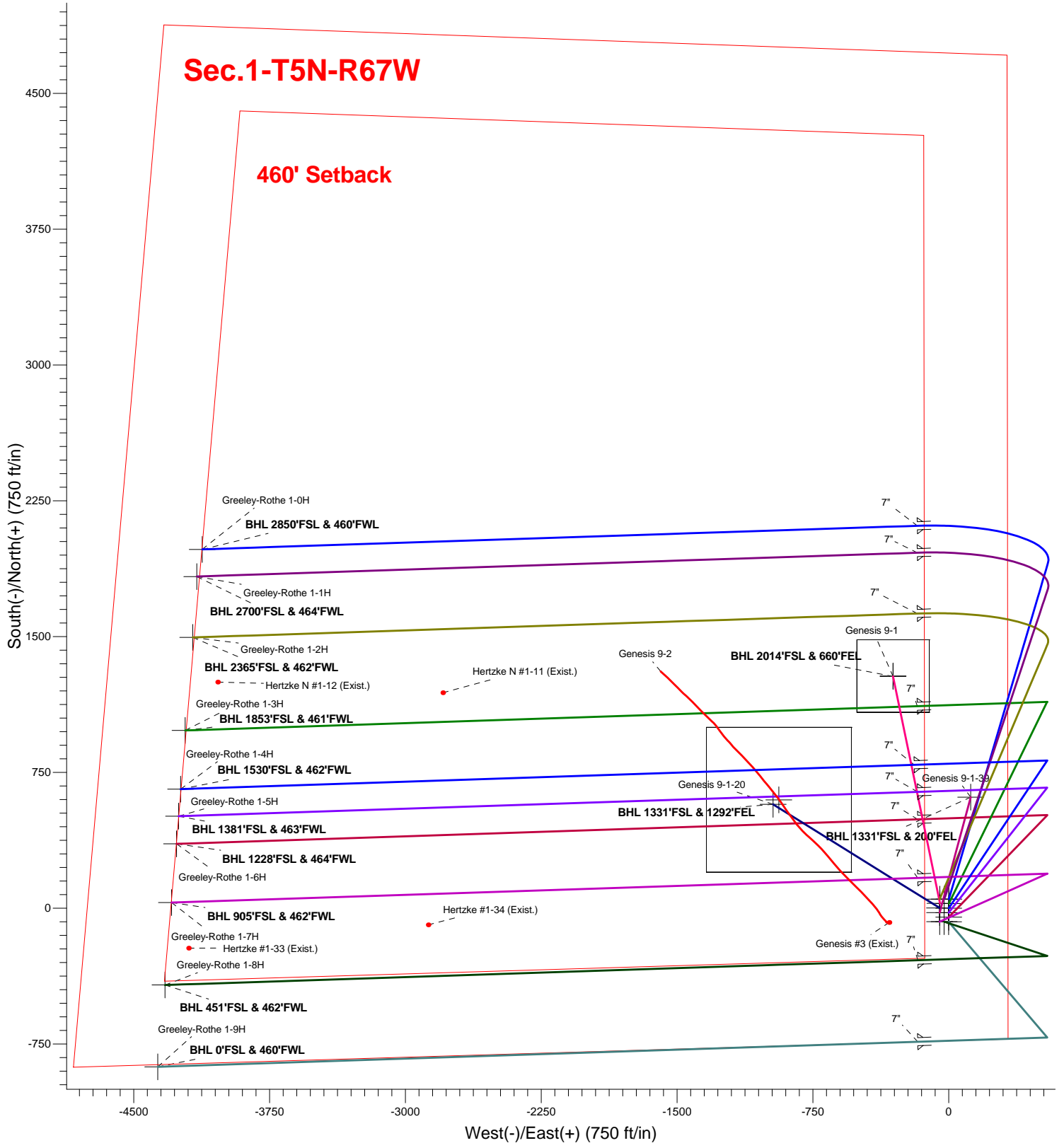


Sec.1-T5N-R67W

460' Setback





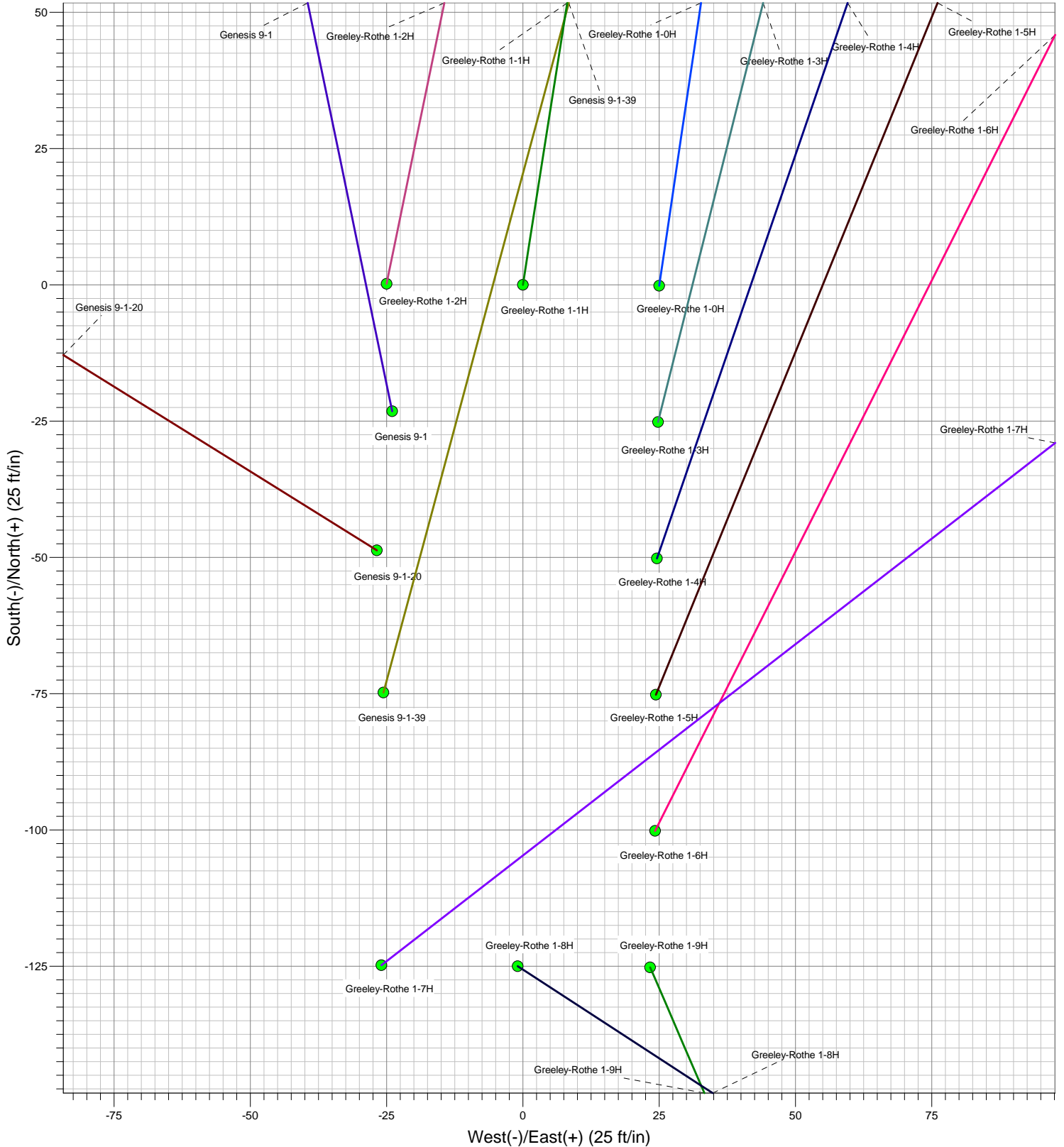
Surface Location: Greeley-Rothe Pad Sec.1-T5N-R67W

North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone

Ground Elevation: 4875.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1397881.60	3185503.82	40.423674	-104.833704	

Design Version: Plan #2 (6-05-14)



KP KAUFFMAN

Well Name: **Greeley-Rothe 1-4H**

Surface Location: Greeley-Rothe Pad Sec.1-T5N-R67W
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone

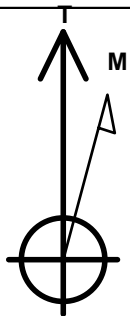
Ground Elevation: 4876.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1397831.58	3185528.81	40.423536	-104.833615	

Original Well Elev WELL @ 4891.0ft (Original Well Elev)

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SHL 723'FSL & 328'FEL	1.0	0.0	0.0	Point
BHL 1530'FSL & 462'FWL	7282.0	657.6	-4241.6	Point



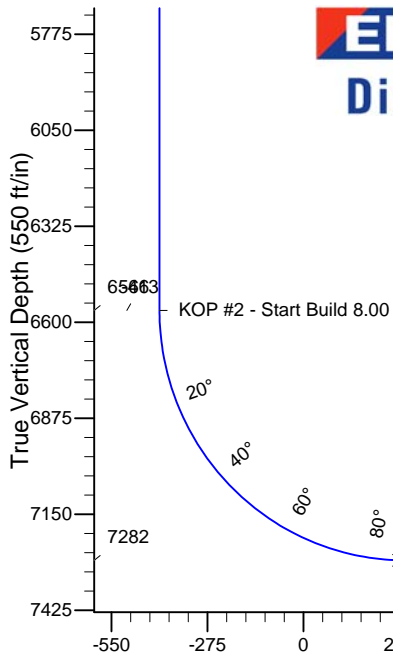
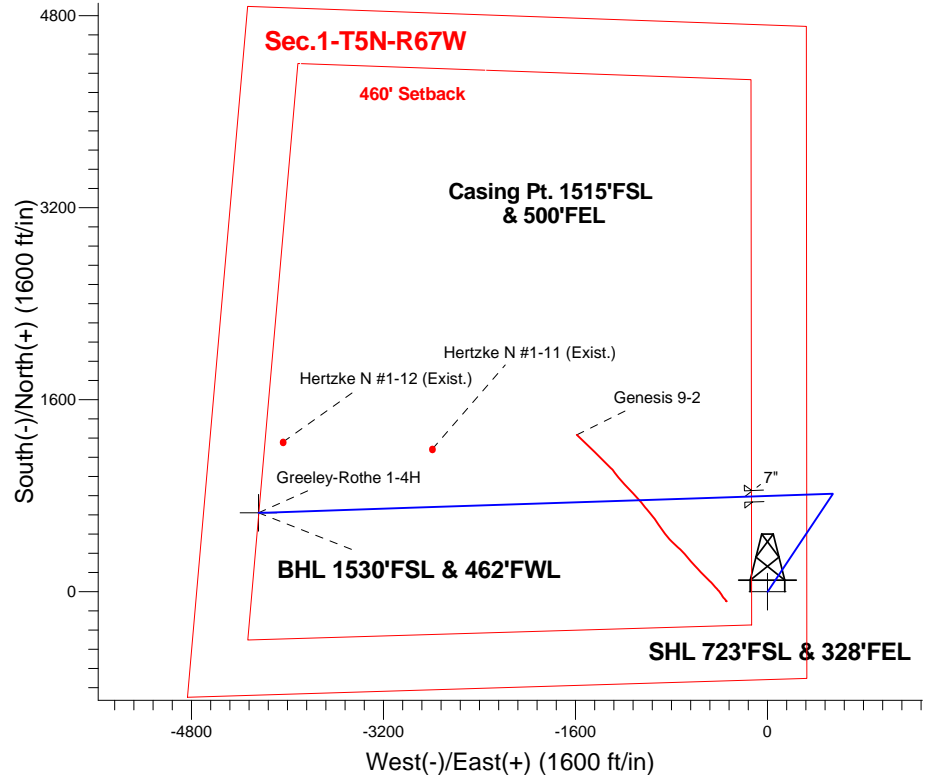
Azimuths to True North
Magnetic North: 8.51°

Magnetic Field
Strength: 52831.1nT
Dip Angle: 66.96°
Date: 5/7/2014
Model: IGRF2010

Greeley-Rothe Pad Sec.1-T5N-R67W
Greeley-Rothe 1-4H
Plan #2 (6-05-14)
15:32, June 06 2014

ANNOTATIONS

TVD	MD	Annotation
1000.0	1000.0	KOP - Start Build 2.00
4778.1	4887.9	Start Drop -2.00
6565.8	6683.4	KOP #2 - Start Build 8.00
7282.0	11880.4	TD at 11880.4



ENSIGN
Directional

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	1000.0	0.00	0.00	1000.0	0.0	0.0	0.00	0.00	0.0	
3	1729.8	14.60	33.69	1721.9	76.9	51.3	2.00	33.69	-38.9	
4	4887.9	14.60	33.69	4778.1	739.1	492.7	0.00	0.00	-373.7	
5	5617.6	0.00	0.00	5500.0	816.0	544.0	2.00	180.00	-412.6	
6	6683.4	0.00	0.00	6565.8	816.0	544.0	0.00	0.00	-412.6	
7	7808.5	90.00	268.10	7282.0	792.3	-171.8	8.00	268.10	291.2	
8	11880.4	90.00	268.10	7282.0	657.6	-4241.6	0.00	0.00	4292.2	BHL 1530'FSL & 462'FWL

BHL 1530'FSL & 462'FWL

TD at 11880.4

Vertical Section at 278.81° (550 ft/in)



KP KAUFFMAN

SEC.1-T5N-R67W

Greeley-Rothe Pad Sec.1-T5N-R67W

Greeley-Rothe 1-4H

Wellbore #1

Plan: Plan #2 (6-05-14)

Standard Planning Report

06 June, 2014

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	
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,729.8	14.60	33.69	1,721.9	76.9	51.3	2.00	2.00	0.00	33.69	
4,887.9	14.60	33.69	4,778.1	739.1	492.7	0.00	0.00	0.00	0.00	
5,617.6	0.00	0.00	5,500.0	816.0	544.0	2.00	-2.00	0.00	180.00	
6,683.4	0.00	0.00	6,565.8	816.0	544.0	0.00	0.00	0.00	0.00	
7,808.5	90.00	268.10	7,282.0	792.3	-171.8	8.00	8.00	0.00	268.10	
11,880.4	90.00	268.10	7,282.0	657.6	-4,241.6	0.00	0.00	0.00	0.00	BHL 1530'FSL & 46

Database:	Landmark	Local Co-ordinate Reference:	Well Greeley-Rothe 1-4H
Company:	KP KAUFFMAN	TVD Reference:	WELL @ 4891.0ft (Original Well Elev)
Project:	SEC.1-T5N-R67W	MD Reference:	WELL @ 4891.0ft (Original Well Elev)
Site:	Greeley-Rothe Pad Sec.1-T5N-R67W	North Reference:	True
Well:	Greeley-Rothe 1-4H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (6-05-14)		

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 723'FSL & 328'FEL									
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
500.0	0.00	0.00	500.0	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
700.0	0.00	0.00	700.0	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
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
KOP - Start Build 2.00									
1,100.0	2.00	33.69	1,100.0	1.5	1.0	-0.7	2.00	2.00	0.00
1,200.0	4.00	33.69	1,199.8	5.8	3.9	-2.9	2.00	2.00	0.00
1,300.0	6.00	33.69	1,299.5	13.1	8.7	-6.6	2.00	2.00	0.00
1,400.0	8.00	33.69	1,398.7	23.2	15.5	-11.7	2.00	2.00	0.00
1,500.0	10.00	33.69	1,497.5	36.2	24.1	-18.3	2.00	2.00	0.00
1,600.0	12.00	33.69	1,595.6	52.1	34.7	-26.3	2.00	2.00	0.00
1,700.0	14.00	33.69	1,693.1	70.8	47.2	-35.8	2.00	2.00	0.00
1,729.8	14.60	33.69	1,721.9	76.9	51.3	-38.9	2.00	2.00	0.00
1,800.0	14.60	33.69	1,789.9	91.6	61.1	-46.3	0.00	0.00	0.00
1,900.0	14.60	33.69	1,886.6	112.6	75.1	-56.9	0.00	0.00	0.00
2,000.0	14.60	33.69	1,983.4	133.6	89.1	-67.5	0.00	0.00	0.00
2,100.0	14.60	33.69	2,080.2	154.5	103.0	-78.1	0.00	0.00	0.00
2,200.0	14.60	33.69	2,177.0	175.5	117.0	-88.7	0.00	0.00	0.00
2,300.0	14.60	33.69	2,273.7	196.5	131.0	-99.3	0.00	0.00	0.00
2,400.0	14.60	33.69	2,370.5	217.4	145.0	-109.9	0.00	0.00	0.00
2,500.0	14.60	33.69	2,467.3	238.4	158.9	-120.5	0.00	0.00	0.00
2,600.0	14.60	33.69	2,564.1	259.4	172.9	-131.1	0.00	0.00	0.00
2,700.0	14.60	33.69	2,660.8	280.3	186.9	-141.7	0.00	0.00	0.00
2,800.0	14.60	33.69	2,757.6	301.3	200.9	-152.3	0.00	0.00	0.00
2,900.0	14.60	33.69	2,854.4	322.3	214.9	-162.9	0.00	0.00	0.00
3,000.0	14.60	33.69	2,951.1	343.2	228.8	-173.5	0.00	0.00	0.00
3,100.0	14.60	33.69	3,047.9	364.2	242.8	-184.1	0.00	0.00	0.00
3,200.0	14.60	33.69	3,144.7	385.2	256.8	-194.7	0.00	0.00	0.00
3,300.0	14.60	33.69	3,241.5	406.1	270.8	-205.3	0.00	0.00	0.00
3,400.0	14.60	33.69	3,338.2	427.1	284.7	-215.9	0.00	0.00	0.00
3,500.0	14.60	33.69	3,435.0	448.1	298.7	-226.5	0.00	0.00	0.00
3,600.0	14.60	33.69	3,531.8	469.1	312.7	-237.1	0.00	0.00	0.00
3,700.0	14.60	33.69	3,628.6	490.0	326.7	-247.7	0.00	0.00	0.00
3,800.0	14.60	33.69	3,725.3	511.0	340.7	-258.3	0.00	0.00	0.00
3,900.0	14.60	33.69	3,822.1	532.0	354.6	-268.9	0.00	0.00	0.00
4,000.0	14.60	33.69	3,918.9	552.9	368.6	-279.5	0.00	0.00	0.00
4,100.0	14.60	33.69	4,015.6	573.9	382.6	-290.1	0.00	0.00	0.00
4,200.0	14.60	33.69	4,112.4	594.9	396.6	-300.7	0.00	0.00	0.00
4,300.0	14.60	33.69	4,209.2	615.8	410.5	-311.3	0.00	0.00	0.00
4,400.0	14.60	33.69	4,306.0	636.8	424.5	-321.9	0.00	0.00	0.00
4,500.0	14.60	33.69	4,402.7	657.8	438.5	-332.5	0.00	0.00	0.00
4,600.0	14.60	33.69	4,499.5	678.7	452.5	-343.1	0.00	0.00	0.00
4,700.0	14.60	33.69	4,596.3	699.7	466.5	-353.7	0.00	0.00	0.00
4,800.0	14.60	33.69	4,693.1	720.7	480.4	-364.3	0.00	0.00	0.00
4,887.9	14.60	33.69	4,778.1	739.1	492.7	-373.7	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Greeley-Rothe 1-4H
Company:	KP KAUFFMAN	TVD Reference:	WELL @ 4891.0ft (Original Well Elev)
Project:	SEC.1-T5N-R67W	MD Reference:	WELL @ 4891.0ft (Original Well Elev)
Site:	Greeley-Rothe Pad Sec.1-T5N-R67W	North Reference:	True
Well:	Greeley-Rothe 1-4H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (6-05-14)		

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)
Start Drop -2.00									
4,900.0	14.35	33.69	4,789.8	741.6	494.4	-374.9	2.00	-2.00	0.00
5,000.0	12.35	33.69	4,887.1	760.8	507.2	-384.7	2.00	-2.00	0.00
5,100.0	10.35	33.69	4,985.2	777.2	518.1	-392.9	2.00	-2.00	0.00
5,200.0	8.35	33.69	5,083.8	790.7	527.1	-399.8	2.00	-2.00	0.00
5,300.0	6.35	33.69	5,183.0	801.4	534.2	-405.2	2.00	-2.00	0.00
5,400.0	4.35	33.69	5,282.6	809.1	539.4	-409.1	2.00	-2.00	0.00
5,500.0	2.35	33.69	5,382.4	814.0	542.7	-411.5	2.00	-2.00	0.00
5,600.0	0.35	33.69	5,482.4	816.0	544.0	-412.5	2.00	-2.00	0.00
5,617.6	0.00	0.00	5,500.0	816.0	544.0	-412.6	2.00	-2.00	0.00
5,700.0	0.00	0.00	5,582.4	816.0	544.0	-412.6	0.00	0.00	0.00
5,800.0	0.00	0.00	5,682.4	816.0	544.0	-412.6	0.00	0.00	0.00
5,900.0	0.00	0.00	5,782.4	816.0	544.0	-412.6	0.00	0.00	0.00
6,000.0	0.00	0.00	5,882.4	816.0	544.0	-412.6	0.00	0.00	0.00
6,100.0	0.00	0.00	5,982.4	816.0	544.0	-412.6	0.00	0.00	0.00
6,200.0	0.00	0.00	6,082.4	816.0	544.0	-412.6	0.00	0.00	0.00
6,300.0	0.00	0.00	6,182.4	816.0	544.0	-412.6	0.00	0.00	0.00
6,400.0	0.00	0.00	6,282.4	816.0	544.0	-412.6	0.00	0.00	0.00
6,500.0	0.00	0.00	6,382.4	816.0	544.0	-412.6	0.00	0.00	0.00
6,600.0	0.00	0.00	6,482.4	816.0	544.0	-412.6	0.00	0.00	0.00
6,683.4	0.00	0.00	6,565.8	816.0	544.0	-412.6	0.00	0.00	0.00
KOP #2 - Start Build 8.00									
6,700.0	1.32	268.10	6,582.4	816.0	543.8	-412.4	7.98	7.98	0.00
6,800.0	9.32	268.10	6,681.8	815.7	534.5	-403.3	8.00	8.00	0.00
6,900.0	17.32	268.10	6,779.1	814.9	511.5	-380.6	8.00	8.00	0.00
7,000.0	25.32	268.10	6,872.1	813.7	475.2	-344.9	8.00	8.00	0.00
7,100.0	33.32	268.10	6,959.3	812.1	426.3	-296.8	8.00	8.00	0.00
7,200.0	41.32	268.10	7,038.7	810.1	365.8	-237.3	8.00	8.00	0.00
7,300.0	49.32	268.10	7,109.0	807.8	294.7	-167.5	8.00	8.00	0.00
7,400.0	57.32	268.10	7,168.7	805.1	214.6	-88.8	8.00	8.00	0.00
7,500.0	65.32	268.10	7,216.6	802.2	127.0	-2.6	8.00	8.00	0.00
7,600.0	73.32	268.10	7,251.9	799.1	33.6	89.2	8.00	8.00	0.00
7,700.0	81.32	268.10	7,273.8	795.9	-63.8	185.0	8.00	8.00	0.00
7,800.0	89.32	268.10	7,282.0	792.6	-163.4	282.9	8.00	8.00	0.00
7,808.5	90.00	268.10	7,282.0	792.3	-171.8	291.2	8.00	8.00	0.00
7,827.7	90.00	268.10	7,282.0	791.7	-191.0	310.1	0.00	0.00	0.00
7"									
7,900.0	90.00	268.10	7,282.0	789.3	-263.3	381.1	0.00	0.00	0.00
8,000.0	90.00	268.10	7,282.0	786.0	-363.3	479.4	0.00	0.00	0.00
8,100.0	90.00	268.10	7,282.0	782.7	-463.2	577.6	0.00	0.00	0.00
8,200.0	90.00	268.10	7,282.0	779.4	-563.1	675.9	0.00	0.00	0.00
8,300.0	90.00	268.10	7,282.0	776.1	-663.1	774.2	0.00	0.00	0.00
8,400.0	90.00	268.10	7,282.0	772.7	-763.0	872.4	0.00	0.00	0.00
8,500.0	90.00	268.10	7,282.0	769.4	-863.0	970.7	0.00	0.00	0.00
8,600.0	90.00	268.10	7,282.0	766.1	-962.9	1,068.9	0.00	0.00	0.00
8,700.0	90.00	268.10	7,282.0	762.8	-1,062.9	1,167.2	0.00	0.00	0.00
8,800.0	90.00	268.10	7,282.0	759.5	-1,162.8	1,265.5	0.00	0.00	0.00
8,900.0	90.00	268.10	7,282.0	756.2	-1,262.8	1,363.7	0.00	0.00	0.00
9,000.0	90.00	268.10	7,282.0	752.9	-1,362.7	1,462.0	0.00	0.00	0.00
9,100.0	90.00	268.10	7,282.0	749.6	-1,462.6	1,560.2	0.00	0.00	0.00
9,200.0	90.00	268.10	7,282.0	746.3	-1,562.6	1,658.5	0.00	0.00	0.00
9,300.0	90.00	268.10	7,282.0	743.0	-1,662.5	1,756.7	0.00	0.00	0.00
9,400.0	90.00	268.10	7,282.0	739.7	-1,762.5	1,855.0	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Greeley-Rothe 1-4H
Company:	KP KAUFFMAN	TVD Reference:	WELL @ 4891.0ft (Original Well Elev)
Project:	SEC.1-T5N-R67W	MD Reference:	WELL @ 4891.0ft (Original Well Elev)
Site:	Greeley-Rothe Pad Sec.1-T5N-R67W	North Reference:	True
Well:	Greeley-Rothe 1-4H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (6-05-14)		

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)	
9,500.0	90.00	268.10	7,282.0	736.4	-1,862.4	1,953.3	0.00	0.00	0.00	
9,600.0	90.00	268.10	7,282.0	733.1	-1,962.4	2,051.5	0.00	0.00	0.00	
9,700.0	90.00	268.10	7,282.0	729.7	-2,062.3	2,149.8	0.00	0.00	0.00	
9,800.0	90.00	268.10	7,282.0	726.4	-2,162.3	2,248.0	0.00	0.00	0.00	
9,900.0	90.00	268.10	7,282.0	723.1	-2,262.2	2,346.3	0.00	0.00	0.00	
10,000.0	90.00	268.10	7,282.0	719.8	-2,362.2	2,444.6	0.00	0.00	0.00	
10,100.0	90.00	268.10	7,282.0	716.5	-2,462.1	2,542.8	0.00	0.00	0.00	
10,200.0	90.00	268.10	7,282.0	713.2	-2,562.0	2,641.1	0.00	0.00	0.00	
10,300.0	90.00	268.10	7,282.0	709.9	-2,662.0	2,739.3	0.00	0.00	0.00	
10,400.0	90.00	268.10	7,282.0	706.6	-2,761.9	2,837.6	0.00	0.00	0.00	
10,500.0	90.00	268.10	7,282.0	703.3	-2,861.9	2,935.8	0.00	0.00	0.00	
10,600.0	90.00	268.10	7,282.0	700.0	-2,961.8	3,034.1	0.00	0.00	0.00	
10,700.0	90.00	268.10	7,282.0	696.7	-3,061.8	3,132.4	0.00	0.00	0.00	
10,800.0	90.00	268.10	7,282.0	693.4	-3,161.7	3,230.6	0.00	0.00	0.00	
10,900.0	90.00	268.10	7,282.0	690.1	-3,261.7	3,328.9	0.00	0.00	0.00	
11,000.0	90.00	268.10	7,282.0	686.8	-3,361.6	3,427.1	0.00	0.00	0.00	
11,100.0	90.00	268.10	7,282.0	683.4	-3,461.6	3,525.4	0.00	0.00	0.00	
11,200.0	90.00	268.10	7,282.0	680.1	-3,561.5	3,623.7	0.00	0.00	0.00	
11,300.0	90.00	268.10	7,282.0	676.8	-3,661.4	3,721.9	0.00	0.00	0.00	
11,400.0	90.00	268.10	7,282.0	673.5	-3,761.4	3,820.2	0.00	0.00	0.00	
11,500.0	90.00	268.10	7,282.0	670.2	-3,861.3	3,918.4	0.00	0.00	0.00	
11,600.0	90.00	268.10	7,282.0	666.9	-3,961.3	4,016.7	0.00	0.00	0.00	
11,700.0	90.00	268.10	7,282.0	663.6	-4,061.2	4,114.9	0.00	0.00	0.00	
11,800.0	90.00	268.10	7,282.0	660.3	-4,161.2	4,213.2	0.00	0.00	0.00	
11,880.4	90.00	268.10	7,282.0	657.6	-4,241.5	4,292.2	0.00	0.00	0.00	
TD at 11880.4 - BHL 1530'FSL & 462'FWL										

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
7,827.7	7,282.0	7"	7	7-1/2	

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	+E/-W (ft)	Comment	
1,000.0	1,000.0	0.0	0.0	KOP - Start Build 2.00	
4,887.9	4,778.1	76.9	51.3	Start Drop -2.00	
6,683.4	6,565.8	739.1	492.7	KOP #2 - Start Build 8.00	
11,880.4	7,282.0	816.0	544.0	TD at 11880.4	



KP KAUFFMAN

SEC.1-T5N-R67W

Greeley-Rothe Pad Sec.1-T5N-R67W

Greeley-Rothe 1-4H

Wellbore #1

Plan #2 (6-05-14)

Anticollision Report

06 June, 2014

Company:	KP KAUFFMAN	Local Co-ordinate Reference:	Well Greeley-Rothe 1-4H
Project:	SEC.1-T5N-R67W	TVD Reference:	WELL @ 4891.0ft (Original Well Elev)
Reference Site:	Greeley-Rothe Pad Sec.1-T5N-R67W	MD Reference:	WELL @ 4891.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Greeley-Rothe 1-4H	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 #2 (6-05-14)	Offset TVD Reference:	Offset Datum

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Greeley-Rothe Pad Sec.1-T5N-R67W						
Hertzke N #1-12 (Exist.) - Wellbore #1 - Wellbore #1						Out of range

Offset Design		Genesis 9-1 Pad Sec.1-T5N-R67W - Genesis #3 (Exist.) - Wellbore #1 - Wellbore #1											Offset Site Error:		0.0 ft		
Survey Program: 7800-UNKNOWN														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	4.0	4.0	0.0	0.1	-103.46	-78.6	-328.7	337.9	337.9	0.08	4,213.808					
100.0	100.0	104.0	104.0	0.1	2.1	-103.46	-78.6	-328.7	337.9	335.8	2.19	154.132					
200.0	200.0	204.0	204.0	0.3	4.1	-103.46	-78.6	-328.7	337.9	333.5	4.42	76.505					
300.0	300.0	304.0	304.0	0.6	6.1	-103.46	-78.6	-328.7	337.9	331.3	6.64	50.879					
400.0	400.0	404.0	404.0	0.8	8.1	-103.46	-78.6	-328.7	337.9	329.1	8.87	38.113					
500.0	500.0	504.0	504.0	1.0	10.1	-103.46	-78.6	-328.7	337.9	326.9	11.09	30.469					
600.0	600.0	604.0	604.0	1.2	12.1	-103.46	-78.6	-328.7	337.9	324.6	13.32	25.378					
700.0	700.0	704.0	704.0	1.5	14.1	-103.46	-78.6	-328.7	337.9	322.4	15.54	21.745					
800.0	800.0	804.0	804.0	1.7	16.1	-103.46	-78.6	-328.7	337.9	320.2	17.77	19.022					
900.0	900.0	904.0	904.0	1.9	18.1	-103.46	-78.6	-328.7	337.9	318.0	19.99	16.905					
1,000.0	1,000.0	1,004.0	1,004.0	2.1	20.1	-103.46	-78.6	-328.7	337.9	315.7	22.22	15.212 CC					
1,100.0	1,100.0	1,104.0	1,104.0	2.4	22.1	-137.33	-78.6	-328.7	339.2	314.8	24.43	13.886 ES					
1,200.0	1,199.8	1,203.8	1,203.8	2.6	24.1	-137.87	-78.6	-328.7	343.1	316.5	26.62	12.889					
1,300.0	1,299.5	1,303.5	1,303.5	2.8	26.1	-138.74	-78.6	-328.7	349.6	320.8	28.78	12.147					
1,400.0	1,398.7	1,402.7	1,402.7	3.1	28.1	-139.90	-78.6	-328.7	358.9	328.0	30.91	11.609					
1,500.0	1,497.5	1,501.5	1,501.5	3.3	30.0	-141.30	-78.6	-328.7	371.0	338.0	33.00	11.242					
1,600.0	1,595.6	1,599.6	1,599.6	3.6	32.0	-142.87	-78.6	-328.7	386.2	351.2	35.04	11.020					
1,700.0	1,693.1	1,697.1	1,697.1	4.0	33.9	-144.56	-78.6	-328.7	404.5	367.5	37.03	10.925					
1,800.0	1,789.9	1,793.9	1,793.9	4.4	35.9	-146.43	-78.6	-328.7	425.3	386.2	39.10	10.877					
1,900.0	1,886.6	1,890.6	1,890.6	4.8	37.8	-148.20	-78.6	-328.7	446.8	405.5	41.25	10.831					
2,000.0	1,983.4	1,987.4	1,987.4	5.2	39.7	-149.81	-78.6	-328.7	468.5	425.1	43.39	10.797					
2,100.0	2,080.2	2,084.2	2,084.2	5.7	41.7	-151.28	-78.6	-328.7	490.7	445.1	45.54	10.774 SF					

Company:	KP KAUFFMAN	Local Co-ordinate Reference:	Well Greeley-Rothe 1-4H
Project:	SEC.1-T5N-R67W	TVD Reference:	WELL @ 4891.0ft (Original Well Elev)
Reference Site:	Greeley-Rothe Pad Sec.1-T5N-R67W	MD Reference:	WELL @ 4891.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Greeley-Rothe 1-4H	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 #2 (6-05-14)	Offset TVD Reference:	Offset Datum

Offset Design Genesis 9-1 Pad Sec.1-T5N-R67W - Genesis 9-2 - Wellbore #1 - Wellbore #1												Offset Site Error:	0.0 ft
Survey Program: 78-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	2.1	2.1	0.0	0.0	-102.89	-78.7	-343.7	352.6				
100.0	100.0	103.7	103.7	0.1	0.1	-102.99	-79.2	-343.2	352.2	351.9	0.25	1,388.873	
168.8	168.8	170.8	170.8	0.3	0.3	-102.96	-79.0	-343.1	352.0	351.5	0.55	644.738 CC	
200.0	200.0	200.7	200.7	0.3	0.3	-102.89	-78.5	-343.2	352.1	351.4	0.68	517.976 ES	
300.0	300.0	295.2	295.2	0.6	0.6	-102.37	-75.6	-344.9	353.1	352.0	1.11	318.077	
400.0	400.0	388.2	387.9	0.8	0.8	-101.54	-71.2	-348.6	356.1	354.6	1.55	229.301	
500.0	500.0	481.4	480.7	1.0	1.0	-100.30	-64.4	-354.6	361.0	359.0	2.02	178.732	
600.0	600.0	577.7	576.3	1.2	1.3	-98.75	-55.8	-362.5	367.6	365.1	2.52	145.862	
700.0	700.0	677.6	675.4	1.5	1.6	-97.08	-46.1	-371.0	374.8	371.7	3.05	122.718	
800.0	800.0	777.4	773.9	1.7	1.9	-94.96	-32.9	-379.4	381.8	378.2	3.61	105.804	
900.0	900.0	865.7	860.5	1.9	2.3	-92.73	-18.5	-388.2	390.8	386.6	4.18	93.514	
1,000.0	1,000.0	950.1	942.8	2.1	2.6	-90.43	-3.0	-399.0	403.3	398.6	4.77	84.555	
1,100.0	1,100.0	1,032.6	1,022.7	2.4	3.0	-121.78	12.8	-412.4	421.1	416.0	5.13	82.136	
1,200.0	1,199.8	1,125.6	1,112.2	2.6	3.5	-119.52	31.5	-429.5	443.3	437.6	5.70	77.729	
1,300.0	1,299.5	1,222.6	1,205.2	2.8	4.0	-117.57	51.9	-447.6	468.0	461.7	6.27	74.623	
1,400.0	1,398.7	1,317.7	1,296.6	3.1	4.5	-116.17	71.5	-465.1	494.0	487.2	6.83	72.323 SF	

Greeley-Rothe Pad Sec.1-T5N-R67W - Genesis 9-1 - Wellbore #1 - Plan #2 (5-2-14)													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	-60.94	27.0	-48.6	55.6					
100.0	100.0	100.0	100.0	0.1	0.1	-60.94	27.0	-48.6	55.6	55.4	0.22	247.285		
200.0	200.0	200.0	200.0	0.3	0.3	-60.94	27.0	-48.6	55.6	54.9	0.67	82.428		
300.0	300.0	300.0	300.0	0.6	0.6	-60.94	27.0	-48.6	55.6	54.5	1.12	49.457		
400.0	400.0	400.0	400.0	0.8	0.8	-60.94	27.0	-48.6	55.6	54.0	1.57	35.326		
500.0	500.0	500.0	500.0	1.0	1.0	-60.94	27.0	-48.6	55.6	53.6	2.02	27.476		
600.0	600.0	600.0	600.0	1.2	1.2	-60.94	27.0	-48.6	55.6	53.1	2.47	22.480		
700.0	700.0	700.0	700.0	1.5	1.5	-60.94	27.0	-48.6	55.6	52.7	2.92	19.022		
800.0	800.0	800.0	800.0	1.7	1.7	-60.94	27.0	-48.6	55.6	52.2	3.37	16.486 CC, ES		
900.0	900.0	898.7	898.7	1.9	1.9	-59.64	28.7	-48.9	56.7	52.9	3.82	14.860		
1,000.0	1,000.0	997.2	997.0	2.1	2.1	-56.05	33.6	-50.0	60.3	56.0	4.26	14.146		
1,100.0	1,100.0	1,095.3	1,094.8	2.4	2.4	-86.00	41.9	-51.7	66.6	61.9	4.71	14.126		
1,200.0	1,199.8	1,193.0	1,191.8	2.6	2.6	-83.88	53.4	-54.0	75.4	70.2	5.17	14.585		
1,300.0	1,299.5	1,290.2	1,287.9	2.8	2.9	-83.05	68.0	-57.1	86.5	80.8	5.64	15.334		
1,400.0	1,398.7	1,386.9	1,382.8	3.1	3.2	-83.11	85.7	-60.7	99.8	93.6	6.14	16.250		
1,500.0	1,497.5	1,482.9	1,476.4	3.3	3.5	-83.73	106.3	-65.0	115.3	108.6	6.69	17.242		
1,600.0	1,595.6	1,578.1	1,568.5	3.6	3.9	-84.65	129.8	-69.8	133.1	125.8	7.30	18.234		
1,700.0	1,693.1	1,674.7	1,661.4	4.0	4.3	-85.92	156.2	-75.3	152.6	144.6	7.99	19.105		
1,800.0	1,789.9	1,772.6	1,755.3	4.4	4.8	-87.93	183.0	-80.8	172.3	163.5	8.76	19.675		
1,900.0	1,886.6	1,870.5	1,849.3	4.8	5.3	-89.66	209.9	-86.4	192.2	182.6	9.57	20.074		
2,000.0	1,983.4	1,968.3	1,943.2	5.2	5.8	-91.08	236.8	-91.9	212.2	201.8	10.42	20.358		
2,100.0	2,080.2	2,066.2	2,037.1	5.7	6.3	-92.25	263.7	-97.5	232.3	221.0	11.30	20.559		
2,200.0	2,177.0	2,164.0	2,131.0	6.2	6.8	-93.23	290.5	-103.0	252.5	240.3	12.20	20.703		
2,300.0	2,273.7	2,261.9	2,225.0	6.6	7.4	-94.07	317.4	-108.6	272.8	259.7	13.11	20.806		
2,400.0	2,370.5	2,359.7	2,318.9	7.1	7.9	-94.79	344.3	-114.1	293.1	279.0	14.04	20.880		
2,500.0	2,467.3	2,457.6	2,412.8	7.6	8.4	-95.41	371.2	-119.7	313.4	298.4	14.97	20.932		
2,600.0	2,564.1	2,555.4	2,506.8	8.1	9.0	-95.97	398.0	-125.2	333.8	317.9	15.92	20.968		
2,700.0	2,660.8	2,653.3	2,600.7	8.6	9.5	-96.45	424.9	-130.8	354.2	337.3	16.87	20.993		
2,800.0	2,757.6	2,751.1	2,694.6	9.1	10.0	-96.89	451.8	-136.3	374.6	356.8	17.83	21.010		
2,900.0	2,854.4	2,849.0	2,788.5	9.6	10.6	-97.28	478.7	-141.9	395.1	376.3	18.79	21.020		
3,000.0	2,951.1	2,946.9	2,882.5	10.1	11.1	-97.63	505.5	-147.5	415.5	395.7	19.76	21.026		
3,100.0	3,047.9	3,044.7	2,976.4	10.6	11.7	-97.95	532.4	-153.0	436.0	415.2	20.73	21.028		
3,200.0	3,144.7	3,142.6	3,070.3	11.1	12.2	-98.24	559.3	-158.6	456.5	434.8	21.71	21.027		
3,300.0	3,241.5	3,240.4	3,164.2	11.6	12.8	-98.50	586.2	-164.1	477.0	454.3	22.69	21.024		
3,400.0	3,338.2	3,338.3	3,258.2	12.1	13.3	-98.75	613.0	-169.7	497.5	473.8	23.67	21.019		
7,900.0	7,282.0	7,454.1	7,282.0	24.0	28.4	90.00	1,280.2	-307.5	492.9	450.5	42.46	11.609		
7,927.9	7,282.0	7,454.1	7,282.0	24.6	28.4	90.00	1,280.2	-307.5	492.2	449.2	42.97	11.453		
8,000.0	7,282.0	7,454.1	7,282.0	25.9	28.4	90.00	1,280.2	-307.5	497.4	453.1	44.28	11.232 SF		

Company:	KP KAUFFMAN	Local Co-ordinate Reference:	Well Greeley-Rothe 1-4H
Project:	SEC.1-T5N-R67W	TVD Reference:	WELL @ 4891.0ft (Original Well Elev)
Reference Site:	Greeley-Rothe Pad Sec.1-T5N-R67W	MD Reference:	WELL @ 4891.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Greeley-Rothe 1-4H	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 #2 (6-05-14)	Offset TVD Reference:	Offset Datum

Offset Design													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	-88.34	1.5	-51.4	51.4					
100.0	100.0	100.0	100.0	0.1	0.1	-88.34	1.5	-51.4	51.4	51.2	0.22	228.642		
200.0	200.0	200.0	200.0	0.3	0.3	-88.34	1.5	-51.4	51.4	50.7	0.67	76.214		
300.0	300.0	300.0	300.0	0.6	0.6	-88.34	1.5	-51.4	51.4	50.3	1.12	45.728		
400.0	400.0	400.0	400.0	0.8	0.8	-88.34	1.5	-51.4	51.4	49.8	1.57	32.663		
500.0	500.0	500.0	500.0	1.0	1.0	-88.34	1.5	-51.4	51.4	49.4	2.02	25.405		
600.0	600.0	600.0	600.0	1.2	1.2	-88.34	1.5	-51.4	51.4	48.9	2.47	20.786		
700.0	700.0	700.0	700.0	1.5	1.5	-88.34	1.5	-51.4	51.4	48.5	2.92	17.588		
800.0	800.0	800.0	800.0	1.7	1.7	-88.34	1.5	-51.4	51.4	48.0	3.37	15.243		
900.0	900.0	900.0	900.0	1.9	1.9	-88.34	1.5	-51.4	51.4	47.6	3.82	13.450		
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-88.34	1.5	-51.4	51.4	47.1	4.27	12.034 CC, ES		
1,100.0	1,100.0	1,098.4	1,098.4	2.4	2.4	-122.64	2.4	-52.8	53.8	49.1	4.71	11.430		
1,200.0	1,199.8	1,196.5	1,196.3	2.6	2.6	-124.15	5.0	-57.1	61.1	55.9	5.14	11.880		
1,300.0	1,299.5	1,293.8	1,293.3	2.8	2.8	-125.97	9.4	-64.1	73.2	67.6	5.58	13.120		
1,400.0	1,398.7	1,390.1	1,388.9	3.1	3.0	-127.65	15.5	-73.9	90.2	84.2	6.03	14.956		
1,500.0	1,497.5	1,485.0	1,482.6	3.3	3.3	-128.99	23.1	-86.1	112.0	105.5	6.50	17.227		
1,600.0	1,595.6	1,578.2	1,574.2	3.6	3.6	-129.97	32.2	-100.7	138.6	131.6	7.00	19.789		
1,700.0	1,693.1	1,669.4	1,663.3	4.0	3.9	-130.64	42.6	-117.5	169.7	162.1	7.54	22.518		
1,800.0	1,789.9	1,761.3	1,752.5	4.4	4.3	-131.39	54.4	-136.3	204.4	196.2	8.12	25.173		
1,900.0	1,886.6	1,855.0	1,843.3	4.8	4.6	-132.04	66.5	-155.8	239.4	230.6	8.74	27.397		
2,000.0	1,983.4	1,948.6	1,934.1	5.2	5.1	-132.52	78.6	-175.2	274.4	265.0	9.38	29.242		
2,100.0	2,080.2	2,042.3	2,024.9	5.7	5.5	-132.90	90.7	-194.7	309.5	299.4	10.05	30.807		
2,200.0	2,177.0	2,135.9	2,115.7	6.2	5.9	-133.20	102.8	-214.2	344.5	333.8	10.73	32.124		
2,300.0	2,273.7	2,229.5	2,206.5	6.6	6.4	-133.44	114.9	-233.6	379.6	368.2	11.42	33.244		
2,400.0	2,370.5	2,323.2	2,297.3	7.1	6.8	-133.64	127.1	-253.1	414.7	402.6	12.12	34.203		
2,500.0	2,467.3	2,416.8	2,388.1	7.6	7.3	-133.81	139.2	-272.5	449.8	436.9	12.84	35.032		
2,600.0	2,564.1	2,510.4	2,478.9	8.1	7.7	-133.95	151.3	-292.0	484.8	471.3	13.56	35.753		
8,200.0	7,282.0	7,251.2	7,124.0	30.1	25.9	-50.59	573.5	-970.2	482.7	441.5	41.18	11.723		
8,300.0	7,282.0	7,251.2	7,124.0	32.4	25.9	-50.59	573.5	-970.2	400.4	357.4	42.93	9.325		
8,400.0	7,282.0	7,251.2	7,124.0	34.7	25.9	-50.59	573.5	-970.2	328.0	283.2	44.76	7.327		
8,500.0	7,282.0	7,251.2	7,124.0	37.1	25.9	-50.59	573.5	-970.2	273.6	226.9	46.64	5.865		
8,600.0	7,282.0	7,251.2	7,124.0	39.5	25.9	-50.59	573.5	-970.2	249.3	200.7	48.57	5.132		
8,613.6	7,282.0	7,251.2	7,124.0	39.9	25.9	-50.59	573.5	-970.2	248.9	200.0	48.84	5.096 SF		
8,700.0	7,282.0	7,251.2	7,124.0	42.0	25.9	-50.59	573.5	-970.2	263.5	212.9	50.53	5.213		
8,800.0	7,282.0	7,251.2	7,124.0	44.5	25.9	-50.59	573.5	-970.2	310.9	258.4	52.53	5.920		
8,900.0	7,282.0	7,251.2	7,124.0	47.1	25.9	-50.59	573.5	-970.2	379.4	324.9	54.55	6.956		
9,000.0	7,282.0	7,251.2	7,124.0	49.7	25.9	-50.59	573.5	-970.2	459.6	403.0	56.59	8.122		

Company:	KP KAUFFMAN	Local Co-ordinate Reference:	Well Greeley-Rothe 1-4H
Project:	SEC.1-T5N-R67W	TVD Reference:	WELL @ 4891.0ft (Original Well Elev)
Reference Site:	Greeley-Rothe Pad Sec.1-T5N-R67W	MD Reference:	WELL @ 4891.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Greeley-Rothe 1-4H	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 #2 (6-05-14)	Offset TVD Reference:	Offset Datum

Offset Design													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	-116.11	-24.6	-50.2	55.9					
100.0	100.0	100.0	100.0	0.1	0.1	-116.11	-24.6	-50.2	55.9	55.6	0.22	248.590		
200.0	200.0	200.0	200.0	0.3	0.3	-116.11	-24.6	-50.2	55.9	55.2	0.67	82.863		
300.0	300.0	300.0	300.0	0.6	0.6	-116.11	-24.6	-50.2	55.9	54.8	1.12	49.718		
400.0	400.0	400.0	400.0	0.8	0.8	-116.11	-24.6	-50.2	55.9	54.3	1.57	35.513		
500.0	500.0	500.0	500.0	1.0	1.0	-116.11	-24.6	-50.2	55.9	53.9	2.02	27.621		
600.0	600.0	600.0	600.0	1.2	1.2	-116.11	-24.6	-50.2	55.9	53.4	2.47	22.599		
700.0	700.0	700.0	700.0	1.5	1.5	-116.11	-24.6	-50.2	55.9	53.0	2.92	19.122		
800.0	800.0	800.0	800.0	1.7	1.7	-116.11	-24.6	-50.2	55.9	52.5	3.37	16.573		
900.0	900.0	900.0	900.0	1.9	1.9	-116.11	-24.6	-50.2	55.9	52.1	3.82	14.623		
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-116.11	-24.6	-50.2	55.9	51.6	4.27	13.084 CC, ES		
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	-150.66	-24.6	-50.2	57.4	52.7	4.72	12.168		
1,200.0	1,199.8	1,199.8	1,199.8	2.6	2.6	-152.99	-24.6	-50.2	62.0	56.8	5.16	12.022		
1,300.0	1,299.5	1,299.5	1,299.5	2.8	2.8	-156.17	-24.6	-50.2	69.9	64.3	5.60	12.489		
1,400.0	1,398.7	1,398.7	1,398.7	3.1	3.0	-159.56	-24.6	-50.2	81.2	75.2	6.03	13.466		
1,500.0	1,497.5	1,497.5	1,497.5	3.3	3.3	-162.73	-24.6	-50.2	96.0	89.6	6.46	14.867		
1,600.0	1,595.6	1,595.6	1,595.6	3.6	3.5	-165.47	-24.6	-50.2	114.4	107.5	6.88	16.622		
1,700.0	1,693.1	1,693.1	1,693.1	4.0	3.7	-167.75	-24.6	-50.2	136.3	129.0	7.30	18.671		
1,800.0	1,789.9	1,789.9	1,789.9	4.4	3.9	-169.61	-24.6	-50.2	160.9	153.2	7.74	20.776		
1,900.0	1,886.6	1,886.6	1,886.6	4.8	4.1	-171.01	-24.6	-50.2	185.8	177.6	8.21	22.639		
2,000.0	1,983.4	1,983.4	1,983.4	5.2	4.3	-172.08	-24.6	-50.2	210.7	202.0	8.67	24.300		
2,100.0	2,080.2	2,080.2	2,080.2	5.7	4.6	-172.93	-24.6	-50.2	235.7	226.6	9.14	25.787		
2,200.0	2,177.0	2,177.0	2,177.0	6.2	4.8	-173.61	-24.6	-50.2	260.8	251.1	9.61	27.125		
2,300.0	2,273.7	2,281.1	2,281.1	6.6	5.0	-174.11	-23.5	-49.9	284.9	274.8	10.10	28.200		
2,400.0	2,370.5	2,389.0	2,388.9	7.1	5.3	-174.24	-18.6	-48.6	305.8	295.2	10.60	28.850		
2,500.0	2,467.3	2,498.4	2,497.9	7.6	5.5	-174.05	-9.6	-46.1	323.3	312.2	11.11	29.110		
2,600.0	2,564.1	2,609.0	2,607.6	8.1	5.8	-173.58	3.6	-42.6	337.3	325.7	11.62	29.021		
2,700.0	2,660.8	2,720.4	2,717.6	8.6	6.0	-172.84	20.9	-37.9	347.9	335.8	12.16	28.621		
2,800.0	2,757.6	2,832.4	2,827.2	9.1	6.3	-171.84	42.5	-32.1	355.1	342.4	12.71	27.941		
2,900.0	2,854.4	2,941.7	2,933.4	9.6	6.7	-170.60	67.5	-25.4	359.0	345.7	13.28	27.042		
3,000.0	2,951.1	3,041.3	3,030.0	10.1	7.0	-169.40	91.4	-19.0	362.0	348.2	13.84	26.151		
3,100.0	3,047.9	3,141.0	3,126.5	10.6	7.3	-168.23	115.3	-12.6	365.2	350.7	14.43	25.309		
3,200.0	3,144.7	3,240.7	3,223.1	11.1	7.7	-167.08	139.2	-6.2	368.5	353.4	15.03	24.512		
3,300.0	3,241.5	3,340.3	3,319.6	11.6	8.1	-165.94	163.2	0.3	371.9	356.3	15.66	23.755		
3,400.0	3,338.2	3,440.0	3,416.2	12.1	8.5	-164.83	187.1	6.7	375.5	359.2	16.30	23.038		
3,500.0	3,435.0	3,539.7	3,512.7	12.6	8.9	-163.74	211.0	13.1	379.3	362.3	16.96	22.358		
3,600.0	3,531.8	3,639.4	3,609.3	13.1	9.3	-162.67	234.9	19.5	383.1	365.5	17.65	21.713		
3,700.0	3,628.6	3,739.0	3,705.8	13.6	9.8	-161.62	258.8	25.9	387.1	368.8	18.35	21.101		
3,800.0	3,725.3	3,838.7	3,802.4	14.1	10.2	-160.60	282.7	32.4	391.3	372.2	19.07	20.521		
3,900.0	3,822.1	3,938.4	3,898.9	14.7	10.6	-159.59	306.6	38.8	395.5	375.7	19.80	19.972		
4,000.0	3,918.9	4,038.0	3,995.5	15.2	11.1	-158.61	330.5	45.2	399.9	379.3	20.56	19.451		
4,100.0	4,015.6	4,137.7	4,092.0	15.7	11.5	-157.65	354.4	51.6	404.4	383.1	21.33	18.957		
4,200.0	4,112.4	4,237.4	4,188.6	16.2	12.0	-156.71	378.3	58.1	409.0	386.9	22.12	18.489		
4,300.0	4,209.2	4,337.1	4,285.1	16.7	12.5	-155.79	402.2	64.5	413.7	390.8	22.92	18.046		
4,400.0	4,306.0	4,436.7	4,381.6	17.2	12.9	-154.89	426.1	70.9	418.5	394.8	23.74	17.626		
4,500.0	4,402.7	4,536.4	4,478.2	17.8	13.4	-154.01	450.0	77.3	423.4	398.9	24.58	17.229		
4,600.0	4,499.5	4,636.1	4,574.7	18.3	13.9	-153.16	473.9	83.7	428.4	403.0	25.42	16.852		
4,700.0	4,596.3	4,735.7	4,671.3	18.8	14.3	-152.32	497.8	90.2	433.5	407.3	26.28	16.495		
4,800.0	4,693.1	4,835.4	4,767.8	19.3	14.8	-151.50	521.7	96.6	438.7	411.6	27.16	16.157		
4,900.0	4,789.8	4,927.6	4,857.4	19.8	15.2	-150.85	543.0	102.3	444.7	416.7	27.94	15.914		
5,000.0	4,887.1	5,017.9	4,945.6	20.2	15.5	-150.43	561.2	107.2	450.8	422.2	28.61	15.756		
5,100.0	4,985.2	5,108.1	5,034.4	20.5	15.8	-150.08	576.8	111.4	456.1	426.9	29.22	15.610		

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 Greeley-Rothe 1-4H
Project:	SEC.1-T5N-R67W	TVD Reference:	WELL @ 4891.0ft (Original Well Elev)
Reference Site:	Greeley-Rothe Pad Sec.1-T5N-R67W	MD Reference:	WELL @ 4891.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Greeley-Rothe 1-4H	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 #2 (6-05-14)	Offset TVD Reference:	Offset Datum

Offset Design		Greeley-Rothe Pad Sec.1-T5N-R67W - Genesis 9-1-39 - Wellbore #1 - Plan #2 (6-05-14)											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		Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor			
							+N/-S (ft)	+E/-W (ft)							
5,200.0	5,083.8	5,200.0	5,125.3	20.8	16.1	-149.79	589.8	114.9	460.5	430.7	29.76	15.473			
5,300.0	5,183.0	5,288.7	5,213.5	21.1	16.3	-149.57	599.7	117.5	464.0	433.7	30.22	15.353			
5,400.0	5,282.6	5,379.1	5,303.5	21.3	16.5	-149.42	607.0	119.5	466.5	435.9	30.61	15.240			
5,500.0	5,382.4	5,469.4	5,393.7	21.5	16.6	-149.32	611.6	120.7	468.1	437.1	30.92	15.137			
5,600.0	5,482.4	5,559.8	5,484.1	21.6	16.8	-149.28	613.5	121.2	468.7	437.5	31.17	15.040			
5,700.0	5,582.4	5,658.1	5,582.4	21.7	16.9	-115.59	613.5	121.2	468.7	434.3	34.44	13.610			
5,800.0	5,682.4	5,758.1	5,682.4	21.9	17.1	-115.59	613.5	121.2	468.7	434.0	34.76	13.486			
5,900.0	5,782.4	5,858.1	5,782.4	22.0	17.2	-115.59	613.5	121.2	468.7	433.6	35.08	13.363			
6,000.0	5,882.4	5,958.1	5,882.4	22.1	17.4	-115.59	613.5	121.2	468.7	433.3	35.40	13.242			
6,100.0	5,982.4	6,058.1	5,982.4	22.2	17.6	-115.59	613.5	121.2	468.7	433.0	35.72	13.121			
6,200.0	6,082.4	6,158.1	6,082.4	22.4	17.7	-115.59	613.5	121.2	468.7	432.7	36.05	13.002			
6,300.0	6,182.4	6,258.1	6,182.4	22.5	17.9	-115.59	613.5	121.2	468.7	432.3	36.38	12.884			
6,400.0	6,282.4	6,358.1	6,282.4	22.6	18.1	-115.59	613.5	121.2	468.7	432.0	36.71	12.767			
6,500.0	6,382.4	6,458.1	6,382.4	22.7	18.2	-115.59	613.5	121.2	468.7	431.7	37.05	12.652			
6,600.0	6,482.4	6,558.1	6,482.4	22.9	18.4	-115.59	613.5	121.2	468.7	431.3	37.38	12.538			
6,700.0	6,582.4	6,658.1	6,582.4	23.0	18.6	-23.71	613.5	121.2	468.6	433.7	34.83	13.452			
6,800.0	6,681.8	6,757.6	6,681.8	23.1	18.7	-24.45	613.5	121.2	460.1	425.7	34.37	13.385			
6,900.0	6,779.1	6,854.8	6,779.1	23.0	18.9	-26.44	613.5	121.2	439.2	406.0	33.21	13.223			
7,000.0	6,872.1	6,947.9	6,872.1	22.9	19.0	-30.04	613.5	121.2	406.6	375.2	31.49	12.914			
7,100.0	6,959.3	7,035.0	6,959.3	22.8	19.2	-35.90	613.5	121.2	364.0	334.4	29.58	12.303			
7,200.0	7,038.7	7,114.5	7,038.7	22.6	19.3	-44.99	613.5	121.2	313.7	285.3	28.45	11.027			
7,300.0	7,109.0	7,184.7	7,109.0	22.4	19.5	-58.11	613.5	121.2	260.4	230.9	29.52	8.822			
7,400.0	7,168.7	7,210.8	7,135.0	22.2	19.5	-66.44	613.5	121.2	215.7	184.6	31.16	6.924			
7,474.0	7,205.3	7,210.8	7,135.0	22.0	19.5	-67.31	613.5	121.2	204.2	172.5	31.65	6.451 SF			
7,500.0	7,216.6	7,210.8	7,135.0	22.0	19.5	-67.20	613.5	121.2	205.6	173.9	31.73	6.480			
7,600.0	7,251.9	7,210.8	7,135.0	21.8	19.5	-64.81	613.5	121.2	236.2	204.3	31.90	7.404			
7,700.0	7,273.8	7,210.8	7,135.0	21.7	19.5	-59.66	613.5	121.2	294.6	263.1	31.49	9.354			
7,800.0	7,282.0	7,210.8	7,135.0	22.4	19.5	-52.67	613.5	121.2	367.0	336.4	30.51	12.026			
7,900.0	7,282.0	7,210.8	7,135.0	24.0	19.5	-52.03	613.5	121.2	447.6	416.0	31.60	14.165			

Greeley-Rothe Pad Sec.1-T5N-R67W - Greeley-Rothe 1-0H - Wellbore #1 - Plan #1 (6-5-14)													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	0.45	50.0	0.4	50.0					
100.0	100.0	99.0	99.0	0.1	0.1	0.45	50.0	0.4	50.0	49.8	0.22	223.667		
200.0	200.0	199.0	199.0	0.3	0.3	0.45	50.0	0.4	50.0	49.3	0.67	74.432 CC, ES		
300.0	300.0	297.3	297.3	0.6	0.6	0.95	51.6	0.9	51.6	50.5	1.12	46.164		
400.0	400.0	395.4	395.3	0.8	0.8	2.31	56.4	2.3	56.6	55.0	1.57	35.982		
500.0	500.0	493.0	492.5	1.0	1.0	4.11	64.4	4.6	64.9	62.8	2.04	31.849		
600.0	600.0	590.0	588.8	1.2	1.3	5.97	75.4	7.9	76.5	74.0	2.52	30.427		
700.0	700.0	686.0	683.7	1.5	1.6	7.65	89.5	12.0	91.6	88.6	3.01	30.414		
800.0	800.0	781.0	777.0	1.7	1.9	9.08	106.3	17.0	109.9	106.4	3.52	31.198		
900.0	900.0	874.7	868.5	1.9	2.3	10.25	125.9	22.8	131.5	127.5	4.05	32.447		
1,000.0	1,000.0	966.9	957.8	2.1	2.8	11.19	147.9	29.2	156.3	151.7	4.60	33.970		
1,100.0	1,100.0	1,058.0	1,045.3	2.4	3.2	-21.74	172.4	36.5	182.6	177.8	4.85	37.681		
1,200.0	1,199.8	1,152.3	1,135.0	2.6	3.8	-21.42	199.9	44.6	208.3	203.0	5.33	39.088		
1,300.0	1,299.5	1,249.6	1,227.7	2.8	4.3	-21.47	228.6	53.0	231.2	225.3	5.82	39.709		
1,400.0	1,398.7	1,347.7	1,320.9	3.1	4.9	-21.80	257.5	61.6	250.8	244.5	6.32	39.678		
1,500.0	1,497.5	1,446.2	1,414.8	3.3	5.5	-22.37	286.5	70.1	267.3	260.5	6.84	39.062		
1,600.0	1,595.6	1,545.2	1,509.0	3.6	6.1	-23.16	315.7	78.7	280.7	273.3	7.38	38.009		
1,700.0	1,693.1	1,644.6	1,603.5	4.0	6.7	-24.17	345.0	87.4	290.9	283.0	7.95	36.592		
1,800.0	1,789.9	1,744.0	1,698.2	4.4	7.3	-25.39	374.3	96.0	298.9	290.3	8.56	34.910		
1,900.0	1,886.6	1,843.5	1,792.8	4.8	7.9	-26.57	403.6	104.6	306.9	297.7	9.20	33.340		
2,000.0	1,983.4	1,943.0	1,887.5	5.2	8.5	-27.69	432.9	113.3	315.0	305.1	9.87	31.917		
2,100.0	2,080.2	2,042.5	1,982.2	5.7	9.1	-28.76	462.2	121.9	323.2	312.6	10.55	30.625		
2,200.0	2,177.0	2,142.0	2,076.9	6.2	9.7	-29.77	491.6	130.6	331.5	320.2	11.26	29.450		
2,300.0	2,273.7	2,241.5	2,171.5	6.6	10.3	-30.74	520.9	139.2	339.9	327.9	11.98	28.378		
2,400.0	2,370.5	2,341.0	2,266.2	7.1	10.9	-31.65	550.2	147.9	348.4	335.7	12.72	27.399		
2,500.0	2,467.3	2,440.4	2,360.9	7.6	11.5	-32.53	579.5	156.5	357.0	343.5	13.47	26.504		
2,600.0	2,564.1	2,539.9	2,455.6	8.1	12.1	-33.36	608.8	165.1	365.7	351.4	14.24	25.682		
2,700.0	2,660.8	2,639.4	2,550.2	8.6	12.7	-34.15	638.1	173.8	374.4	359.4	15.02	24.928		
2,800.0	2,757.6	2,738.9	2,644.9	9.1	13.3	-34.91	667.5	182.4	383.2	367.4	15.81	24.233		
2,900.0	2,854.4	2,838.4	2,739.6	9.6	14.0	-35.63	696.8	191.1	392.1	375.5	16.62	23.592		
3,000.0	2,951.1	2,937.9	2,834.3	10.1	14.6	-36.32	726.1	199.7	401.1	383.6	17.44	22.999		
3,100.0	3,047.9	3,037.4	2,928.9	10.6	15.2	-36.98	755.4	208.4	410.0	391.8	18.26	22.451		
3,200.0	3,144.7	3,136.8	3,023.6	11.1	15.8	-37.61	784.7	217.0	419.1	400.0	19.10	21.942		
3,300.0	3,241.5	3,236.3	3,118.3	11.6	16.4	-38.22	814.0	225.6	428.2	408.2	19.94	21.468		
3,400.0	3,338.2	3,335.8	3,213.0	12.1	17.0	-38.80	843.4	234.3	437.3	416.5	20.80	21.028		
3,500.0	3,435.0	3,435.3	3,307.6	12.6	17.6	-39.36	872.7	242.9	446.5	424.8	21.66	20.617		
3,600.0	3,531.8	3,534.8	3,402.3	13.1	18.2	-39.89	902.0	251.6	455.7	433.2	22.52	20.233		
3,700.0	3,628.6	3,634.3	3,497.0	13.6	18.8	-40.40	931.3	260.2	465.0	441.6	23.40	19.873		
3,800.0	3,725.3	3,733.8	3,591.6	14.1	19.4	-40.90	960.6	268.9	474.3	450.0	24.28	19.537		
3,900.0	3,822.1	3,833.2	3,686.3	14.7	20.0	-41.37	989.9	277.5	483.6	458.4	25.16	19.220		
4,000.0	3,918.9	3,932.7	3,781.0	15.2	20.7	-41.83	1,019.3	286.1	493.0	466.9	26.05	18.923 SF		

Company:	KP KAUFFMAN	Local Co-ordinate Reference:	Well Greeley-Rothe 1-4H
Project:	SEC.1-T5N-R67W	TVD Reference:	WELL @ 4891.0ft (Original Well Elev)
Reference Site:	Greeley-Rothe Pad Sec.1-T5N-R67W	MD Reference:	WELL @ 4891.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Greeley-Rothe 1-4H	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 #2 (6-05-14)	Offset TVD Reference:	Offset Datum

Offset Design													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	-26.12	50.2	-24.6	55.9					
100.0	100.0	99.0	99.0	0.1	0.1	-26.12	50.2	-24.6	55.9	55.7	0.22	250.001		
200.0	200.0	199.0	199.0	0.3	0.3	-26.12	50.2	-24.6	55.9	55.2	0.67	83.195		
300.0	300.0	299.0	299.0	0.6	0.6	-26.12	50.2	-24.6	55.9	54.8	1.12	49.850		
400.0	400.0	399.0	399.0	0.8	0.8	-26.12	50.2	-24.6	55.9	54.3	1.57	35.587 CC, ES		
500.0	500.0	497.6	497.6	1.0	1.0	-24.95	51.8	-24.1	57.1	55.1	2.02	28.329		
600.0	600.0	596.0	595.8	1.2	1.2	-21.69	56.6	-22.5	60.9	58.5	2.46	24.726		
700.0	700.0	693.9	693.4	1.5	1.5	-17.10	64.5	-19.8	67.7	64.8	2.93	23.146		
800.0	800.0	791.1	789.9	1.7	1.7	-12.09	75.5	-16.2	77.7	74.3	3.40	22.838		
900.0	900.0	887.4	885.1	1.9	2.0	-7.33	89.4	-11.5	91.2	87.3	3.90	23.377		
1,000.0	1,000.0	982.6	978.6	2.1	2.3	-3.19	106.2	-5.9	108.3	103.9	4.42	24.486		
1,100.0	1,100.0	1,076.9	1,070.6	2.4	2.7	-33.62	125.7	0.6	127.4	122.6	4.80	26.569		
1,200.0	1,199.8	1,170.6	1,161.3	2.6	3.1	-31.53	147.9	8.0	147.0	141.8	5.27	27.920		
1,300.0	1,299.5	1,263.6	1,250.6	2.8	3.6	-30.20	172.7	16.3	166.9	161.1	5.75	29.041		
1,400.0	1,398.7	1,360.8	1,343.2	3.1	4.1	-29.45	200.6	25.6	185.8	179.6	6.25	29.730		
1,500.0	1,497.5	1,459.5	1,437.3	3.3	4.7	-29.32	228.9	35.1	201.9	195.1	6.77	29.830		
1,600.0	1,595.6	1,558.6	1,531.8	3.6	5.2	-29.67	257.4	44.6	214.9	207.6	7.32	29.360		
1,700.0	1,693.1	1,658.1	1,626.6	4.0	5.8	-30.45	285.9	54.1	225.0	217.1	7.91	28.458		
1,800.0	1,789.9	1,757.7	1,721.5	4.4	6.4	-31.56	314.5	63.7	232.9	224.3	8.55	27.238		
1,900.0	1,886.6	1,857.2	1,816.4	4.8	7.0	-32.64	343.1	73.2	240.7	231.5	9.23	26.085		
2,000.0	1,983.4	1,956.8	1,911.3	5.2	7.5	-33.66	371.7	82.8	248.6	238.7	9.93	25.037		
2,100.0	2,080.2	2,056.4	2,006.2	5.7	8.1	-34.61	400.3	92.3	256.6	245.9	10.65	24.085		
2,200.0	2,177.0	2,156.0	2,101.2	6.2	8.7	-35.50	428.9	101.8	264.6	253.2	11.40	23.220		
2,300.0	2,273.7	2,255.6	2,196.1	6.6	9.3	-36.34	457.5	111.4	272.7	260.6	12.16	22.433		
2,400.0	2,370.5	2,355.2	2,291.0	7.1	9.9	-37.13	486.1	120.9	280.9	268.0	12.93	21.716		
2,500.0	2,467.3	2,454.8	2,385.9	7.6	10.5	-37.88	514.7	130.5	289.1	275.4	13.73	21.062		
2,600.0	2,564.1	2,554.4	2,480.8	8.1	11.1	-38.59	543.3	140.0	297.4	282.8	14.53	20.463		
2,700.0	2,660.8	2,654.0	2,575.8	8.6	11.7	-39.25	571.9	149.6	305.7	290.3	15.35	19.915		
2,800.0	2,757.6	2,753.6	2,670.7	9.1	12.3	-39.89	600.4	159.1	314.0	297.8	16.18	19.412		
2,900.0	2,854.4	2,853.2	2,765.6	9.6	12.9	-40.49	629.0	168.7	322.4	305.4	17.01	18.949		
3,000.0	2,951.1	2,952.8	2,860.5	10.1	13.5	-41.06	657.6	178.2	330.8	312.9	17.86	18.522		
3,100.0	3,047.9	3,052.4	2,955.5	10.6	14.1	-41.60	686.2	187.8	339.2	320.5	18.71	18.128		
3,200.0	3,144.7	3,152.0	3,050.4	11.1	14.7	-42.11	714.8	197.3	347.7	328.1	19.58	17.762		
3,300.0	3,241.5	3,251.6	3,145.3	11.6	15.3	-42.60	743.4	206.9	356.2	335.8	20.44	17.423		
3,400.0	3,338.2	3,351.1	3,240.2	12.1	15.9	-43.07	772.0	216.4	364.7	343.4	21.32	17.108		
3,500.0	3,435.0	3,450.7	3,335.1	12.6	16.5	-43.51	800.6	226.0	373.3	351.1	22.20	16.814		
3,600.0	3,531.8	3,550.3	3,430.1	13.1	17.1	-43.94	829.2	235.5	381.8	358.7	23.09	16.540		
3,700.0	3,628.6	3,649.9	3,525.0	13.6	17.7	-44.35	857.8	245.1	390.4	366.4	23.98	16.284		
3,800.0	3,725.3	3,749.5	3,619.9	14.1	18.3	-44.74	886.4	254.6	399.0	374.2	24.87	16.044		
3,900.0	3,822.1	3,849.1	3,714.8	14.7	18.9	-45.11	915.0	264.2	407.6	381.9	25.77	15.818		
4,000.0	3,918.9	3,948.7	3,809.8	15.2	19.5	-45.47	943.6	273.7	416.3	389.6	26.67	15.607		
4,100.0	4,015.6	4,048.3	3,904.7	15.7	20.1	-45.81	972.1	283.3	424.9	397.4	27.58	15.407		
4,200.0	4,112.4	4,147.9	3,999.6	16.2	20.7	-46.14	1,000.7	292.8	433.6	405.1	28.49	15.219		
4,300.0	4,209.2	4,247.5	4,094.5	16.7	21.3	-46.46	1,029.3	302.4	442.3	412.9	29.40	15.042		
4,400.0	4,306.0	4,347.1	4,189.4	17.2	21.9	-46.76	1,057.9	311.9	451.0	420.7	30.32	14.874		
4,500.0	4,402.7	4,446.7	4,284.4	17.8	22.5	-47.06	1,086.5	321.5	459.7	428.4	31.24	14.715		
4,600.0	4,499.5	4,546.3	4,379.3	18.3	23.1	-47.34	1,115.1	331.0	468.4	436.2	32.16	14.565		
4,700.0	4,596.3	4,645.9	4,474.2	18.8	23.7	-47.61	1,143.7	340.6	477.1	444.1	33.08	14.422		
4,800.0	4,693.1	4,745.4	4,569.1	19.3	24.3	-47.87	1,172.3	350.1	485.9	451.9	34.01	14.287		
4,900.0	4,789.8	4,845.0	4,664.0	19.8	24.9	-48.14	1,200.9	359.6	494.6	459.7	34.93	14.160 SF		

Company:	KP KAUFFMAN	Local Co-ordinate Reference:	Well Greeley-Rothe 1-4H
Project:	SEC.1-T5N-R67W	TVD Reference:	WELL @ 4891.0ft (Original Well Elev)
Reference Site:	Greeley-Rothe Pad Sec.1-T5N-R67W	MD Reference:	WELL @ 4891.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Greeley-Rothe 1-4H	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 #2 (6-05-14)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Semi Major Axis 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	-44.56	50.4	-49.6	70.7					
100.0	100.0	99.0	99.0	0.1	0.1	-44.56	50.4	-49.6	70.7	70.5	0.22	316.184		
200.0	200.0	199.0	199.0	0.3	0.3	-44.56	50.4	-49.6	70.7	70.0	0.67	105.219		
300.0	300.0	299.0	299.0	0.6	0.6	-44.56	50.4	-49.6	70.7	69.6	1.12	63.047		
400.0	400.0	399.0	399.0	0.8	0.8	-44.56	50.4	-49.6	70.7	69.1	1.57	45.008		
500.0	500.0	499.0	499.0	1.0	1.0	-44.56	50.4	-49.6	70.7	68.7	2.02	34.995		
600.0	600.0	599.0	599.0	1.2	1.2	-44.56	50.4	-49.6	70.7	68.2	2.47	28.627 CC, ES		
700.0	700.0	698.0	698.0	1.5	1.5	-43.32	51.9	-49.0	71.4	68.5	2.92	24.480		
800.0	800.0	796.8	796.7	1.7	1.7	-39.69	56.6	-47.0	73.6	70.2	3.36	21.892		
900.0	900.0	895.2	894.6	1.9	1.9	-34.17	64.4	-43.7	77.9	74.1	3.82	20.411		
1,000.0	1,000.0	992.8	991.6	2.1	2.2	-27.52	75.1	-39.1	85.1	80.8	4.29	19.814		
1,100.0	1,100.0	1,089.8	1,087.4	2.4	2.4	-54.94	88.9	-33.4	94.6	89.8	4.76	19.861		
1,200.0	1,199.8	1,186.3	1,182.2	2.6	2.7	-50.13	105.5	-26.3	105.4	100.2	5.25	20.101		
1,300.0	1,299.5	1,282.4	1,276.0	2.8	3.1	-46.48	124.9	-18.1	117.2	111.4	5.74	20.409		
1,400.0	1,398.7	1,378.3	1,368.7	3.1	3.5	-43.73	147.2	-8.7	129.6	123.3	6.26	20.712		
1,500.0	1,497.5	1,477.5	1,464.4	3.3	4.0	-42.01	171.5	1.6	140.9	134.1	6.80	20.712		
1,600.0	1,595.6	1,577.1	1,560.4	3.6	4.5	-41.44	196.0	11.9	149.7	142.3	7.38	20.283		
1,700.0	1,693.1	1,676.9	1,656.6	4.0	4.9	-41.80	220.5	22.3	155.8	147.8	8.00	19.471		
1,800.0	1,789.9	1,776.8	1,752.8	4.4	5.5	-42.82	245.0	32.7	160.1	151.4	8.70	18.403		
1,900.0	1,886.6	1,876.7	1,849.1	4.8	6.0	-43.85	269.5	43.0	164.3	154.8	9.43	17.413		
2,000.0	1,983.4	1,976.6	1,945.4	5.2	6.5	-44.82	294.1	53.4	168.5	158.3	10.20	16.525		
2,100.0	2,080.2	2,076.4	2,041.6	5.7	7.0	-45.74	318.6	63.8	172.8	161.8	10.99	15.729		
2,200.0	2,177.0	2,176.3	2,137.9	6.2	7.5	-46.62	343.1	74.2	177.1	165.3	11.80	15.016		
2,300.0	2,273.7	2,276.2	2,234.1	6.6	8.0	-47.46	367.6	84.5	181.5	168.9	12.63	14.375		
2,400.0	2,370.5	2,376.0	2,330.4	7.1	8.6	-48.26	392.2	94.9	185.9	172.5	13.47	13.799		
2,500.0	2,467.3	2,475.9	2,426.6	7.6	9.1	-49.02	416.7	105.3	190.4	176.0	14.34	13.279		
2,600.0	2,564.1	2,575.8	2,522.9	8.1	9.6	-49.74	441.2	115.6	194.8	179.6	15.21	12.809		
2,700.0	2,660.8	2,675.6	2,619.1	8.6	10.2	-50.43	465.7	126.0	199.3	183.2	16.10	12.382		
2,800.0	2,757.6	2,775.5	2,715.4	9.1	10.7	-51.10	490.3	136.4	203.9	186.9	17.00	11.994		
2,900.0	2,854.4	2,875.4	2,811.7	9.6	11.2	-51.73	514.8	146.7	208.4	190.5	17.91	11.639		
3,000.0	2,951.1	2,975.3	2,907.9	10.1	11.8	-52.34	539.3	157.1	213.0	194.2	18.83	11.315		
3,100.0	3,047.9	3,075.1	3,004.2	10.6	12.3	-52.92	563.9	167.5	217.6	197.9	19.75	11.018		
3,200.0	3,144.7	3,175.0	3,100.4	11.1	12.8	-53.47	588.4	177.8	222.2	201.6	20.69	10.744		
3,300.0	3,241.5	3,274.9	3,196.7	11.6	13.4	-54.01	612.9	188.2	226.9	205.3	21.63	10.492		
3,400.0	3,338.2	3,374.7	3,292.9	12.1	13.9	-54.52	637.4	198.6	231.6	209.0	22.57	10.259		
3,500.0	3,435.0	3,474.6	3,389.2	12.6	14.5	-55.01	662.0	208.9	236.2	212.7	23.52	10.042		
3,600.0	3,531.8	3,574.5	3,485.4	13.1	15.0	-55.49	686.5	219.3	240.9	216.5	24.48	9.842		
3,700.0	3,628.6	3,674.3	3,581.7	13.6	15.5	-55.94	711.0	229.7	245.7	220.2	25.44	9.655		
3,800.0	3,725.3	3,774.2	3,678.0	14.1	16.1	-56.38	735.5	240.1	250.4	224.0	26.41	9.481		
3,900.0	3,822.1	3,874.1	3,774.2	14.7	16.6	-56.80	760.1	250.4	255.1	227.7	27.38	9.318		
4,000.0	3,918.9	3,974.0	3,870.5	15.2	17.2	-57.21	784.6	260.8	259.9	231.5	28.35	9.166		
4,100.0	4,015.6	4,073.8	3,966.7	15.7	17.7	-57.60	809.1	271.2	264.7	235.3	29.33	9.023		
4,200.0	4,112.4	4,173.7	4,063.0	16.2	18.2	-57.97	833.6	281.5	269.4	239.1	30.31	8.889		
4,300.0	4,209.2	4,273.6	4,159.2	16.7	18.8	-58.34	858.2	291.9	274.2	242.9	31.29	8.763		
4,400.0	4,306.0	4,373.4	4,255.5	17.2	19.3	-58.69	882.7	302.3	279.0	246.7	32.28	8.644		
4,500.0	4,402.7	4,473.3	4,351.7	17.8	19.9	-59.03	907.2	312.6	283.8	250.6	33.27	8.532		
4,600.0	4,499.5	4,573.2	4,448.0	18.3	20.4	-59.36	931.7	323.0	288.7	254.4	34.26	8.426		
4,700.0	4,596.3	4,673.0	4,544.2	18.8	20.9	-59.68	956.3	333.4	293.5	258.2	35.25	8.325		
4,800.0	4,693.1	4,772.9	4,640.5	19.3	21.5	-59.98	980.8	343.7	298.3	262.1	36.25	8.230		
4,900.0	4,789.8	4,872.8	4,736.8	19.8	22.0	-60.29	1,005.3	354.1	303.2	266.0	37.24	8.142		
5,000.0	4,887.1	4,972.6	4,833.0	20.2	22.6	-60.33	1,029.8	364.5	309.1	271.1	38.04	8.127 SF		
5,100.0	4,985.2	5,072.2	4,929.0	20.5	23.1	-59.85	1,054.3	374.8	316.8	278.1	38.67	8.192		

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 Greeley-Rothe 1-4H
Project:	SEC.1-T5N-R67W	TVD Reference:	WELL @ 4891.0ft (Original Well Elev)
Reference Site:	Greeley-Rothe Pad Sec.1-T5N-R67W	MD Reference:	WELL @ 4891.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Greeley-Rothe 1-4H	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 #2 (6-05-14)	Offset TVD Reference:	Offset Datum

Offset Design Greeley-Rothe Pad Sec.1-T5N-R67W - Greeley-Rothe 1-2H - Wellbore #1 - Plan #2 (6-05-14)												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	5,083.8	5,171.6	5,024.8	20.8	23.7	-58.91	1,078.7	385.1	326.3	287.2	39.13	8.338	
5,300.0	5,183.0	5,270.5	5,120.1	21.1	24.2	-57.56	1,103.0	395.4	337.8	298.3	39.42	8.567	
5,400.0	5,282.6	5,368.9	5,214.9	21.3	24.7	-55.89	1,127.1	405.6	351.4	311.8	39.55	8.884	
5,500.0	5,382.4	5,466.7	5,309.1	21.5	25.3	-53.96	1,151.1	415.8	367.4	327.9	39.53	9.294	
5,600.0	5,482.4	5,563.6	5,402.6	21.6	25.8	-51.85	1,175.0	425.8	386.1	346.7	39.37	9.806	
5,700.0	5,582.4	5,660.0	5,495.5	21.7	26.3	-15.78	1,198.6	435.8	406.8	366.2	40.57	10.026	
5,800.0	5,682.4	5,756.4	5,588.4	21.9	26.8	-13.58	1,222.3	445.9	428.2	386.3	41.85	10.233	
5,900.0	5,782.4	5,852.8	5,681.3	22.0	27.4	-11.58	1,246.0	455.9	450.2	407.1	43.05	10.457	
6,000.0	5,882.4	5,949.2	5,774.2	22.1	27.9	-9.77	1,269.6	465.9	472.6	428.4	44.19	10.694	
6,100.0	5,982.4	6,045.6	5,867.1	22.2	28.4	-8.12	1,293.3	475.9	495.5	450.2	45.28	10.942	

Company:	KP KAUFFMAN	Local Co-ordinate Reference:	Well Greeley-Rothe 1-4H
Project:	SEC.1-T5N-R67W	TVD Reference:	WELL @ 4891.0ft (Original Well Elev)
Reference Site:	Greeley-Rothe Pad Sec.1-T5N-R67W	MD Reference:	WELL @ 4891.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Greeley-Rothe 1-4H	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 #2 (6-05-14)	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		
0.0	0.0	0.0	0.0	0.0	0.0	0.45	25.0	0.2	25.0					
100.0	100.0	99.0	99.0	0.1	0.1	0.45	25.0	0.2	25.0	24.8	0.22	111.915		
200.0	200.0	199.0	199.0	0.3	0.3	0.45	25.0	0.2	25.0	24.4	0.67	37.243		
300.0	300.0	299.0	299.0	0.6	0.6	0.45	25.0	0.2	25.0	23.9	1.12	22.316		
400.0	400.0	399.0	399.0	0.8	0.8	0.45	25.0	0.2	25.0	23.5	1.57	15.931		
500.0	500.0	499.0	499.0	1.0	1.0	0.45	25.0	0.2	25.0	23.0	2.02	12.387		
600.0	600.0	599.0	599.0	1.2	1.2	0.45	25.0	0.2	25.0	22.6	2.47	10.133		
700.0	700.0	699.0	699.0	1.5	1.5	0.45	25.0	0.2	25.0	22.1	2.92	8.572		
800.0	800.0	799.0	799.0	1.7	1.7	0.45	25.0	0.2	25.0	21.7	3.37	7.429 CC, ES		
900.0	900.0	898.2	898.2	1.9	1.9	2.01	26.5	0.9	26.6	22.8	3.82	6.963		
1,000.0	1,000.0	997.1	997.0	2.1	2.1	5.81	31.1	3.2	31.3	27.1	4.26	7.353		
1,100.0	1,100.0	1,095.8	1,095.2	2.4	2.4	-24.61	38.7	6.9	37.9	33.2	4.71	8.054		
1,200.0	1,199.8	1,194.2	1,192.9	2.6	2.6	-22.89	49.4	12.1	44.7	39.6	5.15	8.676		
1,300.0	1,299.5	1,292.3	1,289.9	2.8	2.9	-22.11	63.0	18.7	51.6	46.0	5.60	9.216		
1,400.0	1,398.7	1,390.3	1,386.1	3.1	3.2	-21.95	79.5	26.7	58.6	52.5	6.05	9.679		
1,500.0	1,497.5	1,488.0	1,481.4	3.3	3.5	-22.21	98.9	36.2	65.6	59.1	6.52	10.069		
1,600.0	1,595.6	1,587.2	1,577.6	3.6	3.9	-22.98	120.8	46.9	71.8	64.8	7.00	10.251		
1,700.0	1,693.1	1,687.1	1,674.5	4.0	4.3	-24.70	142.9	57.6	74.9	67.4	7.52	9.956		
1,800.0	1,789.9	1,787.1	1,771.3	4.4	4.8	-27.18	165.0	68.4	75.7	67.6	8.11	9.336		
1,900.0	1,886.6	1,887.0	1,868.2	4.8	5.2	-29.66	187.1	79.2	76.6	67.8	8.76	8.742		
2,000.0	1,983.4	1,987.0	1,965.1	5.2	5.7	-32.08	209.2	89.9	77.5	68.1	9.44	8.210		
2,100.0	2,080.2	2,086.9	2,062.0	5.7	6.2	-34.44	231.2	100.7	78.6	68.5	10.17	7.732		
2,200.0	2,177.0	2,186.9	2,158.8	6.2	6.7	-36.73	253.3	111.5	79.9	68.9	10.94	7.302		
2,300.0	2,273.7	2,286.8	2,255.7	6.6	7.1	-38.95	275.4	122.3	81.2	69.5	11.75	6.916		
2,400.0	2,370.5	2,386.7	2,352.6	7.1	7.6	-41.09	297.5	133.0	82.7	70.1	12.59	6.570		
2,500.0	2,467.3	2,486.7	2,449.4	7.6	8.1	-43.15	319.6	143.8	84.3	70.8	13.47	6.260		
2,600.0	2,564.1	2,586.6	2,546.3	8.1	8.6	-45.14	341.7	154.6	86.0	71.6	14.37	5.983		
2,700.0	2,660.8	2,686.6	2,643.2	8.6	9.1	-47.04	363.8	165.3	87.8	72.5	15.31	5.736		
2,800.0	2,757.6	2,786.5	2,740.1	9.1	9.6	-48.87	385.9	176.1	89.7	73.4	16.26	5.514		
2,900.0	2,854.4	2,886.5	2,836.9	9.6	10.1	-50.62	408.0	186.9	91.7	74.4	17.24	5.315		
3,000.0	2,951.1	2,986.4	2,933.8	10.1	10.6	-52.30	430.1	197.6	93.7	75.5	18.24	5.137		
3,100.0	3,047.9	3,086.3	3,030.7	10.6	11.1	-53.90	452.2	208.4	95.8	76.6	19.25	4.978		
3,200.0	3,144.7	3,186.3	3,127.6	11.1	11.6	-55.43	474.3	219.2	98.0	77.8	20.28	4.835		
3,300.0	3,241.5	3,286.2	3,224.4	11.6	12.1	-56.90	496.4	229.9	100.3	79.0	21.32	4.706		
3,400.0	3,338.2	3,386.2	3,321.3	12.1	12.6	-58.30	518.5	240.7	102.7	80.3	22.36	4.590		
3,500.0	3,435.0	3,486.1	3,418.2	12.6	13.1	-59.63	540.6	251.5	105.0	81.6	23.42	4.486		
3,600.0	3,531.8	3,586.0	3,515.0	13.1	13.6	-60.91	562.7	262.3	107.5	83.0	24.48	4.391		
3,700.0	3,628.6	3,686.0	3,611.9	13.6	14.1	-62.12	584.7	273.0	110.0	84.4	25.55	4.306		
3,800.0	3,725.3	3,785.9	3,708.8	14.1	14.6	-63.29	606.8	283.8	112.5	85.9	26.62	4.228		
3,900.0	3,822.1	3,885.9	3,805.7	14.7	15.1	-64.40	628.9	294.6	115.1	87.4	27.69	4.158		
4,000.0	3,918.9	3,985.8	3,902.5	15.2	15.6	-65.46	651.0	305.3	117.8	89.0	28.77	4.094		
4,100.0	4,015.6	4,085.8	3,999.4	15.7	16.1	-66.47	673.1	316.1	120.4	90.6	29.84	4.035		
4,200.0	4,112.4	4,185.7	4,096.3	16.2	16.6	-67.44	695.2	326.9	123.1	92.2	30.92	3.982		
4,300.0	4,209.2	4,285.6	4,193.1	16.7	17.1	-68.37	717.3	337.6	125.9	93.9	32.00	3.933		
4,400.0	4,306.0	4,385.6	4,290.0	17.2	17.6	-69.26	739.4	348.4	128.6	95.6	33.08	3.888		
4,500.0	4,402.7	4,485.5	4,386.9	17.8	18.1	-70.11	761.5	359.2	131.4	97.3	34.16	3.847		
4,600.0	4,499.5	4,585.5	4,483.8	18.3	18.6	-70.93	783.6	369.9	134.3	99.0	35.24	3.810		
4,700.0	4,596.3	4,685.4	4,580.6	18.8	19.1	-71.71	805.7	380.7	137.1	100.8	36.32	3.775		
4,800.0	4,693.1	4,785.4	4,677.5	19.3	19.6	-72.46	827.8	391.5	140.0	102.6	37.40	3.743		
4,900.0	4,789.8	4,885.3	4,774.4	19.8	20.1	-73.18	849.9	402.2	142.9	104.4	38.47	3.714		
5,000.0	4,887.1	4,985.2	4,871.2	20.2	20.6	-73.12	872.0	413.0	146.4	107.1	39.31	3.726		
5,100.0	4,985.2	5,085.1	4,968.0	20.5	21.1	-71.83	894.0	423.8	151.0	111.1	39.91	3.784		

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 Greeley-Rothe 1-4H
Project:	SEC.1-T5N-R67W	TVD Reference:	WELL @ 4891.0ft (Original Well Elev)
Reference Site:	Greeley-Rothe Pad Sec.1-T5N-R67W	MD Reference:	WELL @ 4891.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Greeley-Rothe 1-4H	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 #2 (6-05-14)	Offset TVD Reference:	Offset Datum

Offset Design												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	5,083.8	5,184.6	5,064.5	20.8	21.7	-69.44	916.0	434.5	156.9	116.7	40.27	3.897	
5,300.0	5,183.0	5,283.9	5,160.7	21.1	22.2	-66.15	938.0	445.2	164.5	124.1	40.35	4.076	
5,400.0	5,282.6	5,382.7	5,256.5	21.3	22.7	-62.21	959.8	455.8	174.1	134.0	40.14	4.338	
5,500.0	5,382.4	5,480.8	5,351.7	21.5	23.2	-57.86	981.5	466.4	186.5	146.8	39.66	4.701	
5,600.0	5,482.4	5,578.3	5,446.1	21.6	23.6	-53.35	1,003.1	476.9	201.9	162.9	38.96	5.181	
5,700.0	5,582.4	5,675.3	5,540.1	21.7	24.1	-15.19	1,024.5	487.4	220.0	181.4	38.58	5.702	
5,800.0	5,682.4	5,772.2	5,634.0	21.9	24.6	-11.36	1,045.9	497.8	239.2	199.0	40.24	5.945	
5,900.0	5,782.4	5,871.9	5,730.7	22.0	25.1	-8.04	1,067.8	508.5	259.3	217.5	41.72	6.214	
6,000.0	5,882.4	5,977.9	5,834.3	22.1	25.5	-5.35	1,088.3	518.5	277.5	234.6	42.93	6.465	
6,100.0	5,982.4	6,085.6	5,940.2	22.2	25.9	-3.37	1,105.6	526.9	293.1	249.2	43.89	6.677	
6,200.0	6,082.4	6,194.6	6,048.1	22.4	26.2	-1.95	1,119.5	533.7	305.5	260.9	44.66	6.841	
6,300.0	6,182.4	6,304.7	6,157.6	22.5	26.4	-0.97	1,129.8	538.7	314.7	269.5	45.27	6.953	
6,400.0	6,282.4	6,415.5	6,268.1	22.6	26.6	-0.38	1,136.3	541.9	320.6	274.8	45.74	7.009	
6,500.0	6,382.4	6,526.6	6,379.3	22.7	26.7	-0.15	1,139.0	543.2	323.0	276.9	46.08	7.009	
6,600.0	6,482.4	6,628.7	6,481.4	22.9	26.9	-0.14	1,139.0	543.2	323.0	276.7	46.34	6.971	
6,648.2	6,530.5	6,676.9	6,529.5	22.9	26.9	91.80	1,139.0	543.2	323.0	285.7	37.38	8.642	
6,700.0	6,582.4	6,729.0	6,581.6	23.0	27.0	91.76	1,139.0	543.0	323.0	285.5	37.56	8.601	
6,800.0	6,681.8	6,830.4	6,682.4	23.1	27.0	91.76	1,138.7	533.6	323.0	285.3	37.70	8.569	
6,900.0	6,779.1	6,931.8	6,781.0	23.0	27.0	91.73	1,137.9	510.1	323.0	285.4	37.66	8.578	
7,000.0	6,872.1	7,033.1	6,875.2	22.9	26.9	91.66	1,136.7	473.0	323.0	285.5	37.49	8.616	
7,100.0	6,959.3	7,134.4	6,963.1	22.8	26.7	91.56	1,135.1	422.9	323.0	285.7	37.28	8.665	
7,200.0	7,038.7	7,235.6	7,043.1	22.6	26.5	91.43	1,133.0	361.1	323.0	285.9	37.14	8.697	
7,300.0	7,109.0	7,336.6	7,113.4	22.4	26.3	91.27	1,130.6	288.7	323.0	285.8	37.22	8.677	
7,400.0	7,168.7	7,437.6	7,172.8	22.2	26.1	91.09	1,127.9	207.2	323.0	285.3	37.70	8.568	
7,500.0	7,216.6	7,538.3	7,220.1	22.0	25.9	90.88	1,125.0	118.4	322.9	284.2	38.70	8.344	
7,600.0	7,251.9	7,638.9	7,254.5	21.8	25.7	90.66	1,121.9	24.0	322.9	282.6	40.33	8.007	
7,700.0	7,273.8	7,739.4	7,275.2	21.7	25.5	90.43	1,118.6	-74.2	322.9	280.4	42.57	7.585	
7,750.3	7,279.6	7,789.8	7,280.4	21.9	25.5	90.31	1,117.0	-124.3	322.9	279.0	43.94	7.350	
7,800.0	7,282.0	7,839.6	7,282.0	22.4	25.5	90.19	1,115.3	-174.0	322.9	277.6	45.34	7.123	
7,900.0	7,282.0	7,939.6	7,282.0	24.0	25.8	90.18	1,112.0	-274.0	322.9	274.4	48.55	6.651	
8,000.0	7,282.0	8,039.6	7,282.0	25.9	27.1	90.18	1,108.7	-373.9	322.9	270.8	52.15	6.193	
8,100.0	7,282.0	8,139.6	7,282.0	28.0	29.0	90.18	1,105.4	-473.9	323.0	266.9	56.07	5.760	
8,200.0	7,282.0	8,239.6	7,282.0	30.1	31.1	90.18	1,102.1	-573.8	323.0	262.7	60.26	5.360	
8,300.0	7,282.0	8,339.6	7,282.0	32.4	33.3	90.18	1,098.8	-673.7	323.0	258.3	64.66	4.995	
8,400.0	7,282.0	8,439.6	7,282.0	34.7	35.6	90.18	1,095.5	-773.7	323.0	253.7	69.24	4.665	
8,500.0	7,282.0	8,539.6	7,282.0	37.1	37.9	90.18	1,092.2	-873.6	323.0	249.0	73.96	4.367	
8,600.0	7,282.0	8,639.6	7,282.0	39.5	40.3	90.18	1,088.9	-973.6	323.0	244.2	78.79	4.099	
8,700.0	7,282.0	8,739.6	7,282.0	42.0	42.7	90.18	1,085.6	-1,073.5	323.0	239.3	83.72	3.858	
8,800.0	7,282.0	8,839.6	7,282.0	44.5	45.2	90.18	1,082.3	-1,173.5	323.0	234.3	88.73	3.640	
8,900.0	7,282.0	8,939.6	7,282.0	47.1	47.7	90.18	1,079.0	-1,273.4	323.0	229.2	93.81	3.443	
9,000.0	7,282.0	9,039.6	7,282.0	49.7	50.3	90.18	1,075.7	-1,373.4	323.0	224.1	98.94	3.265	
9,100.0	7,282.0	9,139.6	7,282.0	52.3	52.8	90.18	1,072.4	-1,473.3	323.0	218.9	104.12	3.102	
9,200.0	7,282.0	9,239.6	7,282.0	54.9	55.4	90.18	1,069.1	-1,573.3	323.0	213.7	109.34	2.954	
9,300.0	7,282.0	9,339.6	7,282.0	57.5	58.0	90.18	1,065.8	-1,673.2	323.0	208.4	114.60	2.819	
9,400.0	7,282.0	9,439.6	7,282.0	60.1	60.7	90.18	1,062.5	-1,773.1	323.0	203.2	119.89	2.695	
9,500.0	7,282.0	9,539.6	7,282.0	62.8	63.3	90.18	1,059.2	-1,873.1	323.1	197.8	125.21	2.580	
9,600.0	7,282.0	9,639.6	7,282.0	65.5	65.9	90.18	1,055.9	-1,973.0	323.1	192.5	130.55	2.475	
9,700.0	7,282.0	9,739.6	7,282.0	68.2	68.6	90.18	1,052.6	-2,073.0	323.1	187.2	135.91	2.377	
9,800.0	7,282.0	9,839.6	7,282.0	70.8	71.3	90.18	1,049.3	-2,172.9	323.1	181.8	141.29	2.287	
9,900.0	7,282.0	9,939.6	7,282.0	73.5	74.0	90.18	1,046.0	-2,272.9	323.1	176.4	146.69	2.203	
10,000.0	7,282.0	10,039.6	7,282.0	76.2	76.7	90.18	1,042.7	-2,372.8	323.1	171.0	152.10	2.124	
10,100.0	7,282.0	10,139.6	7,282.0	79.0	79.3	90.18	1,039.4	-2,472.8	323.1	165.6	157.52	2.051	

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 Greeley-Rothe 1-4H
Project:	SEC.1-T5N-R67W	TVD Reference:	WELL @ 4891.0ft (Original Well Elev)
Reference Site:	Greeley-Rothe Pad Sec.1-T5N-R67W	MD Reference:	WELL @ 4891.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Greeley-Rothe 1-4H	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 #2 (6-05-14)	Offset TVD Reference:	Offset Datum

Offset Design Greeley-Rothe Pad Sec.1-T5N-R67W - Greeley-Rothe 1-3H - Wellbore #1 - Plan #2 (6-05-14)													Offset Site Error: 0.0 ft
Survey Program: 0-MWD													Offset Well Error: 0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis 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	7,282.0	10,239.6	7,282.0	81.7	82.1	90.18	1,036.1	-2,572.7	323.1	160.2	162.96	1.983	
10,300.0	7,282.0	10,339.6	7,282.0	84.4	84.8	90.18	1,032.8	-2,672.7	323.1	154.7	168.40	1.919	
10,400.0	7,282.0	10,439.6	7,282.0	87.1	87.5	90.18	1,029.5	-2,772.6	323.1	149.3	173.86	1.859	
10,500.0	7,282.0	10,539.6	7,282.0	89.8	90.2	90.18	1,026.2	-2,872.5	323.1	143.8	179.33	1.802	
10,600.0	7,282.0	10,639.6	7,282.0	92.6	92.9	90.18	1,022.9	-2,972.5	323.1	138.3	184.80	1.749	
10,700.0	7,282.0	10,739.6	7,282.0	95.3	95.6	90.18	1,019.6	-3,072.4	323.1	132.9	190.28	1.698	
10,800.0	7,282.0	10,839.6	7,282.0	98.1	98.4	90.18	1,016.3	-3,172.4	323.2	127.4	195.77	1.651	
10,900.0	7,282.0	10,939.6	7,282.0	100.8	101.1	90.18	1,013.0	-3,272.3	323.2	121.9	201.26	1.606	
11,000.0	7,282.0	11,039.6	7,282.0	103.6	103.9	90.18	1,009.7	-3,372.3	323.2	116.4	206.76	1.563	
11,100.0	7,282.0	11,139.6	7,282.0	106.3	106.6	90.18	1,006.4	-3,472.2	323.2	110.9	212.27	1.522	
11,200.0	7,282.0	11,239.6	7,282.0	109.1	109.3	90.18	1,003.1	-3,572.2	323.2	105.4	217.78	1.484	Level 3
11,300.0	7,282.0	11,339.6	7,282.0	111.8	112.1	90.18	999.8	-3,672.1	323.2	99.9	223.29	1.447	Level 3
11,400.0	7,282.0	11,439.6	7,282.0	114.6	114.8	90.18	996.5	-3,772.1	323.2	94.4	228.81	1.412	Level 3
11,500.0	7,282.0	11,539.6	7,282.0	117.3	117.6	90.18	993.2	-3,872.0	323.2	88.9	234.34	1.379	Level 3
11,600.0	7,282.0	11,639.6	7,282.0	120.1	120.3	90.18	989.9	-3,971.9	323.2	83.3	239.86	1.347	Level 3
11,700.0	7,282.0	11,739.6	7,282.0	122.9	123.1	90.18	986.6	-4,071.9	323.2	77.8	245.39	1.317	Level 3
11,800.0	7,282.0	11,839.6	7,282.0	125.6	125.5	90.18	983.3	-4,171.8	323.2	72.7	250.53	1.290	Level 3
11,826.4	7,282.0	11,866.0	7,282.0	126.4	125.9	90.18	982.5	-4,198.3	323.2	71.5	251.73	1.284	Level 3
11,880.4	7,282.0	11,884.2	7,282.0	127.8	126.3	90.18	981.9	-4,216.4	325.2	71.7	253.54	1.283	Level 3, SF

Company:	KP KAUFFMAN	Local Co-ordinate Reference:	Well Greeley-Rothe 1-4H
Project:	SEC.1-T5N-R67W	TVD Reference:	WELL @ 4891.0ft (Original Well Elev)
Reference Site:	Greeley-Rothe Pad Sec.1-T5N-R67W	MD Reference:	WELL @ 4891.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Greeley-Rothe 1-4H	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 #2 (6-05-14)	Offset TVD Reference:	Offset Datum

Offset Design													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	-179.55	-25.0	-0.2	25.0					
100.0	100.0	100.0	100.0	0.1	0.1	-179.55	-25.0	-0.2	25.0	24.8	0.22	111.194		
200.0	200.0	200.0	200.0	0.3	0.3	-179.55	-25.0	-0.2	25.0	24.3	0.67	37.065		
300.0	300.0	300.0	300.0	0.6	0.6	-179.55	-25.0	-0.2	25.0	23.9	1.12	22.239		
400.0	400.0	400.0	400.0	0.8	0.8	-179.55	-25.0	-0.2	25.0	23.4	1.57	15.885		
500.0	500.0	500.0	500.0	1.0	1.0	-179.55	-25.0	-0.2	25.0	23.0	2.02	12.355		
600.0	600.0	600.0	600.0	1.2	1.2	-179.55	-25.0	-0.2	25.0	22.5	2.47	10.109		
700.0	700.0	700.0	700.0	1.5	1.5	-179.55	-25.0	-0.2	25.0	22.1	2.92	8.553		
800.0	800.0	800.0	800.0	1.7	1.7	-179.55	-25.0	-0.2	25.0	21.6	3.37	7.413		
900.0	900.0	900.0	900.0	1.9	1.9	-179.55	-25.0	-0.2	25.0	21.2	3.82	6.541		
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-179.55	-25.0	-0.2	25.0	20.7	4.27	5.852 CC		
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	148.81	-25.0	-0.2	26.5	21.8	4.72	5.611		
1,200.0	1,199.8	1,199.8	1,199.8	2.6	2.6	153.78	-25.0	-0.2	31.1	25.9	5.16	6.019		
1,300.0	1,299.5	1,300.7	1,300.6	2.8	2.8	158.29	-23.6	0.9	37.5	31.9	5.60	6.698		
1,400.0	1,398.7	1,401.7	1,401.6	3.1	3.0	161.12	-19.4	4.2	44.2	38.1	6.03	7.323		
1,500.0	1,497.5	1,503.0	1,502.5	3.3	3.3	162.89	-12.4	9.7	51.0	44.5	6.46	7.883		
1,600.0	1,595.6	1,604.6	1,603.2	3.6	3.5	163.95	-2.6	17.4	57.8	50.9	6.90	8.379		
1,700.0	1,693.1	1,706.4	1,703.8	4.0	3.8	164.54	10.1	27.4	64.8	57.4	7.35	8.811		
1,800.0	1,789.9	1,808.5	1,803.9	4.4	4.1	164.62	25.6	39.6	70.9	63.0	7.84	9.037		
1,900.0	1,886.6	1,908.8	1,901.8	4.8	4.4	164.13	42.6	53.0	75.0	66.6	8.37	8.961		
2,000.0	1,983.4	2,008.7	1,999.4	5.2	4.8	163.69	59.6	66.4	79.1	70.2	8.91	8.876		
2,100.0	2,080.2	2,108.6	2,096.9	5.7	5.1	163.29	76.5	79.7	83.1	73.7	9.46	8.790		
2,200.0	2,177.0	2,208.5	2,194.5	6.2	5.5	162.93	93.5	93.1	87.2	77.2	10.02	8.703		
2,300.0	2,273.7	2,308.4	2,292.1	6.6	5.9	162.60	110.4	106.4	91.3	80.7	10.60	8.618		
2,400.0	2,370.5	2,408.3	2,389.6	7.1	6.3	162.30	127.4	119.8	95.4	84.2	11.18	8.535		
2,500.0	2,467.3	2,508.3	2,487.2	7.6	6.8	162.02	144.4	133.1	99.5	87.8	11.77	8.456		
2,600.0	2,564.1	2,608.2	2,584.7	8.1	7.2	161.76	161.3	146.5	103.6	91.3	12.37	8.380		
2,700.0	2,660.8	2,708.1	2,682.3	8.6	7.6	161.53	178.3	159.9	107.7	94.8	12.97	8.307		
2,800.0	2,757.6	2,808.0	2,779.8	9.1	8.0	161.31	195.3	173.2	111.8	98.3	13.58	8.237		
2,900.0	2,854.4	2,907.9	2,877.4	9.6	8.5	161.11	212.2	186.6	115.9	101.7	14.19	8.171		
3,000.0	2,951.1	3,007.8	2,974.9	10.1	8.9	160.92	229.2	199.9	120.0	105.2	14.80	8.109		
3,100.0	3,047.9	3,107.7	3,072.5	10.6	9.3	160.74	246.2	213.3	124.1	108.7	15.42	8.049		
3,200.0	3,144.7	3,207.7	3,170.0	11.1	9.8	160.58	263.1	226.6	128.3	112.2	16.05	7.992		
3,300.0	3,241.5	3,307.6	3,267.6	11.6	10.2	160.42	280.1	240.0	132.4	115.7	16.67	7.939		
3,400.0	3,338.2	3,407.5	3,365.2	12.1	10.7	160.28	297.1	253.3	136.5	119.2	17.30	7.888		
3,500.0	3,435.0	3,507.4	3,462.7	12.6	11.1	160.14	314.0	266.7	140.6	122.7	17.93	7.839		
3,600.0	3,531.8	3,607.3	3,560.3	13.1	11.5	160.01	331.0	280.1	144.7	126.1	18.57	7.793		
3,700.0	3,628.6	3,707.2	3,657.8	13.6	12.0	159.89	348.0	293.4	148.8	129.6	19.20	7.749		
3,800.0	3,725.3	3,807.1	3,755.4	14.1	12.4	159.77	364.9	306.8	152.9	133.1	19.84	7.707		
3,900.0	3,822.1	3,907.1	3,852.9	14.7	12.9	159.66	381.9	320.1	157.0	136.6	20.48	7.667		
4,000.0	3,918.9	4,007.0	3,950.5	15.2	13.3	159.56	398.8	333.5	161.2	140.0	21.12	7.629		
4,100.0	4,015.6	4,106.9	4,048.0	15.7	13.8	159.46	415.8	346.8	165.3	143.5	21.77	7.593		
4,200.0	4,112.4	4,206.8	4,145.6	16.2	14.2	159.37	432.8	360.2	169.4	147.0	22.41	7.558		
4,300.0	4,209.2	4,306.7	4,243.1	16.7	14.7	159.28	449.7	373.5	173.5	150.4	23.06	7.525		
4,400.0	4,306.0	4,406.6	4,340.7	17.2	15.2	159.19	466.7	386.9	177.6	153.9	23.70	7.494		
4,500.0	4,402.7	4,506.6	4,438.2	17.8	15.6	159.11	483.7	400.3	181.7	157.4	24.35	7.463		
4,600.0	4,499.5	4,606.5	4,535.8	18.3	16.1	159.03	500.6	413.6	185.9	160.9	25.00	7.434		
4,700.0	4,596.3	4,706.4	4,633.4	18.8	16.5	158.96	517.6	427.0	190.0	164.3	25.65	7.406		
4,800.0	4,693.1	4,806.3	4,730.9	19.3	17.0	158.89	534.6	440.3	194.1	167.8	26.30	7.380		
4,900.0	4,789.8	4,906.2	4,828.5	19.8	17.4	158.82	551.5	453.7	198.2	171.2	26.95	7.353		
5,000.0	4,887.1	5,006.2	4,926.1	20.2	17.9	158.55	568.5	467.0	200.3	172.7	27.61	7.255		
5,100.0	4,985.2	5,106.1	5,023.7	20.5	18.3	157.88	585.5	480.4	199.2	170.8	28.31	7.036		

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 Greeley-Rothe 1-4H
Project:	SEC.1-T5N-R67W	TVD Reference:	WELL @ 4891.0ft (Original Well Elev)
Reference Site:	Greeley-Rothe Pad Sec.1-T5N-R67W	MD Reference:	WELL @ 4891.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Greeley-Rothe 1-4H	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 #2 (6-05-14)	Offset TVD Reference:	Offset Datum

Offset Design												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	5,083.8	5,206.0	5,121.1	20.8	18.8	156.79	602.4	493.7	194.8	165.8	29.07	6.703	
5,300.0	5,183.0	5,303.5	5,216.4	21.1	19.2	155.25	618.8	506.6	187.6	157.7	29.88	6.280	
5,400.0	5,282.6	5,400.0	5,311.2	21.3	19.5	153.55	633.0	517.8	179.7	149.1	30.64	5.867	
5,500.0	5,382.4	5,492.4	5,402.5	21.5	19.8	151.80	644.2	526.7	171.7	140.3	31.36	5.475	
5,600.0	5,482.4	5,587.3	5,496.6	21.6	20.0	149.89	653.4	533.8	163.5	131.5	32.09	5.097	
5,700.0	5,582.4	5,682.5	5,591.5	21.7	20.2	-178.20	660.0	539.1	156.3	118.0	38.26	4.086	
5,800.0	5,682.4	5,778.3	5,687.1	21.9	20.4	-179.41	664.3	542.4	151.8	113.5	38.30	3.964	
5,900.0	5,782.4	5,874.3	5,783.1	22.0	20.5	-179.91	666.0	543.8	150.0	111.6	38.46	3.901	
5,940.5	5,822.8	5,914.0	5,822.8	22.0	20.6	-179.93	666.0	543.8	150.0	111.4	38.57	3.889	
6,000.0	5,882.4	5,973.6	5,882.4	22.1	20.7	-179.93	666.0	543.8	150.0	111.3	38.74	3.872	
6,100.0	5,982.4	6,073.6	5,982.4	22.2	20.8	-179.93	666.0	543.8	150.0	111.0	39.02	3.844	
6,200.0	6,082.4	6,173.6	6,082.4	22.4	21.0	-179.93	666.0	543.8	150.0	110.7	39.31	3.816	
6,300.0	6,182.4	6,273.6	6,182.4	22.5	21.1	-179.93	666.0	543.8	150.0	110.4	39.59	3.788	
6,400.0	6,282.4	6,373.6	6,282.4	22.6	21.2	-179.93	666.0	543.8	150.0	110.1	39.88	3.761	
6,500.0	6,382.4	6,473.6	6,382.4	22.7	21.4	-179.93	666.0	543.8	150.0	109.8	40.18	3.733	
6,600.0	6,482.4	6,573.6	6,482.4	22.9	21.5	-179.93	666.0	543.8	150.0	109.5	40.48	3.706	
6,700.0	6,582.4	6,673.6	6,582.4	23.0	21.7	-88.10	666.0	543.8	150.0	113.4	36.60	4.098	
6,769.4	6,651.6	6,742.8	6,651.6	23.0	21.8	-90.00	666.0	543.8	149.9	112.7	37.21	4.028	
6,800.0	6,681.8	6,773.1	6,681.9	23.1	21.8	-91.62	666.0	543.8	150.0	112.3	37.67	3.981	
6,900.0	6,779.1	6,873.5	6,782.0	23.0	21.9	-97.48	665.8	536.2	151.2	112.2	39.03	3.874	
7,000.0	6,872.1	6,976.3	6,882.2	22.9	21.9	-103.12	665.0	514.0	154.0	114.1	39.88	3.862	
7,100.0	6,959.3	7,081.5	6,980.5	22.8	21.8	-108.34	663.8	476.7	158.1	118.0	40.07	3.945	
7,200.0	7,038.7	7,189.2	7,074.3	22.6	21.6	-113.00	662.1	424.1	163.0	123.4	39.64	4.113	
7,300.0	7,109.0	7,299.2	7,160.9	22.4	21.4	-117.01	659.8	356.5	168.5	129.7	38.77	4.345	
7,400.0	7,168.7	7,411.5	7,237.6	22.2	21.2	-120.33	657.2	274.5	173.8	136.1	37.79	4.600	
7,500.0	7,216.6	7,526.0	7,301.5	22.0	21.0	-122.96	654.0	179.9	178.7	141.6	37.12	4.816	
7,600.0	7,251.9	7,642.1	7,350.2	21.8	20.8	-124.90	650.6	74.6	182.8	145.6	37.15	4.920	
7,700.0	7,273.8	7,759.6	7,381.4	21.7	21.1	-126.16	646.9	-38.5	185.6	147.4	38.17	4.861	
7,800.0	7,282.0	7,877.9	7,393.8	22.4	22.4	-126.76	643.0	-155.9	186.9	146.6	40.30	4.639	
7,900.0	7,282.0	7,980.4	7,394.0	24.0	24.0	-126.80	639.6	-258.4	187.0	144.0	42.98	4.351	
8,000.0	7,282.0	8,080.4	7,394.0	25.9	25.9	-126.80	636.3	-358.3	187.0	141.1	45.92	4.072	
8,100.0	7,282.0	8,180.4	7,394.0	28.0	27.9	-126.80	633.1	-458.3	187.0	137.8	49.11	3.807	
8,200.0	7,282.0	8,280.4	7,394.0	30.1	30.0	-126.81	629.8	-558.2	186.9	134.4	52.51	3.560	
8,300.0	7,282.0	8,380.4	7,394.0	32.4	32.3	-126.81	626.5	-658.2	186.9	130.9	56.07	3.334	
8,400.0	7,282.0	8,480.4	7,394.0	34.7	34.6	-126.81	623.2	-758.1	186.9	127.1	59.77	3.127	
8,500.0	7,282.0	8,580.4	7,394.0	37.1	37.0	-126.82	619.9	-858.1	186.9	123.3	63.59	2.939	
8,600.0	7,282.0	8,680.4	7,394.0	39.5	39.4	-126.82	616.6	-958.0	186.9	119.4	67.50	2.769	
8,700.0	7,282.0	8,780.4	7,394.0	42.0	41.9	-126.83	613.3	-1,058.0	186.9	115.4	71.49	2.614	
8,800.0	7,282.0	8,880.4	7,394.0	44.5	44.4	-126.83	610.0	-1,157.9	186.8	111.3	75.54	2.473	
8,900.0	7,282.0	8,980.4	7,394.0	47.1	46.9	-126.83	606.8	-1,257.8	186.8	107.2	79.65	2.346	
9,000.0	7,282.0	9,080.4	7,394.0	49.7	49.5	-126.84	603.5	-1,357.8	186.8	103.0	83.81	2.229	
9,100.0	7,282.0	9,180.4	7,394.0	52.3	52.1	-126.84	600.2	-1,457.7	186.8	98.8	88.01	2.123	
9,200.0	7,282.0	9,280.4	7,394.0	54.9	54.7	-126.84	596.9	-1,557.7	186.8	94.5	92.24	2.025	
9,300.0	7,282.0	9,380.4	7,394.0	57.5	57.3	-126.85	593.6	-1,657.6	186.8	90.3	96.50	1.935	
9,400.0	7,282.0	9,480.4	7,394.0	60.1	60.0	-126.85	590.3	-1,757.6	186.7	86.0	100.79	1.853	
9,500.0	7,282.0	9,580.4	7,394.0	62.8	62.6	-126.86	587.0	-1,857.5	186.7	81.6	105.11	1.777	
9,600.0	7,282.0	9,680.4	7,394.0	65.5	65.3	-126.86	583.7	-1,957.5	186.7	77.3	109.44	1.706	
9,700.0	7,282.0	9,780.4	7,394.0	68.2	68.0	-126.86	580.5	-2,057.4	186.7	72.9	113.79	1.641	
9,800.0	7,282.0	9,880.4	7,394.0	70.8	70.7	-126.87	577.2	-2,157.4	186.7	68.5	118.16	1.580	
9,900.0	7,282.0	9,980.4	7,394.0	73.5	73.4	-126.87	573.9	-2,257.3	186.7	64.1	122.54	1.523	
10,000.0	7,282.0	10,080.4	7,394.0	76.2	76.1	-126.87	570.6	-2,357.2	186.6	59.7	126.94	1.470 Level 3	
10,100.0	7,282.0	10,180.4	7,394.0	79.0	78.8	-126.88	567.3	-2,457.2	186.6	55.3	131.34	1.421 Level 3	

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 Greeley-Rothe 1-4H
Project:	SEC.1-T5N-R67W	TVD Reference:	WELL @ 4891.0ft (Original Well Elev)
Reference Site:	Greeley-Rothe Pad Sec.1-T5N-R67W	MD Reference:	WELL @ 4891.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Greeley-Rothe 1-4H	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 #2 (6-05-14)	Offset TVD Reference:	Offset Datum

Offset Design Greeley-Rothe Pad Sec.1-T5N-R67W - Greeley-Rothe 1-5H - Wellbore #1 - Plan #2 (6-05-14)													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	
10,200.0	7,282.0	10,280.4	7,394.0	81.7	81.5	-126.88	564.0	-2,557.1	186.6	50.9	135.76	1.375 Level 3	
10,300.0	7,282.0	10,380.4	7,394.0	84.4	84.2	-126.89	560.7	-2,657.1	186.6	46.4	140.19	1.331 Level 3	
10,400.0	7,282.0	10,480.4	7,394.0	87.1	87.0	-126.89	557.5	-2,757.0	186.6	42.0	144.62	1.290 Level 3	
10,500.0	7,282.0	10,580.4	7,394.0	89.8	89.7	-126.89	554.2	-2,857.0	186.6	37.5	149.06	1.252 Level 3	
10,600.0	7,282.0	10,680.4	7,394.0	92.6	92.4	-126.90	550.9	-2,956.9	186.5	33.0	153.51	1.215 Level 2	
10,700.0	7,282.0	10,780.4	7,394.0	95.3	95.2	-126.90	547.6	-3,056.9	186.5	28.6	157.96	1.181 Level 2	
10,800.0	7,282.0	10,880.4	7,394.0	98.1	97.9	-126.91	544.3	-3,156.8	186.5	24.1	162.43	1.148 Level 2	
10,900.0	7,282.0	10,980.4	7,394.0	100.8	100.7	-126.91	541.0	-3,256.8	186.5	19.6	166.89	1.117 Level 2	
11,000.0	7,282.0	11,080.4	7,394.0	103.6	103.4	-126.91	537.7	-3,356.7	186.5	15.1	171.36	1.088 Level 2	
11,100.0	7,282.0	11,180.4	7,394.0	106.3	106.2	-126.92	534.4	-3,456.7	186.5	10.6	175.84	1.060 Level 2	
11,200.0	7,282.0	11,280.4	7,394.0	109.1	108.9	-126.92	531.2	-3,556.6	186.4	6.1	180.32	1.034 Level 2	
11,300.0	7,282.0	11,380.4	7,394.0	111.8	111.7	-126.92	527.9	-3,656.5	186.4	1.6	184.80	1.009 Level 2	
11,400.0	7,282.0	11,480.4	7,394.0	114.6	114.4	-126.93	524.6	-3,756.5	186.4	-2.9	189.28	0.985 Level 1	
11,500.0	7,282.0	11,580.4	7,394.0	117.3	117.2	-126.93	521.3	-3,856.4	186.4	-7.4	193.77	0.962 Level 1	
11,600.0	7,282.0	11,680.4	7,394.0	120.1	120.0	-126.94	518.0	-3,956.4	186.4	-11.9	198.27	0.940 Level 1	
11,700.0	7,282.0	11,780.4	7,394.0	122.9	122.7	-126.94	514.7	-4,056.3	186.4	-16.4	202.76	0.919 Level 1	
11,800.0	7,282.0	11,880.4	7,394.0	125.6	125.5	-126.94	511.4	-4,156.3	186.3	-20.9	207.26	0.899 Level 1	
11,880.4	7,282.0	11,960.9	7,394.0	127.8	127.7	-126.95	508.8	-4,236.7	186.3	-24.5	210.88	0.884 Level 1, ES, SF	

Company:	KP KAUFFMAN	Local Co-ordinate Reference:	Well Greeley-Rothe 1-4H
Project:	SEC.1-T5N-R67W	TVD Reference:	WELL @ 4891.0ft (Original Well Elev)
Reference Site:	Greeley-Rothe Pad Sec.1-T5N-R67W	MD Reference:	WELL @ 4891.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Greeley-Rothe 1-4H	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 #2 (6-05-14)	Offset TVD Reference:	Offset Datum

Offset Design													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	-179.59	-50.0	-0.4	50.0					
100.0	100.0	100.0	100.0	0.1	0.1	-179.59	-50.0	-0.4	50.0	49.8	0.22	222.387		
200.0	200.0	200.0	200.0	0.3	0.3	-179.59	-50.0	-0.4	50.0	49.3	0.67	74.129		
300.0	300.0	300.0	300.0	0.6	0.6	-179.59	-50.0	-0.4	50.0	48.9	1.12	44.477		
400.0	400.0	400.0	400.0	0.8	0.8	-179.59	-50.0	-0.4	50.0	48.4	1.57	31.770		
500.0	500.0	500.0	500.0	1.0	1.0	-179.59	-50.0	-0.4	50.0	48.0	2.02	24.710		
600.0	600.0	600.0	600.0	1.2	1.2	-179.59	-50.0	-0.4	50.0	47.5	2.47	20.217		
700.0	700.0	700.0	700.0	1.5	1.5	-179.59	-50.0	-0.4	50.0	47.1	2.92	17.107		
800.0	800.0	800.0	800.0	1.7	1.7	-179.59	-50.0	-0.4	50.0	46.6	3.37	14.826		
900.0	900.0	900.0	900.0	1.9	1.9	-179.59	-50.0	-0.4	50.0	46.2	3.82	13.082		
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-179.59	-50.0	-0.4	50.0	45.7	4.27	11.705 CC, ES		
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	147.78	-50.0	-0.4	51.5	46.7	4.72	10.907		
1,200.0	1,199.8	1,199.8	1,199.8	2.6	2.6	150.59	-50.0	-0.4	56.0	50.8	5.16	10.841		
1,300.0	1,299.5	1,299.5	1,299.5	2.8	2.8	154.37	-50.0	-0.4	63.7	58.1	5.60	11.368		
1,400.0	1,398.7	1,398.7	1,398.7	3.1	3.0	158.32	-50.0	-0.4	74.9	68.8	6.04	12.396		
1,500.0	1,497.5	1,497.5	1,497.5	3.3	3.3	161.92	-50.0	-0.4	89.6	83.1	6.47	13.845		
1,600.0	1,595.6	1,595.6	1,595.6	3.6	3.5	164.97	-50.0	-0.4	107.9	101.0	6.90	15.645		
1,700.0	1,693.1	1,697.1	1,697.1	4.0	3.7	167.25	-48.8	0.8	128.4	121.0	7.32	17.533		
1,800.0	1,789.9	1,799.6	1,799.5	4.4	3.9	168.65	-45.0	4.5	148.2	140.4	7.77	19.077		
1,900.0	1,886.6	1,903.5	1,902.9	4.8	4.2	169.29	-38.4	10.8	165.0	156.7	8.25	20.007		
2,000.0	1,983.4	2,008.5	2,007.1	5.2	4.4	169.38	-29.1	19.8	178.4	169.6	8.74	20.409		
2,100.0	2,080.2	2,114.3	2,111.6	5.7	4.7	169.04	-16.9	31.6	188.3	179.1	9.25	20.360		
2,200.0	2,177.0	2,214.3	2,209.9	6.2	5.0	168.54	-3.9	44.2	196.4	186.7	9.77	20.111		
2,300.0	2,273.7	2,313.9	2,307.9	6.6	5.3	168.07	9.0	56.6	204.6	194.3	10.29	19.873		
2,400.0	2,370.5	2,413.6	2,405.9	7.1	5.6	167.65	21.9	69.1	212.7	201.9	10.83	19.641		
2,500.0	2,467.3	2,513.3	2,504.0	7.6	5.9	167.25	34.8	81.6	220.8	209.5	11.37	19.418		
2,600.0	2,564.1	2,612.9	2,602.0	8.1	6.2	166.88	47.8	94.1	229.0	217.1	11.92	19.205		
2,700.0	2,660.8	2,712.6	2,700.0	8.6	6.6	166.54	60.7	106.6	237.2	224.7	12.48	19.001		
2,800.0	2,757.6	2,812.2	2,798.0	9.1	6.9	166.22	73.6	119.1	245.3	232.3	13.04	18.807		
2,900.0	2,854.4	2,911.9	2,896.1	9.6	7.3	165.92	86.5	131.5	253.5	239.9	13.61	18.621		
3,000.0	2,951.1	3,011.5	2,994.1	10.1	7.6	165.64	99.4	144.0	261.7	247.5	14.19	18.445		
3,100.0	3,047.9	3,111.2	3,092.1	10.6	8.0	165.38	112.4	156.5	269.9	255.1	14.77	18.277		
3,200.0	3,144.7	3,210.8	3,190.1	11.1	8.3	165.13	125.3	169.0	278.1	262.7	15.35	18.118		
3,300.0	3,241.5	3,310.5	3,288.1	11.6	8.7	164.90	138.2	181.5	286.3	270.3	15.93	17.966		
3,400.0	3,338.2	3,410.2	3,386.2	12.1	9.1	164.68	151.1	194.0	294.5	278.0	16.52	17.821		
3,500.0	3,435.0	3,509.8	3,484.2	12.6	9.5	164.47	164.0	206.4	302.7	285.6	17.12	17.683		
3,600.0	3,531.8	3,609.5	3,582.2	13.1	9.8	164.27	177.0	218.9	310.9	293.2	17.71	17.552		
3,700.0	3,628.6	3,709.1	3,680.2	13.6	10.2	164.08	189.9	231.4	319.1	300.8	18.31	17.427		
3,800.0	3,725.3	3,808.8	3,778.3	14.1	10.6	163.90	202.8	243.9	327.3	308.4	18.91	17.308		
3,900.0	3,822.1	3,908.4	3,876.3	14.7	11.0	163.73	215.7	256.4	335.6	316.0	19.52	17.195		
4,000.0	3,918.9	4,008.1	3,974.3	15.2	11.4	163.57	228.6	268.9	343.8	323.7	20.12	17.086		
4,100.0	4,015.6	4,107.8	4,072.3	15.7	11.7	163.42	241.6	281.4	352.0	331.3	20.73	16.982		
4,200.0	4,112.4	4,207.4	4,170.4	16.2	12.1	163.27	254.5	293.8	360.2	338.9	21.34	16.883		
4,300.0	4,209.2	4,307.1	4,268.4	16.7	12.5	163.13	267.4	306.3	368.5	346.5	21.95	16.788		
4,400.0	4,306.0	4,406.7	4,366.4	17.2	12.9	163.00	280.3	318.8	376.7	354.1	22.56	16.697		
4,500.0	4,402.7	4,506.4	4,464.4	17.8	13.3	162.87	293.2	331.3	384.9	361.8	23.17	16.610		
4,600.0	4,499.5	4,606.0	4,562.5	18.3	13.7	162.75	306.1	343.8	393.2	369.4	23.79	16.527		
4,700.0	4,596.3	4,705.7	4,660.5	18.8	14.1	162.63	319.1	356.3	401.4	377.0	24.41	16.447		
4,800.0	4,693.1	4,805.4	4,758.5	19.3	14.5	162.52	332.0	368.7	409.7	384.6	25.03	16.370		
4,900.0	4,789.8	4,905.0	4,856.5	19.8	14.9	162.41	344.9	381.2	417.9	392.2	25.65	16.293		
5,000.0	4,887.1	5,004.8	4,954.7	20.2	15.2	162.26	357.8	393.7	424.1	397.8	26.26	16.150		
5,100.0	4,985.2	5,104.7	5,053.0	20.5	15.6	161.94	370.8	406.2	426.9	400.1	26.86	15.896		

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 Greeley-Rothe 1-4H
Project:	SEC.1-T5N-R67W	TVD Reference:	WELL @ 4891.0ft (Original Well Elev)
Reference Site:	Greeley-Rothe Pad Sec.1-T5N-R67W	MD Reference:	WELL @ 4891.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Greeley-Rothe 1-4H	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 #2 (6-05-14)	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	5,083.8	5,204.7	5,151.3	20.8	16.0	161.46	383.8	418.8	426.5	399.1	27.45	15.537		
5,300.0	5,183.0	5,304.5	5,249.5	21.1	16.4	160.81	396.7	431.3	422.8	394.8	28.04	15.080		
5,400.0	5,282.6	5,404.1	5,347.4	21.3	16.8	159.96	409.6	443.7	415.9	387.3	28.63	14.528		
5,500.0	5,382.4	5,503.3	5,445.0	21.5	17.2	158.88	422.5	456.2	405.8	376.6	29.23	13.885		
5,600.0	5,482.4	5,602.0	5,542.1	21.6	17.6	157.54	435.3	468.5	392.7	362.8	29.85	13.156		
5,700.0	5,582.4	5,700.4	5,638.9	21.7	18.0	-170.26	448.0	480.9	377.6	340.2	37.43	10.089		
5,800.0	5,682.4	5,798.8	5,735.6	21.9	18.4	-171.86	460.8	493.2	362.8	325.1	37.65	9.636		
5,900.0	5,782.4	5,897.1	5,832.4	22.0	18.8	-173.59	473.5	505.5	348.2	310.4	37.83	9.205		
6,000.0	5,882.4	5,991.6	5,925.4	22.1	19.1	-175.35	485.6	517.1	334.3	296.4	37.96	8.806		
6,100.0	5,982.4	6,082.5	6,015.2	22.2	19.4	-176.89	495.4	526.6	322.8	284.8	38.05	8.484		
6,200.0	6,082.4	6,174.2	6,106.2	22.4	19.6	-178.20	503.2	534.1	313.9	275.8	38.15	8.229		
6,300.0	6,182.4	6,266.4	6,198.2	22.5	19.8	-179.20	508.9	539.7	307.5	269.3	38.28	8.034		
6,400.0	6,282.4	6,359.1	6,290.7	22.6	20.0	-179.85	512.5	543.2	303.6	265.1	38.46	7.894		
6,500.0	6,382.4	6,452.0	6,383.6	22.7	20.1	179.89	514.0	544.6	302.0	263.3	38.70	7.805		
6,540.5	6,422.8	6,491.3	6,422.8	22.8	20.2	179.88	514.0	544.6	302.0	263.2	38.81	7.780		
6,600.0	6,482.4	6,550.8	6,482.4	22.9	20.3	179.88	514.0	544.6	302.0	263.0	39.00	7.744		
6,700.0	6,582.4	6,650.6	6,582.1	23.0	20.4	-88.23	514.0	544.5	302.0	265.5	36.49	8.277		
6,800.0	6,681.8	6,749.3	6,680.4	23.1	20.5	-88.25	513.7	535.4	302.0	265.3	36.64	8.242		
6,900.0	6,779.1	6,848.0	6,776.4	23.0	20.5	-88.31	513.0	513.0	302.0	265.4	36.61	8.248		
7,000.0	6,872.1	6,946.8	6,868.6	22.9	20.4	-88.39	511.8	477.5	302.0	265.5	36.46	8.282		
7,100.0	6,959.3	7,045.7	6,955.0	22.8	20.2	-88.51	510.2	429.7	301.9	265.7	36.25	8.328		
7,200.0	7,038.7	7,144.7	7,034.1	22.6	20.0	-88.66	508.3	370.4	301.9	265.8	36.12	8.358		
7,300.0	7,109.0	7,243.8	7,104.4	22.4	19.8	-88.84	506.0	300.7	301.9	265.7	36.21	8.337		
7,400.0	7,168.7	7,343.0	7,164.4	22.2	19.7	-89.03	503.4	221.8	301.9	265.2	36.69	8.228		
7,500.0	7,216.6	7,442.3	7,213.0	22.0	19.7	-89.25	500.5	135.3	301.8	264.1	37.70	8.005		
7,600.0	7,251.9	7,541.9	7,249.3	21.8	19.9	-89.48	497.4	42.7	301.8	262.5	39.34	7.671		
7,700.0	7,273.8	7,641.6	7,272.4	21.7	20.7	-89.72	494.2	-54.1	301.8	260.2	41.61	7.253		
7,800.0	7,282.0	7,741.5	7,281.8	22.4	22.0	-89.97	491.0	-153.4	301.8	257.4	44.41	6.795		
7,900.0	7,282.0	7,841.5	7,282.0	24.0	23.7	-90.00	487.7	-253.3	301.8	254.1	47.68	6.330		
8,000.0	7,282.0	7,941.5	7,282.0	25.9	25.5	-90.00	484.4	-353.3	301.8	250.5	51.31	5.881		
8,100.0	7,282.0	8,041.5	7,282.0	28.0	27.5	-90.00	481.1	-453.2	301.8	246.5	55.28	5.459		
8,200.0	7,282.0	8,141.5	7,282.0	30.1	29.7	-90.00	477.8	-553.2	301.8	242.2	59.51	5.071		
8,300.0	7,282.0	8,241.5	7,282.0	32.4	31.9	-90.00	474.5	-653.1	301.7	237.8	63.95	4.718		
8,400.0	7,282.0	8,341.5	7,282.0	34.7	34.2	-90.00	471.2	-753.1	301.7	233.2	68.57	4.401		
8,500.0	7,282.0	8,441.5	7,282.0	37.1	36.6	-90.00	467.9	-853.0	301.7	228.4	73.32	4.115		
8,600.0	7,282.0	8,541.5	7,282.0	39.5	39.1	-90.00	464.6	-953.0	301.7	223.5	78.18	3.859		
8,700.0	7,282.0	8,641.5	7,282.0	42.0	41.5	-90.00	461.3	-1,052.9	301.7	218.6	83.14	3.629		
8,800.0	7,282.0	8,741.5	7,282.0	44.5	44.1	-90.00	458.0	-1,152.9	301.7	213.5	88.17	3.422		
8,900.0	7,282.0	8,841.5	7,282.0	47.1	46.6	-90.00	454.7	-1,252.8	301.7	208.4	93.27	3.235		
9,000.0	7,282.0	8,941.5	7,282.0	49.7	49.2	-90.00	451.4	-1,352.7	301.7	203.3	98.42	3.065		
9,100.0	7,282.0	9,041.5	7,282.0	52.3	51.8	-90.00	448.1	-1,452.7	301.7	198.1	103.62	2.911		
9,200.0	7,282.0	9,141.5	7,282.0	54.9	54.4	-90.00	444.8	-1,552.6	301.7	192.8	108.86	2.771		
9,300.0	7,282.0	9,241.5	7,282.0	57.5	57.0	-90.00	441.5	-1,652.6	301.7	187.5	114.13	2.643		
9,400.0	7,282.0	9,341.5	7,282.0	60.1	59.7	-90.00	438.2	-1,752.5	301.7	182.2	119.44	2.526		
9,500.0	7,282.0	9,441.5	7,282.0	62.8	62.4	-90.00	434.9	-1,852.5	301.7	176.9	124.77	2.418		
9,600.0	7,282.0	9,541.5	7,282.0	65.5	65.0	-90.00	431.6	-1,952.4	301.6	171.5	130.12	2.318		
9,700.0	7,282.0	9,641.5	7,282.0	68.2	67.7	-90.00	428.3	-2,052.4	301.6	166.1	135.49	2.226		
9,800.0	7,282.0	9,741.5	7,282.0	70.8	70.4	-90.00	425.0	-2,152.3	301.6	160.8	140.88	2.141		
9,900.0	7,282.0	9,841.5	7,282.0	73.5	73.1	-90.00	421.7	-2,252.3	301.6	155.3	146.29	2.062		
10,000.0	7,282.0	9,941.5	7,282.0	76.2	75.8	-90.00	418.4	-2,352.2	301.6	149.9	151.71	1.988		
10,100.0	7,282.0	10,041.5	7,282.0	79.0	78.5	-90.00	415.1	-2,452.1	301.6	144.5	157.14	1.919		
10,200.0	7,282.0	10,141.5	7,282.0	81.7	81.3	-90.00	411.8	-2,552.1	301.6	139.0	162.58	1.855		

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

Greeley-Rothe Pad Sec.1-T5N-R67W - Greeley-Rothe 1-6H - Wellbore #1 - Plan #2 (6-05-14)												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 Depth (ft)	Vertical Depth Depth (ft)	Measured Depth Depth (ft)	Vertical Depth 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	7,282.0	10,241.5	7,282.0	84.4	84.0	-90.00	408.5	-2,652.0	301.6	133.6	168.04	1.795	
10,400.0	7,282.0	10,341.5	7,282.0	87.1	86.7	-90.00	405.2	-2,752.0	301.6	128.1	173.50	1.738	
10,500.0	7,282.0	10,441.5	7,282.0	89.8	89.5	-90.00	401.9	-2,851.9	301.6	122.6	178.98	1.685	
10,600.0	7,282.0	10,541.5	7,282.0	92.6	92.2	-90.00	398.6	-2,951.9	301.6	117.1	184.46	1.635	
10,700.0	7,282.0	10,641.5	7,282.0	95.3	94.9	-90.00	395.3	-3,051.8	301.6	111.6	189.94	1.588	
10,800.0	7,282.0	10,741.5	7,282.0	98.1	97.7	-90.00	392.0	-3,151.8	301.6	106.1	195.44	1.543	
10,900.0	7,282.0	10,841.5	7,282.0	100.8	100.4	-90.00	388.7	-3,251.7	301.5	100.6	200.94	1.501	
11,000.0	7,282.0	10,941.5	7,282.0	103.6	103.2	-90.00	385.4	-3,351.7	301.5	95.1	206.44	1.461	Level 3
11,100.0	7,282.0	11,041.5	7,282.0	106.3	105.9	-90.00	382.1	-3,451.6	301.5	89.6	211.95	1.423	Level 3
11,200.0	7,282.0	11,141.5	7,282.0	109.1	108.7	-90.00	378.8	-3,551.6	301.5	84.1	217.46	1.387	Level 3
11,300.0	7,282.0	11,241.5	7,282.0	111.8	111.4	-90.00	375.5	-3,651.5	301.5	78.5	222.98	1.352	Level 3
11,400.0	7,282.0	11,341.5	7,282.0	114.6	114.2	-90.00	372.2	-3,751.4	301.5	73.0	228.51	1.319	Level 3
11,500.0	7,282.0	11,441.5	7,282.0	117.3	117.0	-90.00	368.9	-3,851.4	301.5	67.5	234.03	1.288	Level 3
11,600.0	7,282.0	11,541.5	7,282.0	120.1	119.7	-90.00	365.6	-3,951.3	301.5	61.9	239.56	1.259	Level 3
11,700.0	7,282.0	11,641.5	7,282.0	122.9	122.5	-90.00	362.3	-4,051.3	301.5	56.4	245.10	1.230	Level 2
11,800.0	7,282.0	11,741.5	7,282.0	125.6	125.3	-90.00	359.0	-4,151.2	301.5	50.8	250.63	1.203	Level 2
11,880.4	7,282.0	11,821.9	7,282.0	127.8	127.5	-90.00	356.3	-4,231.6	301.5	46.4	255.09	1.182	Level 2, SF

Greeley-Rothe Pad Sec.1-T5N-R67W - Greeley-Rothe 1-7H - Wellbore #1 - Plan #2 (6-05-14)													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	-145.88	-74.6	-50.6	90.1					
100.0	100.0	100.0	100.0	0.1	0.1	-145.88	-74.6	-50.6	90.1	89.9	0.22	400.994		
200.0	200.0	200.0	200.0	0.3	0.3	-145.88	-74.6	-50.6	90.1	89.5	0.67	133.665		
300.0	300.0	300.0	300.0	0.6	0.6	-145.88	-74.6	-50.6	90.1	89.0	1.12	80.199		
400.0	400.0	400.0	400.0	0.8	0.8	-145.88	-74.6	-50.6	90.1	88.6	1.57	57.285		
500.0	500.0	500.0	500.0	1.0	1.0	-145.88	-74.6	-50.6	90.1	88.1	2.02	44.555		
600.0	600.0	600.0	600.0	1.2	1.2	-145.88	-74.6	-50.6	90.1	87.7	2.47	36.454		
700.0	700.0	700.0	700.0	1.5	1.5	-145.88	-74.6	-50.6	90.1	87.2	2.92	30.846		
800.0	800.0	800.0	800.0	1.7	1.7	-145.88	-74.6	-50.6	90.1	86.8	3.37	26.733		
900.0	900.0	900.0	900.0	1.9	1.9	-145.88	-74.6	-50.6	90.1	86.3	3.82	23.588		
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-145.88	-74.6	-50.6	90.1	85.9	4.27	21.105 CC, ES		
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	-179.57	-74.6	-50.6	91.9	87.2	4.72	19.477		
1,200.0	1,199.8	1,199.8	1,199.8	2.6	2.6	-179.60	-74.6	-50.6	97.1	91.9	5.16	18.825 SF		
1,300.0	1,299.5	1,299.5	1,299.5	2.8	2.8	-179.63	-74.6	-50.6	105.8	100.2	5.60	18.912		
1,400.0	1,398.7	1,398.7	1,398.7	3.1	3.0	-179.66	-74.6	-50.6	118.0	112.0	6.03	19.579		
1,500.0	1,497.5	1,497.5	1,497.5	3.3	3.3	-179.70	-74.6	-50.6	133.7	127.2	6.45	20.709		
1,600.0	1,595.6	1,595.6	1,595.6	3.6	3.5	-179.74	-74.6	-50.6	152.7	145.9	6.88	22.214		
1,700.0	1,693.1	1,693.1	1,693.1	4.0	3.7	-179.77	-74.6	-50.6	175.2	167.9	7.29	24.031		
1,800.0	1,789.9	1,789.9	1,789.9	4.4	3.9	-179.80	-74.6	-50.6	200.3	192.5	7.74	25.891		
1,900.0	1,886.6	1,892.8	1,892.8	4.8	4.1	179.97	-74.0	-49.2	224.3	216.1	8.20	27.352		
2,000.0	1,983.4	1,997.8	1,997.6	5.2	4.4	179.29	-71.8	-44.3	245.3	236.7	8.67	28.310		
2,100.0	2,080.2	2,103.9	2,103.3	5.7	4.6	178.25	-68.1	-35.9	263.4	254.2	9.15	28.794		
2,200.0	2,177.0	2,210.9	2,209.5	6.2	4.8	176.88	-62.6	-23.7	278.5	268.9	9.65	28.866		
2,300.0	2,273.7	2,318.5	2,315.7	6.6	5.1	175.17	-55.6	-7.8	290.8	280.6	10.18	28.578		
2,400.0	2,370.5	2,423.6	2,418.7	7.1	5.4	173.21	-47.2	11.0	300.5	289.7	10.73	28.007		
2,500.0	2,467.3	2,522.7	2,515.7	7.6	5.7	171.38	-38.9	29.6	309.8	298.5	11.29	27.429		
2,600.0	2,564.1	2,621.8	2,612.7	8.1	6.1	169.65	-30.6	48.2	319.4	307.5	11.88	26.876		
2,700.0	2,660.8	2,720.9	2,709.7	8.6	6.4	168.03	-22.3	66.8	329.3	316.8	12.50	26.344		
2,800.0	2,757.6	2,820.0	2,806.6	9.1	6.7	166.50	-14.1	85.4	339.4	326.3	13.14	25.837		
2,900.0	2,854.4	2,919.0	2,903.6	9.6	7.1	165.06	-5.8	103.9	349.8	336.0	13.80	25.354		
3,000.0	2,951.1	3,018.1	3,000.6	10.1	7.5	163.70	2.5	122.5	360.4	345.9	14.48	24.896		
3,100.0	3,047.9	3,117.2	3,097.6	10.6	7.9	162.42	10.7	141.1	371.1	356.0	15.17	24.461		
3,200.0	3,144.7	3,216.3	3,194.5	11.1	8.3	161.21	19.0	159.7	382.1	366.2	15.89	24.050		
3,300.0	3,241.5	3,315.4	3,291.5	11.6	8.6	160.07	27.3	178.3	393.2	376.6	16.62	23.661		
3,400.0	3,338.2	3,414.5	3,388.5	12.1	9.0	158.99	35.6	196.8	404.4	387.1	17.36	23.294		
3,500.0	3,435.0	3,513.5	3,485.5	12.6	9.4	157.97	43.8	215.4	415.8	397.7	18.12	22.948		
3,600.0	3,531.8	3,612.6	3,582.4	13.1	9.9	157.01	52.1	234.0	427.3	408.4	18.89	22.622		
3,700.0	3,628.6	3,711.7	3,679.4	13.6	10.3	156.09	60.4	252.6	438.9	419.3	19.67	22.316		
3,800.0	3,725.3	3,810.8	3,776.4	14.1	10.7	155.23	68.7	271.2	450.6	430.2	20.46	22.027		
3,900.0	3,822.1	3,909.9	3,873.4	14.7	11.1	154.40	76.9	289.7	462.5	441.2	21.26	21.755		
4,000.0	3,918.9	4,009.0	3,970.3	15.2	11.5	153.62	85.2	308.3	474.4	452.3	22.06	21.499		
4,100.0	4,015.6	4,108.1	4,067.3	15.7	11.9	152.88	93.5	326.9	486.4	463.5	22.88	21.258		
4,200.0	4,112.4	4,207.1	4,164.3	16.2	12.3	152.17	101.8	345.5	498.4	474.7	23.70	21.030		

Company:	KP KAUFFMAN	Local Co-ordinate Reference:	Well Greeley-Rothe 1-4H
Project:	SEC.1-T5N-R67W	TVD Reference:	WELL @ 4891.0ft (Original Well Elev)
Reference Site:	Greeley-Rothe Pad Sec.1-T5N-R67W	MD Reference:	WELL @ 4891.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Greeley-Rothe 1-4H	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 #2 (6-05-14)	Offset TVD Reference:	Offset Datum

Offset Design													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	-161.13	-74.8	-25.6	79.0	79.0	0.00	N/A		
100.0	100.0	101.0	101.0	0.1	0.1	-161.13	-74.8	-25.6	79.0	78.8	0.23	348.174		
200.0	200.0	201.0	201.0	0.3	0.3	-161.13	-74.8	-25.6	79.0	78.4	0.68	116.829		
300.0	300.0	301.0	301.0	0.6	0.6	-161.13	-74.8	-25.6	79.0	77.9	1.13	70.191		
400.0	400.0	401.0	401.0	0.8	0.8	-161.13	-74.8	-25.6	79.0	77.5	1.58	50.165		
500.0	500.0	501.0	501.0	1.0	1.0	-161.13	-74.8	-25.6	79.0	77.0	2.03	39.029		
600.0	600.0	601.0	601.0	1.2	1.2	-161.13	-74.8	-25.6	79.0	76.6	2.47	31.940		
700.0	700.0	701.0	701.0	1.5	1.5	-161.13	-74.8	-25.6	79.0	76.1	2.92	27.030		
800.0	800.0	801.0	801.0	1.7	1.7	-161.13	-74.8	-25.6	79.0	75.7	3.37	23.428		
900.0	900.0	901.0	901.0	1.9	1.9	-161.13	-74.8	-25.6	79.0	75.2	3.82	20.673		
1,000.0	1,000.0	1,001.0	1,001.0	2.1	2.1	-161.13	-74.8	-25.6	79.0	74.8	4.27	18.498 CC, ES		
1,100.0	1,100.0	1,101.0	1,101.0	2.4	2.4	165.49	-74.8	-25.6	80.7	76.0	4.72	17.105		
1,200.0	1,199.8	1,200.8	1,200.8	2.6	2.6	166.34	-74.8	-25.6	85.8	80.6	5.16	16.623 SF		
1,300.0	1,299.5	1,300.6	1,300.6	2.8	2.8	166.48	-75.3	-23.9	94.2	88.6	5.58	16.875		
1,400.0	1,398.7	1,399.9	1,399.8	3.1	3.0	165.13	-77.0	-18.9	105.9	99.9	5.99	17.677		
1,500.0	1,497.5	1,498.7	1,498.1	3.3	3.2	162.83	-79.7	-10.8	121.1	114.6	6.42	18.867		
1,600.0	1,595.6	1,596.5	1,595.2	3.6	3.4	160.07	-83.4	0.4	139.8	132.9	6.86	20.362		
1,700.0	1,693.1	1,693.3	1,690.9	4.0	3.7	157.20	-88.1	14.6	162.3	154.9	7.35	22.075		
1,800.0	1,789.9	1,789.9	1,786.2	4.4	3.9	155.15	-93.1	29.5	187.4	179.6	7.89	23.754		
1,900.0	1,886.6	1,886.5	1,881.5	4.8	4.2	153.64	-98.0	44.5	212.9	204.5	8.47	25.144		
2,000.0	1,983.4	1,983.0	1,976.7	5.2	4.5	152.46	-103.0	59.5	238.5	229.5	9.07	26.303		
2,100.0	2,080.2	2,079.6	2,072.0	5.7	4.8	151.51	-107.9	74.4	264.2	254.5	9.69	27.274		
2,200.0	2,177.0	2,176.2	2,167.3	6.2	5.2	150.72	-112.9	89.4	289.9	279.6	10.32	28.091		
2,300.0	2,273.7	2,272.7	2,262.5	6.6	5.5	150.07	-117.9	104.3	315.7	304.7	10.97	28.783		
2,400.0	2,370.5	2,369.3	2,357.8	7.1	5.8	149.51	-122.8	119.3	341.5	329.9	11.63	29.374		
2,500.0	2,467.3	2,465.9	2,453.1	7.6	6.2	149.03	-127.8	134.3	367.4	355.1	12.29	29.882		
2,600.0	2,564.1	2,562.4	2,548.3	8.1	6.5	148.61	-132.8	149.2	393.2	380.2	12.97	30.321		
2,700.0	2,660.8	2,659.0	2,643.6	8.6	6.8	148.25	-137.7	164.2	419.1	405.4	13.65	30.702		
2,800.0	2,757.6	2,755.6	2,738.9	9.1	7.2	147.93	-142.7	179.2	445.0	430.6	14.34	31.036		
2,900.0	2,854.4	2,852.1	2,834.2	9.6	7.5	147.64	-147.6	194.1	470.9	455.8	15.03	31.330		
3,000.0	2,951.1	2,948.7	2,929.4	10.1	7.9	147.38	-152.6	209.1	496.8	481.0	15.73	31.590		

Company:	KP KAUFFMAN	Local Co-ordinate Reference:	Well Greeley-Rothe 1-4H
Project:	SEC.1-T5N-R67W	TVD Reference:	WELL @ 4891.0ft (Original Well Elev)
Reference Site:	Greeley-Rothe Pad Sec.1-T5N-R67W	MD Reference:	WELL @ 4891.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Greeley-Rothe 1-4H	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 #2 (6-05-14)	Offset TVD Reference:	Offset Datum

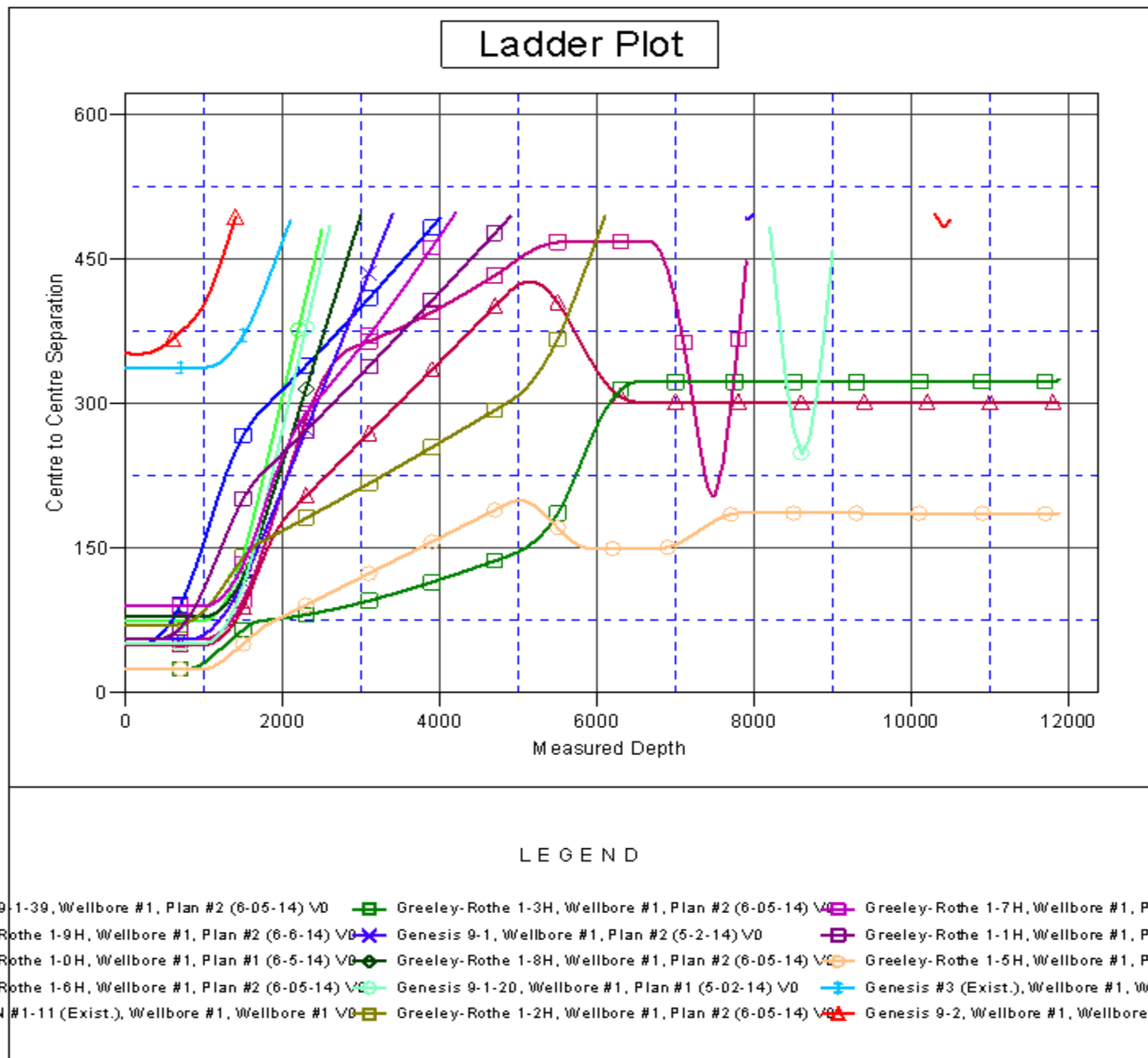
Offset Design		Greeley-Rothe Pad Sec.1-T5N-R67W - Greeley-Rothe 1-9H - Wellbore #1 - Plan #2 (6-6-14)										Offset Site Error:		0.0 ft
Survey Program: 0-MWD												Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured 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	-179.04	-75.0	-1.3	75.0	75.0	0.00	N/A		
100.0	100.0	101.0	101.0	0.1	0.1	-179.04	-75.0	-1.3	75.0	74.8	0.23	330.494		
200.0	200.0	201.0	201.0	0.3	0.3	-179.04	-75.0	-1.3	75.0	74.4	0.68	110.897		
300.0	300.0	301.0	301.0	0.6	0.6	-179.04	-75.0	-1.3	75.0	73.9	1.13	66.627		
400.0	400.0	401.0	401.0	0.8	0.8	-179.04	-75.0	-1.3	75.0	73.5	1.58	47.618		
500.0	500.0	501.0	501.0	1.0	1.0	-179.04	-75.0	-1.3	75.0	73.0	2.03	37.048		
600.0	600.0	601.0	601.0	1.2	1.2	-179.04	-75.0	-1.3	75.0	72.6	2.47	30.318		
700.0	700.0	701.0	701.0	1.5	1.5	-179.04	-75.0	-1.3	75.0	72.1	2.92	25.657		
800.0	800.0	801.0	801.0	1.7	1.7	-179.04	-75.0	-1.3	75.0	71.7	3.37	22.238		
900.0	900.0	901.0	901.0	1.9	1.9	-179.04	-75.0	-1.3	75.0	71.2	3.82	19.624		
966.3	966.3	967.3	967.3	2.1	2.1	-179.04	-75.0	-1.3	75.0	70.9	4.12	18.204 CC		
1,000.0	1,000.0	1,001.0	1,001.0	2.1	2.1	-179.04	-75.0	-1.3	75.0	70.8	4.27	17.560 ES		
1,100.0	1,100.0	1,099.0	1,099.0	2.4	2.3	147.08	-76.3	-0.1	77.8	73.1	4.69	16.581 SF		
1,200.0	1,199.8	1,196.5	1,196.4	2.6	2.5	146.63	-80.1	3.1	86.1	81.0	5.10	16.886		
1,300.0	1,299.5	1,293.2	1,292.7	2.8	2.7	146.04	-86.4	8.5	99.8	94.3	5.51	18.097		
1,400.0	1,398.7	1,388.6	1,387.4	3.1	2.9	145.40	-95.0	15.8	118.9	112.9	5.95	19.993		
1,500.0	1,497.5	1,482.3	1,480.0	3.3	3.2	144.79	-105.8	25.0	143.2	136.8	6.40	22.395		
1,600.0	1,595.6	1,575.8	1,572.0	3.6	3.4	144.29	-118.7	36.0	172.5	165.6	6.87	25.105		
1,700.0	1,693.1	1,670.5	1,665.0	4.0	3.7	144.29	-132.0	47.3	204.8	197.5	7.36	27.819		
1,800.0	1,789.9	1,764.3	1,757.3	4.4	4.0	144.85	-145.2	58.6	239.2	231.3	7.89	30.310		
1,900.0	1,886.6	1,858.2	1,849.5	4.8	4.4	145.38	-158.4	69.8	273.7	265.2	8.45	32.402		
2,000.0	1,983.4	1,952.0	1,941.7	5.2	4.7	145.79	-171.6	81.1	308.2	299.2	9.02	34.161		
2,100.0	2,080.2	2,045.8	2,033.9	5.7	5.1	146.12	-184.7	92.3	342.7	333.1	9.61	35.679		
2,200.0	2,177.0	2,139.7	2,126.2	6.2	5.4	146.39	-197.9	103.6	377.3	367.1	10.20	36.977		
2,300.0	2,273.7	2,233.5	2,218.4	6.6	5.8	146.61	-211.1	114.8	411.8	401.0	10.81	38.099		
2,400.0	2,370.5	2,327.3	2,310.6	7.1	6.2	146.80	-224.3	126.1	446.4	434.9	11.42	39.076		
2,500.0	2,467.3	2,421.2	2,402.8	7.6	6.5	146.96	-237.5	137.4	480.9	468.9	12.04	39.932		

Company:	KP KAUFFMAN	Local Co-ordinate Reference:	Well Greeley-Rothe 1-4H
Project:	SEC.1-T5N-R67W	TVD Reference:	WELL @ 4891.0ft (Original Well Elev)
Reference Site:	Greeley-Rothe Pad Sec.1-T5N-R67W	MD Reference:	WELL @ 4891.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Greeley-Rothe 1-4H	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 #2 (6-05-14)	Offset TVD Reference:	Offset Datum

Offset Design Greeley-Rothe Pad Sec.1-T5N-R67W - Hertzke N #1-11 (Exist.) - Wellbore #1 - Wellbore #1												Offset Site Error:	0.0 ft
Survey Program: 7304-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	7,282.0	7,286.0	7,286.0	84.4	8.2	90.00	1,189.7	-2,793.2	497.4	405.0	92.35	5.386	
10,400.0	7,282.0	7,286.0	7,286.0	87.1	8.2	90.00	1,189.7	-2,793.2	484.1	389.0	95.08	5.091	
10,415.2	7,282.0	7,286.0	7,286.0	87.5	8.2	90.00	1,189.7	-2,793.2	483.8	388.4	95.49	5.067 CC, ES	
10,500.0	7,282.0	7,286.0	7,286.0	89.8	8.2	90.00	1,189.7	-2,793.2	491.2	393.4	97.81	5.022 SF	

Company:	KP KAUFFMAN	Local Co-ordinate Reference:	Well Greeley-Rothe 1-4H
Project:	SEC.1-T5N-R67W	TVD Reference:	WELL @ 4891.0ft (Original Well Elev)
Reference Site:	Greeley-Rothe Pad Sec.1-T5N-R67W	MD Reference:	WELL @ 4891.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Greeley-Rothe 1-4H	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 #2 (6-05-14)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4891.0ft (Original Well Elev) Coordinates are relative to: Greeley-Rothe 1-4H
 Offset Depths are relative to Offset Datum
 Central Meridian is -105.500000 °
 Coordinate System is US State Plane 1983, Colorado Northern Zone
 Grid Convergence at Surface is: 0.43°



Company:	KP KAUFFMAN	Local Co-ordinate Reference:	Well Greeley-Rothe 1-4H
Project:	SEC.1-T5N-R67W	TVD Reference:	WELL @ 4891.0ft (Original Well Elev)
Reference Site:	Greeley-Rothe Pad Sec.1-T5N-R67W	MD Reference:	WELL @ 4891.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Greeley-Rothe 1-4H	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 #2 (6-05-14)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4891.0ft (Original Well Elev) Coordinates are relative to: Greeley-Rothe 1-4H
 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: 0.43°

