

ENSIGN

Directional

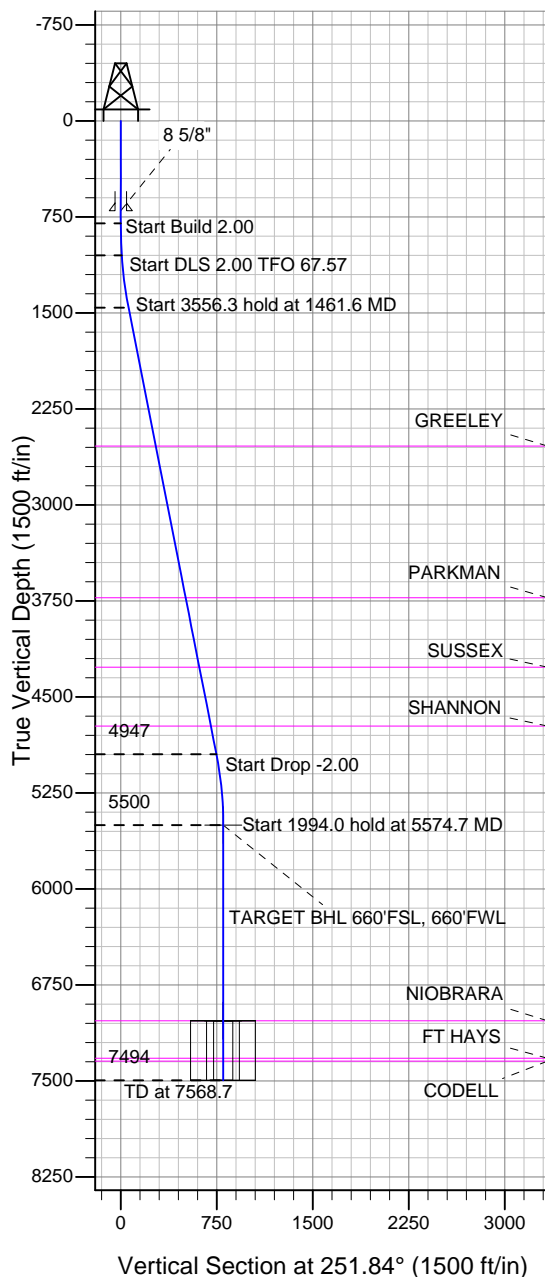
Well Name: Sunmarke 19-28-13

Surface Location: Sunmarke 19-28-11 Pad Sec.28-T4N-R67W
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone

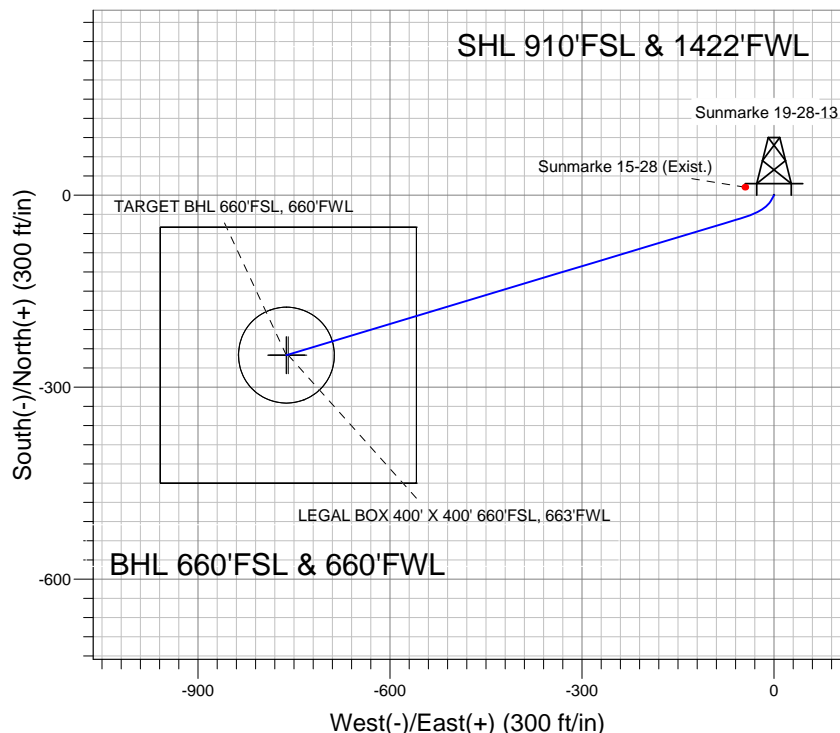
Ground Elevation: 4975.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1345107.75	3167389.95	40.279166	-104.900046	
Original Well Elev WELL @ 4989.0ft (Original Well Elev)						

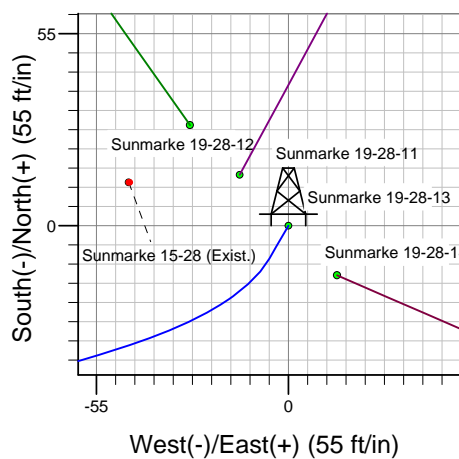
KP KAUFFMAN



Vertical Section at 251.84° (1500 ft/in)



BHL 660'FSL & 660'FWL



Sunmarke 19-28-11 Pad Sec.28-T4N-R67W
Sunmarke 19-28-13
Plan #1 (1-11-12)
16:17, January 12 2012



Azimuths to True North
Magnetic North: 8.85°
Magnetic Field
Strength: 52991.4snT
Dip Angle: 66.91°
Date: 1/11/2012
Model: IGRF2010

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
TARGET BHL 660'FSL, 660'FWL	5500.0	-250.0	-762.0	40.278480	-104.902777	Point
LEGAL BOX 400' X 400' 660'FSL, 663'FWL	7029.0	-250.0	-759.0	40.278480	-104.902766	Rectangle (Sides: L400.0 W400.0)
TARGET CIRCLE 660'FSL, 660'FWL	7029.0	-250.0	-762.0	40.278480	-104.902777	Circle (Radius: 75.0)

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	800.0	0.00	0.00	800.0	0.0	0.0	0.00	0.00	0.0	
3	1050.0	5.00	210.00	1049.7	-9.4	-5.5	2.00	210.00	8.1	
4	1461.6	11.14	253.25	1457.3	-36.5	-52.6	2.00	67.57	61.3	
5	5017.9	11.14	253.25	4946.6	-234.5	-710.3	0.00	0.00	748.0	
6	5574.7	0.00	0.00	5500.0	-250.0	-762.0	2.00	180.00	802.0	TARGET BHL 660'FSL, 660'FWL
7	7568.7	0.00	0.00	7494.0	-250.0	-762.0	0.00	0.00	802.0	



KP KAUFFMAN

SEC.28-T4N-R67W

Sunmarke 19-28-11 Pad Sec.28-T4N-R67W

Sunmarke 19-28-13

Wellbore #1

Plan: Plan #1 (1-11-12)

Standard Planning Report

12 January, 2012

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	
800.0	0.00	0.00	800.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,050.0	5.00	210.00	1,049.7	-9.4	-5.5	2.00	2.00	0.00	210.00	
1,461.6	11.14	253.25	1,457.3	-36.5	-52.6	2.00	1.49	10.51	67.57	
5,017.9	11.14	253.25	4,946.6	-234.5	-710.3	0.00	0.00	0.00	0.00	
5,574.7	0.00	0.00	5,500.0	-250.0	-762.0	2.00	-2.00	0.00	180.00	TARGET BHL 660°
8,020.7	0.00	0.00	7,946.0	-250.0	-762.0	0.00	0.00	0.00	0.00	

Database:	Landmark	Local Co-ordinate Reference:	Well Sunmarke 19-28-13
Company:	KP KAUFFMAN	TVD Reference:	WELL @ 4989.0ft (Original Well Elev)
Project:	SEC.28-T4N-R67W	MD Reference:	WELL @ 4989.0ft (Original Well Elev)
Site:	Sunmarke 19-28-11 Pad Sec.28-T4N-R67W	North Reference:	True
Well:	Sunmarke 19-28-13	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (1-11-12)		

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
40.0	0.00	0.00	40.0	0.0	0.0	0.0	0.00	0.00	0.00
80.0	0.00	0.00	80.0	0.0	0.0	0.0	0.00	0.00	0.00
120.0	0.00	0.00	120.0	0.0	0.0	0.0	0.00	0.00	0.00
160.0	0.00	0.00	160.0	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
240.0	0.00	0.00	240.0	0.0	0.0	0.0	0.00	0.00	0.00
280.0	0.00	0.00	280.0	0.0	0.0	0.0	0.00	0.00	0.00
320.0	0.00	0.00	320.0	0.0	0.0	0.0	0.00	0.00	0.00
360.0	0.00	0.00	360.0	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
440.0	0.00	0.00	440.0	0.0	0.0	0.0	0.00	0.00	0.00
480.0	0.00	0.00	480.0	0.0	0.0	0.0	0.00	0.00	0.00
520.0	0.00	0.00	520.0	0.0	0.0	0.0	0.00	0.00	0.00
560.0	0.00	0.00	560.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
640.0	0.00	0.00	640.0	0.0	0.0	0.0	0.00	0.00	0.00
680.0	0.00	0.00	680.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
8 5/8"									
720.0	0.00	0.00	720.0	0.0	0.0	0.0	0.00	0.00	0.00
760.0	0.00	0.00	760.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
840.0	0.80	210.00	840.0	-0.2	-0.1	0.2	2.00	2.00	0.00
880.0	1.60	210.00	880.0	-1.0	-0.6	0.8	2.00	2.00	0.00
920.0	2.40	210.00	920.0	-2.2	-1.3	1.9	2.00	2.00	0.00
960.0	3.20	210.00	959.9	-3.9	-2.2	3.3	2.00	2.00	0.00
1,000.0	4.00	210.00	999.8	-6.0	-3.5	5.2	2.00	2.00	0.00
1,040.0	4.80	210.00	1,039.7	-8.7	-5.0	7.5	2.00	2.00	0.00
1,050.0	5.00	210.00	1,049.7	-9.4	-5.5	8.1	2.00	2.00	0.00
1,080.0	5.26	216.06	1,079.6	-11.7	-6.9	10.2	2.00	0.86	20.21
1,120.0	5.68	223.18	1,119.4	-14.6	-9.3	13.4	2.00	1.06	17.80
1,160.0	6.18	229.24	1,159.2	-17.5	-12.3	17.2	2.00	1.25	15.13
1,200.0	6.74	234.34	1,198.9	-20.2	-15.9	21.4	2.00	1.39	12.76
1,240.0	7.34	238.64	1,238.6	-22.9	-20.0	26.1	2.00	1.51	10.75
1,280.0	7.98	242.28	1,278.3	-25.6	-24.6	31.3	2.00	1.59	9.09
1,320.0	8.64	245.37	1,317.8	-28.1	-29.8	37.1	2.00	1.66	7.73
1,360.0	9.33	248.01	1,357.3	-30.6	-35.5	43.3	2.00	1.71	6.62
1,400.0	10.03	250.30	1,396.8	-33.0	-41.8	50.0	2.00	1.76	5.71
1,440.0	10.75	252.28	1,436.1	-35.3	-48.6	57.2	2.00	1.79	4.96
1,461.6	11.14	253.25	1,457.3	-36.5	-52.6	61.3	2.00	1.81	4.47
1,480.0	11.14	253.25	1,475.4	-37.5	-56.0	64.9	0.00	0.00	0.00
1,520.0	11.14	253.25	1,514.6	-39.7	-63.4	72.6	0.00	0.00	0.00
1,560.0	11.14	253.25	1,553.9	-42.0	-70.8	80.3	0.00	0.00	0.00
1,600.0	11.14	253.25	1,593.1	-44.2	-78.2	88.0	0.00	0.00	0.00
1,640.0	11.14	253.25	1,632.4	-46.4	-85.6	95.8	0.00	0.00	0.00
1,680.0	11.14	253.25	1,671.6	-48.6	-93.0	103.5	0.00	0.00	0.00
1,720.0	11.14	253.25	1,710.9	-50.9	-100.4	111.2	0.00	0.00	0.00
1,760.0	11.14	253.25	1,750.1	-53.1	-107.8	118.9	0.00	0.00	0.00
1,800.0	11.14	253.25	1,789.4	-55.3	-115.2	126.7	0.00	0.00	0.00
1,840.0	11.14	253.25	1,828.6	-57.5	-122.6	134.4	0.00	0.00	0.00
1,880.0	11.14	253.25	1,867.8	-59.8	-130.0	142.1	0.00	0.00	0.00
1,920.0	11.14	253.25	1,907.1	-62.0	-137.4	149.8	0.00	0.00	0.00
1,960.0	11.14	253.25	1,946.3	-64.2	-144.7	157.6	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Sunmarke 19-28-13
Company:	KP KAUFFMAN	TVD Reference:	WELL @ 4989.0ft (Original Well Elev)
Project:	SEC.28-T4N-R67W	MD Reference:	WELL @ 4989.0ft (Original Well Elev)
Site:	Sunmarke 19-28-11 Pad Sec.28-T4N-R67W	North Reference:	True
Well:	Sunmarke 19-28-13	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (1-11-12)		

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)
2,000.0	11.14	253.25	1,985.6	-66.4	-152.1	165.3	0.00	0.00	0.00
2,040.0	11.14	253.25	2,024.8	-68.7	-159.5	173.0	0.00	0.00	0.00
2,080.0	11.14	253.25	2,064.1	-70.9	-166.9	180.7	0.00	0.00	0.00
2,120.0	11.14	253.25	2,103.3	-73.1	-174.3	188.5	0.00	0.00	0.00
2,160.0	11.14	253.25	2,142.6	-75.4	-181.7	196.2	0.00	0.00	0.00
2,200.0	11.14	253.25	2,181.8	-77.6	-189.1	203.9	0.00	0.00	0.00
2,240.0	11.14	253.25	2,221.1	-79.8	-196.5	211.6	0.00	0.00	0.00
2,280.0	11.14	253.25	2,260.3	-82.0	-203.9	219.3	0.00	0.00	0.00
2,320.0	11.14	253.25	2,299.6	-84.3	-211.3	227.1	0.00	0.00	0.00
2,360.0	11.14	253.25	2,338.8	-86.5	-218.7	234.8	0.00	0.00	0.00
2,400.0	11.14	253.25	2,378.1	-88.7	-226.1	242.5	0.00	0.00	0.00
2,440.0	11.14	253.25	2,417.3	-90.9	-233.5	250.2	0.00	0.00	0.00
2,480.0	11.14	253.25	2,456.5	-93.2	-240.9	258.0	0.00	0.00	0.00
2,520.0	11.14	253.25	2,495.8	-95.4	-248.3	265.7	0.00	0.00	0.00
2,560.0	11.14	253.25	2,535.0	-97.6	-255.7	273.4	0.00	0.00	0.00
2,565.1	11.14	253.25	2,540.0	-97.9	-256.7	274.4	0.00	0.00	0.00
GREELEY									
2,600.0	11.14	253.25	2,574.3	-99.9	-263.1	281.1	0.00	0.00	0.00
2,640.0	11.14	253.25	2,613.5	-102.1	-270.5	288.9	0.00	0.00	0.00
2,680.0	11.14	253.25	2,652.8	-104.3	-277.9	296.6	0.00	0.00	0.00
2,720.0	11.14	253.25	2,692.0	-106.5	-285.3	304.3	0.00	0.00	0.00
2,760.0	11.14	253.25	2,731.3	-108.8	-292.7	312.0	0.00	0.00	0.00
2,800.0	11.14	253.25	2,770.5	-111.0	-300.1	319.8	0.00	0.00	0.00
2,840.0	11.14	253.25	2,809.8	-113.2	-307.5	327.5	0.00	0.00	0.00
2,880.0	11.14	253.25	2,849.0	-115.4	-314.9	335.2	0.00	0.00	0.00
2,920.0	11.14	253.25	2,888.3	-117.7	-322.3	342.9	0.00	0.00	0.00
2,960.0	11.14	253.25	2,927.5	-119.9	-329.7	350.7	0.00	0.00	0.00
3,000.0	11.14	253.25	2,966.8	-122.1	-337.1	358.4	0.00	0.00	0.00
3,040.0	11.14	253.25	3,006.0	-124.3	-344.5	366.1	0.00	0.00	0.00
3,080.0	11.14	253.25	3,045.2	-126.6	-351.9	373.8	0.00	0.00	0.00
3,120.0	11.14	253.25	3,084.5	-128.8	-359.3	381.6	0.00	0.00	0.00
3,160.0	11.14	253.25	3,123.7	-131.0	-366.7	389.3	0.00	0.00	0.00
3,200.0	11.14	253.25	3,163.0	-133.3	-374.1	397.0	0.00	0.00	0.00
3,240.0	11.14	253.25	3,202.2	-135.5	-381.5	404.7	0.00	0.00	0.00
3,280.0	11.14	253.25	3,241.5	-137.7	-388.9	412.4	0.00	0.00	0.00
3,320.0	11.14	253.25	3,280.7	-139.9	-396.3	420.2	0.00	0.00	0.00
3,360.0	11.14	253.25	3,320.0	-142.2	-403.7	427.9	0.00	0.00	0.00
3,400.0	11.14	253.25	3,359.2	-144.4	-411.1	435.6	0.00	0.00	0.00
3,440.0	11.14	253.25	3,398.5	-146.6	-418.5	443.3	0.00	0.00	0.00
3,480.0	11.14	253.25	3,437.7	-148.8	-425.9	451.1	0.00	0.00	0.00
3,520.0	11.14	253.25	3,477.0	-151.1	-433.3	458.8	0.00	0.00	0.00
3,560.0	11.14	253.25	3,516.2	-153.3	-440.7	466.5	0.00	0.00	0.00
3,600.0	11.14	253.25	3,555.5	-155.5	-448.1	474.2	0.00	0.00	0.00
3,640.0	11.14	253.25	3,594.7	-157.7	-455.5	482.0	0.00	0.00	0.00
3,680.0	11.14	253.25	3,633.9	-160.0	-462.9	489.7	0.00	0.00	0.00
3,720.0	11.14	253.25	3,673.2	-162.2	-470.3	497.4	0.00	0.00	0.00
3,760.0	11.14	253.25	3,712.4	-164.4	-477.7	505.1	0.00	0.00	0.00
3,772.8	11.14	253.25	3,725.0	-165.1	-480.0	507.6	0.00	0.00	0.00
PARKMAN									
3,800.0	11.14	253.25	3,751.7	-166.7	-485.1	512.9	0.00	0.00	0.00
3,840.0	11.14	253.25	3,790.9	-168.9	-492.5	520.6	0.00	0.00	0.00
3,880.0	11.14	253.25	3,830.2	-171.1	-499.9	528.3	0.00	0.00	0.00
3,920.0	11.14	253.25	3,869.4	-173.3	-507.3	536.0	0.00	0.00	0.00
3,960.0	11.14	253.25	3,908.7	-175.6	-514.7	543.8	0.00	0.00	0.00

Database: Landmark
Company: KP KAUFFMAN
Project: SEC.28-T4N-R67W
Site: Sunmarke 19-28-11 Pad Sec.28-T4N-R67W
Well: Sunmarke 19-28-13
Wellbore: Wellbore #1
Design: Plan #1 (1-11-12)

Local Co-ordinate Reference: Well Sunmarke 19-28-13
TVD Reference: WELL @ 4989.0ft (Original Well Elev)
MD Reference: WELL @ 4989.0ft (Original Well Elev)
North Reference: True
Survey Calculation Method: Minimum Curvature

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)
4,000.0	11.14	253.25	3,947.9	-177.8	-522.1	551.5	0.00	0.00	0.00
4,040.0	11.14	253.25	3,987.2	-180.0	-529.5	559.2	0.00	0.00	0.00
4,080.0	11.14	253.25	4,026.4	-182.2	-536.9	566.9	0.00	0.00	0.00
4,120.0	11.14	253.25	4,065.7	-184.5	-544.3	574.6	0.00	0.00	0.00
4,160.0	11.14	253.25	4,104.9	-186.7	-551.7	582.4	0.00	0.00	0.00
4,200.0	11.14	253.25	4,144.2	-188.9	-559.1	590.1	0.00	0.00	0.00
4,240.0	11.14	253.25	4,183.4	-191.1	-566.5	597.8	0.00	0.00	0.00
4,280.0	11.14	253.25	4,222.6	-193.4	-573.9	605.5	0.00	0.00	0.00
4,320.0	11.14	253.25	4,261.9	-195.6	-581.3	613.3	0.00	0.00	0.00
4,326.2	11.14	253.25	4,268.0	-195.9	-582.4	614.5	0.00	0.00	0.00
SUSSEX									
4,360.0	11.14	253.25	4,301.1	-197.8	-588.7	621.0	0.00	0.00	0.00
4,400.0	11.14	253.25	4,340.4	-200.1	-596.1	628.7	0.00	0.00	0.00
4,440.0	11.14	253.25	4,379.6	-202.3	-603.5	636.4	0.00	0.00	0.00
4,480.0	11.14	253.25	4,418.9	-204.5	-610.9	644.2	0.00	0.00	0.00
4,520.0	11.14	253.25	4,458.1	-206.7	-618.2	651.9	0.00	0.00	0.00
4,560.0	11.14	253.25	4,497.4	-209.0	-625.6	659.6	0.00	0.00	0.00
4,600.0	11.14	253.25	4,536.6	-211.2	-633.0	667.3	0.00	0.00	0.00
4,640.0	11.14	253.25	4,575.9	-213.4	-640.4	675.1	0.00	0.00	0.00
4,680.0	11.14	253.25	4,615.1	-215.6	-647.8	682.8	0.00	0.00	0.00
4,720.0	11.14	253.25	4,654.4	-217.9	-655.2	690.5	0.00	0.00	0.00
4,760.0	11.14	253.25	4,693.6	-220.1	-662.6	698.2	0.00	0.00	0.00
4,794.0	11.14	253.25	4,727.0	-222.0	-668.9	704.8	0.00	0.00	0.00
SHANNON									
4,800.0	11.14	253.25	4,732.9	-222.3	-670.0	706.0	0.00	0.00	0.00
4,840.0	11.14	253.25	4,772.1	-224.5	-677.4	713.7	0.00	0.00	0.00
4,880.0	11.14	253.25	4,811.4	-226.8	-684.8	721.4	0.00	0.00	0.00
4,920.0	11.14	253.25	4,850.6	-229.0	-692.2	729.1	0.00	0.00	0.00
4,960.0	11.14	253.25	4,889.8	-231.2	-699.6	736.9	0.00	0.00	0.00
5,000.0	11.14	253.25	4,929.1	-233.5	-707.0	744.6	0.00	0.00	0.00
5,017.9	11.14	253.25	4,946.6	-234.5	-710.3	748.0	0.00	0.00	0.00
5,040.0	10.69	253.25	4,968.4	-235.7	-714.3	752.2	2.00	-2.00	0.00
5,080.0	9.89	253.25	5,007.7	-237.7	-721.2	759.4	2.00	-2.00	0.00
5,120.0	9.09	253.25	5,047.2	-239.6	-727.5	766.0	2.00	-2.00	0.00
5,160.0	8.29	253.25	5,086.7	-241.4	-733.3	772.0	2.00	-2.00	0.00
5,200.0	7.49	253.25	5,126.3	-242.9	-738.6	777.5	2.00	-2.00	0.00
5,240.0	6.69	253.25	5,166.0	-244.4	-743.3	782.4	2.00	-2.00	0.00
5,280.0	5.89	253.25	5,205.8	-245.6	-747.5	786.8	2.00	-2.00	0.00
5,320.0	5.09	253.25	5,245.6	-246.7	-751.2	790.6	2.00	-2.00	0.00
5,360.0	4.29	253.25	5,285.5	-247.7	-754.3	793.9	2.00	-2.00	0.00
5,400.0	3.49	253.25	5,325.4	-248.5	-756.9	796.6	2.00	-2.00	0.00
5,440.0	2.69	253.25	5,365.3	-249.1	-759.0	798.8	2.00	-2.00	0.00
5,480.0	1.89	253.25	5,405.3	-249.5	-760.5	800.4	2.00	-2.00	0.00
5,520.0	1.09	253.25	5,445.3	-249.8	-761.5	801.4	2.00	-2.00	0.00
5,560.0	0.29	253.25	5,485.3	-250.0	-762.0	801.9	2.00	-2.00	0.00
5,574.7	0.00	0.00	5,500.0	-250.0	-762.0	802.0	2.00	-2.00	0.00
TARGET BHL 660'FSL, 660'FWL									
5,600.0	0.00	0.00	5,525.3	-250.0	-762.0	802.0	0.00	0.00	0.00
5,640.0	0.00	0.00	5,565.3	-250.0	-762.0	802.0	0.00	0.00	0.00
5,680.0	0.00	0.00	5,605.3	-250.0	-762.0	802.0	0.00	0.00	0.00
5,720.0	0.00	0.00	5,645.3	-250.0	-762.0	802.0	0.00	0.00	0.00
5,760.0	0.00	0.00	5,685.3	-250.0	-762.0	802.0	0.00	0.00	0.00
5,800.0	0.00	0.00	5,725.3	-250.0	-762.0	802.0	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Sunmarke 19-28-13
Company:	KP KAUFFMAN	TVD Reference:	WELL @ 4989.0ft (Original Well Elev)
Project:	SEC.28-T4N-R67W	MD Reference:	WELL @ 4989.0ft (Original Well Elev)
Site:	Sunmarke 19-28-11 Pad Sec.28-T4N-R67W	North Reference:	True
Well:	Sunmarke 19-28-13	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (1-11-12)		

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)
5,840.0	0.00	0.00	5,765.3	-250.0	-762.0	802.0	0.00	0.00	0.00
5,880.0	0.00	0.00	5,805.3	-250.0	-762.0	802.0	0.00	0.00	0.00
5,920.0	0.00	0.00	5,845.3	-250.0	-762.0	802.0	0.00	0.00	0.00
5,960.0	0.00	0.00	5,885.3	-250.0	-762.0	802.0	0.00	0.00	0.00
6,000.0	0.00	0.00	5,925.3	-250.0	-762.0	802.0	0.00	0.00	0.00
6,040.0	0.00	0.00	5,965.3	-250.0	-762.0	802.0	0.00	0.00	0.00
6,080.0	0.00	0.00	6,005.3	-250.0	-762.0	802.0	0.00	0.00	0.00
6,120.0	0.00	0.00	6,045.3	-250.0	-762.0	802.0	0.00	0.00	0.00
6,160.0	0.00	0.00	6,085.3	-250.0	-762.0	802.0	0.00	0.00	0.00
6,200.0	0.00	0.00	6,125.3	-250.0	-762.0	802.0	0.00	0.00	0.00
6,240.0	0.00	0.00	6,165.3	-250.0	-762.0	802.0	0.00	0.00	0.00
6,280.0	0.00	0.00	6,205.3	-250.0	-762.0	802.0	0.00	0.00	0.00
6,320.0	0.00	0.00	6,245.3	-250.0	-762.0	802.0	0.00	0.00	0.00
6,360.0	0.00	0.00	6,285.3	-250.0	-762.0	802.0	0.00	0.00	0.00
6,400.0	0.00	0.00	6,325.3	-250.0	-762.0	802.0	0.00	0.00	0.00
6,440.0	0.00	0.00	6,365.3	-250.0	-762.0	802.0	0.00	0.00	0.00
6,480.0	0.00	0.00	6,405.3	-250.0	-762.0	802.0	0.00	0.00	0.00
6,520.0	0.00	0.00	6,445.3	-250.0	-762.0	802.0	0.00	0.00	0.00
6,560.0	0.00	0.00	6,485.3	-250.0	-762.0	802.0	0.00	0.00	0.00
6,600.0	0.00	0.00	6,525.3	-250.0	-762.0	802.0	0.00	0.00	0.00
6,640.0	0.00	0.00	6,565.3	-250.0	-762.0	802.0	0.00	0.00	0.00
6,680.0	0.00	0.00	6,605.3	-250.0	-762.0	802.0	0.00	0.00	0.00
6,720.0	0.00	0.00	6,645.3	-250.0	-762.0	802.0	0.00	0.00	0.00
6,760.0	0.00	0.00	6,685.3	-250.0	-762.0	802.0	0.00	0.00	0.00
6,800.0	0.00	0.00	6,725.3	-250.0	-762.0	802.0	0.00	0.00	0.00
6,840.0	0.00	0.00	6,765.3	-250.0	-762.0	802.0	0.00	0.00	0.00
6,880.0	0.00	0.00	6,805.3	-250.0	-762.0	802.0	0.00	0.00	0.00
6,920.0	0.00	0.00	6,845.3	-250.0	-762.0	802.0	0.00	0.00	0.00
6,960.0	0.00	0.00	6,885.3	-250.0	-762.0	802.0	0.00	0.00	0.00
7,000.0	0.00	0.00	6,925.3	-250.0	-762.0	802.0	0.00	0.00	0.00
7,040.0	0.00	0.00	6,965.3	-250.0	-762.0	802.0	0.00	0.00	0.00
7,080.0	0.00	0.00	7,005.3	-250.0	-762.0	802.0	0.00	0.00	0.00
7,103.7	0.00	0.00	7,029.0	-250.0	-762.0	802.0	0.00	0.00	0.00
NOBRARA - TARGET CIRCLE 660'FSL, 660'FWL - LEGAL BOX 400' X 400' 660'FSL, 663'FWL									
7,120.0	0.00	0.00	7,045.3	-250.0	-762.0	802.0	0.00	0.00	0.00
7,160.0	0.00	0.00	7,085.3	-250.0	-762.0	802.0	0.00	0.00	0.00
7,200.0	0.00	0.00	7,125.3	-250.0	-762.0	802.0	0.00	0.00	0.00
7,240.0	0.00	0.00	7,165.3	-250.0	-762.0	802.0	0.00	0.00	0.00
7,280.0	0.00	0.00	7,205.3	-250.0	-762.0	802.0	0.00	0.00	0.00
7,320.0	0.00	0.00	7,245.3	-250.0	-762.0	802.0	0.00	0.00	0.00
7,360.0	0.00	0.00	7,285.3	-250.0	-762.0	802.0	0.00	0.00	0.00
7,395.7	0.00	0.00	7,321.0	-250.0	-762.0	802.0	0.00	0.00	0.00
FT HAYS									
7,400.0	0.00	0.00	7,325.3	-250.0	-762.0	802.0	0.00	0.00	0.00
7,418.7	0.00	0.00	7,344.0	-250.0	-762.0	802.0	0.00	0.00	0.00
CODELL									
7,440.0	0.00	0.00	7,365.3	-250.0	-762.0	802.0	0.00	0.00	0.00
7,480.0	0.00	0.00	7,405.3	-250.0	-762.0	802.0	0.00	0.00	0.00
7,520.0	0.00	0.00	7,445.3	-250.0	-762.0	802.0	0.00	0.00	0.00
7,560.0	0.00	0.00	7,485.3	-250.0	-762.0	802.0	0.00	0.00	0.00
7,600.0	0.00	0.00	7,525.3	-250.0	-762.0	802.0	0.00	0.00	0.00
7,640.0	0.00	0.00	7,565.3	-250.0	-762.0	802.0	0.00	0.00	0.00
7,680.0	0.00	0.00	7,605.3	-250.0	-762.0	802.0	0.00	0.00	0.00

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
2,565.1	2,540.0	GREELEY		0.00		
3,772.8	3,725.0	PARKMAN		0.00		
4,326.2	4,268.0	SUSSEX		0.00		
4,794.0	4,727.0	SHANNON		0.00		
7,103.7	7,029.0	NIOBRARA		0.00		
7,395.7	7,321.0	FT HAYS		0.00		
7,418.7	7,344.0	CODELL		0.00		



KP KAUFFMAN

SEC.28-T4N-R67W

Sunmarke 19-28-11 Pad Sec.28-T4N-R67W

Sunmarke 19-28-13

Wellbore #1

Plan #1 (1-11-12)

Anticollision Report

12 January, 2012

Sunmarke 19-28-11 Pad Sec.28-T4N-R67W - Sunmarke 15-28 (Exist.) - Wellbore #1 - Design #1													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		
1,700.0	1,691.2	1,691.2	1,691.2	4.1	3.7	145.57	12.4	-45.8	80.3	73.0	7.34	10.938		
1,800.0	1,789.4	1,789.4	1,789.4	4.5	3.9	152.01	12.4	-45.8	97.0	89.2	7.77	12.470		
1,900.0	1,887.5	1,887.5	1,887.5	4.9	4.1	156.54	12.4	-45.8	114.4	106.2	8.22	13.928		
2,000.0	1,985.6	1,985.6	1,985.6	5.3	4.4	159.86	12.4	-45.8	132.4	123.8	8.66	15.286		
2,100.0	2,083.7	2,083.7	2,083.7	5.7	4.6	162.39	12.4	-45.8	150.7	141.6	9.11	16.537		
2,200.0	2,181.8	2,181.8	2,181.8	6.1	4.8	164.36	12.4	-45.8	169.3	159.7	9.57	17.685		
2,300.0	2,279.9	2,279.9	2,279.9	6.5	5.0	165.95	12.4	-45.8	188.0	177.9	10.03	18.739		
2,400.0	2,378.1	2,378.1	2,378.1	6.9	5.2	167.25	12.4	-45.8	206.8	196.3	10.49	19.707		
2,500.0	2,476.2	2,476.2	2,476.2	7.3	5.5	168.33	12.4	-45.8	225.7	214.7	10.96	20.597		
2,600.0	2,574.3	2,574.3	2,574.3	7.8	5.7	169.24	12.4	-45.8	244.6	233.2	11.42	21.417		
2,700.0	2,672.4	2,672.4	2,672.4	8.2	5.9	170.03	12.4	-45.8	263.6	251.8	11.89	22.175		
2,800.0	2,770.5	2,770.5	2,770.5	8.6	6.1	170.70	12.4	-45.8	282.7	270.3	12.36	22.876		
2,900.0	2,868.6	2,868.6	2,868.6	9.0	6.3	171.30	12.4	-45.8	301.8	289.0	12.83	23.527		
3,000.0	2,966.8	2,966.8	2,966.8	9.5	6.6	171.82	12.4	-45.8	320.9	307.6	13.30	24.132		
3,100.0	3,064.9	3,064.9	3,064.9	9.9	6.8	172.28	12.4	-45.8	340.0	326.3	13.77	24.696		
3,200.0	3,163.0	3,163.0	3,163.0	10.3	7.0	172.69	12.4	-45.8	359.2	345.0	14.24	25.223		
3,300.0	3,261.1	3,261.1	3,261.1	10.8	7.2	173.07	12.4	-45.8	378.4	363.7	14.71	25.716		
3,400.0	3,359.2	3,359.2	3,359.2	11.2	7.4	173.40	12.4	-45.8	397.5	382.4	15.19	26.178		
3,500.0	3,457.3	3,457.3	3,457.3	11.6	7.7	173.71	12.4	-45.8	416.7	401.1	15.66	26.612		
3,600.0	3,555.5	3,555.5	3,555.5	12.1	7.9	173.99	12.4	-45.8	436.0	419.8	16.13	27.020		
3,700.0	3,653.6	3,653.6	3,653.6	12.5	8.1	174.24	12.4	-45.8	455.2	438.6	16.61	27.405		
3,800.0	3,751.7	3,751.7	3,751.7	12.9	8.3	174.47	12.4	-45.8	474.4	457.3	17.08	27.768		
3,900.0	3,849.8	3,849.8	3,849.8	13.4	8.5	174.69	12.4	-45.8	493.6	476.1	17.56	28.112		
4,000.0	3,947.9	3,947.9	3,947.9	13.8	8.8	174.89	12.4	-45.8	512.9	494.8	18.04	28.437		
4,100.0	4,046.0	4,046.0	4,046.0	14.2	9.0	175.07	12.4	-45.8	532.1	513.6	18.51	28.745		
4,200.0	4,144.2	4,144.2	4,144.2	14.7	9.2	175.25	12.4	-45.8	551.4	532.4	18.99	29.038		
4,300.0	4,242.3	4,242.3	4,242.3	15.1	9.4	175.41	12.4	-45.8	570.6	551.2	19.46	29.316		
4,400.0	4,340.4	4,340.4	4,340.4	15.5	9.6	175.56	12.4	-45.8	589.9	569.9	19.94	29.580		
4,500.0	4,438.5	4,438.5	4,438.5	16.0	9.9	175.70	12.4	-45.8	609.1	588.7	20.42	29.833		
4,600.0	4,536.6	4,536.6	4,536.6	16.4	10.1	175.83	12.4	-45.8	628.4	607.5	20.90	30.073		
4,700.0	4,634.7	4,634.7	4,634.7	16.8	10.3	175.96	12.4	-45.8	647.7	626.3	21.37	30.302		
4,800.0	4,732.9	4,732.9	4,732.9	17.3	10.5	176.07	12.4	-45.8	666.9	645.1	21.85	30.522		
4,900.0	4,831.0	4,831.0	4,831.0	17.7	10.7	176.18	12.4	-45.8	686.2	663.9	22.33	30.732		
5,000.0	4,929.1	4,929.1	4,929.1	18.1	11.0	176.29	12.4	-45.8	705.5	682.7	22.81	30.932		
5,017.9	4,946.6	4,946.6	4,946.6	18.2	11.0	176.31	12.4	-45.8	708.9	686.0	22.89	30.967		
5,100.0	5,027.4	5,027.4	5,027.4	18.5	11.2	176.40	12.4	-45.8	723.6	700.3	23.32	31.031		
5,200.0	5,126.3	5,126.3	5,126.3	18.8	11.4	176.49	12.4	-45.8	738.4	714.6	23.79	31.036		
5,300.0	5,225.7	5,225.7	5,225.7	19.0	11.6	176.56	12.4	-45.8	749.6	725.4	24.23	30.939		
5,400.0	5,325.4	5,325.4	5,325.4	19.2	11.9	176.60	12.4	-45.8	757.5	732.8	24.64	30.746		
5,500.0	5,425.3	5,425.3	5,425.3	19.4	12.1	176.63	12.4	-45.8	761.8	736.8	25.01	30.462		
5,574.7	5,500.0	5,500.0	5,500.0	19.5	12.2	69.88	12.4	-45.8	762.8	737.5	25.27	30.184		
5,600.0	5,525.3	5,525.3	5,525.3	19.5	12.3	69.88	12.4	-45.8	762.8	737.4	25.37	30.062		
5,700.0	5,625.3	5,625.3	5,625.3	19.6	12.5	69.88	12.4	-45.8	762.8	737.0	25.78	29.589		
5,800.0	5,725.3	5,725.3	5,725.3	19.8	12.8	69.88	12.4	-45.8	762.8	736.6	26.19	29.129		
5,900.0	5,825.3	5,825.3	5,825.3	19.9	13.0	69.88	12.4	-45.8	762.8	736.2	26.60	28.682		
6,000.0	5,925.3	5,925.3	5,925.3	20.0	13.2	69.88	12.4	-45.8	762.8	735.8	27.00	28.247		
6,100.0	6,025.3	6,025.3	6,025.3	20.2	13.4	69.88	12.4	-45.8	762.8	735.4	27.42	27.823		
6,200.0	6,125.3	6,125.3	6,125.3	20.3	13.7	69.88	12.4	-45.8	762.8	735.0	27.83	27.411		
6,300.0	6,225.3	6,225.3	6,225.3	20.4	13.9	69.88	12.4	-45.8	762.8	734.5	28.24	27.011		
6,400.0	6,325.3	6,325.3	6,325.3	20.6	14.1	69.88	12.4	-45.8	762.8	734.1	28.65	26.620		
6,500.0	6,425.3	6,425.3	6,425.3	20.7	14.3	69.88	12.4	-45.8	762.8	733.7	29.07	26.240		
6,600.0	6,525.3	6,525.3	6,525.3	20.8	14.6	69.88	12.4	-45.8	762.8	733.3	29.49	25.870		

Company:	KP KAUFFMAN	Local Co-ordinate Reference:	Well Sunmarke 19-28-13
Project:	SEC.28-T4N-R67W	TVD Reference:	WELL @ 4989.0ft (Original Well Elev)
Reference Site:	Sunmarke 19-28-11 Pad Sec.28-T4N-R67W	MD Reference:	WELL @ 4989.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Sunmarke 19-28-13	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 (1-11-12)	Offset TVD Reference:	Offset Datum

Offset Design Sunmarke 19-28-11 Pad Sec.28-T4N-R67W - Sunmarke 15-28 (Exist.) - Wellbore #1 - Design #1												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
6,700.0	6,625.3	6,625.3	6,625.3	21.0	14.8	69.88	12.4	-45.8	762.8	732.9	29.90	25.509	
6,800.0	6,725.3	6,725.3	6,725.3	21.1	15.0	69.88	12.4	-45.8	762.8	732.5	30.32	25.158	
6,900.0	6,825.3	6,825.3	6,825.3	21.3	15.2	69.88	12.4	-45.8	762.8	732.1	30.74	24.815	
7,000.0	6,925.3	6,925.3	6,925.3	21.4	15.5	69.88	12.4	-45.8	762.8	731.6	31.16	24.481	
7,100.0	7,025.3	7,025.3	7,025.3	21.6	15.7	69.88	12.4	-45.8	762.8	731.2	31.58	24.155	
7,200.0	7,125.3	7,125.3	7,125.3	21.7	15.9	69.88	12.4	-45.8	762.8	730.8	32.00	23.838	
7,300.0	7,225.3	7,225.3	7,225.3	21.9	16.1	69.88	12.4	-45.8	762.8	730.4	32.42	23.528	
7,400.0	7,325.3	7,325.3	7,325.3	22.0	16.4	69.88	12.4	-45.8	762.8	729.9	32.84	23.225	
7,500.0	7,425.3	7,425.3	7,425.3	22.2	16.6	69.88	12.4	-45.8	762.8	729.5	33.27	22.929	
7,600.0	7,525.3	7,525.3	7,525.3	22.3	16.8	69.88	12.4	-45.8	762.8	729.1	33.69	22.641	
7,700.0	7,625.3	7,625.3	7,625.3	22.5	17.0	69.88	12.4	-45.8	762.8	728.7	34.12	22.359	
7,800.0	7,725.3	7,725.3	7,725.3	22.6	17.3	69.88	12.4	-45.8	762.8	728.2	34.54	22.084	
7,900.0	7,825.3	7,825.3	7,825.3	22.8	17.5	69.88	12.4	-45.8	762.8	727.8	34.97	21.815	
8,000.0	7,925.3	7,925.3	7,925.3	23.0	17.7	69.88	12.4	-45.8	762.8	727.4	35.39	21.553	
8,020.7	7,946.0	7,946.0	7,946.0	23.0	17.7	69.88	12.4	-45.8	762.8	727.3	35.48	21.499	

Company:	KP KAUFFMAN	Local Co-ordinate Reference:	Well Sunmarke 19-28-13
Project:	SEC.28-T4N-R67W	TVD Reference:	WELL @ 4989.0ft (Original Well Elev)
Reference Site:	Sunmarke 19-28-11 Pad Sec.28-T4N-R67W	MD Reference:	WELL @ 4989.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Sunmarke 19-28-13	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 (1-11-12)	Offset TVD Reference:	Offset Datum

Offset Design Sunmarke 19-28-11 Pad Sec.28-T4N-R67W - Sunmarke 19-28-11 - Wellbore #1 - Plan #1 (1-11-12)													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	0.0	0.0	0.0	0.0	-43.75	14.6	-14.0	20.2					
100.0	100.0	100.0	100.0	0.1	0.1	-43.75	14.6	-14.0	20.2	19.9	0.22	89.754		
200.0	200.0	200.0	200.0	0.3	0.3	-43.75	14.6	-14.0	20.2	19.5	0.67	29.918		
300.0	300.0	300.0	300.0	0.6	0.6	-43.75	14.6	-14.0	20.2	19.0	1.12	17.951		
400.0	400.0	400.0	400.0	0.8	0.8	-43.75	14.6	-14.0	20.2	18.6	1.57	12.822		
500.0	500.0	500.0	500.0	1.0	1.0	-43.75	14.6	-14.0	20.2	18.2	2.02	9.973		
600.0	600.0	600.0	600.0	1.2	1.2	-43.75	14.6	-14.0	20.2	17.7	2.47	8.159		
700.0	700.0	700.0	700.0	1.5	1.5	-43.75	14.6	-14.0	20.2	17.3	2.92	6.904		
800.0	800.0	800.0	800.0	1.7	1.7	-43.75	14.6	-14.0	20.2	16.8	3.37	5.984 CC, ES		
900.0	900.0	899.7	899.6	1.9	1.9	115.13	16.1	-13.1	21.5	17.7	3.79	5.657 SF		
1,000.0	999.8	998.6	998.4	2.1	2.1	134.71	20.6	-10.7	27.7	23.5	4.20	6.580		
1,050.0	1,049.7	1,047.6	1,047.3	2.2	2.2	143.86	24.0	-8.9	33.7	29.3	4.42	7.626		
1,100.0	1,099.5	1,096.8	1,096.3	2.3	2.4	141.59	27.7	-6.8	41.0	36.4	4.63	8.860		
1,200.0	1,198.9	1,195.0	1,194.1	2.5	2.6	138.39	35.3	-2.7	57.2	52.2	5.07	11.289		
1,300.0	1,298.1	1,292.8	1,291.5	2.8	2.8	137.56	42.8	1.3	75.5	70.0	5.51	13.701		
1,400.0	1,396.8	1,390.0	1,388.4	3.1	3.1	138.24	50.2	5.4	96.0	90.0	5.95	16.134		
1,461.6	1,457.3	1,449.6	1,447.8	3.3	3.2	139.07	54.8	7.8	109.9	103.6	6.22	17.653		
1,500.0	1,495.0	1,486.7	1,484.7	3.4	3.3	141.27	57.6	9.4	118.9	112.5	6.39	18.591		
1,600.0	1,593.1	1,583.3	1,580.9	3.8	3.6	145.68	65.0	13.4	143.0	136.2	6.85	20.891		
1,700.0	1,691.2	1,679.8	1,677.1	4.1	3.8	148.81	72.4	17.4	167.7	160.4	7.31	22.958		
1,800.0	1,789.4	1,776.3	1,773.3	4.5	4.1	151.14	79.8	21.4	192.8	185.0	7.77	24.813		
1,900.0	1,887.5	1,872.9	1,869.4	4.9	4.3	152.93	87.2	25.4	218.1	209.8	8.24	26.470		
2,000.0	1,985.6	1,969.4	1,965.6	5.3	4.6	154.35	94.6	29.4	243.5	234.8	8.71	27.954		
2,100.0	2,083.7	2,066.0	2,061.8	5.7	4.8	155.51	102.0	33.4	269.1	259.9	9.19	29.288		
2,200.0	2,181.8	2,162.5	2,158.0	6.1	5.1	156.46	109.4	37.4	294.7	285.1	9.67	30.490		
2,300.0	2,279.9	2,259.1	2,254.2	6.5	5.3	157.26	116.8	41.4	320.4	310.3	10.15	31.578		
2,400.0	2,378.1	2,355.6	2,350.4	6.9	5.6	157.94	124.2	45.4	346.2	335.6	10.63	32.566		
2,500.0	2,476.2	2,452.2	2,446.5	7.3	5.9	158.53	131.6	49.4	372.0	360.9	11.12	33.466		
2,600.0	2,574.3	2,548.7	2,542.7	7.8	6.1	159.04	139.0	53.4	397.8	386.2	11.60	34.289		
2,700.0	2,672.4	2,645.3	2,638.9	8.2	6.4	159.49	146.4	57.5	423.7	411.6	12.09	35.044		
2,800.0	2,770.5	2,741.8	2,735.1	8.6	6.6	159.88	153.8	61.5	449.6	437.0	12.58	35.739		
2,900.0	2,868.6	2,838.4	2,831.3	9.0	6.9	160.24	161.2	65.5	475.5	462.4	13.07	36.380		
3,000.0	2,966.8	2,934.9	2,927.4	9.5	7.2	160.55	168.6	69.5	501.4	487.8	13.56	36.974		
3,100.0	3,064.9	3,031.5	3,023.6	9.9	7.4	160.84	176.0	73.5	527.3	513.3	14.05	37.524		
3,200.0	3,163.0	3,128.0	3,119.8	10.3	7.7	161.10	183.4	77.5	553.2	538.7	14.55	38.036		
3,300.0	3,261.1	3,224.6	3,216.0	10.8	7.9	161.34	190.8	81.5	579.2	564.2	15.04	38.514		
3,400.0	3,359.2	3,321.1	3,312.2	11.2	8.2	161.55	198.2	85.5	605.1	589.6	15.53	38.960		
3,500.0	3,457.3	3,417.7	3,408.4	11.6	8.5	161.75	205.6	89.5	631.1	615.1	16.03	39.378		
3,600.0	3,555.5	3,514.2	3,504.5	12.1	8.7	161.93	213.0	93.5	657.1	640.6	16.52	39.769		
3,700.0	3,653.6	3,600.0	3,589.9	12.5	9.0	162.06	220.0	97.3	683.5	666.5	17.00	40.217		
3,800.0	3,751.7	3,678.9	3,668.3	12.9	9.2	162.10	228.2	101.7	712.2	694.7	17.46	40.779		
3,900.0	3,849.8	3,756.5	3,745.1	13.4	9.5	162.05	238.1	107.1	743.1	725.2	17.94	41.429		
4,000.0	3,947.9	3,832.8	3,820.3	13.8	9.7	161.93	249.6	113.3	776.4	757.9	18.42	42.158		
4,100.0	4,046.0	3,900.0	3,886.1	14.2	10.0	161.78	261.2	119.6	811.8	793.0	18.87	43.012		
4,200.0	4,144.2	3,981.4	3,965.5	14.7	10.3	161.53	277.1	128.2	849.4	830.0	19.38	43.823		
4,300.0	4,242.3	4,053.5	4,035.3	15.1	10.6	161.27	292.8	136.7	889.1	869.2	19.87	44.742		
4,400.0	4,340.4	4,132.9	4,111.8	15.5	11.0	160.94	311.7	147.0	930.7	910.3	20.39	45.646		
4,500.0	4,438.5	4,223.6	4,199.0	16.0	11.4	160.60	333.5	158.8	972.6	951.7	20.94	46.456		
4,600.0	4,536.6	4,314.2	4,286.2	16.4	11.8	160.27	355.3	170.6	1,014.6	993.1	21.49	47.221		
4,700.0	4,634.7	4,404.8	4,373.3	16.8	12.3	159.98	377.0	182.4	1,056.6	1,034.5	22.04	47.944		
4,800.0	4,732.9	4,495.5	4,460.5	17.3	12.7	159.71	398.8	194.2	1,098.6	1,076.0	22.59	48.630		
4,900.0	4,831.0	4,586.1	4,547.7	17.7	13.2	159.45	420.6	206.0	1,140.6	1,117.5	23.15	49.280		

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 19-28-13
Project:	SEC.28-T4N-R67W	TVD Reference:	WELL @ 4989.0ft (Original Well Elev)
Reference Site:	Sunmarke 19-28-11 Pad Sec.28-T4N-R67W	MD Reference:	WELL @ 4989.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Sunmarke 19-28-13	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 (1-11-12)	Offset TVD Reference:	Offset Datum

Offset Design Sunmarke 19-28-11 Pad Sec.28-T4N-R67W - Sunmarke 19-28-11 - Wellbore #1 - Plan #1 (1-11-12)												Offset Site Error:	0.0ft
Survey Program: 0-MWD												Offset Well Error:	0.0ft
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
5,000.0	4,929.1	4,676.7	4,634.9	18.1	13.6	159.22	442.4	217.8	1,182.7	1,159.0	23.70	49.897	
5,017.9	4,946.6	4,692.9	4,650.5	18.2	13.7	159.18	446.3	219.9	1,190.2	1,166.4	23.80	50.004	
5,100.0	5,027.4	4,767.8	4,722.4	18.5	14.1	159.24	464.3	229.7	1,223.7	1,199.4	24.30	50.352	
5,200.0	5,126.3	4,860.0	4,811.2	18.8	14.5	159.25	486.5	241.7	1,261.9	1,237.0	24.87	50.733	
5,300.0	5,225.7	4,953.4	4,901.0	19.0	15.0	159.19	509.0	253.8	1,297.0	1,271.6	25.42	51.027	
5,400.0	5,325.4	5,047.8	4,991.8	19.2	15.5	159.06	531.7	266.1	1,329.1	1,303.2	25.94	51.245	
5,500.0	5,425.3	5,143.0	5,083.4	19.4	16.0	158.88	554.6	278.5	1,358.1	1,331.7	26.43	51.394	
5,574.7	5,500.0	5,214.7	5,152.3	19.5	16.3	51.95	571.8	287.9	1,377.9	1,351.1	26.78	51.456	
5,600.0	5,525.3	5,239.0	5,175.7	19.5	16.5	51.83	577.7	291.0	1,384.2	1,357.3	26.90	51.459	
5,700.0	5,625.3	5,335.2	5,268.2	19.6	17.0	51.40	600.8	303.6	1,409.5	1,382.1	27.38	51.471	
5,800.0	5,725.3	5,431.4	5,360.8	19.8	17.5	50.97	623.9	316.1	1,434.9	1,407.0	27.87	51.486	
5,900.0	5,825.3	5,527.6	5,453.3	19.9	18.0	50.56	647.0	328.6	1,460.3	1,432.0	28.35	51.504	
6,000.0	5,925.3	5,623.8	5,545.8	20.0	18.5	50.17	670.2	341.2	1,485.8	1,457.0	28.84	51.524	
6,100.0	6,025.3	5,719.9	5,638.3	20.2	19.0	49.79	693.3	353.7	1,511.4	1,482.1	29.32	51.547	
6,200.0	6,125.3	5,816.1	5,730.8	20.3	19.5	49.42	716.4	366.2	1,537.0	1,507.2	29.80	51.571	
6,300.0	6,225.3	5,912.3	5,823.3	20.4	20.0	49.06	739.6	378.8	1,562.7	1,532.4	30.29	51.597	
6,400.0	6,325.3	6,008.5	5,915.9	20.6	20.5	48.71	762.7	391.3	1,588.5	1,557.7	30.77	51.625	
6,500.0	6,425.3	6,104.7	6,008.4	20.7	21.0	48.38	785.8	403.8	1,614.3	1,583.0	31.25	51.654	
6,600.0	6,525.3	6,200.9	6,100.9	20.8	21.5	48.05	809.0	416.3	1,640.1	1,608.4	31.73	51.685	
6,700.0	6,625.3	6,297.1	6,193.4	21.0	22.1	47.74	832.1	428.9	1,666.0	1,633.8	32.21	51.716	
6,800.0	6,725.3	6,393.3	6,285.9	21.1	22.6	47.44	855.2	441.4	1,692.0	1,659.3	32.70	51.748	
6,900.0	6,825.3	6,489.4	6,378.5	21.3	23.1	47.14	878.4	453.9	1,717.9	1,684.8	33.18	51.781	
7,000.0	6,925.3	6,624.7	6,509.0	21.4	23.7	46.75	909.5	470.8	1,742.9	1,709.2	33.71	51.710	
7,100.0	7,025.3	6,761.8	6,642.1	21.6	24.2	46.41	938.4	486.4	1,765.7	1,731.5	34.23	51.589	
7,200.0	7,125.3	6,900.4	6,777.5	21.7	24.7	46.11	964.7	500.7	1,786.3	1,751.5	34.74	51.416	
7,300.0	7,225.3	7,040.5	6,914.9	21.9	25.2	45.85	988.3	513.5	1,804.6	1,769.4	35.25	51.196	
7,400.0	7,325.3	7,181.8	7,054.2	22.0	25.6	45.62	1,009.2	524.8	1,820.7	1,784.9	35.75	50.928	
7,500.0	7,425.3	7,324.2	7,195.2	22.2	26.1	45.43	1,027.1	534.5	1,834.4	1,798.1	36.24	50.618	
7,600.0	7,525.3	7,467.6	7,337.6	22.3	26.4	45.28	1,042.1	542.6	1,845.7	1,809.0	36.72	50.266	
7,700.0	7,625.3	7,611.8	7,481.1	22.5	26.8	45.16	1,054.0	549.1	1,854.7	1,817.5	37.19	49.873	
7,800.0	7,725.3	7,756.5	7,625.5	22.6	27.0	45.07	1,062.7	553.8	1,861.3	1,823.6	37.65	49.442	
7,900.0	7,825.3	7,901.7	7,770.5	22.8	27.3	45.01	1,068.2	556.8	1,865.4	1,827.3	38.09	48.973	
8,000.0	7,925.3	8,047.0	7,915.8	23.0	27.5	44.99	1,070.5	558.0	1,867.2	1,828.6	38.52	48.469	
8,020.7	7,946.0	8,077.2	7,946.0	23.0	27.5	44.99	1,070.6	558.1	1,867.2	1,828.6	38.61	48.359	

Sunmarke 19-28-11 Pad Sec.28-T4N-R67W - Sunmarke 19-28-14 - Wellbore #1 - Plan #1 (1-11-12)													Offset Site Error:	0.0 ft	
Offset Design				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		
0.0	0.0	0.0	0.0	0.0	0.0	135.52	-14.2	14.0	19.9	19.9	0.00	N/A			
100.0	100.0	100.0	100.0	0.1	0.1	135.52	-14.2	14.0	19.9	19.7	0.22	88.591			
200.0	200.0	200.0	200.0	0.3	0.3	135.52	-14.2	14.0	19.9	19.2	0.67	29.530			
300.0	300.0	300.0	300.0	0.6	0.6	135.52	-14.2	14.0	19.9	18.8	1.12	17.718			
400.0	400.0	400.0	400.0	0.8	0.8	135.52	-14.2	14.0	19.9	18.3	1.57	12.656			
500.0	500.0	500.0	500.0	1.0	1.0	135.52	-14.2	14.0	19.9	17.9	2.02	9.843			
600.0	600.0	600.0	600.0	1.2	1.2	135.52	-14.2	14.0	19.9	17.4	2.47	8.054			
700.0	700.0	700.0	700.0	1.5	1.5	135.52	-14.2	14.0	19.9	17.0	2.92	6.815			
800.0	800.0	800.0	800.0	1.7	1.7	135.52	-14.2	14.0	19.9	16.5	3.37	5.906			
900.0	900.0	900.0	900.0	1.9	1.9	-79.43	-14.2	14.0	19.5	15.7	3.79	5.144			
974.8	974.7	974.7	974.7	2.0	2.1	-90.00	-14.2	14.0	19.2	15.1	4.10	4.681 CC			
1,000.0	999.8	999.8	999.8	2.1	2.1	-94.90	-14.2	14.0	19.3	15.1	4.20	4.584 ES			
1,050.0	1,049.7	1,049.7	1,049.7	2.2	2.2	-106.14	-14.2	14.0	20.0	15.6	4.41	4.531 SF			
1,100.0	1,099.5	1,099.5	1,099.5	2.3	2.4	-126.90	-14.2	14.0	22.0	17.4	4.62	4.766			
1,200.0	1,198.9	1,198.9	1,198.9	2.5	2.6	-155.62	-14.2	14.0	30.4	25.4	5.06	6.014			
1,300.0	1,298.1	1,298.1	1,298.1	2.8	2.8	-170.88	-14.2	14.0	43.0	37.5	5.49	7.830			
1,400.0	1,396.8	1,396.8	1,396.8	3.1	3.0	-178.86	-14.2	14.0	58.8	52.9	5.92	9.944			
1,461.6	1,457.3	1,457.3	1,457.3	3.3	3.2	178.21	-14.2	14.0	70.1	64.0	6.18	11.354			
1,500.0	1,495.0	1,495.0	1,495.0	3.4	3.2	178.38	-14.2	14.0	77.6	71.2	6.35	12.217			
1,600.0	1,593.1	1,593.1	1,593.1	3.8	3.5	178.70	-14.2	14.0	96.9	90.1	6.79	14.261			
1,700.0	1,691.2	1,691.2	1,691.2	4.1	3.7	178.92	-14.2	14.0	116.2	108.9	7.24	16.043			
1,800.0	1,789.4	1,789.4	1,789.4	4.5	3.9	179.07	-14.2	14.0	135.5	127.8	7.70	17.608			
1,900.0	1,887.5	1,887.5	1,887.5	4.9	4.1	179.19	-14.2	14.0	154.8	146.7	8.15	18.991			
2,000.0	1,985.6	1,985.6	1,985.6	5.3	4.4	179.28	-14.2	14.0	174.1	165.5	8.61	20.221			
2,100.0	2,083.7	2,083.7	2,083.7	5.7	4.6	179.35	-14.2	14.0	193.4	184.4	9.07	21.321			
2,200.0	2,181.8	2,181.8	2,181.8	6.1	4.8	179.41	-14.2	14.0	212.7	203.2	9.54	22.309			
2,300.0	2,279.9	2,279.9	2,279.9	6.5	5.0	179.46	-14.2	14.0	232.1	222.1	10.00	23.203			
2,400.0	2,378.1	2,378.1	2,378.1	6.9	5.2	179.50	-14.2	14.0	251.4	240.9	10.47	24.013			
2,500.0	2,476.2	2,476.2	2,476.2	7.3	5.5	179.54	-14.2	14.0	270.7	259.8	10.94	24.752			
2,600.0	2,574.3	2,574.3	2,574.3	7.8	5.7	179.57	-14.2	14.0	290.0	278.6	11.41	25.427			
2,700.0	2,672.4	2,672.4	2,672.4	8.2	5.9	179.59	-14.2	14.0	309.3	297.4	11.88	26.047			
2,800.0	2,770.5	2,770.5	2,770.5	8.6	6.1	179.62	-14.2	14.0	328.6	316.3	12.35	26.618			
2,900.0	2,868.6	2,868.6	2,868.6	9.0	6.3	179.64	-14.2	14.0	348.0	335.1	12.82	27.145			
3,000.0	2,966.8	2,966.8	2,966.8	9.5	6.6	179.66	-14.2	14.0	367.3	354.0	13.29	27.634			
3,100.0	3,064.9	3,064.9	3,064.9	9.9	6.8	179.67	-14.2	14.0	386.6	372.8	13.76	28.087			
3,200.0	3,163.0	3,163.0	3,163.0	10.3	7.0	179.69	-14.2	14.0	405.9	391.7	14.24	28.510			
3,300.0	3,261.1	3,261.1	3,261.1	10.8	7.2	179.70	-14.2	14.0	425.2	410.5	14.71	28.904			
3,400.0	3,359.2	3,359.2	3,359.2	11.2	7.4	179.72	-14.2	14.0	444.5	429.3	15.19	29.273			
3,500.0	3,457.3	3,457.3	3,457.3	11.6	7.7	179.73	-14.2	14.0	463.8	448.2	15.66	29.618			
3,600.0	3,555.5	3,555.5	3,555.5	12.1	7.9	179.74	-14.2	14.0	483.2	467.0	16.14	29.943			
3,700.0	3,653.6	3,653.6	3,653.6	12.5	8.1	179.75	-14.2	14.0	502.5	485.9	16.61	30.248			
3,800.0	3,751.7	3,751.7	3,751.7	12.9	8.3	179.76	-14.2	14.0	521.8	504.7	17.09	30.536			
3,900.0	3,849.8	3,849.8	3,849.8	13.4	8.5	179.77	-14.2	14.0	541.1	523.5	17.56	30.808			
4,000.0	3,947.9	3,947.9	3,947.9	13.8	8.8	179.78	-14.2	14.0	560.4	542.4	18.04	31.065			
4,100.0	4,046.0	4,046.0	4,046.0	14.2	9.0	179.78	-14.2	14.0	579.7	561.2	18.52	31.308			
4,200.0	4,144.2	4,144.2	4,144.2	14.7	9.2	179.79	-14.2	14.0	599.1	580.1	18.99	31.538			
4,300.0	4,242.3	4,242.3	4,242.3	15.1	9.4	179.80	-14.2	14.0	618.4	598.9	19.47	31.757			
4,400.0	4,340.4	4,340.4	4,340.4	15.5	9.6	179.80	-14.2	14.0	637.7	617.7	19.95	31.965			
4,500.0	4,438.5	4,438.5	4,438.5	16.0	9.9	179.81	-14.2	14.0	657.0	636.6	20.43	32.164			
4,600.0	4,536.6	4,536.6	4,536.6	16.4	10.1	179.81	-14.2	14.0	676.3	655.4	20.90	32.352			
4,700.0	4,634.7	4,634.7	4,634.7	16.8	10.3	179.82	-14.2	14.0	695.6	674.3	21.38	32.532			
4,800.0	4,732.9	4,727.6	4,727.6	17.3	10.5	179.83	-14.3	14.1	715.1	693.2	21.84	32.735			

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Sunmarke 19-28-11 Pad Sec.28-T4N-R67W - Sunmarke 19-28-14 - Wellbore #1 - Plan #1 (1-11-12)													Offset Site Error: 0.0 ft	
Survey Design				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		
4,900.0	4,831.0	4,809.5	4,809.5	17.7	10.7	179.94	-15.0	15.9	736.2	713.9	22.27	33.056		
5,000.0	4,929.1	4,890.6	4,890.4	18.1	10.8	-179.85	-16.7	19.8	759.4	736.7	22.68	33.478		
5,017.9	4,946.6	4,900.0	4,899.8	18.2	10.8	-179.82	-17.0	20.4	763.8	741.1	22.75	33.576		
5,100.0	5,027.4	4,970.9	4,970.4	18.5	11.0	-179.54	-19.3	25.7	783.6	760.5	23.13	33.879		
5,200.0	5,126.3	5,050.8	5,049.9	18.8	11.1	-179.15	-22.7	33.6	806.6	783.1	23.53	34.273		
5,300.0	5,225.7	5,130.4	5,128.8	19.0	11.3	-178.68	-27.0	43.6	828.4	804.5	23.91	34.645		
5,400.0	5,325.4	5,209.6	5,206.9	19.2	11.5	-178.14	-32.2	55.4	848.9	824.7	24.26	34.998		
5,500.0	5,425.3	5,288.3	5,284.2	19.4	11.7	-177.53	-38.2	69.2	868.3	843.7	24.57	35.334		
5,574.7	5,500.0	5,346.8	5,341.3	19.5	11.8	76.21	-43.1	80.7	882.1	857.3	24.80	35.565		
5,600.0	5,525.3	5,366.5	5,360.5	19.5	11.8	76.39	-44.9	84.8	886.7	861.8	24.89	35.620		
5,700.0	5,625.3	5,443.9	5,435.6	19.6	12.1	77.12	-52.4	102.1	906.4	881.2	25.26	35.887		
5,800.0	5,725.3	5,520.2	5,509.0	19.8	12.3	77.89	-60.6	120.9	928.5	902.9	25.63	36.228		
5,900.0	5,825.3	5,607.3	5,592.3	19.9	12.5	78.81	-70.7	144.2	952.7	926.6	26.04	36.583		
6,000.0	5,925.3	5,702.9	5,683.7	20.0	12.9	79.77	-81.9	169.9	977.2	950.8	26.48	36.902		
6,100.0	6,025.3	5,798.5	5,775.1	20.2	13.2	80.69	-93.0	195.6	1,002.1	975.2	26.93	37.210		
6,200.0	6,125.3	5,894.1	5,866.6	20.3	13.6	81.56	-104.2	221.3	1,027.2	999.8	27.39	37.507		
6,300.0	6,225.3	5,989.7	5,958.0	20.4	13.9	82.40	-115.3	247.0	1,052.4	1,024.6	27.85	37.796		
6,400.0	6,325.3	6,085.3	6,049.4	20.6	14.3	83.19	-126.5	272.7	1,077.9	1,049.6	28.31	38.076		
6,500.0	6,425.3	6,180.9	6,140.8	20.7	14.7	83.95	-137.6	298.4	1,103.6	1,074.8	28.78	38.350		
6,600.0	6,525.3	6,276.5	6,232.2	20.8	15.2	84.67	-148.8	324.1	1,129.5	1,100.2	29.25	38.617		
6,700.0	6,625.3	6,374.3	6,325.7	21.0	15.6	85.38	-160.2	350.4	1,155.5	1,125.8	29.73	38.872		
6,800.0	6,725.3	6,491.6	6,438.3	21.1	16.0	86.16	-173.3	380.6	1,180.6	1,150.4	30.24	39.037		
6,900.0	6,825.3	6,610.3	6,552.8	21.3	16.5	86.85	-185.6	409.1	1,204.1	1,173.3	30.76	39.143		
7,000.0	6,925.3	6,730.3	6,669.3	21.4	16.9	87.47	-197.2	435.7	1,225.9	1,194.6	31.28	39.193		
7,100.0	7,025.3	6,851.5	6,787.5	21.6	17.3	88.02	-207.8	460.2	1,245.8	1,214.1	31.79	39.187		
7,200.0	7,125.3	6,973.8	6,907.3	21.7	17.8	88.51	-217.5	482.7	1,264.0	1,231.7	32.30	39.129		
7,300.0	7,225.3	7,097.1	7,028.6	21.9	18.2	88.93	-226.3	502.9	1,280.3	1,247.5	32.81	39.021		
7,400.0	7,325.3	7,221.4	7,151.3	22.0	18.6	89.29	-234.1	520.9	1,294.7	1,261.4	33.31	38.866		
7,500.0	7,425.3	7,346.4	7,275.2	22.2	18.9	89.60	-240.9	536.5	1,307.2	1,273.4	33.81	38.665		
7,600.0	7,525.3	7,472.2	7,400.1	22.3	19.3	89.85	-246.6	549.7	1,317.7	1,283.4	34.30	38.420		
7,700.0	7,625.3	7,566.5	7,494.0	22.5	19.5	90.01	-250.2	558.0	1,326.5	1,291.8	34.71	38.220		
7,800.0	7,725.3	7,566.5	7,494.0	22.6	19.5	90.01	-250.2	558.0	1,340.1	1,305.2	34.90	38.399		
7,900.0	7,825.3	7,566.5	7,494.0	22.8	19.5	90.01	-250.2	558.0	1,360.9	1,325.8	35.09	38.781		
8,000.0	7,925.3	7,566.5	7,494.0	23.0	19.5	90.01	-250.2	558.0	1,388.6	1,353.3	35.29	39.353		
8,020.7	7,946.0	7,566.5	7,494.0	23.0	19.5	90.01	-250.2	558.0	1,395.2	1,359.9	35.33	39.495		

Company: KP KAUFFMAN
Project: SEC.28-T4N-R67W
Reference Site: Sunmarke 19-28-11 Pad Sec.28-T4N-R67W
Site Error: 0.0ft
Reference Well: Sunmarke 19-28-13
Well Error: 0.0ft
Reference Wellbore: Wellbore #1
Reference Design: Plan #1 (1-11-12)

Local Co-ordinate Reference: Well Sunmarke 19-28-13
TVD Reference: WELL @ 4989.0ft (Original Well Elev)
MD Reference: WELL @ 4989.0ft (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 @ 4989.0ft (Original Well Elev) Coordinates are relative to: Sunmarke 19-28-13
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: 0.39°



Company: KP KAUFFMAN
Project: SEC.28-T4N-R67W
Reference Site: Sunmarke 19-28-11 Pad Sec.28-T4N-R67W
Site Error: 0.0ft
Reference Well: Sunmarke 19-28-13
Well Error: 0.0ft
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