71	12.686	
6,400.0	6,264.7	6,343.3	6,265.7	26.4	20.7	171.03	809.1	191.0	408.7	376.7	31.96	12.787	
6,500.0	6,364.6	6,443.2	6,365.6	26.6	20.8	171.10	809.1	191.0	411.6	379.5	32.18	12.792	
6,600.0	6,464.6	6,543.7	6,466.1	26.7	21.0	-179.94	809.2	190.5	411.8	364.7	47.10	8.744	
6,700.0	6,564.6	6,644.4	6,566.1	26.8	21.1	-89.71	809.5	179.9	411.6	379.0	32.64	12.611	
6,729.5	6,594.1	6,673.5	6,594.7	26.8	21.1	-89.08	809.7	174.2	411.6	379.0	32.66	12.604	
6,800.0	6,664.2	6,742.5	6,661.2	26.9	21.2	-87.59	810.3	156.1	411.7	379.0	32.71	12.587	
6,900.0	6,761.4	6,838.6	6,750.4	26.9	21.2	-85.55	811.5	120.4	412.2	379.4	32.82	12.559	
7,000.0	6,854.6	6,933.0	6,832.5	27.0	21.3	-83.61	813.0	74.1	413.0	380.0	33.04	12.500	
7,100.0	6,941.8	7,025.7	6,906.7	27.0	21.4	-81.80	814.8	18.5	414.0	380.6	33.42	12.388	
7,200.0	7,021.4	7,117.1	6,972.0	27.1	21.5	-80.15	816.9	-45.2	415.2	381.2	34.01	12.208	
7,300.0	7,091.9	7,207.2	7,028.0	27.2	21.6	-78.69	819.3	-115.7	416.3	381.5	34.88	11.936	
7,400.0	7,151.7	7,296.3	7,074.3	27.3	21.9	-77.43	821.8	-191.7	417.4	381.3	36.07	11.571	
7,500.0	7,199.9	7,384.5	7,110.4	27.6	22.3	-76.39	824.4	-272.1	418.2	380.5	37.63	11.113	
7,600.0	7,235.4	7,472.1	7,136.3	27.9	23.0	-75.58	827.2	-355.7	418.6	379.1	39.57	10.580	
7,700.0	7,257.5	7,559.2	7,151.7	28.5	24.0	-75.02	830.0	-441.3	418.7	376.8	41.87	9.999	
7,800.0	7,265.9	7,645.9	7,156.6	29.4	25.3	-74.69	832.9	-527.7	418.3	373.8	44.51	9.397	
7,900.0	7,266.0	7,743.8	7,154.5	30.5	27.0	-74.37	836.1	-625.6	417.8	369.7	48.09	8.687	
8,000.0	7,266.0	7,843.8	7,152.2	32.0	28.9	-74.03	839.4	-725.5	417.3	365.3	52.01	8.023	
8,100.0	7,266.0	7,943.8	7,150.0	33.7	31.1	-73.69	842.7	-825.4	416.8	360.6	56.15	7.423	
8,200.0	7,266.0	8,043.7	7,147.7	35.5	33.3	-73.35	846.0	-925.3	416.3	355.9	60.46	6.886	
8,300.0	7,266.0	8,143.7	7,145.5	37.6	35.6	-73.01	849.3	-1,025.2	415.9	351.0	64.90	6.408	
8,400.0	7,266.0	8,243.7	7,143.2	39.8	38.0	-72.67	852.6	-1,125.0	415.4	346.0	69.44	5.982	
8,500.0	7,266.0	8,343.6	7,141.0	42.0	40.4	-72.32	855.9	-1,224.9	415.0	340.9	74.06	5.604	
8,600.0	7,266.0	8,443.6	7,138.7	44.4	42.9	-71.98	859.2	-1,324.8	414.6	335.9	78.73	5.266	
8,700.0	7,266.0	8,543.6	7,136.5	46.8	45.4	-71.63	862.5	-1,424.7	414.2	330.7	83.45	4.963	
8,800.0	7,266.0	8,643.6	7,134.2	49.2	48.0	-71.28	865.8	-1,524.6	413.8	325.6	88.20	4.692	
8,900.0	7,266.0	8,743.5	7,132.0	51.7	50.6	-70.94	869.1	-1,624.5	413.5	320.5	92.98	4.447	
9,000.0	7,266.0	8,843.5	7,129.7	54.2	53.2	-70.59	872.4	-1,724.4	413.1	315.3	97.77	4.225	
9,100.0	7,266.0	8,943.5	7,127.5	56.8	55.8	-70.24	875.7	-1,824.3	412.8	310.2	102.57	4.024	
9,200.0	7,266.0	9,043.4	7,125.2	59.4	58.4	-69.89	879.0	-1,924.2	412.5	305.1	107.37	3.841	
9,300.0	7,266.0	9,143.4	7,123.0	62.0	61.1	-69.55	882.3	-2,024.0	412.2	300.0	112.18	3.674	
9,400.0	7,266.0	9,243.4	7,120.7	64.6	63.8	-69.20	885.6	-2,123.9	411.9	294.9	116.98	3.521	
9,500.0	7,266.0	9,343.3	7,118.5	67.2	66.5	-68.85	888.9	-2,223.8	411.6	289.8	121.77	3.380	
9,600.0	7,266.0	9,443.3	7,116.2	69.9	69.2	-68.50	892.2	-2,323.7	411.3	284.8	126.55	3.250	
9,700.0	7,266.0	9,543.3	7,114.0	72.5	71.9	-68.14	895.5	-2,423.6	411.1	279.8	131.32	3.131	
9,800.0	7,266.0	9,643.2	7,111.7	75.2	74.6	-67.79	898.8	-2,523.5	410.9	274.8	136.07	3.020	
9,900.0	7,266.0	9,743.2	7,109.5	77.9	77.3	-67.44	902.1	-2,623.4	410.7	269.8	140.81	2.916	
10,000.0	7,266.0	9,843.2	7,107.2	80.6	80.0	-67.09	905.4	-2,723.3	410.5	264.9	145.52	2.821	
10,100.0	7,266.0	9,943.1	7,105.0	83.3	82.8	-66.74	908.7	-2,823.1	410.3	260.1	150.22	2.731	
10,200.0	7,266.0	10,043.1	7,102.7	86.0	85.5	-66.39	912.0	-2,923.0	410.1	255.2	154.89	2.648	

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

Company:	KP KAUFFMAN	Local Co-ordinate Reference:	Well Sunmarke 22-2H
Project:	Sec.22-T4N-T67W	TVD Reference:	WELL @ 4877.0ft (Original Well Elev)
Reference Site:	Sunmark Pad Sec.22-T4N-R67W	MD Reference:	WELL @ 4877.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Sunmarke 22-2H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (9-17-13)	Offset TVD Reference:	Offset Datum

Offset Design Sunmark Pad Sec.22-T4N-R67W - Sunmarke 22-3H - Wellbore #1 - Plan #1 (9-17-13)												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
10,300.0	7,266.0	10,143.1	7,100.5	88.7	88.2	-66.03	915.3	-3,022.9	410.0	250.4	159.54	2.570	
10,400.0	7,266.0	10,243.0	7,098.2	91.4	91.0	-65.68	918.6	-3,122.8	409.8	245.7	164.17	2.496	
10,500.0	7,266.0	10,343.0	7,096.0	94.1	93.7	-65.33	921.9	-3,222.7	409.7	240.9	168.77	2.428	
10,600.0	7,266.0	10,443.0	7,093.7	96.9	96.5	-64.97	925.2	-3,322.6	409.6	236.3	173.34	2.363	
10,700.0	7,266.0	10,542.9	7,091.5	99.6	99.2	-64.62	928.5	-3,422.5	409.5	231.6	177.89	2.302	
10,800.0	7,266.0	10,642.9	7,089.2	102.3	102.0	-64.27	931.8	-3,522.4	409.5	227.1	182.41	2.245	
10,900.0	7,266.0	10,742.9	7,087.0	105.1	104.8	-63.91	935.1	-3,622.3	409.4	222.5	186.89	2.191	
11,000.0	7,266.0	10,842.8	7,084.7	107.8	107.5	-63.56	938.4	-3,722.1	409.4	218.0	191.35	2.139	
11,100.0	7,266.0	10,942.8	7,082.5	110.6	110.3	-63.20	941.7	-3,822.0	409.3	213.6	195.77	2.091	
11,200.0	7,266.0	11,042.8	7,080.2	113.3	113.1	-62.85	945.0	-3,921.9	409.3	209.2	200.17	2.045	
11,201.7	7,266.0	11,044.5	7,080.2	113.4	113.1	-62.84	945.1	-3,923.6	409.3	209.1	200.24	2.044	
11,300.0	7,266.0	11,142.8	7,078.0	116.1	115.8	-62.50	948.3	-4,021.8	409.3	204.8	204.53	2.001	
11,400.0	7,266.0	11,242.7	7,075.7	118.8	118.6	-62.14	951.6	-4,121.7	409.4	200.5	208.86	1.960	
11,500.0	7,266.0	11,342.7	7,073.5	121.6	121.4	-61.79	954.9	-4,221.6	409.4	196.3	213.15	1.921	
11,600.0	7,266.0	11,442.7	7,071.2	124.4	124.2	-61.43	958.2	-4,321.5	409.5	192.0	217.41	1.883	
11,700.0	7,266.0	11,542.6	7,069.0	127.1	126.9	-61.08	961.5	-4,421.4	409.5	187.9	221.63	1.848	
11,800.0	7,266.0	11,642.6	7,066.7	129.9	129.3	-60.73	964.8	-4,521.2	409.6	184.2	225.45	1.817	
11,815.6	7,266.0	11,658.2	7,066.4	130.3	129.6	-60.67	965.3	-4,536.8	409.6	183.7	225.96	1.813	
11,838.5	7,266.0	11,673.9	7,066.0	131.0	129.9	-60.62	965.8	-4,552.5	409.7	183.1	226.65	1.808 SF	

Company:	KP KAUFFMAN	Local Co-ordinate Reference:	Well Sunmarke 22-2H
Project:	Sec.22-T4N-T67W	TVD Reference:	WELL @ 4877.0ft (Original Well Elev)
Reference Site:	Sunmark Pad Sec.22-T4N-R67W	MD Reference:	WELL @ 4877.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Sunmarke 22-2H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (9-17-13)	Offset TVD Reference:	Offset Datum

Offset Design Sunmark Pad Sec.22-T4N-R67W - Sunmarke 22-4H - Wellbore #1 - Plan #1 (9-17-13)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0.0	0.0	1.0	1.0	0.0	0.0	-180.00	-43.7	0.0	43.7	43.7	0.00	N/A		
100.0	100.0	101.0	101.0	0.1	0.1	-180.00	-43.7	0.0	43.7	43.5	0.23	192.609		
200.0	200.0	201.0	201.0	0.3	0.3	-180.00	-43.7	0.0	43.7	43.0	0.68	64.630		
300.0	300.0	301.0	301.0	0.6	0.6	-180.00	-43.7	0.0	43.7	42.6	1.13	38.829		
400.0	400.0	401.0	401.0	0.8	0.8	-180.00	-43.7	0.0	43.7	42.1	1.58	27.751 CC, ES		
500.0	500.0	501.0	501.0	1.0	1.0	171.44	-43.7	0.0	45.4	43.4	2.03	22.405		
600.0	599.8	600.8	600.8	1.2	1.2	172.31	-43.7	0.0	50.6	48.1	2.48	20.385		
700.0	699.5	700.5	700.5	1.5	1.5	173.42	-43.7	0.0	59.3	56.3	2.94	20.175		
800.0	798.7	799.7	799.7	1.7	1.7	174.52	-43.7	0.0	71.4	68.0	3.39	21.051		
900.0	897.5	898.5	898.5	2.0	1.9	175.48	-43.7	0.0	87.0	83.1	3.84	22.626		
1,000.0	995.6	996.6	996.6	2.4	2.1	176.26	-43.7	0.0	106.0	101.7	4.30	24.674		
1,100.0	1,093.2	1,094.2	1,094.2	2.8	2.3	176.90	-43.7	0.0	128.1	123.3	4.75	26.942		
1,200.0	1,190.6	1,191.6	1,191.6	3.2	2.6	177.36	-43.7	0.0	150.6	145.3	5.22	28.849		
1,300.0	1,288.0	1,294.6	1,294.6	3.6	2.8	177.62	-42.2	0.5	171.6	165.9	5.69	30.135		
1,400.0	1,385.4	1,399.5	1,399.4	4.1	3.0	177.61	-37.1	2.1	189.2	183.0	6.18	30.634		
1,500.0	1,482.9	1,505.7	1,505.1	4.5	3.3	177.39	-28.2	4.9	203.2	196.5	6.67	30.471		
1,600.0	1,580.3	1,612.8	1,611.4	5.0	3.5	176.99	-15.4	8.9	213.6	206.4	7.17	29.780		
1,700.0	1,677.7	1,714.0	1,711.5	5.4	3.8	176.51	-0.9	13.5	221.5	213.8	7.67	28.864		
1,800.0	1,775.2	1,813.7	1,810.0	5.9	4.1	176.06	13.5	18.0	229.3	221.1	8.18	28.040		
1,900.0	1,872.6	1,913.4	1,908.5	6.4	4.4	175.65	27.8	22.5	237.2	228.5	8.69	27.298		
2,000.0	1,970.0	2,013.1	2,007.1	6.8	4.7	175.26	42.2	27.0	245.0	235.8	9.20	26.636		
2,100.0	2,067.5	2,112.7	2,105.6	7.3	5.0	174.90	56.5	31.6	252.9	243.2	9.72	26.031		
2,200.0	2,164.9	2,212.4	2,204.1	7.7	5.3	174.55	70.9	36.1	260.8	250.6	10.24	25.480		
2,300.0	2,262.3	2,312.1	2,302.7	8.2	5.6	174.23	85.3	40.6	268.7	257.9	10.76	24.978		
2,400.0	2,359.8	2,411.8	2,401.2	8.7	5.9	173.93	99.6	45.1	276.6	265.3	11.28	24.517		
2,500.0	2,457.2	2,511.5	2,499.7	9.1	6.2	173.64	114.0	49.6	284.5	272.7	11.81	24.093		
2,600.0	2,554.6	2,611.1	2,598.3	9.6	6.6	173.37	128.4	54.1	292.4	280.1	12.34	23.702		
2,700.0	2,652.0	2,710.8	2,696.8	10.1	6.9	173.11	142.7	58.7	300.3	287.5	12.87	23.340		
2,800.0	2,749.5	2,810.5	2,795.3	10.5	7.2	172.87	157.1	63.2	308.3	294.9	13.40	23.004		
2,900.0	2,846.9	2,910.2	2,893.9	11.0	7.6	172.64	171.4	67.7	316.2	302.3	13.94	22.691		
3,000.0	2,944.3	3,009.8	2,992.4	11.5	7.9	172.42	185.8	72.2	324.2	309.7	14.47	22.400		
3,100.0	3,041.8	3,109.5	3,090.9	12.0	8.2	172.21	200.2	76.7	332.1	317.1	15.01	22.128		
3,200.0	3,139.2	3,209.2	3,189.5	12.4	8.6	172.01	214.5	81.3	340.0	324.5	15.55	21.873		
3,300.0	3,236.6	3,308.9	3,288.0	12.9	8.9	171.82	228.9	85.8	348.0	331.9	16.09	21.633		
3,400.0	3,334.1	3,408.5	3,386.5	13.4	9.3	171.64	243.2	90.3	356.0	339.3	16.63	21.408		
3,500.0	3,431.5	3,508.2	3,485.1	13.8	9.6	171.46	257.6	94.8	363.9	346.7	17.17	21.196		
3,600.0	3,528.9	3,607.9	3,583.6	14.3	9.9	171.29	272.0	99.3	371.9	354.2	17.71	20.996		
3,700.0	3,626.4	3,707.6	3,682.1	14.8	10.3	171.13	286.3	103.9	379.8	361.6	18.26	20.807		
3,800.0	3,723.8	3,807.2	3,780.7	15.2	10.6	170.98	300.7	108.4	387.8	369.0	18.80	20.628		
3,900.0	3,821.2	3,906.9	3,879.2	15.7	11.0	170.83	315.0	112.9	395.8	376.4	19.35	20.458		
4,000.0	3,918.6	4,006.6	3,977.7	16.2	11.3	170.69	329.4	117.4	403.8	383.9	19.89	20.297		
4,100.0	4,016.1	4,106.3	4,076.3	16.6	11.7	170.56	343.8	121.9	411.7	391.3	20.44	20.144		
4,200.0	4,113.5	4,206.0	4,174.8	17.1	12.0	170.43	358.1	126.4	419.7	398.7	20.99	19.998		
4,300.0	4,210.9	4,305.6	4,273.3	17.6	12.4	170.30	372.5	131.0	427.7	406.2	21.54	19.860		
4,400.0	4,308.4	4,405.3	4,371.9	18.1	12.7	170.18	386.8	135.5	435.7	413.6	22.09	19.727		
4,500.0	4,405.8	4,505.0	4,470.4	18.5	13.1	170.06	401.2	140.0	443.7	421.0	22.63	19.601		
4,600.0	4,503.2	4,604.7	4,568.9	19.0	13.4	169.95	415.6	144.5	451.6	428.5	23.18	19.480		
4,700.0	4,600.7	4,704.3	4,667.5	19.5	13.8	169.84	429.9	149.0	459.6	435.9	23.74	19.365		
4,800.0	4,698.1	4,804.0	4,766.0	19.9	14.1	169.74	444.3	153.6	467.6	443.3	24.29	19.254		
4,900.0	4,795.5	4,903.7	4,864.5	20.4	14.4	169.64	458.6	158.1	475.6	450.8	24.84	19.148		
5,000.0	4,893.0	5,003.4	4,963.1	20.9	14.8	169.54	473.0	162.6	483.6	458.2	25.39	19.046		
5,100.0	4,990.4	5,103.0	5,061.6	21.4	15.1	169.44	487.4	167.1	491.6	465.7	25.94	18.949		

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

Company:	KP KAUFFMAN	Local Co-ordinate Reference:	Well Sunmarke 22-2H
Project:	Sec.22-T4N-T67W	TVD Reference:	WELL @ 4877.0ft (Original Well Elev)
Reference Site:	Sunmark Pad Sec.22-T4N-R67W	MD Reference:	WELL @ 4877.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Sunmarke 22-2H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (9-17-13)	Offset TVD Reference:	Offset Datum

Offset Design Sunmark Pad Sec.22-T4N-R67W - Sunmarke 22-4H - Wellbore #1 - Plan #1 (9-17-13)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
5,200.0	5,087.8	5,202.7	5,160.1	21.8	15.5	169.35	501.7	171.6	499.6	473.1	26.50	18.855		
5,300.0	5,185.2	5,302.4	5,258.7	22.3	15.8	169.26	516.1	176.2	507.6	480.5	27.05	18.765		
5,400.0	5,282.7	5,402.1	5,357.2	22.8	16.2	169.18	530.5	180.7	515.6	488.0	27.60	18.678		
5,500.0	5,380.1	5,488.6	5,442.8	23.2	16.5	169.14	542.0	184.3	524.7	496.6	28.09	18.678		
5,600.0	5,477.5	5,573.1	5,526.8	23.7	16.7	169.20	550.8	187.1	536.6	508.1	28.54	18.805		
5,700.0	5,575.0	5,657.0	5,610.4	24.2	16.8	169.33	557.3	189.1	551.2	522.3	28.96	19.037		
5,800.0	5,672.4	5,740.1	5,693.4	24.7	17.0	169.55	561.4	190.4	568.6	539.2	29.36	19.367		
5,900.0	5,769.8	5,822.3	5,775.6	25.1	17.1	169.83	563.2	191.0	588.6	558.9	29.75	19.786		
6,000.0	5,867.8	5,915.4	5,868.8	25.5	17.3	170.22	563.3	191.0	608.5	578.4	30.13	20.196		
6,100.0	5,966.3	6,014.0	5,967.3	25.8	17.4	170.53	563.3	191.0	625.1	594.6	30.51	20.489		
6,200.0	6,065.4	6,113.1	6,066.4	26.0	17.6	170.78	563.3	191.0	638.4	607.5	30.86	20.686		
6,300.0	6,164.9	6,212.6	6,165.9	26.3	17.8	170.95	563.3	191.0	648.2	617.0	31.18	20.790		
6,400.0	6,264.7	6,312.4	6,265.7	26.4	17.9	171.06	563.3	191.0	654.6	623.1	31.46	20.806		
6,500.0	6,364.6	6,412.3	6,365.6	26.6	18.1	171.11	563.3	191.0	657.5	625.8	31.71	20.737		
6,600.0	6,464.6	6,512.8	6,466.1	26.7	18.3	-179.96	563.3	190.5	657.7	613.4	44.33	14.837		
6,700.0	6,564.6	6,613.4	6,566.1	26.8	18.4	-90.27	563.5	179.9	657.6	625.3	32.26	20.387		
6,714.5	6,579.2	6,627.8	6,580.2	26.8	18.4	-90.08	563.6	177.2	657.6	625.3	32.28	20.374		
6,800.0	6,664.2	6,711.5	6,661.2	26.9	18.5	-88.95	564.0	156.1	657.7	625.3	32.40	20.302		
6,900.0	6,761.4	6,807.6	6,750.3	26.9	18.5	-87.65	564.7	120.4	658.2	625.7	32.54	20.230		
7,000.0	6,854.6	6,901.9	6,832.4	27.0	18.6	-86.41	565.7	74.1	659.0	626.3	32.75	20.125		
7,100.0	6,941.8	6,994.7	6,906.5	27.0	18.6	-85.25	566.8	18.5	660.1	627.0	33.11	19.933		
7,200.0	7,021.4	7,086.0	6,971.9	27.1	18.7	-84.18	568.1	-45.2	661.3	627.6	33.72	19.611		
7,300.0	7,091.9	7,176.1	7,027.9	27.2	18.9	-83.21	569.5	-115.7	662.6	627.9	34.67	19.110		
7,400.0	7,151.7	7,265.2	7,074.1	27.3	19.2	-82.38	571.1	-191.7	663.9	627.9	36.02	18.430		
7,500.0	7,199.9	7,353.4	7,110.3	27.6	19.9	-81.68	572.7	-272.1	665.1	627.3	37.82	17.589		
7,600.0	7,235.4	7,441.0	7,136.2	27.9	20.9	-81.12	574.4	-355.7	666.2	626.1	40.07	16.627		
7,700.0	7,257.5	7,528.0	7,151.6	28.5	22.2	-80.72	576.2	-441.3	667.0	624.3	42.73	15.611		
7,800.0	7,265.9	7,614.7	7,156.5	29.4	23.8	-80.48	577.9	-527.9	667.6	621.9	45.71	14.603		
7,900.0	7,266.0	7,712.7	7,154.4	30.5	25.7	-80.29	579.9	-625.7	668.0	618.6	49.46	13.508		
8,000.0	7,266.0	7,812.6	7,152.1	32.0	27.8	-80.11	581.9	-725.7	668.5	615.0	53.55	12.484		
8,100.0	7,266.0	7,912.6	7,149.9	33.7	30.0	-79.92	584.0	-825.6	669.0	611.2	57.87	11.560		
8,200.0	7,266.0	8,012.6	7,147.6	35.5	32.3	-79.73	586.0	-925.5	669.5	607.2	62.38	10.733		
8,300.0	7,266.0	8,112.6	7,145.4	37.6	34.7	-79.54	588.0	-1,025.4	670.1	603.0	67.03	9.997		
8,400.0	7,266.0	8,212.5	7,143.1	39.8	37.1	-79.35	590.1	-1,125.4	670.6	598.8	71.79	9.341		
8,500.0	7,266.0	8,312.5	7,140.9	42.0	39.6	-79.17	592.1	-1,225.3	671.1	594.5	76.64	8.757		
8,600.0	7,266.0	8,412.5	7,138.6	44.4	42.1	-78.98	594.2	-1,325.2	671.6	590.1	81.56	8.235		
8,700.0	7,266.0	8,512.5	7,136.4	46.8	44.7	-78.79	596.2	-1,425.2	672.2	585.6	86.54	7.767		
8,800.0	7,266.0	8,612.4	7,134.1	49.2	47.3	-78.61	598.2	-1,525.1	672.7	581.2	91.57	7.346		
8,900.0	7,266.0	8,712.4	7,131.9	51.7	49.9	-78.42	600.3	-1,625.0	673.3	576.7	96.64	6.967		
9,000.0	7,266.0	8,812.4	7,129.6	54.2	52.5	-78.24	602.3	-1,724.9	673.9	572.1	101.75	6.623		
9,100.0	7,266.0	8,912.4	7,127.4	56.8	55.2	-78.05	604.3	-1,824.9	674.4	567.6	106.87	6.311		
9,200.0	7,266.0	9,012.3	7,125.1	59.4	57.8	-77.87	606.4	-1,924.8	675.0	563.0	112.02	6.026		
9,300.0	7,266.0	9,112.3	7,122.9	62.0	60.5	-77.68	608.4	-2,024.7	675.6	558.4	117.19	5.765		
9,400.0	7,266.0	9,212.3	7,120.6	64.6	63.2	-77.50	610.4	-2,124.7	676.2	553.8	122.37	5.526		
9,500.0	7,266.0	9,312.3	7,118.4	67.2	65.9	-77.31	612.5	-2,224.6	676.8	549.2	127.56	5.306		
9,600.0	7,266.0	9,412.2	7,116.1	69.9	68.6	-77.13	614.5	-2,324.5	677.4	544.6	132.76	5.102		
9,700.0	7,266.0	9,512.2	7,113.9	72.5	71.3	-76.95	616.5	-2,424.4	678.0	540.0	137.96	4.914		
9,800.0	7,266.0	9,612.2	7,111.6	75.2	74.0	-76.76	618.6	-2,524.4	678.6	535.5	143.17	4.740		
9,900.0	7,266.0	9,712.2	7,109.4	77.9	76.8	-76.58	620.6	-2,624.3	679.3	530.9	148.39	4.578		
10,000.0	7,266.0	9,812.1	7,107.1	80.6	79.5	-76.40	622.6	-2,724.2	679.9	526.3	153.60	4.426		
10,100.0	7,266.0	9,912.1	7,104.9	83.3	82.2	-76.22	624.7	-2,824.2	680.5	521.7	158.82	4.285		
10,200.0	7,266.0	10,012.1	7,102.6	86.0	85.0	-76.03	626.7	-2,924.1	681.2	517.1	164.03	4.153		

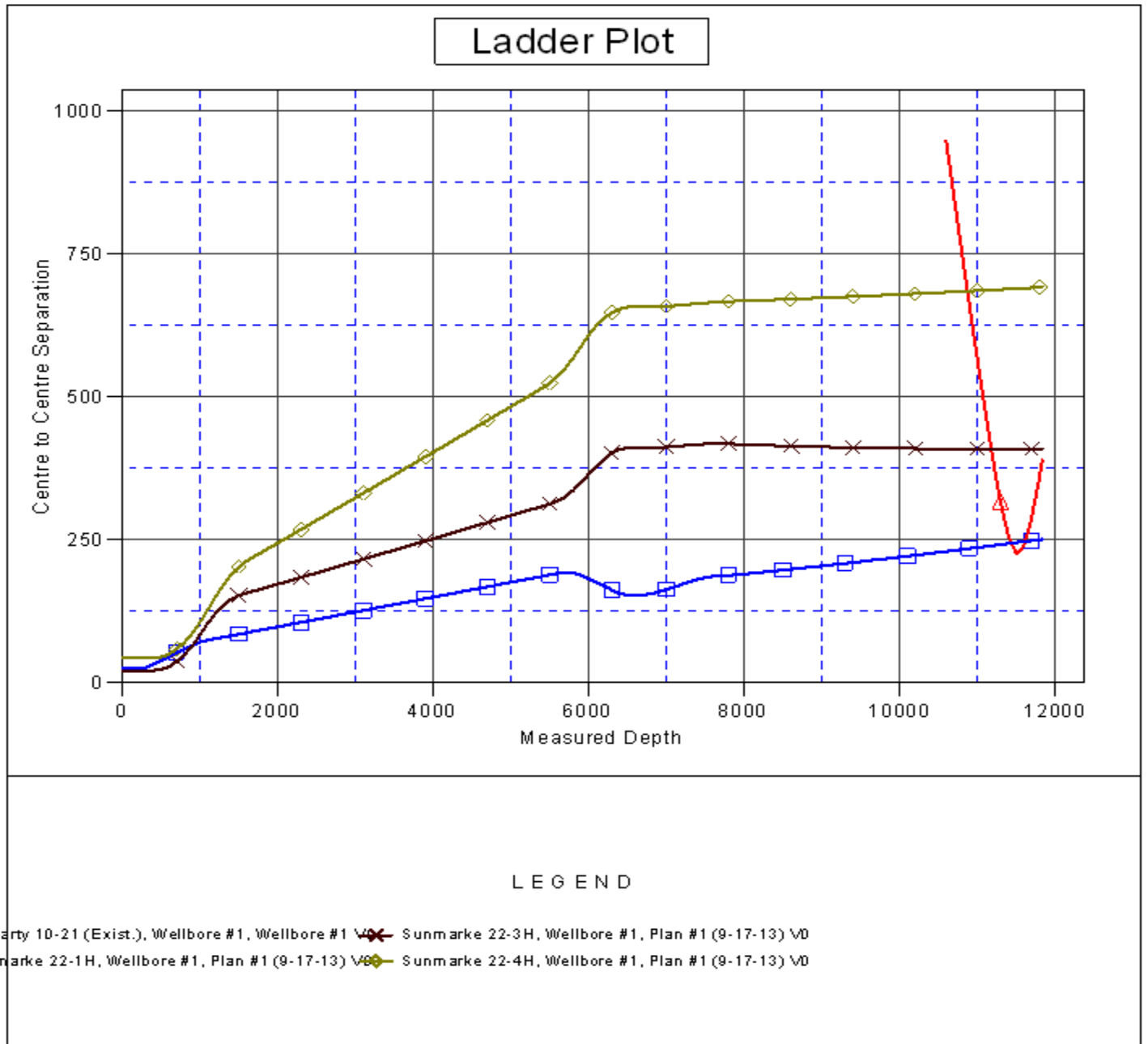
CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Sunmark Pad Sec.22-T4N-R67W - Sunmarke 22-4H - Wellbore #1 - Plan #1 (9-17-13)													Offset Site Error: 0.0 ft	
Survey Program: 0-MWD													Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor		
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)			
10,300.0	7,266.0	10,112.0	7,100.4	88.7	87.7	-75.85	628.7	-3,024.0	681.8	512.6	169.25	4.029		
10,400.0	7,266.0	10,212.0	7,098.1	91.4	90.5	-75.67	630.8	-3,123.9	682.5	508.0	174.46	3.912		
10,500.0	7,266.0	10,312.0	7,095.9	94.1	93.2	-75.49	632.8	-3,223.9	683.2	503.5	179.67	3.802		
10,600.0	7,266.0	10,412.0	7,093.6	96.9	96.0	-75.31	634.9	-3,323.8	683.8	499.0	184.87	3.699		
10,700.0	7,266.0	10,511.9	7,091.4	99.6	98.8	-75.13	636.9	-3,423.7	684.5	494.4	190.07	3.601		
10,800.0	7,266.0	10,611.9	7,089.1	102.3	101.5	-74.95	638.9	-3,523.7	685.2	489.9	195.27	3.509		
10,900.0	7,266.0	10,711.9	7,086.9	105.1	104.3	-74.77	641.0	-3,623.6	685.9	485.4	200.46	3.422		
11,000.0	7,266.0	10,811.9	7,084.6	107.8	107.1	-74.59	643.0	-3,723.5	686.6	481.0	205.64	3.339		
11,100.0	7,266.0	10,911.8	7,082.4	110.6	109.8	-74.42	645.0	-3,823.4	687.3	476.5	210.82	3.260		
11,200.0	7,266.0	11,011.8	7,080.1	113.3	112.6	-74.24	647.1	-3,923.4	688.0	472.0	215.99	3.185		
11,300.0	7,266.0	11,111.8	7,077.9	116.1	115.4	-74.06	649.1	-4,023.3	688.7	467.6	221.16	3.114		
11,400.0	7,266.0	11,211.8	7,075.6	118.8	118.1	-73.88	651.1	-4,123.2	689.5	463.2	226.32	3.046		
11,500.0	7,266.0	11,311.7	7,073.4	121.6	120.9	-73.71	653.2	-4,223.2	690.2	458.7	231.47	2.982		
11,600.0	7,266.0	11,411.7	7,071.1	124.4	123.7	-73.53	655.2	-4,323.1	690.9	454.3	236.61	2.920		
11,700.0	7,266.0	11,511.7	7,068.9	127.1	126.5	-73.35	657.2	-4,423.0	691.7	450.0	241.74	2.861		
11,800.0	7,266.0	11,611.7	7,066.6	129.9	129.3	-73.18	659.3	-4,522.9	692.4	445.6	246.87	2.805		
11,838.5	7,266.0	11,638.5	7,066.0	131.0	130.0	-73.13	659.8	-4,549.8	692.8	444.3	248.55	2.788 SF		

Company: KP KAUFFMAN
Project: Sec.22-T4N-T67W
Reference Site: Sunmark Pad Sec.22-T4N-R67W
Site Error: 0.0ft
Reference Well: Sunmarke 22-2H
Well Error: 0.0ft
Reference Wellbore: Wellbore #1
Reference Design: Plan #1 (9-17-13)

Local Co-ordinate Reference: Well Sunmarke 22-2H
TVD Reference: WELL @ 4877.0ft (Original Well Elev)
MD Reference: WELL @ 4877.0ft (Original Well Elev)
North Reference: True
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: Landmark
Offset TVD Reference: Offset Datum

Reference Depths are relative to WELL @ 4877.0ft (Original Well Elev) Coordinates are relative to: Sunmarke 22-2H
Offset Depths are relative to Offset Datum Coordinate System is US State Plane 1983, Colorado Northern Zone
Central Meridian is -105.500000 ° Grid Convergence at Surface is: 0.40°



Company:	KP KAUFFMAN	Local Co-ordinate Reference:	Well Sunmarke 22-2H
Project:	Sec.22-T4N-T67W	TVD Reference:	WELL @ 4877.0ft (Original Well Elev)
Reference Site:	Sunmark Pad Sec.22-T4N-R67W	MD Reference:	WELL @ 4877.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Sunmarke 22-2H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (9-17-13)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4877.0ft (Original Well Elev) Coordinates are relative to: Sunmarke 22-2H
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