



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

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

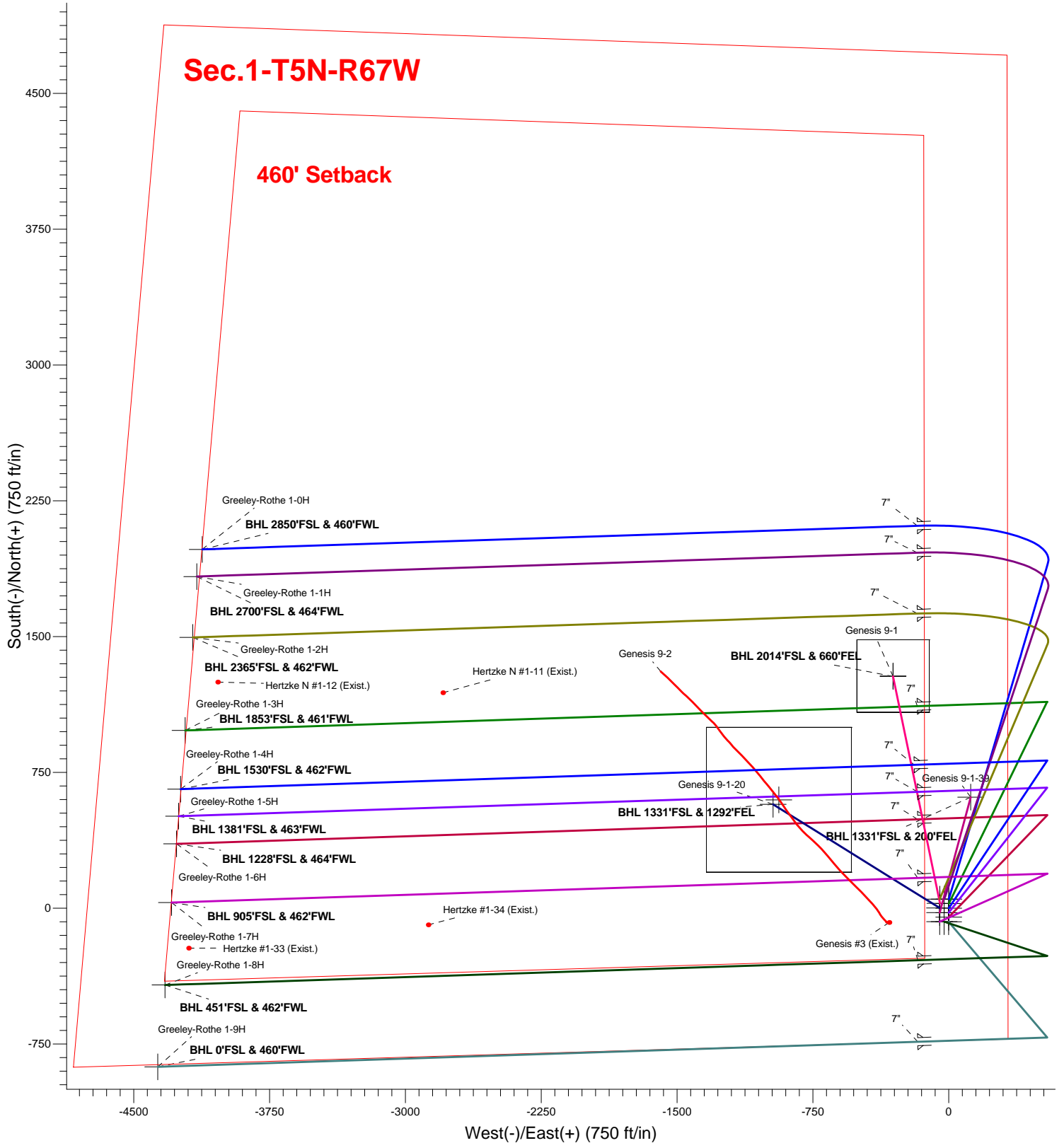
Ground Elevation: 4876.0

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

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

Sec.1-T5N-R67W

460' Setback





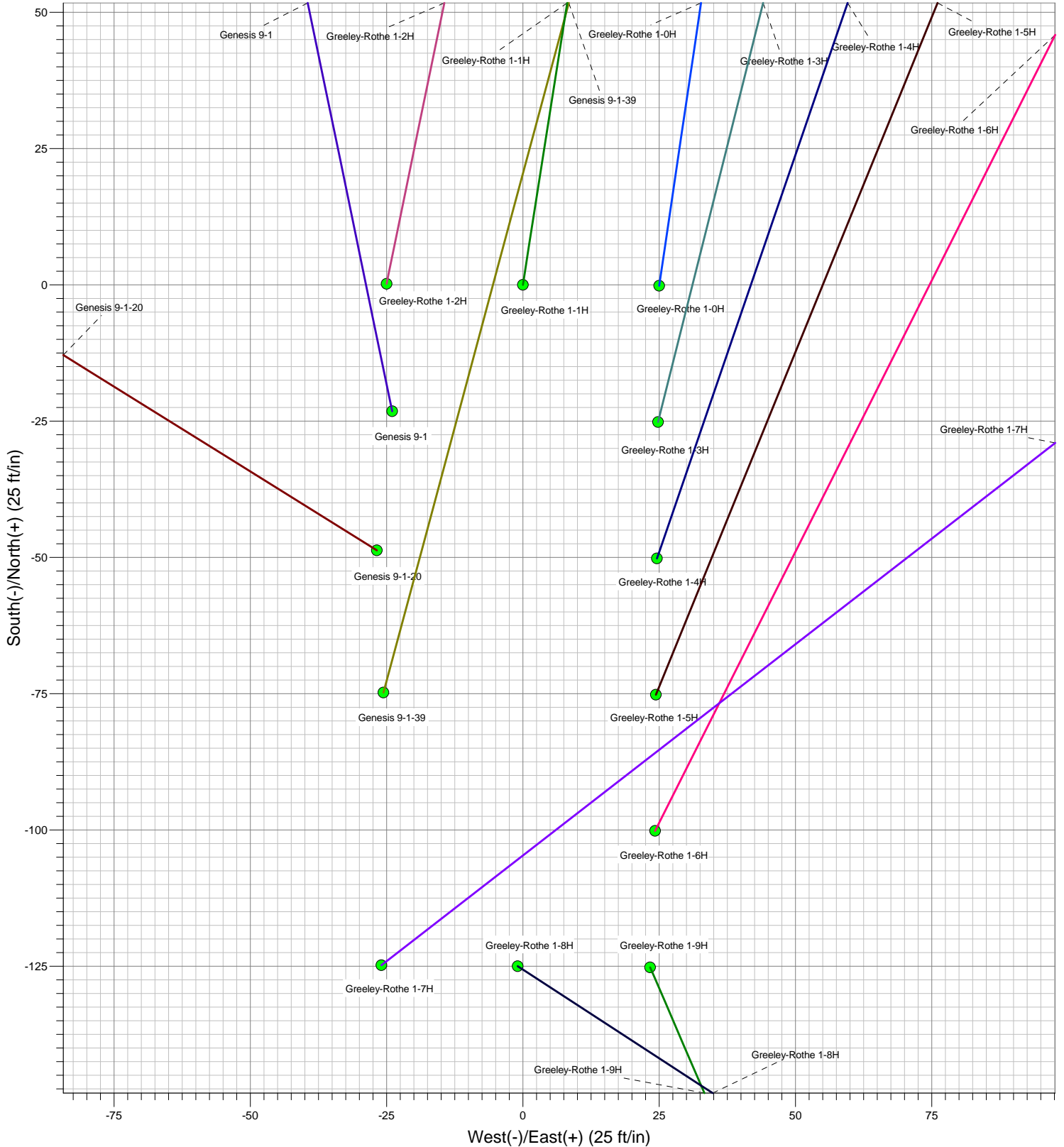
Surface Location: Greeley-Rothe Pad Sec.1-T5N-R67W

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 1-6H**

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

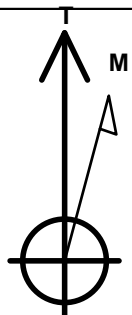
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone

Ground Elevation: 4876.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1397781.60	3185528.82	40.423399	-104.833617	
RKB - 15' WELL @ 4891.0ft (RKB - 15')						

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SHL 673'FSL & 329'FEL	0.0	0.0	0.0	Point
BHL 1228'FSL & 464'FWL	7282.0	405.2	-4263.5	Point



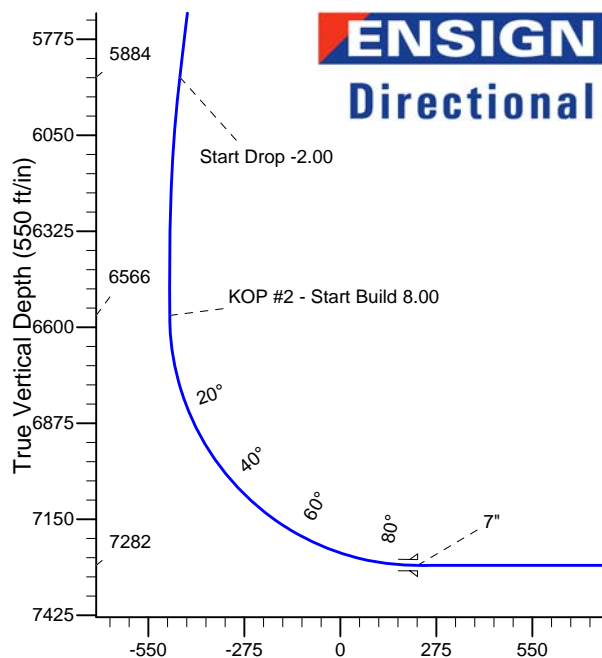
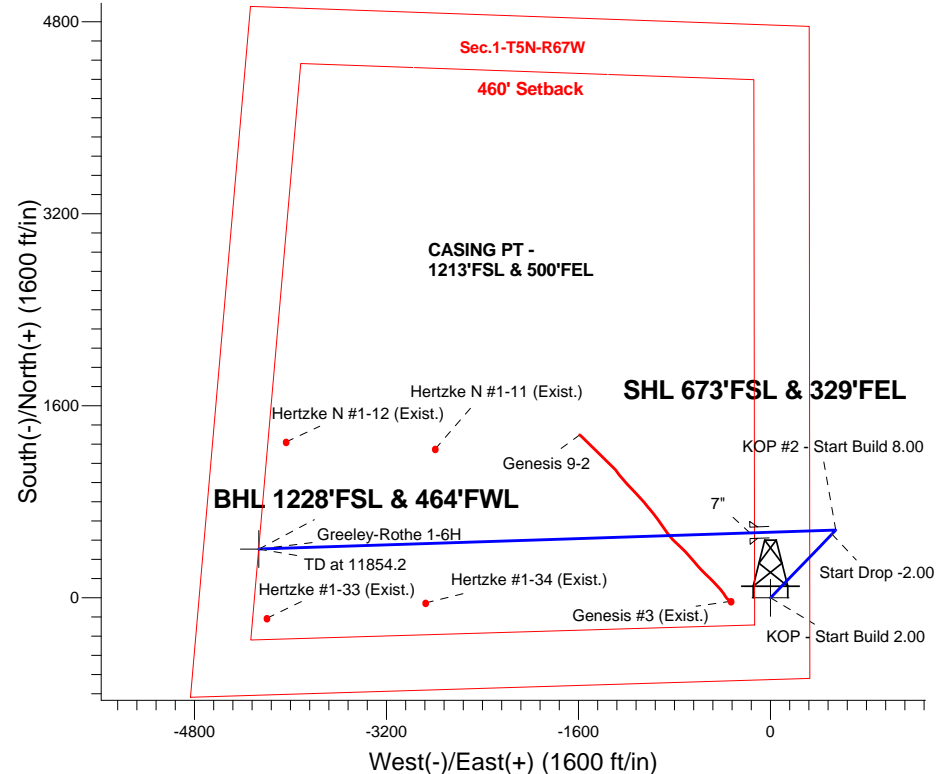
Azimuths to True North
Magnetic North: 8.50°

Magnetic Field
Strength: 52822.4nT
Dip Angle: 66.96°
Date: 6/6/2014
Model: IGRF2010

Greeley-Rothe Pad Sec.1-T5N-R67W
Greeley-Rothe 1-6H
Plan #2 (6-05-14)
15:18, June 06 2014

ANNOTATIONS

TVD	MD	Annotation
1600.0	1600.0	KOP - Start Build 2.00
5883.5	5949.1	Start Drop -2.00
6565.8	6634.2	KOP #2 - Start Build 8.00
7282.0	11854.2	TD at 11854.2



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	1600.0	0.00	0.00	1600.0	0.0	0.0	0.00	0.00	0.0	
3	2119.3	10.39	44.02	2116.5	33.8	32.6	2.00	44.02	-29.3	
4	5949.1	10.39	44.02	5883.5	530.2	512.4	0.00	0.00	-459.9	
5	6468.4	0.00	0.00	6400.0	564.0	545.0	2.00	180.00	-489.2	
6	6634.2	0.00	0.00	6565.8	564.0	545.0	0.00	0.00	-489.2	
7	7759.2	90.00	268.11	7282.0	540.4	-170.8	8.00	268.11	221.2	
8	11854.2	90.00	268.11	7282.0	405.2	-4263.5	0.00	0.00	4282.7	BHL 1228'FSL & 464'FWL

BHL 1228'FSL & 464'FWL

TD at 11854.2

Vertical Section at 275.43° (550 ft/in)



KP KAUFFMAN

SEC.1-T5N-R67W

Greeley-Rothe Pad Sec.1-T5N-R67W

Greeley-Rothe 1-6H

Wellbore #1

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

Standard Planning Report

06 June, 2014

Database:	landmark	Local Co-ordinate Reference:	Well Greeley-Rothe 1-6H
Company:	KP KAUFFMAN	TVD Reference:	WELL @ 4891.0ft (RKB - 15')
Project:	SEC.1-T5N-R67W	MD Reference:	WELL @ 4891.0ft (RKB - 15')
Site:	Greeley-Rothe Pad Sec.1-T5N-R67W	North Reference:	True
Well:	Greeley-Rothe 1-6H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (6-05-14)		

Project	SEC.1-T5N-R67W, Weld County, CO		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		Using Well Reference Point
Map Zone:	Colorado Northern Zone		Using geodetic scale factor

Site		Greeley-Rothe Pad Sec.1-T5N-R67W			
Site Position:		Northing:	1,397,880.45 ft	Latitude:	40.423670
From:	Lat/Long	Easting:	3,185,529.97 ft	Longitude:	-104.833610
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.43 °

Well	Greeley-Rothe 1-6H					
Well Position	+N/-S	-98.8 ft	Northing:	1,397,781.60 ft	Latitude:	40.423399
	+E/-W	-1.9 ft	Easting:	3,185,528.82 ft	Longitude:	-104.833617
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,876.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	6/6/2014	8.50	66.96	52,822

Design	Plan #2 (6-05-14)			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	275.43

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	
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,119.3	10.39	44.02	2,116.5	33.8	32.6	2.00	2.00	0.00	44.02	
5,949.1	10.39	44.02	5,883.5	530.2	512.4	0.00	0.00	0.00	0.00	
6,468.4	0.00	0.00	6,400.0	564.0	545.0	2.00	-2.00	0.00	180.00	
6,634.2	0.00	0.00	6,565.8	564.0	545.0	0.00	0.00	0.00	0.00	
7,759.2	90.00	268.11	7,282.0	540.4	-170.8	8.00	8.00	0.00	268.11	
11,854.2	90.00	268.11	7,282.0	405.2	-4,263.5	0.00	0.00	0.00	0.00	BHL 1228'FSL & 46

Database:	landmark	Local Co-ordinate Reference:	Well Greeley-Rothe 1-6H
Company:	KP KAUFFMAN	TVD Reference:	WELL @ 4891.0ft (RKB - 15')
Project:	SEC.1-T5N-R67W	MD Reference:	WELL @ 4891.0ft (RKB - 15')
Site:	Greeley-Rothe Pad Sec.1-T5N-R67W	North Reference:	True
Well:	Greeley-Rothe 1-6H	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
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
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
KOP - Start Build 2.00									
1,700.0	2.00	44.02	1,700.0	1.3	1.2	-1.1	2.00	2.00	0.00
1,800.0	4.00	44.02	1,799.8	5.0	4.8	-4.4	2.00	2.00	0.00
1,900.0	6.00	44.02	1,899.5	11.3	10.9	-9.8	2.00	2.00	0.00
2,000.0	8.00	44.02	1,998.7	20.0	19.4	-17.4	2.00	2.00	0.00
2,100.0	10.00	44.02	2,097.5	31.3	30.2	-27.1	2.00	2.00	0.00
2,119.3	10.39	44.02	2,116.5	33.8	32.6	-29.3	2.00	2.00	0.00
2,200.0	10.39	44.02	2,195.8	44.2	42.7	-38.4	0.00	0.00	0.00
2,300.0	10.39	44.02	2,294.2	57.2	55.3	-49.6	0.00	0.00	0.00
2,400.0	10.39	44.02	2,392.6	70.1	67.8	-60.8	0.00	0.00	0.00
2,500.0	10.39	44.02	2,490.9	83.1	80.3	-72.1	0.00	0.00	0.00
2,600.0	10.39	44.02	2,589.3	96.1	92.8	-83.3	0.00	0.00	0.00
2,700.0	10.39	44.02	2,687.6	109.0	105.4	-94.6	0.00	0.00	0.00
2,800.0	10.39	44.02	2,786.0	122.0	117.9	-105.8	0.00	0.00	0.00
2,900.0	10.39	44.02	2,884.4	135.0	130.4	-117.1	0.00	0.00	0.00
3,000.0	10.39	44.02	2,982.7	147.9	142.9	-128.3	0.00	0.00	0.00
3,100.0	10.39	44.02	3,081.1	160.9	155.5	-139.5	0.00	0.00	0.00
3,200.0	10.39	44.02	3,179.5	173.9	168.0	-150.8	0.00	0.00	0.00
3,300.0	10.39	44.02	3,277.8	186.8	180.5	-162.0	0.00	0.00	0.00
3,400.0	10.39	44.02	3,376.2	199.8	193.1	-173.3	0.00	0.00	0.00
3,500.0	10.39	44.02	3,474.5	212.7	205.6	-184.5	0.00	0.00	0.00
3,600.0	10.39	44.02	3,572.9	225.7	218.1	-195.8	0.00	0.00	0.00
3,700.0	10.39	44.02	3,671.3	238.7	230.6	-207.0	0.00	0.00	0.00
3,800.0	10.39	44.02	3,769.6	251.6	243.2	-218.3	0.00	0.00	0.00
3,900.0	10.39	44.02	3,868.0	264.6	255.7	-229.5	0.00	0.00	0.00
4,000.0	10.39	44.02	3,966.3	277.6	268.2	-240.7	0.00	0.00	0.00
4,100.0	10.39	44.02	4,064.7	290.5	280.7	-252.0	0.00	0.00	0.00
4,200.0	10.39	44.02	4,163.1	303.5	293.3	-263.2	0.00	0.00	0.00
4,300.0	10.39	44.02	4,261.4	316.5	305.8	-274.5	0.00	0.00	0.00
4,400.0	10.39	44.02	4,359.8	329.4	318.3	-285.7	0.00	0.00	0.00
4,500.0	10.39	44.02	4,458.2	342.4	330.8	-297.0	0.00	0.00	0.00
4,600.0	10.39	44.02	4,556.5	355.3	343.4	-308.2	0.00	0.00	0.00
4,700.0	10.39	44.02	4,654.9	368.3	355.9	-319.5	0.00	0.00	0.00
4,800.0	10.39	44.02	4,753.2	381.3	368.4	-330.7	0.00	0.00	0.00
4,900.0	10.39	44.02	4,851.6	394.2	381.0	-341.9	0.00	0.00	0.00
5,000.0	10.39	44.02	4,950.0	407.2	393.5	-353.2	0.00	0.00	0.00
5,100.0	10.39	44.02	5,048.3	420.2	406.0	-364.4	0.00	0.00	0.00

Database:	landmark	Local Co-ordinate Reference:	Well Greeley-Rothe 1-6H
Company:	KP KAUFFMAN	TVD Reference:	WELL @ 4891.0ft (RKB - 15')
Project:	SEC.1-T5N-R67W	MD Reference:	WELL @ 4891.0ft (RKB - 15')
Site:	Greeley-Rothe Pad Sec.1-T5N-R67W	North Reference:	True
Well:	Greeley-Rothe 1-6H	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)
5,200.0	10.39	44.02	5,146.7	433.1	418.5	-375.7	0.00	0.00	0.00
5,300.0	10.39	44.02	5,245.0	446.1	431.1	-386.9	0.00	0.00	0.00
5,400.0	10.39	44.02	5,343.4	459.1	443.6	-398.2	0.00	0.00	0.00
5,500.0	10.39	44.02	5,441.8	472.0	456.1	-409.4	0.00	0.00	0.00
5,600.0	10.39	44.02	5,540.1	485.0	468.6	-420.7	0.00	0.00	0.00
5,700.0	10.39	44.02	5,638.5	498.0	481.2	-431.9	0.00	0.00	0.00
5,800.0	10.39	44.02	5,736.9	510.9	493.7	-443.1	0.00	0.00	0.00
5,900.0	10.39	44.02	5,835.2	523.9	506.2	-454.4	0.00	0.00	0.00
5,949.1	10.39	44.02	5,883.5	530.2	512.4	-459.9	0.00	0.00	0.00
Start Drop -2.00									
6,000.0	9.37	44.02	5,933.7	536.5	518.4	-465.4	2.00	-2.00	0.00
6,100.0	7.37	44.02	6,032.6	547.0	528.6	-474.4	2.00	-2.00	0.00
6,200.0	5.37	44.02	6,132.0	555.0	536.3	-481.4	2.00	-2.00	0.00
6,300.0	3.37	44.02	6,231.7	560.4	541.6	-486.1	2.00	-2.00	0.00
6,400.0	1.37	44.02	6,331.6	563.4	544.4	-488.7	2.00	-2.00	0.00
6,468.4	0.00	0.00	6,400.0	564.0	545.0	-489.2	2.00	-2.00	0.00
6,500.0	0.00	0.00	6,431.6	564.0	545.0	-489.2	0.00	0.00	0.00
6,600.0	0.00	0.00	6,531.6	564.0	545.0	-489.2	0.00	0.00	0.00
6,634.2	0.00	0.00	6,565.8	564.0	545.0	-489.2	0.00	0.00	0.00
KOP #2 - Start Build 8.00									
6,700.0	5.26	268.11	6,631.5	563.9	542.0	-486.2	8.00	8.00	0.00
6,800.0	13.26	268.11	6,730.1	563.4	525.9	-470.2	8.00	8.00	0.00
6,900.0	21.26	268.11	6,825.5	562.4	496.3	-440.8	8.00	8.00	0.00
7,000.0	29.26	268.11	6,915.9	561.0	453.7	-398.5	8.00	8.00	0.00
7,100.0	37.26	268.11	6,999.4	559.2	398.9	-344.2	8.00	8.00	0.00
7,200.0	45.26	268.11	7,074.5	557.0	333.0	-278.8	8.00	8.00	0.00
7,300.0	53.26	268.11	7,139.7	554.5	257.4	-203.7	8.00	8.00	0.00
7,400.0	61.26	268.11	7,193.8	551.7	173.4	-120.4	8.00	8.00	0.00
7,500.0	69.26	268.11	7,235.6	548.7	82.7	-30.4	8.00	8.00	0.00
7,600.0	77.26	268.11	7,264.4	545.6	-13.0	64.5	8.00	8.00	0.00
7,700.0	85.26	268.11	7,279.6	542.3	-111.7	162.5	8.00	8.00	0.00
7,759.2	90.00	268.11	7,282.0	540.4	-170.8	221.1	8.00	8.00	0.00
7"									
7,800.0	90.00	268.11	7,282.0	539.0	-211.6	261.6	0.01	0.01	0.00
7,900.0	90.00	268.11	7,282.0	535.7	-311.5	360.8	0.00	0.00	0.00
8,000.0	90.00	268.11	7,282.0	532.4	-411.4	460.0	0.00	0.00	0.00
8,100.0	90.00	268.11	7,282.0	529.1	-511.4	559.2	0.00	0.00	0.00
8,200.0	90.00	268.11	7,282.0	525.8	-611.3	658.4	0.00	0.00	0.00
8,300.0	90.00	268.11	7,282.0	522.5	-711.3	757.5	0.00	0.00	0.00
8,400.0	90.00	268.11	7,282.0	519.2	-811.2	856.7	0.00	0.00	0.00
8,500.0	90.00	268.11	7,282.0	515.9	-911.2	955.9	0.00	0.00	0.00
8,600.0	90.00	268.11	7,282.0	512.6	-1,011.1	1,055.1	0.00	0.00	0.00
8,700.0	90.00	268.11	7,282.0	509.3	-1,111.1	1,154.3	0.00	0.00	0.00
8,800.0	90.00	268.11	7,282.0	506.0	-1,211.0	1,253.5	0.00	0.00	0.00
8,900.0	90.00	268.11	7,282.0	502.7	-1,311.0	1,352.6	0.00	0.00	0.00
9,000.0	90.00	268.11	7,282.0	499.4	-1,410.9	1,451.8	0.00	0.00	0.00
9,100.0	90.00	268.11	7,282.0	496.1	-1,510.8	1,551.0	0.00	0.00	0.00
9,200.0	90.00	268.11	7,282.0	492.8	-1,610.8	1,650.2	0.00	0.00	0.00
9,300.0	90.00	268.11	7,282.0	489.5	-1,710.7	1,749.4	0.00	0.00	0.00
9,400.0	90.00	268.11	7,282.0	486.2	-1,810.7	1,848.6	0.00	0.00	0.00
9,500.0	90.00	268.11	7,282.0	482.9	-1,910.6	1,947.8	0.00	0.00	0.00
9,600.0	90.00	268.11	7,282.0	479.6	-2,010.6	2,046.9	0.00	0.00	0.00
9,700.0	90.00	268.11	7,282.0	476.3	-2,110.5	2,146.1	0.00	0.00	0.00

Database:	landmark	Local Co-ordinate Reference:	Well Greeley-Rothe 1-6H
Company:	KP KAUFFMAN	TVD Reference:	WELL @ 4891.0ft (RKB - 15')
Project:	SEC.1-T5N-R67W	MD Reference:	WELL @ 4891.0ft (RKB - 15')
Site:	Greeley-Rothe Pad Sec.1-T5N-R67W	North Reference:	True
Well:	Greeley-Rothe 1-6H	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)	
9,800.0	90.00	268.11	7,282.0	473.0	-2,210.5	2,245.3	0.00	0.00	0.00	
9,900.0	90.00	268.11	7,282.0	469.7	-2,310.4	2,344.5	0.00	0.00	0.00	
10,000.0	90.00	268.11	7,282.0	466.4	-2,410.4	2,443.7	0.00	0.00	0.00	
10,100.0	90.00	268.11	7,282.0	463.1	-2,510.3	2,542.9	0.00	0.00	0.00	
10,200.0	90.00	268.11	7,282.0	459.8	-2,610.3	2,642.0	0.00	0.00	0.00	
10,300.0	90.00	268.11	7,282.0	456.5	-2,710.2	2,741.2	0.00	0.00	0.00	
10,400.0	90.00	268.11	7,282.0	453.2	-2,810.1	2,840.4	0.00	0.00	0.00	
10,500.0	90.00	268.11	7,282.0	449.9	-2,910.1	2,939.6	0.00	0.00	0.00	
10,600.0	90.00	268.11	7,282.0	446.6	-3,010.0	3,038.8	0.00	0.00	0.00	
10,700.0	90.00	268.11	7,282.0	443.3	-3,110.0	3,138.0	0.00	0.00	0.00	
10,800.0	90.00	268.11	7,282.0	440.0	-3,209.9	3,237.2	0.00	0.00	0.00	
10,900.0	90.00	268.11	7,282.0	436.7	-3,309.9	3,336.3	0.00	0.00	0.00	
11,000.0	90.00	268.11	7,282.0	433.4	-3,409.8	3,435.5	0.00	0.00	0.00	
11,100.0	90.00	268.11	7,282.0	430.1	-3,509.8	3,534.7	0.00	0.00	0.00	
11,200.0	90.00	268.11	7,282.0	426.8	-3,609.7	3,633.9	0.00	0.00	0.00	
11,300.0	90.00	268.11	7,282.0	423.5	-3,709.7	3,733.1	0.00	0.00	0.00	
11,400.0	90.00	268.11	7,282.0	420.2	-3,809.6	3,832.3	0.00	0.00	0.00	
11,500.0	90.00	268.11	7,282.0	416.9	-3,909.5	3,931.5	0.00	0.00	0.00	
11,600.0	90.00	268.11	7,282.0	413.6	-4,009.5	4,030.6	0.00	0.00	0.00	
11,700.0	90.00	268.11	7,282.0	410.3	-4,109.4	4,129.8	0.00	0.00	0.00	
11,800.0	90.00	268.11	7,282.0	407.0	-4,209.4	4,229.0	0.00	0.00	0.00	
11,854.2	90.00	268.11	7,282.0	405.2	-4,263.5	4,282.7	0.00	0.00	0.00	

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name		Casing Diameter (")	Hole Diameter (")
7,759.2	7,282.0	7"		7	7-1/2

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment	
		+N/-S (ft)	+E/-W (ft)		
1,600.0	1,600.0	0.0	0.0	KOP - Start Build 2.00	
5,949.1	5,883.5	33.8	32.6	Start Drop -2.00	
6,634.2	6,565.8	530.2	512.4	KOP #2 - Start Build 8.00	
11,854.2	7,282.0	541.0	522.8	TD at 11854.2	



KP KAUFFMAN

SEC.1-T5N-R67W

Greeley-Rothe Pad Sec.1-T5N-R67W

Greeley-Rothe 1-6H

Wellbore #1

Plan #2 (6-05-14)

Anticollision Report

06 June, 2014

Company:	KP KAUFFMAN	Local Co-ordinate Reference:	Well Greeley-Rothe 1-6H
Project:	SEC.1-T5N-R67W	TVD Reference:	WELL @ 4891.0ft (RKB - 15')
Reference Site:	Greeley-Rothe Pad Sec.1-T5N-R67W	MD Reference:	WELL @ 4891.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Greeley-Rothe 1-6H	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	Plan #2 (6-05-14)		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD Interval 100.0ft	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 500.0ft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma		

Survey Tool Program	Date 6/6/2014			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	11,854.2	Plan #2 (6-05-14) (Wellbore #1)	MWD	MWD - Standard

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Genesis 9-1 Pad Sec.1-T5N-R67W						
Genesis #3 (Exist.) - Wellbore #1 - Wellbore #1	1,600.0	1,604.0	329.6	294.0	9.267	CC
Genesis #3 (Exist.) - Wellbore #1 - Wellbore #1	1,700.0	1,704.0	330.9	293.1	8.760	ES
Genesis #3 (Exist.) - Wellbore #1 - Wellbore #1	2,900.0	2,888.4	487.0	423.5	7.664	SF
Genesis 9-2 - Wellbore #1 - Wellbore #1	157.2	159.2	343.9	343.4	693.320	CC
Genesis 9-2 - Wellbore #1 - Wellbore #1	200.0	199.8	344.0	343.4	507.455	ES
Genesis 9-2 - Wellbore #1 - Wellbore #1	1,400.0	1,307.8	491.6	484.2	66.097	SF
Greeley-Rothe Pad Sec.1-T5N-R67W						
Genesis 9-1 - Wellbore #1 - Plan #2 (5-2-14)	800.0	800.0	90.8	87.5	26.943	CC, ES
Genesis 9-1 - Wellbore #1 - Plan #2 (5-2-14)	1,100.0	1,090.3	105.2	100.5	22.374	SF
Genesis 9-1-20 - Wellbore #1 - Plan #1 (5-02-14)	1,000.0	1,000.0	72.5	68.2	16.968	CC, ES
Genesis 9-1-20 - Wellbore #1 - Plan #1 (5-02-14)	8,555.0	7,251.2	192.2	150.1	4.569	SF
Genesis 9-1-39 - Wellbore #1 - Plan #2 (6-05-14)	1,600.0	1,600.0	55.9	48.9	8.024	CC, ES
Genesis 9-1-39 - Wellbore #1 - Plan #2 (6-05-14)	7,415.5	7,210.8	135.7	101.8	4.006	SF
Greeley-Rothe 1-1H - Wellbore #1 - Plan #2 (6-05-14)	400.0	399.0	103.1	101.5	65.609	CC, ES
Greeley-Rothe 1-1H - Wellbore #1 - Plan #2 (6-05-14)	1,000.0	973.5	157.3	152.9	35.641	SF
Greeley-Rothe 1-2H - Wellbore #1 - Plan #2 (6-05-14)	600.0	599.0	111.8	109.3	45.261	CC, ES
Greeley-Rothe 1-2H - Wellbore #1 - Plan #2 (6-05-14)	3,400.0	3,333.6	492.8	475.0	27.668	SF
Greeley-Rothe 1-3H - Wellbore #1 - Plan #2 (6-05-14)	800.0	799.0	75.0	71.6	22.264	CC, ES
Greeley-Rothe 1-3H - Wellbore #1 - Plan #2 (6-05-14)	1,100.0	1,091.1	89.0	84.3	18.908	SF
Greeley-Rothe 1-4H - Wellbore #1 - Plan #2 (6-05-14)	1,000.0	1,000.0	50.0	45.7	11.705	CC, ES
Greeley-Rothe 1-4H - Wellbore #1 - Plan #2 (6-05-14)	11,814.5	11,892.3	301.5	46.7	1.183	Level 2, SF
Greeley-Rothe 1-5H - Wellbore #1 - Plan #2 (6-05-14)	1,200.0	1,200.0	25.0	19.8	4.834	CC
Greeley-Rothe 1-5H - Wellbore #1 - Plan #2 (6-05-14)	11,854.2	11,976.9	189.9	-19.2	0.908	Level 1, ES, SF
Greeley-Rothe 1-7H - Wellbore #1 - Plan #2 (6-05-14)	1,600.0	1,600.0	55.9	48.9	8.025	CC, ES
Greeley-Rothe 1-7H - Wellbore #1 - Plan #2 (6-05-14)	11,854.2	11,838.2	323.1	66.6	1.260	Level 3, SF
Greeley-Rothe 1-8H - Wellbore #1 - Plan #2 (6-05-14)	1,502.4	1,503.9	31.5	25.0	4.868	CC, ES, SF
Greeley-Rothe 1-9H - Wellbore #1 - Plan #2 (6-6-14)	966.3	967.3	25.0	20.9	6.078	CC
Greeley-Rothe 1-9H - Wellbore #1 - Plan #2 (6-6-14)	1,000.0	1,001.0	25.0	20.8	5.863	ES
Greeley-Rothe 1-9H - Wellbore #1 - Plan #2 (6-6-14)	1,100.0	1,100.0	26.4	21.7	5.618	SF
Hertzke #1-33 (Exist.) - Wellbore #1 - Wellbore #1						Out of range
Hertzke #1-34 (Exist.) - Wellbore #1 - Wellbore #1	10,480.1	7,288.0	492.8	394.2	4.998	CC
Hertzke #1-34 (Exist.) - Wellbore #1 - Wellbore #1	10,500.0	7,288.0	493.2	394.1	4.975	ES, SF
Hertzke N #1-11 (Exist.) - Wellbore #1 - Wellbore #1						Out of range
Hertzke N #1-12 (Exist.) - Wellbore #1 - Wellbore #1						Out of range

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 1-6H
Project:	SEC.1-T5N-R67W	TVD Reference:	WELL @ 4891.0ft (RKB - 15')
Reference Site:	Greeley-Rothe Pad Sec.1-T5N-R67W	MD Reference:	WELL @ 4891.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Greeley-Rothe 1-6H	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
Genesis 9-1 Pad Sec.1-T5N-R67W - Genesis #3 (Exist.) - Wellbore #1 - Wellbore #1												Offset Well Error:	0.0 ft
Survey Program: 7800-UNKNOWN													
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	4.0	4.0	0.0	0.1	-94.99	-28.7	-328.3	329.6	329.5	0.08	4,109.174	
100.0	100.0	104.0	104.0	0.1	2.1	-94.99	-28.7	-328.3	329.6	327.4	2.19	150.305	
200.0	200.0	204.0	204.0	0.3	4.1	-94.99	-28.7	-328.3	329.6	325.1	4.42	74.605	
300.0	300.0	304.0	304.0	0.6	6.1	-94.99	-28.7	-328.3	329.6	322.9	6.64	49.616	
400.0	400.0	404.0	404.0	0.8	8.1	-94.99	-28.7	-328.3	329.6	320.7	8.87	37.167	
500.0	500.0	504.0	504.0	1.0	10.1	-94.99	-28.7	-328.3	329.6	318.5	11.09	29.712	
600.0	600.0	604.0	604.0	1.2	12.1	-94.99	-28.7	-328.3	329.6	316.2	13.32	24.748	
700.0	700.0	704.0	704.0	1.5	14.1	-94.99	-28.7	-328.3	329.6	314.0	15.54	21.205	
800.0	800.0	804.0	804.0	1.7	16.1	-94.99	-28.7	-328.3	329.6	311.8	17.77	18.550	
900.0	900.0	904.0	904.0	1.9	18.1	-94.99	-28.7	-328.3	329.6	309.6	19.99	16.485	
1,000.0	1,000.0	1,004.0	1,004.0	2.1	20.1	-94.99	-28.7	-328.3	329.6	307.3	22.22	14.835	
1,100.0	1,100.0	1,104.0	1,104.0	2.4	22.1	-94.99	-28.7	-328.3	329.6	305.1	24.44	13.484	
1,200.0	1,200.0	1,204.0	1,204.0	2.6	24.1	-94.99	-28.7	-328.3	329.6	302.9	26.66	12.359	
1,300.0	1,300.0	1,304.0	1,304.0	2.8	26.1	-94.99	-28.7	-328.3	329.6	300.7	28.89	11.407	
1,400.0	1,400.0	1,404.0	1,404.0	3.0	28.1	-94.99	-28.7	-328.3	329.6	298.4	31.11	10.592	
1,500.0	1,500.0	1,504.0	1,504.0	3.3	30.1	-94.99	-28.7	-328.3	329.6	296.2	33.34	9.885	
1,600.0	1,600.0	1,604.0	1,604.0	3.5	32.1	-94.99	-28.7	-328.3	329.6	294.0	35.56	9.267 CC	
1,700.0	1,700.0	1,704.0	1,704.0	3.7	34.1	-139.19	-28.7	-328.3	330.9	293.1	37.77	8.760 ES	
1,800.0	1,799.8	1,803.8	1,803.8	3.9	36.1	-139.72	-28.7	-328.3	334.9	294.9	39.94	8.384	
1,900.0	1,899.5	1,903.5	1,903.5	4.2	38.1	-140.58	-28.7	-328.3	341.6	299.5	42.07	8.118	
2,000.0	1,998.7	2,002.7	2,002.7	4.4	40.1	-141.72	-28.7	-328.3	351.1	306.9	44.16	7.951	
2,100.0	2,097.5	2,101.5	2,101.5	4.6	42.0	-143.09	-28.7	-328.3	363.5	317.3	46.18	7.872	
2,200.0	2,195.8	2,199.8	2,199.8	4.9	44.0	-144.69	-28.7	-328.3	378.1	329.8	48.31	7.827	
2,300.0	2,294.2	2,298.2	2,298.2	5.2	46.0	-146.20	-28.7	-328.3	393.0	342.6	50.48	7.786	
2,400.0	2,392.6	2,396.6	2,396.6	5.5	47.9	-147.60	-28.7	-328.3	408.2	355.6	52.65	7.753	
2,500.0	2,490.9	2,494.9	2,494.9	5.8	49.9	-148.90	-28.7	-328.3	423.6	368.8	54.83	7.726	
2,600.0	2,589.3	2,593.3	2,593.3	6.2	51.9	-150.11	-28.7	-328.3	439.2	382.2	57.01	7.705	
2,700.0	2,687.6	2,691.6	2,691.6	6.5	53.8	-151.24	-28.7	-328.3	455.0	395.8	59.19	7.688	
2,800.0	2,786.0	2,790.0	2,790.0	6.9	55.8	-152.29	-28.7	-328.3	470.9	409.6	61.37	7.674	
2,900.0	2,884.4	2,888.4	2,888.4	7.2	57.8	-153.27	-28.7	-328.3	487.0	423.5	63.55	7.664 SF	

Company:	KP KAUFFMAN	Local Co-ordinate Reference:	Well Greeley-Rothe 1-6H
Project:	SEC.1-T5N-R67W	TVD Reference:	WELL @ 4891.0ft (RKB - 15')
Reference Site:	Greeley-Rothe Pad Sec.1-T5N-R67W	MD Reference:	WELL @ 4891.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Greeley-Rothe 1-6H	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	-94.78	-28.7	-343.4	344.6				
100.0	100.0	103.9	103.9	0.1	0.1	-94.86	-29.2	-342.8	344.1	343.8	0.25	1,354.975	
157.2	157.2	159.2	159.2	0.2	0.3	-94.85	-29.1	-342.7	343.9	343.4	0.50	693.320 CC	
200.0	200.0	199.8	199.8	0.3	0.3	-94.76	-28.6	-342.8	344.0	343.4	0.68	507.455 ES	
300.0	300.0	293.4	293.3	0.6	0.5	-94.27	-25.7	-344.5	345.5	344.4	1.11	312.386	
400.0	400.0	385.5	385.2	0.8	0.8	-93.51	-21.3	-348.1	349.2	347.6	1.55	225.845	
500.0	500.0	477.5	476.8	1.0	1.0	-92.39	-14.8	-353.9	355.1	353.1	2.01	176.754	
600.0	600.0	573.2	571.8	1.2	1.3	-90.98	-6.2	-361.7	363.0	360.5	2.51	144.808	
700.0	700.0	672.1	669.9	1.5	1.6	-89.49	3.3	-370.1	371.5	368.5	3.04	122.384	
800.0	800.0	770.6	767.2	1.7	1.9	-87.57	16.0	-378.5	380.4	376.8	3.58	106.157	
900.0	900.0	857.9	853.0	1.9	2.2	-85.55	30.1	-386.9	391.2	387.1	4.15	94.279	
1,000.0	1,000.0	942.2	935.1	2.1	2.6	-83.47	45.5	-397.5	405.6	400.9	4.74	85.647	
1,100.0	1,100.0	1,027.0	1,017.3	2.4	3.0	-81.47	61.7	-411.1	424.2	418.9	5.35	79.235	
1,200.0	1,200.0	1,115.4	1,102.4	2.6	3.5	-79.48	79.4	-427.2	445.8	439.8	6.04	73.834	
1,300.0	1,300.0	1,211.2	1,194.3	2.8	4.0	-77.40	99.5	-445.1	468.7	461.9	6.74	69.502	
1,400.0	1,400.0	1,307.8	1,287.2	3.0	4.4	-75.52	119.5	-462.8	491.6	484.2	7.44	66.097 SF	

Company:	KP KAUFFMAN	Local Co-ordinate Reference:	Well Greeley-Rothe 1-6H
Project:	SEC.1-T5N-R67W	TVD Reference:	WELL @ 4891.0ft (RKB - 15')
Reference Site:	Greeley-Rothe Pad Sec.1-T5N-R67W	MD Reference:	WELL @ 4891.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Greeley-Rothe 1-6H	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 - 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	-32.06	77.0	-48.2	90.8					
100.0	100.0	100.0	100.0	0.1	0.1	-32.06	77.0	-48.2	90.8	90.6	0.22	404.139		
200.0	200.0	200.0	200.0	0.3	0.3	-32.06	77.0	-48.2	90.8	90.2	0.67	134.713		
300.0	300.0	300.0	300.0	0.6	0.6	-32.06	77.0	-48.2	90.8	89.7	1.12	80.828		
400.0	400.0	400.0	400.0	0.8	0.8	-32.06	77.0	-48.2	90.8	89.3	1.57	57.734		
500.0	500.0	500.0	500.0	1.0	1.0	-32.06	77.0	-48.2	90.8	88.8	2.02	44.904		
600.0	600.0	600.0	600.0	1.2	1.2	-32.06	77.0	-48.2	90.8	88.4	2.47	36.740		
700.0	700.0	700.0	700.0	1.5	1.5	-32.06	77.0	-48.2	90.8	87.9	2.92	31.088		
800.0	800.0	800.0	800.0	1.7	1.7	-32.06	77.0	-48.2	90.8	87.5	3.37	26.943 CC, ES		
900.0	900.0	897.1	897.1	1.9	1.9	-31.71	78.6	-48.6	92.4	88.6	3.81	24.237		
1,000.0	1,000.0	993.9	993.8	2.1	2.1	-30.71	83.4	-49.6	97.2	93.0	4.26	22.842		
1,100.0	1,100.0	1,090.3	1,089.8	2.4	2.3	-29.26	91.4	-51.2	105.2	100.5	4.70	22.374 SF		
1,200.0	1,200.0	1,186.1	1,184.9	2.6	2.6	-27.57	102.4	-53.5	116.5	111.4	5.16	22.576		
1,300.0	1,300.0	1,281.0	1,278.7	2.8	2.8	-25.84	116.4	-56.4	131.1	125.5	5.63	23.267		
1,400.0	1,400.0	1,374.8	1,371.0	3.0	3.1	-24.19	133.3	-59.9	148.9	142.8	6.13	24.311		
1,500.0	1,500.0	1,467.5	1,461.4	3.3	3.5	-22.69	152.8	-63.9	170.0	163.4	6.64	25.607		
1,600.0	1,600.0	1,558.7	1,549.8	3.5	3.8	-21.38	174.8	-68.4	194.3	187.1	7.18	27.074		
1,700.0	1,700.0	1,651.2	1,638.8	3.7	4.2	-64.16	199.7	-73.6	220.7	213.3	7.43	29.702		
1,800.0	1,799.8	1,747.9	1,731.6	3.9	4.7	-63.81	226.2	-79.1	246.2	238.4	7.89	31.192		
1,900.0	1,899.5	1,844.9	1,824.7	4.2	5.2	-64.15	252.9	-84.6	270.3	261.9	8.37	32.284		
2,000.0	1,998.7	1,942.1	1,918.0	4.4	5.7	-65.01	279.6	-90.1	293.0	284.1	8.87	33.018		
2,100.0	2,097.5	2,039.3	2,011.3	4.6	6.2	-66.30	306.3	-95.6	314.4	305.0	9.40	33.433		
2,200.0	2,195.8	2,136.6	2,104.7	4.9	6.7	-68.08	333.0	-101.1	335.2	325.3	9.98	33.604		
2,300.0	2,294.2	2,233.9	2,198.1	5.2	7.2	-69.72	359.7	-106.6	356.3	345.8	10.58	33.694		
2,400.0	2,392.6	2,331.1	2,291.4	5.5	7.7	-71.19	386.4	-112.2	377.7	366.5	11.20	33.727		
2,500.0	2,490.9	2,428.4	2,384.8	5.8	8.3	-72.49	413.1	-117.7	399.2	387.4	11.84	33.715		
2,600.0	2,589.3	2,525.6	2,478.2	6.2	8.8	-73.67	439.8	-123.2	420.9	408.4	12.50	33.670		
2,700.0	2,687.6	2,622.9	2,571.5	6.5	9.3	-74.72	466.6	-128.7	442.8	429.7	13.18	33.601		
2,800.0	2,786.0	2,720.2	2,664.9	6.9	9.9	-75.68	493.3	-134.2	464.8	451.0	13.87	33.516		
2,900.0	2,884.4	2,817.4	2,758.2	7.2	10.4	-76.55	520.0	-139.7	487.0	472.4	14.57	33.418		

Company:	KP KAUFFMAN	Local Co-ordinate Reference:	Well Greeley-Rothe 1-6H
Project:	SEC.1-T5N-R67W	TVD Reference:	WELL @ 4891.0ft (RKB - 15')
Reference Site:	Greeley-Rothe Pad Sec.1-T5N-R67W	MD Reference:	WELL @ 4891.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Greeley-Rothe 1-6H	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	-44.74	51.5	-51.0	72.5					
100.0	100.0	100.0	100.0	0.1	0.1	-44.74	51.5	-51.0	72.5	72.2	0.22	322.392		
200.0	200.0	200.0	200.0	0.3	0.3	-44.74	51.5	-51.0	72.5	71.8	0.67	107.464		
300.0	300.0	300.0	300.0	0.6	0.6	-44.74	51.5	-51.0	72.5	71.3	1.12	64.478		
400.0	400.0	400.0	400.0	0.8	0.8	-44.74	51.5	-51.0	72.5	70.9	1.57	46.056		
500.0	500.0	500.0	500.0	1.0	1.0	-44.74	51.5	-51.0	72.5	70.4	2.02	35.821		
600.0	600.0	600.0	600.0	1.2	1.2	-44.74	51.5	-51.0	72.5	70.0	2.47	29.308		
700.0	700.0	700.0	700.0	1.5	1.5	-44.74	51.5	-51.0	72.5	69.5	2.92	24.799		
800.0	800.0	800.0	800.0	1.7	1.7	-44.74	51.5	-51.0	72.5	69.1	3.37	21.493		
900.0	900.0	900.0	900.0	1.9	1.9	-44.74	51.5	-51.0	72.5	68.6	3.82	18.964		
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-44.74	51.5	-51.0	72.5	68.2	4.27	16.968 CC, ES		
1,100.0	1,100.0	1,097.6	1,097.5	2.4	2.3	-45.04	52.3	-52.4	74.1	69.4	4.71	15.743		
1,200.0	1,200.0	1,194.9	1,194.7	2.6	2.6	-45.85	55.0	-56.6	79.1	74.0	5.14	15.380		
1,300.0	1,300.0	1,291.8	1,291.3	2.8	2.8	-47.00	59.3	-63.6	87.4	81.8	5.58	15.662		
1,400.0	1,400.0	1,388.0	1,386.8	3.0	3.0	-48.28	65.3	-73.3	99.1	93.0	6.03	16.440		
1,500.0	1,500.0	1,483.4	1,481.1	3.3	3.3	-49.53	73.0	-85.5	114.0	107.5	6.48	17.599		
1,600.0	1,600.0	1,577.6	1,573.7	3.5	3.6	-50.68	82.1	-100.3	132.3	125.3	6.94	19.045		
1,700.0	1,700.0	1,670.6	1,664.5	3.7	3.9	-95.88	92.8	-117.3	153.9	146.5	7.36	20.905		
1,800.0	1,799.8	1,765.1	1,756.2	3.9	4.3	-97.81	104.9	-136.8	178.7	170.9	7.81	22.893		
1,900.0	1,899.5	1,861.2	1,849.4	4.2	4.7	-100.16	117.3	-156.7	204.6	196.3	8.25	24.785		
2,000.0	1,998.7	1,956.8	1,942.1	4.4	5.1	-102.70	129.7	-176.6	231.6	222.9	8.71	26.587		
2,100.0	2,097.5	2,051.8	2,034.2	4.6	5.5	-105.32	141.9	-196.3	260.0	250.8	9.18	28.315		
2,200.0	2,195.8	2,146.3	2,125.7	4.9	6.0	-108.23	154.2	-215.9	289.7	280.0	9.68	29.930		
2,300.0	2,294.2	2,240.7	2,217.3	5.2	6.4	-110.70	166.4	-235.6	320.0	309.8	10.20	31.380		
2,400.0	2,392.6	2,335.2	2,308.9	5.5	6.9	-112.75	178.6	-255.2	350.8	340.1	10.74	32.676		
2,500.0	2,490.9	2,429.6	2,400.5	5.8	7.3	-114.47	190.8	-274.8	382.0	370.7	11.29	33.832		
2,600.0	2,589.3	2,524.0	2,492.0	6.2	7.8	-115.93	203.0	-294.4	413.4	401.5	11.86	34.864		
2,700.0	2,687.6	2,618.5	2,583.6	6.5	8.3	-117.18	215.2	-314.1	445.0	432.5	12.43	35.787		
2,800.0	2,786.0	2,712.9	2,675.2	6.9	8.7	-118.28	227.4	-333.7	476.8	463.7	13.02	36.613		
8,100.0	7,282.0	7,251.2	7,124.0	28.8	25.9	34.71	623.5	-969.8	494.0	458.2	35.78	13.805		
8,200.0	7,282.0	7,251.2	7,124.0	31.0	25.9	34.71	623.5	-969.8	403.7	366.6	37.08	10.889		
8,300.0	7,282.0	7,251.2	7,124.0	33.3	25.9	34.71	623.5	-969.8	319.3	280.9	38.43	8.310		
8,400.0	7,282.0	7,251.2	7,124.0	35.6	25.9	34.71	623.5	-969.8	246.9	207.1	39.82	6.201		
8,500.0	7,282.0	7,251.2	7,124.0	38.0	25.9	34.71	623.5	-969.8	199.9	158.7	41.26	4.846		
8,555.0	7,282.0	7,251.2	7,124.0	39.4	25.9	34.71	623.5	-969.8	192.2	150.1	42.06	4.569 SF		
8,600.0	7,282.0	7,251.2	7,124.0	40.5	25.9	34.71	623.5	-969.8	197.4	154.7	42.72	4.620		
8,700.0	7,282.0	7,251.2	7,124.0	43.0	25.9	34.71	623.5	-969.8	240.7	196.5	44.22	5.444		
8,800.0	7,282.0	7,251.2	7,124.0	45.5	25.9	34.71	623.5	-969.8	311.4	265.6	45.74	6.808		
8,900.0	7,282.0	7,251.2	7,124.0	48.1	25.9	34.71	623.5	-969.8	394.9	347.6	47.27	8.354		
9,000.0	7,282.0	7,251.2	7,124.0	50.7	25.9	34.71	623.5	-969.8	484.7	435.9	48.83	9.927		

Company:	KP KAUFFMAN	Local Co-ordinate Reference:	Well Greeley-Rothe 1-6H
Project:	SEC.1-T5N-R67W	TVD Reference:	WELL @ 4891.0ft (RKB - 15')
Reference Site:	Greeley-Rothe Pad Sec.1-T5N-R67W	MD Reference:	WELL @ 4891.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Greeley-Rothe 1-6H	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	-62.99	25.4	-49.8	55.9					
100.0	100.0	100.0	100.0	0.1	0.1	-62.99	25.4	-49.8	55.9	55.7	0.22	248.745		
200.0	200.0	200.0	200.0	0.3	0.3	-62.99	25.4	-49.8	55.9	55.2	0.67	82.915		
300.0	300.0	300.0	300.0	0.6	0.6	-62.99	25.4	-49.8	55.9	54.8	1.12	49.749		
400.0	400.0	400.0	400.0	0.8	0.8	-62.99	25.4	-49.8	55.9	54.3	1.57	35.535		
500.0	500.0	500.0	500.0	1.0	1.0	-62.99	25.4	-49.8	55.9	53.9	2.02	27.638		
600.0	600.0	600.0	600.0	1.2	1.2	-62.99	25.4	-49.8	55.9	53.4	2.47	22.613		
700.0	700.0	700.0	700.0	1.5	1.5	-62.99	25.4	-49.8	55.9	53.0	2.92	19.134		
800.0	800.0	800.0	800.0	1.7	1.7	-62.99	25.4	-49.8	55.9	52.5	3.37	16.583		
900.0	900.0	900.0	900.0	1.9	1.9	-62.99	25.4	-49.8	55.9	52.1	3.82	14.632		
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-62.99	25.4	-49.8	55.9	51.6	4.27	13.092		
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	-62.99	25.4	-49.8	55.9	51.2	4.72	11.845		
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	-62.99	25.4	-49.8	55.9	50.7	5.17	10.815		
1,300.0	1,300.0	1,300.0	1,300.0	2.8	2.8	-62.99	25.4	-49.8	55.9	50.3	5.62	9.950		
1,400.0	1,400.0	1,400.0	1,400.0	3.0	3.0	-62.99	25.4	-49.8	55.9	49.8	6.07	9.213		
1,500.0	1,500.0	1,500.0	1,500.0	3.3	3.3	-62.99	25.4	-49.8	55.9	49.4	6.52	8.577		
1,600.0	1,600.0	1,600.0	1,600.0	3.5	3.5	-62.99	25.4	-49.8	55.9	48.9	6.97	8.024 CC, ES		
1,700.0	1,700.0	1,700.0	1,700.0	3.7	3.7	-108.69	25.4	-49.8	56.4	49.0	7.41	7.615		
1,800.0	1,799.8	1,799.8	1,799.8	3.9	3.9	-113.52	25.4	-49.8	58.3	50.5	7.85	7.429		
1,900.0	1,899.5	1,899.5	1,899.5	4.2	4.2	-120.80	25.4	-49.8	62.3	54.0	8.29	7.520		
2,000.0	1,998.7	1,998.7	1,998.7	4.4	4.4	-129.33	25.4	-49.8	69.4	60.7	8.72	7.957		
2,100.0	2,097.5	2,097.5	2,097.5	4.6	4.6	-137.80	25.4	-49.8	80.3	71.1	9.14	8.780		
2,200.0	2,195.8	2,195.8	2,195.8	4.9	4.8	-145.07	25.4	-49.8	94.4	84.9	9.58	9.861		
2,300.0	2,294.2	2,296.1	2,296.1	5.2	5.0	-149.81	26.9	-49.4	108.9	98.9	10.02	10.869		
2,400.0	2,392.6	2,397.3	2,397.2	5.5	5.3	-152.06	32.0	-48.0	122.0	111.6	10.48	11.647		
2,500.0	2,490.9	2,499.2	2,498.7	5.8	5.5	-152.60	40.5	-45.8	133.3	122.4	10.95	12.174		
2,600.0	2,589.3	2,601.5	2,600.2	6.2	5.7	-151.84	52.5	-42.5	142.6	131.2	11.44	12.466		
2,700.0	2,687.6	2,703.9	2,701.3	6.5	6.0	-149.99	68.1	-38.3	150.0	138.1	11.96	12.549		
2,800.0	2,786.0	2,806.2	2,801.7	6.9	6.3	-147.16	87.1	-33.2	155.9	143.4	12.52	12.455		
2,900.0	2,884.4	2,908.1	2,900.9	7.2	6.6	-143.39	109.5	-27.2	160.5	147.4	13.13	12.226		
3,000.0	2,982.7	3,007.5	2,997.2	7.6	6.9	-139.25	133.3	-20.8	165.1	151.3	13.80	11.960		
3,100.0	3,081.1	3,106.7	3,093.3	7.9	7.2	-135.35	157.1	-14.4	170.4	155.9	14.51	11.740		
3,200.0	3,179.5	3,205.9	3,189.4	8.3	7.6	-131.70	180.9	-8.0	176.5	161.2	15.26	11.562		
3,300.0	3,277.8	3,305.1	3,285.5	8.7	8.0	-128.30	204.7	-1.6	183.2	167.2	16.04	11.422		
3,400.0	3,376.2	3,404.3	3,381.6	9.0	8.4	-125.15	228.5	4.7	190.6	173.7	16.84	11.315		
3,500.0	3,474.5	3,503.5	3,477.7	9.4	8.8	-122.24	252.3	11.1	198.4	180.8	17.66	11.237		
3,600.0	3,572.9	3,602.7	3,573.8	9.8	9.2	-119.56	276.1	17.5	206.8	188.3	18.49	11.185		
3,700.0	3,671.3	3,701.9	3,669.9	10.2	9.6	-117.08	299.9	23.9	215.6	196.3	19.33	11.154		
3,800.0	3,769.6	3,801.1	3,766.0	10.6	10.0	-114.81	323.7	30.3	224.7	204.6	20.17	11.141		
3,900.0	3,868.0	3,900.3	3,862.0	10.9	10.5	-112.71	347.4	36.7	234.2	213.2	21.02	11.144		
4,000.0	3,966.3	3,999.5	3,958.1	11.3	10.9	-110.78	371.2	43.1	244.0	222.1	21.86	11.159		
4,100.0	4,064.7	4,098.7	4,054.2	11.7	11.4	-109.00	395.0	49.5	254.0	231.3	22.71	11.184		
4,200.0	4,163.1	4,197.9	4,150.3	12.1	11.8	-107.35	418.8	55.9	264.2	240.7	23.56	11.217		
4,300.0	4,261.4	4,297.1	4,246.4	12.5	12.3	-105.83	442.6	62.3	274.7	250.3	24.40	11.257		
4,400.0	4,359.8	4,396.3	4,342.5	12.9	12.7	-104.42	466.4	68.7	285.3	260.1	25.24	11.303		
4,500.0	4,458.2	4,495.5	4,438.6	13.3	13.2	-103.11	490.2	75.0	296.1	270.0	26.08	11.352		
4,600.0	4,556.5	4,594.7	4,534.7	13.7	13.7	-101.89	514.0	81.4	307.0	280.1	26.92	11.405		
4,700.0	4,654.9	4,693.9	4,630.7	14.0	14.1	-100.76	537.8	87.8	318.1	290.3	27.76	11.460		
4,800.0	4,753.2	4,793.1	4,726.8	14.4	14.6	-99.70	561.6	94.2	329.2	300.6	28.59	11.516		
4,900.0	4,851.6	4,893.8	4,824.4	14.8	15.1	-98.74	585.5	100.7	340.4	311.0	29.41	11.577		
5,000.0	4,950.0	4,997.5	4,925.6	15.2	15.4	-98.27	607.4	106.5	350.7	320.6	30.14	11.635		
5,100.0	5,048.3	5,101.5	5,027.9	15.6	15.8	-98.38	625.7	111.5	359.8	328.9	30.86	11.660		

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 1-6H
Project:	SEC.1-T5N-R67W	TVD Reference:	WELL @ 4891.0ft (RKB - 15')
Reference Site:	Greeley-Rothe Pad Sec.1-T5N-R67W	MD Reference:	WELL @ 4891.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Greeley-Rothe 1-6H	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 +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
5,200.0	5,146.7	5,205.6	5,130.9	16.0	16.1	-99.05	640.5	115.4	367.6	336.0	31.54	11.653		
5,300.0	5,245.0	5,309.5	5,234.1	16.4	16.3	-100.23	651.6	118.4	374.3	342.1	32.20	11.624		
5,400.0	5,343.4	5,412.9	5,337.2	16.8	16.5	-101.91	659.1	120.4	380.1	347.3	32.82	11.583		
5,500.0	5,441.8	5,515.5	5,439.7	17.2	16.7	-104.04	662.9	121.4	385.3	351.9	33.38	11.543		
5,600.0	5,540.1	5,615.9	5,540.1	17.6	16.9	-106.53	663.5	121.6	390.3	356.4	33.89	11.517		
5,700.0	5,638.5	5,714.3	5,638.5	18.0	17.0	-109.00	663.5	121.6	395.9	361.5	34.37	11.519		
5,800.0	5,736.9	5,812.6	5,736.9	18.4	17.2	-111.39	663.5	121.6	402.2	367.4	34.82	11.550		
5,900.0	5,835.2	5,911.0	5,835.2	18.8	17.3	-113.71	663.5	121.6	409.2	373.9	35.25	11.608		
6,000.0	5,933.7	6,009.4	5,933.7	19.2	17.5	-115.97	663.5	121.6	416.7	381.0	35.64	11.690		
6,100.0	6,032.6	6,108.4	6,032.6	19.4	17.6	-117.84	663.5	121.6	423.3	387.3	35.97	11.769		
6,200.0	6,132.0	6,207.7	6,132.0	19.7	17.8	-119.24	663.5	121.6	428.6	392.4	36.28	11.816		
6,300.0	6,231.7	6,307.4	6,231.7	19.9	18.0	-120.18	663.5	121.6	432.4	395.8	36.58	11.822		
6,400.0	6,331.6	6,407.3	6,331.6	20.1	18.1	-120.69	663.5	121.6	434.5	397.6	36.87	11.784		
6,500.0	6,431.6	6,507.3	6,431.6	20.2	18.3	-76.77	663.5	121.6	434.9	403.8	31.11	13.978		
6,600.0	6,531.6	6,607.3	6,531.6	20.4	18.5	-76.77	663.5	121.6	434.9	403.4	31.51	13.801		
6,700.0	6,631.5	6,707.2	6,631.5	20.5	18.6	15.29	663.5	121.6	432.0	394.4	37.65	11.476		
6,800.0	6,730.1	6,805.9	6,730.1	20.5	18.8	16.22	663.5	121.6	416.5	379.3	37.26	11.180		
6,900.0	6,825.5	6,901.3	6,825.5	20.4	19.0	18.16	663.5	121.6	388.1	351.7	36.41	10.660		
7,000.0	6,915.9	6,991.6	6,915.9	20.3	19.1	21.60	663.5	121.6	347.5	312.3	35.24	9.861		
7,100.0	6,999.4	7,075.2	6,999.4	20.1	19.3	27.51	663.5	121.6	296.3	262.2	34.08	8.693		
7,200.0	7,074.5	7,150.3	7,074.5	19.9	19.4	37.80	663.5	121.6	236.7	203.2	33.55	7.057		
7,300.0	7,139.7	7,210.8	7,135.0	19.8	19.5	53.87	663.5	121.6	174.2	139.9	34.24	5.086		
7,400.0	7,193.8	7,210.8	7,135.0	19.7	19.5	56.66	663.5	121.6	136.5	102.6	33.92	4.024		
7,415.5	7,201.1	7,210.8	7,135.0	19.7	19.5	56.71	663.5	121.6	135.7	101.8	33.88	4.006 SF		
7,500.0	7,235.6	7,210.8	7,135.0	19.8	19.5	55.17	663.5	121.6	157.5	124.1	33.42	4.714		
7,600.0	7,264.4	7,210.8	7,135.0	20.3	19.5	49.86	663.5	121.6	220.8	188.5	32.33	6.830		
7,700.0	7,279.6	7,210.8	7,135.0	21.4	19.5	42.35	663.5	121.6	300.0	269.4	30.58	9.812		
7,800.0	7,282.0	7,210.8	7,135.0	22.9	19.5	37.66	663.5	121.6	384.9	355.0	29.85	12.891		
7,900.0	7,282.0	7,210.8	7,135.0	24.7	19.5	37.66	663.5	121.6	474.9	443.9	30.97	15.335		

Company:	KP KAUFFMAN	Local Co-ordinate Reference:	Well Greeley-Rothe 1-6H
Project:	SEC.1-T5N-R67W	TVD Reference:	WELL @ 4891.0ft (RKB - 15')
Reference Site:	Greeley-Rothe Pad Sec.1-T5N-R67W	MD Reference:	WELL @ 4891.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Greeley-Rothe 1-6H	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
Greeley-Rothe Pad Sec.1-T5N-R67W - Greeley-Rothe 1-1H - Wellbore #1 - Plan #2 (6-05-14)													Offset Well Error:	0.0 ft
Survey Program: 0-MWD														
Reference		Offset		Semi Major Axis			Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
0.0	0.0	0.0	0.0	0.0	0.0	-13.61	100.2	-24.3	103.1					
100.0	100.0	99.0	99.0	0.1	0.1	-13.61	100.2	-24.3	103.1	102.9	0.22	460.908		
200.0	200.0	199.0	199.0	0.3	0.3	-13.61	100.2	-24.3	103.1	102.4	0.67	153.381		
300.0	300.0	299.0	299.0	0.6	0.6	-13.61	100.2	-24.3	103.1	102.0	1.12	91.905		
400.0	400.0	399.0	399.0	0.8	0.8	-13.61	100.2	-24.3	103.1	101.5	1.57	65.609 CC, ES		
500.0	500.0	496.0	496.0	1.0	1.0	-13.14	101.7	-23.7	104.5	102.5	2.01	51.907		
600.0	600.0	592.8	592.7	1.2	1.2	-11.79	106.3	-22.2	108.8	106.4	2.46	44.274		
700.0	700.0	689.2	688.7	1.5	1.5	-9.77	114.0	-19.6	116.2	113.2	2.91	39.867		
800.0	800.0	784.9	783.7	1.7	1.7	-7.35	124.7	-16.1	126.6	123.2	3.39	37.373		
900.0	900.0	879.7	877.5	1.9	2.0	-4.78	138.2	-11.6	140.3	136.4	3.89	36.098		
1,000.0	1,000.0	973.5	969.7	2.1	2.3	-2.27	154.5	-6.1	157.3	152.9	4.41	35.641 SF		
1,100.0	1,100.0	1,066.1	1,060.1	2.4	2.7	0.05	173.3	0.2	177.6	172.6	4.97	35.747		
1,200.0	1,200.0	1,157.2	1,148.4	2.6	3.1	2.14	194.6	7.3	201.2	195.6	5.55	36.246		
1,300.0	1,300.0	1,246.8	1,234.6	2.8	3.5	3.96	218.0	15.1	227.9	221.7	6.15	37.030		
1,400.0	1,400.0	1,339.5	1,323.0	3.0	4.0	5.59	244.5	23.9	257.1	250.3	6.80	37.834		
1,500.0	1,500.0	1,434.8	1,413.8	3.3	4.5	6.94	271.8	33.1	286.8	279.3	7.46	38.455		
1,600.0	1,600.0	1,530.1	1,504.6	3.5	5.1	8.03	299.2	42.2	316.5	308.4	8.12	38.969		
1,700.0	1,700.0	1,625.9	1,595.9	3.7	5.6	-34.91	326.7	51.4	345.0	337.4	7.66	45.052		
1,800.0	1,799.8	1,722.5	1,688.0	3.9	6.2	-34.30	354.4	60.6	370.8	362.6	8.15	45.478		
1,900.0	1,899.5	1,819.8	1,780.7	4.2	6.7	-34.07	382.4	70.0	393.8	385.1	8.66	45.468		
2,000.0	1,998.7	1,917.8	1,874.1	4.4	7.3	-34.14	410.5	79.4	413.9	404.7	9.18	45.084		
2,100.0	2,097.5	2,016.2	1,967.9	4.6	7.9	-34.48	438.7	88.8	431.2	421.5	9.72	44.373		
2,200.0	2,195.8	2,114.8	2,061.9	4.9	8.5	-35.12	467.0	98.3	446.7	436.4	10.29	43.428		
2,300.0	2,294.2	2,213.5	2,155.9	5.2	9.1	-35.75	495.4	107.7	462.2	451.3	10.87	42.521		
2,400.0	2,392.6	2,312.2	2,250.0	5.5	9.7	-36.34	523.7	117.2	477.7	466.2	11.46	41.668		
2,500.0	2,490.9	2,410.8	2,344.0	5.8	10.3	-36.90	552.0	126.6	493.3	481.2	12.07	40.867		

Company:	KP KAUFFMAN	Local Co-ordinate Reference:	Well Greeley-Rothe 1-6H
Project:	SEC.1-T5N-R67W	TVD Reference:	WELL @ 4891.0ft (RKB - 15')
Reference Site:	Greeley-Rothe Pad Sec.1-T5N-R67W	MD Reference:	WELL @ 4891.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Greeley-Rothe 1-6H	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	-26.14	100.4	-49.3	111.8					
100.0	100.0	99.0	99.0	0.1	0.1	-26.14	100.4	-49.3	111.8	111.6	0.22	499.911		
200.0	200.0	199.0	199.0	0.3	0.3	-26.14	100.4	-49.3	111.8	111.1	0.67	166.360		
300.0	300.0	299.0	299.0	0.6	0.6	-26.14	100.4	-49.3	111.8	110.7	1.12	99.682		
400.0	400.0	399.0	399.0	0.8	0.8	-26.14	100.4	-49.3	111.8	110.2	1.57	71.161		
500.0	500.0	499.0	499.0	1.0	1.0	-26.14	100.4	-49.3	111.8	109.8	2.02	55.330		
600.0	600.0	599.0	599.0	1.2	1.2	-26.14	100.4	-49.3	111.8	109.3	2.47	45.261	CC, ES	
700.0	700.0	696.5	696.5	1.5	1.5	-25.52	101.9	-48.6	112.9	110.0	2.91	38.766		
800.0	800.0	793.7	793.6	1.7	1.7	-23.70	106.4	-46.7	116.3	113.0	3.36	34.668		
900.0	900.0	890.5	890.0	1.9	1.9	-20.91	113.9	-43.5	122.3	118.5	3.81	32.118		
1,000.0	1,000.0	986.7	985.5	2.1	2.1	-17.46	124.4	-39.1	131.1	126.8	4.28	30.644		
1,100.0	1,100.0	1,082.0	1,079.7	2.4	2.4	-13.68	137.6	-33.5	143.0	138.2	4.77	29.955		
1,200.0	1,200.0	1,176.2	1,172.3	2.6	2.7	-9.89	153.6	-26.8	158.1	152.8	5.30	29.854		
1,300.0	1,300.0	1,269.1	1,263.1	2.8	3.1	-6.29	172.0	-19.0	176.8	170.9	5.85	30.198		
1,400.0	1,400.0	1,360.7	1,351.8	3.0	3.4	-3.01	192.8	-10.2	198.8	192.4	6.44	30.893		
1,500.0	1,500.0	1,456.3	1,443.9	3.3	3.9	-0.06	216.3	-0.2	223.2	216.1	7.06	31.610		
1,600.0	1,600.0	1,552.7	1,536.8	3.5	4.3	2.33	240.0	9.8	248.1	240.4	7.70	32.235		
1,700.0	1,700.0	1,649.5	1,630.1	3.7	4.8	-39.65	263.7	19.8	272.0	264.4	7.62	35.685		
1,800.0	1,799.8	1,747.0	1,724.1	3.9	5.3	-38.36	287.7	29.9	293.5	285.3	8.11	36.196		
1,900.0	1,899.5	1,845.2	1,818.7	4.2	5.8	-37.65	311.8	40.1	312.3	303.7	8.60	36.292		
2,000.0	1,998.7	1,943.9	1,913.9	4.4	6.3	-37.40	336.0	50.4	328.4	319.3	9.12	36.019		
2,100.0	2,097.5	2,042.9	2,009.3	4.6	6.8	-37.55	360.4	60.7	341.8	332.1	9.65	35.418		
2,200.0	2,195.8	2,142.2	2,105.0	4.9	7.3	-38.05	384.7	71.0	353.3	343.1	10.22	34.581		
2,300.0	2,294.2	2,241.5	2,200.7	5.2	7.9	-38.55	409.1	81.3	364.8	354.0	10.80	33.777		
2,400.0	2,392.6	2,340.8	2,296.4	5.5	8.4	-39.02	433.5	91.6	376.4	365.0	11.40	33.023		
2,500.0	2,490.9	2,440.1	2,392.1	5.8	8.9	-39.46	457.9	101.9	387.9	375.9	12.00	32.316		
2,600.0	2,589.3	2,539.4	2,487.8	6.2	9.4	-39.88	482.3	112.2	399.5	386.9	12.62	31.655		
2,700.0	2,687.6	2,638.6	2,583.5	6.5	10.0	-40.27	506.6	122.5	411.1	397.9	13.25	31.036		
2,800.0	2,786.0	2,737.9	2,679.2	6.9	10.5	-40.64	531.0	132.8	422.8	408.9	13.88	30.457		
2,900.0	2,884.4	2,837.2	2,774.9	7.2	11.0	-40.99	555.4	143.1	434.4	419.9	14.52	29.915		
3,000.0	2,982.7	2,936.5	2,870.6	7.6	11.6	-41.33	579.8	153.4	446.1	430.9	15.17	29.407		
3,100.0	3,081.1	3,035.8	2,966.3	7.9	12.1	-41.64	604.2	163.8	457.7	441.9	15.82	28.931		
3,200.0	3,179.5	3,135.1	3,061.9	8.3	12.6	-41.94	628.6	174.1	469.4	453.0	16.48	28.484		
3,300.0	3,277.8	3,234.4	3,157.6	8.7	13.2	-42.23	652.9	184.4	481.1	464.0	17.14	28.063		
3,400.0	3,376.2	3,333.6	3,253.3	9.0	13.7	-42.50	677.3	194.7	492.8	475.0	17.81	27.668	SF	

Company:	KP KAUFFMAN	Local Co-ordinate Reference:	Well Greeley-Rothe 1-6H
Project:	SEC.1-T5N-R67W	TVD Reference:	WELL @ 4891.0ft (RKB - 15')
Reference Site:	Greeley-Rothe Pad Sec.1-T5N-R67W	MD Reference:	WELL @ 4891.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Greeley-Rothe 1-6H	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	0.43	75.0	0.6	75.0					
100.0	100.0	99.0	99.0	0.1	0.1	0.43	75.0	0.6	75.0	74.8	0.22	335.418		
200.0	200.0	199.0	199.0	0.3	0.3	0.43	75.0	0.6	75.0	74.3	0.67	111.620		
300.0	300.0	299.0	299.0	0.6	0.6	0.43	75.0	0.6	75.0	73.9	1.12	66.882		
400.0	400.0	399.0	399.0	0.8	0.8	0.43	75.0	0.6	75.0	73.4	1.57	47.746		
500.0	500.0	499.0	499.0	1.0	1.0	0.43	75.0	0.6	75.0	73.0	2.02	37.124		
600.0	600.0	599.0	599.0	1.2	1.2	0.43	75.0	0.6	75.0	72.5	2.47	30.368		
700.0	700.0	699.0	699.0	1.5	1.5	0.43	75.0	0.6	75.0	72.1	2.92	25.692		
800.0	800.0	799.0	799.0	1.7	1.7	0.43	75.0	0.6	75.0	71.6	3.37	22.264 CC, ES		
900.0	900.0	896.7	896.7	1.9	1.9	0.95	76.5	1.3	76.5	72.7	3.81	20.075		
1,000.0	1,000.0	994.1	994.0	2.1	2.1	2.43	80.9	3.4	81.2	76.9	4.26	19.070		
1,100.0	1,100.0	1,091.1	1,090.6	2.4	2.3	4.55	88.3	7.0	89.0	84.3	4.71	18.908 SF		
1,200.0	1,200.0	1,187.4	1,186.2	2.6	2.6	6.95	98.5	12.0	100.1	94.9	5.17	19.364		
1,300.0	1,300.0	1,282.9	1,280.6	2.8	2.8	9.34	111.5	18.3	114.5	108.8	5.65	20.273		
1,400.0	1,400.0	1,377.2	1,373.3	3.0	3.1	11.54	127.1	26.0	132.2	126.1	6.15	21.511		
1,500.0	1,500.0	1,470.4	1,464.3	3.3	3.5	13.47	145.2	34.8	153.3	146.6	6.67	22.981		
1,600.0	1,600.0	1,565.1	1,556.2	3.5	3.8	15.13	165.9	44.8	177.1	169.9	7.22	24.523		
1,700.0	1,700.0	1,662.4	1,650.5	3.7	4.2	-27.59	187.4	55.3	199.8	192.4	7.45	26.825		
1,800.0	1,799.8	1,760.5	1,745.5	3.9	4.7	-26.96	209.1	65.9	219.6	211.6	7.91	27.765		
1,900.0	1,899.5	1,859.0	1,841.1	4.2	5.1	-26.83	230.9	76.5	236.2	227.9	8.38	28.200		
2,000.0	1,998.7	1,958.1	1,937.1	4.4	5.6	-27.09	252.8	87.2	249.8	241.0	8.85	28.216		
2,100.0	2,097.5	2,057.5	2,033.4	4.6	6.0	-27.69	274.7	97.9	260.4	251.1	9.34	27.867		
2,200.0	2,195.8	2,157.0	2,129.9	4.9	6.5	-28.55	296.7	108.6	268.9	259.1	9.87	27.248		
2,300.0	2,294.2	2,256.6	2,226.4	5.2	7.0	-29.39	318.7	119.4	277.5	267.0	10.41	26.646		
2,400.0	2,392.6	2,356.2	2,322.9	5.5	7.5	-30.17	340.7	130.1	286.0	275.1	10.97	26.081		
2,500.0	2,490.9	2,455.7	2,419.4	5.8	8.0	-30.91	362.8	140.8	294.7	283.1	11.53	25.550		
2,600.0	2,589.3	2,555.3	2,515.9	6.2	8.4	-31.61	384.8	151.5	303.4	291.3	12.11	25.052		
2,700.0	2,687.6	2,654.8	2,612.4	6.5	8.9	-32.27	406.8	162.3	312.1	299.4	12.69	24.584		
2,800.0	2,786.0	2,754.4	2,708.9	6.9	9.4	-32.89	428.8	173.0	320.8	307.6	13.29	24.143		
2,900.0	2,884.4	2,853.9	2,805.4	7.2	9.9	-33.48	450.8	183.7	329.6	315.8	13.89	23.729		
3,000.0	2,982.7	2,953.5	2,901.9	7.6	10.4	-34.04	472.8	194.5	338.5	324.0	14.50	23.339		
3,100.0	3,081.1	3,053.0	2,998.4	7.9	10.9	-34.57	494.8	205.2	347.3	332.2	15.12	22.972		
3,200.0	3,179.5	3,152.6	3,094.9	8.3	11.4	-35.07	516.8	215.9	356.2	340.5	15.74	22.626		
3,300.0	3,277.8	3,252.2	3,191.4	8.7	11.9	-35.55	538.8	226.6	365.1	348.8	16.37	22.299		
3,400.0	3,376.2	3,351.7	3,287.9	9.0	12.4	-36.01	560.8	237.4	374.1	357.1	17.01	21.991		
3,500.0	3,474.5	3,451.3	3,384.4	9.4	12.9	-36.44	582.8	248.1	383.0	365.4	17.65	21.699		
3,600.0	3,572.9	3,550.8	3,480.9	9.8	13.4	-36.86	604.9	258.8	392.0	373.7	18.30	21.423		
3,700.0	3,671.3	3,650.4	3,577.4	10.2	13.9	-37.25	626.9	269.5	401.0	382.1	18.95	21.162		
3,800.0	3,769.6	3,749.9	3,673.9	10.6	14.4	-37.63	648.9	280.3	410.1	390.4	19.61	20.915		
3,900.0	3,868.0	3,849.5	3,770.4	10.9	14.9	-37.99	670.9	291.0	419.1	398.8	20.27	20.680		
4,000.0	3,966.3	3,949.1	3,866.9	11.3	15.4	-38.34	692.9	301.7	428.1	407.2	20.93	20.457		
4,100.0	4,064.7	4,048.6	3,963.4	11.7	15.9	-38.67	714.9	312.5	437.2	415.6	21.60	20.245		
4,200.0	4,163.1	4,148.2	4,059.9	12.1	16.4	-38.99	736.9	323.2	446.3	424.0	22.27	20.043		
4,300.0	4,261.4	4,247.7	4,156.4	12.5	16.9	-39.30	758.9	333.9	455.4	432.4	22.94	19.851		
4,400.0	4,359.8	4,347.3	4,252.9	12.9	17.4	-39.59	780.9	344.6	464.5	440.9	23.62	19.668		
4,500.0	4,458.2	4,446.8	4,349.4	13.3	17.9	-39.88	802.9	355.4	473.6	449.3	24.30	19.494		
4,600.0	4,556.5	4,546.4	4,445.9	13.7	18.4	-40.15	824.9	366.1	482.7	457.8	24.98	19.327		
4,700.0	4,654.9	4,645.9	4,542.4	14.0	18.9	-40.41	846.9	376.8	491.9	466.2	25.66	19.168		

Company:	KP KAUFFMAN	Local Co-ordinate Reference:	Well Greeley-Rothe 1-6H
Project:	SEC.1-T5N-R67W	TVD Reference:	WELL @ 4891.0ft (RKB - 15')
Reference Site:	Greeley-Rothe Pad Sec.1-T5N-R67W	MD Reference:	WELL @ 4891.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Greeley-Rothe 1-6H	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	0.41	50.0	0.4	50.0					
100.0	100.0	100.0	100.0	0.1	0.1	0.41	50.0	0.4	50.0	49.8	0.22	222.387		
200.0	200.0	200.0	200.0	0.3	0.3	0.41	50.0	0.4	50.0	49.3	0.67	74.129		
300.0	300.0	300.0	300.0	0.6	0.6	0.41	50.0	0.4	50.0	48.9	1.12	44.477		
400.0	400.0	400.0	400.0	0.8	0.8	0.41	50.0	0.4	50.0	48.4	1.57	31.770		
500.0	500.0	500.0	500.0	1.0	1.0	0.41	50.0	0.4	50.0	48.0	2.02	24.710		
600.0	600.0	600.0	600.0	1.2	1.2	0.41	50.0	0.4	50.0	47.5	2.47	20.217		
700.0	700.0	700.0	700.0	1.5	1.5	0.41	50.0	0.4	50.0	47.1	2.92	17.107		
800.0	800.0	800.0	800.0	1.7	1.7	0.41	50.0	0.4	50.0	46.6	3.37	14.826		
900.0	900.0	900.0	900.0	1.9	1.9	0.41	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	0.41	50.0	0.4	50.0	45.7	4.27	11.705 CC, ES		
1,100.0	1,100.0	1,098.5	1,098.5	2.4	2.4	1.45	51.4	1.3	51.4	46.7	4.71	10.910		
1,200.0	1,200.0	1,196.8	1,196.7	2.6	2.6	4.23	55.6	4.1	55.9	50.7	5.16	10.830		
1,300.0	1,300.0	1,294.6	1,294.1	2.8	2.8	7.97	62.6	8.8	63.5	57.9	5.61	11.317		
1,400.0	1,400.0	1,391.8	1,390.6	3.0	3.0	11.88	72.2	15.2	74.4	68.4	6.07	12.261		
1,500.0	1,500.0	1,488.0	1,485.7	3.3	3.3	15.46	84.5	23.4	88.8	82.3	6.55	13.564		
1,600.0	1,600.0	1,583.2	1,579.2	3.5	3.6	18.49	99.2	33.2	106.7	99.6	7.05	15.139		
1,700.0	1,700.0	1,677.4	1,671.1	3.7	3.9	-23.19	116.3	44.6	126.3	118.9	7.42	17.032		
1,800.0	1,799.8	1,771.0	1,761.8	3.9	4.3	-21.71	135.8	57.6	146.1	138.2	7.86	18.583		
1,900.0	1,899.5	1,864.1	1,851.0	4.2	4.7	-20.78	157.6	72.1	165.8	157.5	8.31	19.962		
2,000.0	1,998.7	1,961.9	1,944.3	4.4	5.1	-20.27	182.0	88.4	184.2	175.4	8.77	21.011		
2,100.0	2,097.5	2,060.7	2,038.6	4.6	5.6	-20.20	206.6	104.8	199.4	190.2	9.24	21.579		
2,200.0	2,195.8	2,159.9	2,133.2	4.9	6.2	-20.44	231.4	121.3	212.4	202.6	9.75	21.780		
2,300.0	2,294.2	2,259.0	2,227.8	5.2	6.7	-20.67	256.1	137.8	225.3	215.1	10.28	21.919		
2,400.0	2,392.6	2,358.2	2,322.4	5.5	7.3	-20.88	280.8	154.3	238.3	227.5	10.82	22.026		
2,500.0	2,490.9	2,457.3	2,417.0	5.8	7.8	-21.06	305.6	170.7	251.2	239.9	11.36	22.108		
2,600.0	2,589.3	2,556.5	2,511.6	6.2	8.4	-21.23	330.3	187.2	264.2	252.3	11.92	22.169		
2,700.0	2,687.6	2,655.6	2,606.2	6.5	8.9	-21.38	355.0	203.7	277.2	264.7	12.48	22.215		
2,800.0	2,786.0	2,754.8	2,700.8	6.9	9.5	-21.52	379.8	220.2	290.1	277.1	13.04	22.247		
2,900.0	2,884.4	2,853.9	2,795.4	7.2	10.1	-21.65	404.5	236.7	303.1	289.5	13.61	22.269		
3,000.0	2,982.7	2,953.1	2,890.0	7.6	10.7	-21.76	429.2	253.2	316.0	301.9	14.18	22.282		
3,100.0	3,081.1	3,052.2	2,984.6	7.9	11.2	-21.87	453.9	269.7	329.0	314.2	14.76	22.289		
3,200.0	3,179.5	3,151.4	3,079.2	8.3	11.8	-21.97	478.7	286.2	342.0	326.6	15.34	22.290		
3,300.0	3,277.8	3,250.6	3,173.8	8.7	12.4	-22.06	503.4	302.6	354.9	339.0	15.93	22.287		
3,400.0	3,376.2	3,349.7	3,268.3	9.0	13.0	-22.14	528.1	319.1	367.9	351.4	16.51	22.281		
3,500.0	3,474.5	3,448.9	3,362.9	9.4	13.6	-22.22	552.9	335.6	380.9	363.8	17.10	22.272		
3,600.0	3,572.9	3,548.0	3,457.5	9.8	14.2	-22.30	577.6	352.1	393.8	376.1	17.69	22.260		
3,700.0	3,671.3	3,647.2	3,552.1	10.2	14.8	-22.37	602.3	368.6	406.8	388.5	18.29	22.247		
3,800.0	3,769.6	3,746.3	3,646.7	10.6	15.4	-22.43	627.1	385.1	419.8	400.9	18.88	22.233		
3,900.0	3,868.0	3,845.5	3,741.3	10.9	15.9	-22.49	651.8	401.6	432.7	413.3	19.48	22.217		
4,000.0	3,966.3	3,944.6	3,835.9	11.3	16.5	-22.55	676.5	418.1	445.7	425.6	20.08	22.201		
4,100.0	4,064.7	4,043.8	3,930.5	11.7	17.1	-22.60	701.3	434.6	458.7	438.0	20.68	22.184		
4,200.0	4,163.1	4,142.9	4,025.1	12.1	17.7	-22.66	726.0	451.0	471.6	450.4	21.28	22.167		
4,300.0	4,261.4	4,242.1	4,119.7	12.5	18.3	-22.70	750.7	467.5	484.6	462.7	21.88	22.149		
4,400.0	4,359.8	4,356.9	4,229.6	12.9	18.9	-22.80	778.2	485.8	496.4	473.9	22.49	22.072		
4,900.0	4,851.6	4,958.6	4,821.8	14.8	20.7	-25.17	861.4	541.3	494.8	469.3	25.51	19.395		
5,000.0	4,950.0	5,077.1	4,940.3	15.2	20.9	-26.11	865.5	544.0	482.5	456.3	26.13	18.465		
5,100.0	5,048.3	5,185.2	5,048.3	15.6	21.0	-27.16	866.0	544.4	466.8	440.0	26.74	17.454		
5,200.0	5,146.7	5,283.5	5,146.7	16.0	21.2	-28.20	866.0	544.4	450.8	423.4	27.37	16.469		
5,300.0	5,245.0	5,381.9	5,245.0	16.4	21.3	-29.32	866.0	544.4	434.9	406.9	28.02	15.521		
5,400.0	5,343.4	5,480.3	5,343.4	16.8	21.4	-30.52	866.0	544.4	419.2	390.5	28.70	14.609		
5,500.0	5,441.8	5,578.6	5,441.8	17.2	21.5	-31.82	866.0	544.4	403.7	374.3	29.40	13.733		

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 1-6H
Project:	SEC.1-T5N-R67W	TVD Reference:	WELL @ 4891.0ft (RKB - 15')
Reference Site:	Greeley-Rothe Pad Sec.1-T5N-R67W	MD Reference:	WELL @ 4891.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Greeley-Rothe 1-6H	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	
5,600.0	5,540.1	5,677.0	5,540.1	17.6	21.6	-33.21	866.0	544.4	388.4	358.3	30.13	12.892	
5,700.0	5,638.5	5,775.4	5,638.5	18.0	21.7	-34.72	866.0	544.4	373.4	342.5	30.90	12.085	
5,800.0	5,736.9	5,873.7	5,736.9	18.4	21.8	-36.35	866.0	544.4	358.7	327.0	31.70	11.313	
5,900.0	5,835.2	5,972.1	5,835.2	18.8	22.0	-38.12	866.0	544.4	344.2	311.7	32.55	10.576	
6,000.0	5,933.7	6,070.5	5,933.7	19.2	22.1	-39.90	866.0	544.4	330.5	297.1	33.38	9.900	
6,100.0	6,032.6	6,169.4	6,032.6	19.4	22.2	-41.42	866.0	544.4	319.4	285.3	34.08	9.373	
6,200.0	6,132.0	6,268.8	6,132.0	19.7	22.3	-42.65	866.0	544.4	311.1	276.4	34.69	8.970	
6,300.0	6,231.7	6,368.5	6,231.7	19.9	22.5	-43.54	866.0	544.4	305.6	270.4	35.19	8.683	
6,400.0	6,331.6	6,468.4	6,331.6	20.1	22.6	-44.04	866.0	544.4	302.6	267.0	35.58	8.505	
6,500.0	6,431.6	6,568.4	6,431.6	20.2	22.7	-0.12	866.0	544.4	302.0	263.2	38.76	7.791	
6,600.0	6,531.6	6,668.4	6,531.6	20.4	22.9	-0.12	866.0	544.4	302.0	262.9	39.07	7.729	
6,700.0	6,631.5	6,769.3	6,632.3	20.5	23.0	91.76	865.9	541.3	302.0	265.5	36.49	8.277	
6,800.0	6,730.1	6,870.6	6,732.2	20.5	23.0	91.72	865.3	524.8	302.0	265.4	36.55	8.263	
6,900.0	6,825.5	6,971.9	6,828.7	20.4	22.9	91.65	864.3	494.4	302.0	265.5	36.45	8.285	
7,000.0	6,915.9	7,073.1	6,919.9	20.3	22.8	91.54	862.9	450.8	301.9	265.7	36.25	8.329	
7,100.0	6,999.4	7,174.2	7,004.0	20.1	22.6	91.40	861.0	394.8	301.9	265.8	36.08	8.369	
7,200.0	7,074.5	7,275.1	7,079.2	19.9	22.4	91.24	858.8	327.6	301.9	265.8	36.06	8.373	
7,300.0	7,139.7	7,376.0	7,144.2	19.8	22.2	91.05	856.3	250.6	301.9	265.5	36.36	8.302	
7,400.0	7,193.8	7,476.7	7,197.7	19.7	22.0	90.84	853.4	165.5	301.8	264.7	37.15	8.124	
7,500.0	7,235.6	7,577.2	7,238.7	19.8	21.9	90.62	850.4	73.8	301.8	263.3	38.55	7.829	
7,600.0	7,264.4	7,677.6	7,266.3	20.3	21.7	90.38	847.2	-22.5	301.8	261.2	40.59	7.435	
7,700.0	7,279.6	7,777.8	7,280.3	21.4	22.0	90.13	843.9	-121.6	301.8	258.6	43.21	6.985	
7,800.0	7,282.0	7,877.8	7,282.0	22.9	23.4	90.00	840.6	-221.5	301.8	255.5	46.29	6.519	
7,900.0	7,282.0	7,977.8	7,282.0	24.7	25.2	90.00	837.3	-321.5	301.8	252.0	49.80	6.060	
8,000.0	7,282.0	8,077.8	7,282.0	26.7	27.2	90.00	834.0	-421.4	301.8	248.1	53.65	5.625	
8,100.0	7,282.0	8,177.8	7,282.0	28.8	29.3	90.00	830.7	-521.4	301.8	244.0	57.79	5.222	
8,200.0	7,282.0	8,277.8	7,282.0	31.0	31.5	90.00	827.4	-621.3	301.8	239.6	62.16	4.854	
8,300.0	7,282.0	8,377.8	7,282.0	33.3	33.8	90.00	824.1	-721.3	301.7	235.0	66.71	4.523	
8,400.0	7,282.0	8,477.8	7,282.0	35.6	36.2	90.00	820.8	-821.2	301.7	230.3	71.42	4.225	
8,500.0	7,282.0	8,577.8	7,282.0	38.0	38.6	90.00	817.5	-921.2	301.7	225.5	76.24	3.957	
8,600.0	7,282.0	8,677.8	7,282.0	40.5	41.1	90.00	814.2	-1,021.1	301.7	220.6	81.17	3.717	
8,700.0	7,282.0	8,777.8	7,282.0	43.0	43.6	90.00	810.9	-1,121.0	301.7	215.5	86.18	3.501	
8,800.0	7,282.0	8,877.8	7,282.0	45.5	46.1	90.00	807.6	-1,221.0	301.7	210.5	91.25	3.306	
8,900.0	7,282.0	8,977.8	7,282.0	48.1	48.7	90.00	804.3	-1,320.9	301.7	205.3	96.39	3.130	
9,000.0	7,282.0	9,077.8	7,282.0	50.7	51.3	90.00	800.9	-1,420.9	301.7	200.1	101.57	2.970	
9,100.0	7,282.0	9,177.8	7,282.0	53.3	53.9	90.00	797.6	-1,520.8	301.7	194.9	106.80	2.825	
9,200.0	7,282.0	9,277.8	7,282.0	56.0	56.5	90.00	794.3	-1,620.8	301.7	189.6	112.06	2.692	
9,300.0	7,282.0	9,377.8	7,282.0	58.6	59.1	90.00	791.0	-1,720.7	301.7	184.3	117.35	2.571	
9,400.0	7,282.0	9,477.8	7,282.0	61.3	61.8	90.00	787.7	-1,820.7	301.7	179.0	122.67	2.459	
9,500.0	7,282.0	9,577.8	7,282.0	63.9	64.5	90.00	784.4	-1,920.6	301.7	173.6	128.02	2.356	
9,600.0	7,282.0	9,677.8	7,282.0	66.6	67.1	90.00	781.1	-2,020.6	301.6	168.3	133.38	2.261	
9,700.0	7,282.0	9,777.8	7,282.0	69.3	69.8	90.00	777.8	-2,120.5	301.6	162.9	138.77	2.174	
9,800.0	7,282.0	9,877.8	7,282.0	72.0	72.5	90.00	774.5	-2,220.4	301.6	157.5	144.17	2.092	
9,900.0	7,282.0	9,977.8	7,282.0	74.7	75.2	90.00	771.2	-2,320.4	301.6	152.0	149.58	2.016	
10,000.0	7,282.0	10,077.8	7,282.0	77.4	77.9	90.00	767.9	-2,420.3	301.6	146.6	155.01	1.946	
10,100.0	7,282.0	10,177.8	7,282.0	80.1	80.6	90.00	764.6	-2,520.3	301.6	141.2	160.45	1.880	
10,200.0	7,282.0	10,277.8	7,282.0	82.9	83.4	90.00	761.3	-2,620.2	301.6	135.7	165.91	1.818	
10,300.0	7,282.0	10,377.8	7,282.0	85.6	86.1	90.00	757.9	-2,720.2	301.6	130.2	171.37	1.760	
10,400.0	7,282.0	10,477.8	7,282.0	88.3	88.8	90.00	754.6	-2,820.1	301.6	124.7	176.84	1.705	
10,500.0	7,282.0	10,577.8	7,282.0	91.1	91.6	90.00	751.3	-2,920.1	301.6	119.3	182.31	1.654	
10,600.0	7,282.0	10,677.8	7,282.0	93.8	94.3	90.00	748.0	-3,020.0	301.6	113.8	187.80	1.606	
10,700.0	7,282.0	10,777.8	7,282.0	96.5	97.0	90.00	744.7	-3,120.0	301.6	108.3	193.29	1.560	

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 1-6H
Project:	SEC.1-T5N-R67W	TVD Reference:	WELL @ 4891.0ft (RKB - 15')
Reference Site:	Greeley-Rothe Pad Sec.1-T5N-R67W	MD Reference:	WELL @ 4891.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Greeley-Rothe 1-6H	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 1-4H - 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									
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,800.0	7,282.0	10,877.8	7,282.0	99.3	99.8	90.00	741.4	-3,219.9	301.6	102.8	198.79	1.517	
10,900.0	7,282.0	10,977.8	7,282.0	102.0	102.5	90.00	738.1	-3,319.8	301.5	97.3	204.29	1.476	Level 3
11,000.0	7,282.0	11,077.8	7,282.0	104.8	105.3	90.00	734.8	-3,419.8	301.5	91.7	209.80	1.437	Level 3
11,100.0	7,282.0	11,177.8	7,282.0	107.5	108.0	90.00	731.5	-3,519.7	301.5	86.2	215.31	1.400	Level 3
11,200.0	7,282.0	11,277.8	7,282.0	110.3	110.8	90.00	728.2	-3,619.7	301.5	80.7	220.83	1.365	Level 3
11,300.0	7,282.0	11,377.8	7,282.0	113.1	113.5	90.00	724.9	-3,719.6	301.5	75.2	226.35	1.332	Level 3
11,400.0	7,282.0	11,477.8	7,282.0	115.8	116.3	90.00	721.6	-3,819.6	301.5	69.6	231.88	1.300	Level 3
11,500.0	7,282.0	11,577.8	7,282.0	118.6	119.1	90.00	718.3	-3,919.5	301.5	64.1	237.41	1.270	Level 3
11,600.0	7,282.0	11,677.8	7,282.0	121.4	121.8	90.00	715.0	-4,019.5	301.5	58.6	242.94	1.241	Level 2
11,700.0	7,282.0	11,777.8	7,282.0	124.1	124.6	90.00	711.6	-4,119.4	301.5	53.0	248.47	1.213	Level 2
11,800.0	7,282.0	11,877.8	7,282.0	126.9	127.4	90.00	708.3	-4,219.4	301.5	47.5	254.01	1.187	Level 2
11,814.5	7,282.0	11,892.3	7,282.0	127.3	127.8	90.00	707.9	-4,233.9	301.5	46.7	254.82	1.183	Level 2, SF
11,854.2	7,282.0	11,899.6	7,282.0	128.4	128.0	90.00	707.6	-4,241.2	303.2	47.1	256.12	1.184	Level 2

Company:	KP KAUFFMAN	Local Co-ordinate Reference:	Well Greeley-Rothe 1-6H
Project:	SEC.1-T5N-R67W	TVD Reference:	WELL @ 4891.0ft (RKB - 15')
Reference Site:	Greeley-Rothe Pad Sec.1-T5N-R67W	MD Reference:	WELL @ 4891.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Greeley-Rothe 1-6H	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	0.38	25.0	0.2	25.0					
100.0	100.0	100.0	100.0	0.1	0.1	0.38	25.0	0.2	25.0	24.8	0.22	111.193		
200.0	200.0	200.0	200.0	0.3	0.3	0.38	25.0	0.2	25.0	24.3	0.67	37.064		
300.0	300.0	300.0	300.0	0.6	0.6	0.38	25.0	0.2	25.0	23.9	1.12	22.239		
400.0	400.0	400.0	400.0	0.8	0.8	0.38	25.0	0.2	25.0	23.4	1.57	15.885		
500.0	500.0	500.0	500.0	1.0	1.0	0.38	25.0	0.2	25.0	23.0	2.02	12.355		
600.0	600.0	600.0	600.0	1.2	1.2	0.38	25.0	0.2	25.0	22.5	2.47	10.108		
700.0	700.0	700.0	700.0	1.5	1.5	0.38	25.0	0.2	25.0	22.1	2.92	8.553		
800.0	800.0	800.0	800.0	1.7	1.7	0.38	25.0	0.2	25.0	21.6	3.37	7.413		
900.0	900.0	900.0	900.0	1.9	1.9	0.38	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	0.38	25.0	0.2	25.0	20.7	4.27	5.852		
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	0.38	25.0	0.2	25.0	20.3	4.72	5.295		
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	0.38	25.0	0.2	25.0	19.8	5.17	4.834 CC		
1,300.0	1,300.0	1,299.3	1,299.3	2.8	2.8	2.68	26.3	1.2	26.4	20.8	5.61	4.699		
1,400.0	1,400.0	1,398.3	1,398.2	3.0	3.0	8.26	30.4	4.4	30.8	24.7	6.06	5.077		
1,500.0	1,500.0	1,496.9	1,496.3	3.3	3.3	14.63	37.1	9.7	38.5	32.0	6.51	5.913		
1,600.0	1,600.0	1,594.7	1,593.5	3.5	3.5	20.11	46.3	17.0	49.8	42.8	6.97	7.140		
1,700.0	1,700.0	1,692.0	1,689.5	3.7	3.7	-20.16	58.1	26.2	63.0	55.6	7.40	8.510		
1,800.0	1,799.8	1,788.7	1,784.6	3.9	4.0	-17.97	72.4	37.5	76.4	68.5	7.84	9.744		
1,900.0	1,899.5	1,887.0	1,880.5	4.2	4.3	-16.72	88.9	50.5	89.1	80.8	8.27	10.770		
2,000.0	1,998.7	1,986.5	1,977.7	4.4	4.7	-16.31	105.8	63.8	98.8	90.1	8.71	11.336		
2,100.0	2,097.5	2,086.3	2,075.2	4.6	5.1	-16.50	122.7	77.1	105.1	96.0	9.16	11.480		
2,200.0	2,195.8	2,186.2	2,172.7	4.9	5.4	-17.06	139.7	90.5	109.2	99.6	9.64	11.326		
2,300.0	2,294.2	2,286.1	2,270.3	5.2	5.8	-17.59	156.6	103.8	113.2	103.1	10.14	11.165		
2,400.0	2,392.6	2,386.0	2,367.8	5.5	6.2	-18.09	173.6	117.2	117.3	106.6	10.65	11.011		
2,500.0	2,490.9	2,485.9	2,465.4	5.8	6.7	-18.55	190.6	130.5	121.3	110.2	11.17	10.864		
2,600.0	2,589.3	2,585.8	2,562.9	6.2	7.1	-18.98	207.5	143.9	125.4	113.7	11.69	10.724		
2,700.0	2,687.6	2,685.8	2,660.5	6.5	7.5	-19.38	224.5	157.2	129.5	117.2	12.22	10.592		
2,800.0	2,786.0	2,785.7	2,758.0	6.9	7.9	-19.76	241.5	170.6	133.5	120.8	12.76	10.466		
2,900.0	2,884.4	2,885.6	2,855.6	7.2	8.4	-20.12	258.4	183.9	137.6	124.3	13.30	10.346		
3,000.0	2,982.7	2,985.5	2,953.1	7.6	8.8	-20.46	275.4	197.3	141.7	127.8	13.85	10.233		
3,100.0	3,081.1	3,085.4	3,050.7	7.9	9.2	-20.78	292.4	210.7	145.8	131.4	14.40	10.125		
3,200.0	3,179.5	3,185.3	3,148.2	8.3	9.7	-21.08	309.3	224.0	149.9	134.9	14.95	10.023		
3,300.0	3,277.8	3,285.2	3,245.8	8.7	10.1	-21.36	326.3	237.4	154.0	138.5	15.51	9.926		
3,400.0	3,376.2	3,385.1	3,343.3	9.0	10.6	-21.63	343.2	250.7	158.1	142.0	16.08	9.833		
3,500.0	3,474.5	3,485.1	3,440.9	9.4	11.0	-21.89	360.2	264.1	162.2	145.5	16.64	9.745		
3,600.0	3,572.9	3,585.0	3,538.4	9.8	11.4	-22.13	377.2	277.4	166.3	149.1	17.21	9.662		
3,700.0	3,671.3	3,684.9	3,636.0	10.2	11.9	-22.36	394.1	290.8	170.4	152.6	17.78	9.582		
3,800.0	3,769.6	3,784.8	3,733.5	10.6	12.3	-22.58	411.1	304.1	174.5	156.1	18.36	9.506		
3,900.0	3,868.0	3,884.7	3,831.1	10.9	12.8	-22.80	428.1	317.5	178.6	159.7	18.93	9.434		
4,000.0	3,966.3	3,984.6	3,928.6	11.3	13.2	-23.00	445.0	330.9	182.7	163.2	19.51	9.364		
4,100.0	4,064.7	4,084.5	4,026.2	11.7	13.7	-23.19	462.0	344.2	186.8	166.8	20.09	9.298		
4,200.0	4,163.1	4,184.4	4,123.8	12.1	14.1	-23.37	479.0	357.6	191.0	170.3	20.68	9.235		
4,300.0	4,261.4	4,284.4	4,221.3	12.5	14.6	-23.55	495.9	370.9	195.1	173.8	21.26	9.175		
4,400.0	4,359.8	4,384.3	4,318.9	12.9	15.0	-23.72	512.9	384.3	199.2	177.4	21.85	9.117		
4,500.0	4,458.2	4,484.2	4,416.4	13.3	15.5	-23.88	529.9	397.6	203.3	180.9	22.44	9.061		
4,600.0	4,556.5	4,584.1	4,514.0	13.7	16.0	-24.04	546.8	411.0	207.5	184.4	23.03	9.008		
4,700.0	4,654.9	4,684.0	4,611.5	14.0	16.4	-24.19	563.8	424.3	211.6	188.0	23.62	8.957		
4,800.0	4,753.2	4,783.9	4,709.1	14.4	16.9	-24.33	580.8	437.7	215.7	191.5	24.22	8.908		
4,900.0	4,851.6	4,883.8	4,806.6	14.8	17.3	-24.47	597.7	451.1	219.9	195.0	24.81	8.861		
5,000.0	4,950.0	4,983.8	4,904.2	15.2	17.8	-24.60	614.7	464.4	224.0	198.6	25.41	8.816		
5,100.0	5,048.3	5,083.7	5,001.7	15.6	18.2	-24.73	631.6	477.8	228.1	202.1	26.01	8.772		

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 1-6H
Project:	SEC.1-T5N-R67W	TVD Reference:	WELL @ 4891.0ft (RKB - 15')
Reference Site:	Greeley-Rothe Pad Sec.1-T5N-R67W	MD Reference:	WELL @ 4891.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Greeley-Rothe 1-6H	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	5,146.7	5,183.6	5,099.3	16.0	18.7	-24.85	648.6	491.1	232.3	205.7	26.60	8.730	
5,300.0	5,245.0	5,284.9	5,198.2	16.4	19.1	-24.98	665.8	504.6	236.4	209.1	27.20	8.689	
5,400.0	5,343.4	5,393.3	5,304.6	16.8	19.5	-25.32	682.1	517.5	238.1	210.3	27.79	8.570	
5,500.0	5,441.8	5,501.7	5,411.7	17.2	19.8	-26.00	695.2	527.8	236.3	207.9	28.41	8.320	
5,600.0	5,540.1	5,609.7	5,519.0	17.6	20.1	-27.05	705.1	535.6	231.1	202.0	29.07	7.948	
5,700.0	5,638.5	5,717.1	5,626.0	18.0	20.3	-28.54	711.8	540.9	222.4	192.6	29.81	7.462	
5,800.0	5,736.9	5,823.5	5,732.3	18.4	20.5	-30.58	715.4	543.7	210.5	179.9	30.63	6.872	
5,900.0	5,835.2	5,926.4	5,835.2	18.8	20.6	-33.28	716.0	544.2	195.8	164.2	31.59	6.199	
6,000.0	5,933.7	6,024.9	5,933.7	19.2	20.7	-36.23	716.0	544.2	181.3	148.7	32.62	5.559	
6,100.0	6,032.6	6,123.8	6,032.6	19.4	20.9	-38.97	716.0	544.2	169.7	136.2	33.54	5.061	
6,200.0	6,132.0	6,223.2	6,132.0	19.7	21.0	-41.33	716.0	544.2	161.2	126.9	34.36	4.692	
6,300.0	6,231.7	6,322.9	6,231.7	19.9	21.2	-43.11	716.0	544.2	155.6	120.5	35.04	4.440	
6,400.0	6,331.6	6,422.8	6,331.6	20.1	21.3	-44.13	716.0	544.2	152.6	117.0	35.53	4.294	
6,500.0	6,431.6	6,522.8	6,431.6	20.2	21.4	-0.31	716.0	544.2	152.0	114.7	37.25	4.081	
6,600.0	6,531.6	6,622.8	6,531.6	20.4	21.6	-0.31	716.0	544.2	152.0	114.4	37.57	4.045	
6,624.9	6,556.5	6,647.7	6,556.5	20.4	21.6	91.68	716.0	544.2	152.0	115.7	36.26	4.192	
6,700.0	6,631.5	6,722.7	6,631.5	20.5	21.7	92.70	716.0	544.2	152.1	115.8	36.29	4.192	
6,800.0	6,730.1	6,823.0	6,731.7	20.5	21.8	97.89	715.9	542.1	153.4	118.0	35.43	4.330	
6,900.0	6,825.5	6,925.9	6,833.5	20.4	21.9	103.42	715.4	527.1	156.3	122.0	34.35	4.550	
7,000.0	6,915.9	7,031.3	6,934.3	20.3	21.8	108.53	714.4	496.7	160.4	127.2	33.25	4.825	
7,100.0	6,999.4	7,139.2	7,031.7	20.1	21.7	113.09	712.9	450.7	165.4	133.2	32.20	5.137	
7,200.0	7,074.5	7,249.4	7,123.0	19.9	21.5	117.00	710.9	389.1	170.8	139.5	31.28	5.461	
7,300.0	7,139.7	7,362.0	7,205.3	19.8	21.3	120.23	708.4	312.5	176.1	145.5	30.63	5.750	
7,400.0	7,193.8	7,476.5	7,275.7	19.7	21.0	122.77	705.4	222.4	180.9	150.5	30.43	5.946	
7,500.0	7,235.6	7,592.8	7,331.6	19.8	20.9	124.64	702.1	120.6	184.8	154.0	30.87	5.988	
7,600.0	7,264.4	7,710.4	7,370.6	20.3	20.9	125.83	698.4	9.9	187.5	155.4	32.11	5.840	
7,700.0	7,279.6	7,828.7	7,391.0	21.4	21.7	126.37	694.6	-106.5	188.8	154.6	34.18	5.523	
7,800.0	7,282.0	7,938.9	7,394.0	22.9	23.3	126.38	691.0	-216.6	188.8	152.0	36.82	5.129	
7,900.0	7,282.0	8,038.9	7,394.0	24.7	25.1	126.38	687.7	-316.5	188.8	149.2	39.63	4.765	
8,000.0	7,282.0	8,138.9	7,394.0	26.7	27.0	126.37	684.4	-416.4	188.9	146.1	42.75	4.417	
8,100.0	7,282.0	8,238.9	7,394.0	28.8	29.1	126.37	681.1	-516.4	188.9	142.7	46.12	4.095	
8,200.0	7,282.0	8,338.9	7,394.0	31.0	31.3	126.37	677.8	-616.3	188.9	139.2	49.69	3.801	
8,300.0	7,282.0	8,438.9	7,394.0	33.3	33.6	126.37	674.5	-716.3	188.9	135.5	53.41	3.537	
8,400.0	7,282.0	8,538.9	7,394.0	35.6	36.0	126.36	671.3	-816.2	188.9	131.6	57.25	3.299	
8,500.0	7,282.0	8,638.9	7,394.0	38.0	38.4	126.36	668.0	-916.2	188.9	127.7	61.20	3.087	
8,600.0	7,282.0	8,738.9	7,394.0	40.5	40.8	126.36	664.7	-1,016.1	188.9	123.7	65.24	2.896	
8,700.0	7,282.0	8,838.9	7,394.0	43.0	43.3	126.36	661.4	-1,116.1	188.9	119.6	69.34	2.725	
8,800.0	7,282.0	8,938.9	7,394.0	45.5	45.9	126.35	658.1	-1,216.0	188.9	115.4	73.50	2.571	
8,900.0	7,282.0	9,038.9	7,394.0	48.1	48.4	126.35	654.8	-1,316.0	188.9	111.2	77.71	2.431	
9,000.0	7,282.0	9,138.9	7,394.0	50.7	51.0	126.35	651.5	-1,415.9	189.0	107.0	81.96	2.306	
9,100.0	7,282.0	9,238.9	7,394.0	53.3	53.6	126.35	648.2	-1,515.9	189.0	102.7	86.25	2.191	
9,200.0	7,282.0	9,338.9	7,394.0	56.0	56.2	126.35	645.0	-1,615.8	189.0	98.4	90.56	2.087	
9,300.0	7,282.0	9,438.9	7,394.0	58.6	58.9	126.34	641.7	-1,715.7	189.0	94.1	94.90	1.991	
9,400.0	7,282.0	9,538.9	7,394.0	61.3	61.5	126.34	638.4	-1,815.7	189.0	89.7	99.27	1.904	
9,500.0	7,282.0	9,638.9	7,394.0	63.9	64.2	126.34	635.1	-1,915.6	189.0	85.4	103.65	1.824	
9,600.0	7,282.0	9,738.9	7,394.0	66.6	66.9	126.34	631.8	-2,015.6	189.0	81.0	108.05	1.749	
9,700.0	7,282.0	9,838.9	7,394.0	69.3	69.6	126.33	628.5	-2,115.5	189.0	76.6	112.47	1.681	
9,800.0	7,282.0	9,938.9	7,394.0	72.0	72.3	126.33	625.2	-2,215.5	189.0	72.1	116.90	1.617	
9,900.0	7,282.0	10,038.9	7,394.0	74.7	75.0	126.33	621.9	-2,315.4	189.1	67.7	121.34	1.558	
10,000.0	7,282.0	10,138.9	7,394.0	77.4	77.7	126.33	618.7	-2,415.4	189.1	63.3	125.80	1.503	
10,100.0	7,282.0	10,238.9	7,394.0	80.1	80.4	126.32	615.4	-2,515.3	189.1	58.8	130.26	1.452 Level 3	
10,200.0	7,282.0	10,338.9	7,394.0	82.9	83.1	126.32	612.1	-2,615.3	189.1	54.4	134.73	1.403 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 1-6H
Project:	SEC.1-T5N-R67W	TVD Reference:	WELL @ 4891.0ft (RKB - 15')
Reference Site:	Greeley-Rothe Pad Sec.1-T5N-R67W	MD Reference:	WELL @ 4891.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Greeley-Rothe 1-6H	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
Greeley-Rothe Pad Sec.1-T5N-R67W - Greeley-Rothe 1-5H - Wellbore #1 - Plan #2 (6-05-14)													Offset Well Error:	0.0 ft
Survey Program: 0-MWD														
Reference		Offset		Semi Major Axis			Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
10,300.0	7,282.0	10,438.9	7,394.0	85.6	85.8	126.32	608.8	-2,715.2	189.1	49.9	139.21	1.358	Level 3	
10,400.0	7,282.0	10,538.9	7,394.0	88.3	88.6	126.32	605.5	-2,815.2	189.1	45.4	143.70	1.316	Level 3	
10,500.0	7,282.0	10,638.9	7,394.0	91.1	91.3	126.32	602.2	-2,915.1	189.1	40.9	148.19	1.276	Level 3	
10,600.0	7,282.0	10,738.9	7,394.0	93.8	94.0	126.31	598.9	-3,015.0	189.1	36.4	152.69	1.239	Level 2	
10,700.0	7,282.0	10,838.9	7,394.0	96.5	96.8	126.31	595.7	-3,115.0	189.1	31.9	157.20	1.203	Level 2	
10,800.0	7,282.0	10,938.9	7,394.0	99.3	99.5	126.31	592.4	-3,214.9	189.1	27.4	161.71	1.170	Level 2	
10,900.0	7,282.0	11,038.9	7,394.0	102.0	102.3	126.31	589.1	-3,314.9	189.2	22.9	166.23	1.138	Level 2	
11,000.0	7,282.0	11,138.9	7,394.0	104.8	105.0	126.30	585.8	-3,414.8	189.2	18.4	170.75	1.108	Level 2	
11,100.0	7,282.0	11,238.9	7,394.0	107.5	107.8	126.30	582.5	-3,514.8	189.2	13.9	175.27	1.079	Level 2	
11,200.0	7,282.0	11,338.9	7,394.0	110.3	110.5	126.30	579.2	-3,614.7	189.2	9.4	179.80	1.052	Level 2	
11,300.0	7,282.0	11,438.9	7,394.0	113.1	113.3	126.30	575.9	-3,714.7	189.2	4.9	184.33	1.026	Level 2	
11,400.0	7,282.0	11,538.9	7,394.0	115.8	116.0	126.29	572.6	-3,814.6	189.2	0.3	188.87	1.002	Level 2	
11,500.0	7,282.0	11,638.9	7,394.0	118.6	118.8	126.29	569.4	-3,914.6	189.2	-4.2	193.41	0.978	Level 1	
11,600.0	7,282.0	11,738.9	7,394.0	121.4	121.6	126.29	566.1	-4,014.5	189.2	-8.7	197.95	0.956	Level 1	
11,700.0	7,282.0	11,838.9	7,394.0	124.1	124.3	126.29	562.8	-4,114.4	189.2	-13.3	202.49	0.935	Level 1	
11,800.0	7,282.0	11,938.9	7,394.0	126.9	127.1	126.28	559.5	-4,214.4	189.3	-17.8	207.04	0.914	Level 1	
11,822.8	7,282.0	11,961.7	7,394.0	127.5	127.7	126.28	558.7	-4,237.2	189.3	-18.8	208.08	0.910	Level 1	
11,854.2	7,282.0	11,976.9	7,394.0	128.4	128.2	126.28	558.2	-4,252.4	189.9	-19.2	209.14	0.908	Level 1, ES, SF	

Company:	KP KAUFFMAN	Local Co-ordinate Reference:	Well Greeley-Rothe 1-6H
Project:	SEC.1-T5N-R67W	TVD Reference:	WELL @ 4891.0ft (RKB - 15')
Reference Site:	Greeley-Rothe Pad Sec.1-T5N-R67W	MD Reference:	WELL @ 4891.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Greeley-Rothe 1-6H	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	-116.13	-24.6	-50.2	55.9					
100.0	100.0	100.0	100.0	0.1	0.1	-116.13	-24.6	-50.2	55.9	55.7	0.22	248.773		
200.0	200.0	200.0	200.0	0.3	0.3	-116.13	-24.6	-50.2	55.9	55.2	0.67	82.924		
300.0	300.0	300.0	300.0	0.6	0.6	-116.13	-24.6	-50.2	55.9	54.8	1.12	49.755		
400.0	400.0	400.0	400.0	0.8	0.8	-116.13	-24.6	-50.2	55.9	54.3	1.57	35.539		
500.0	500.0	500.0	500.0	1.0	1.0	-116.13	-24.6	-50.2	55.9	53.9	2.02	27.641		
600.0	600.0	600.0	600.0	1.2	1.2	-116.13	-24.6	-50.2	55.9	53.4	2.47	22.616		
700.0	700.0	700.0	700.0	1.5	1.5	-116.13	-24.6	-50.2	55.9	53.0	2.92	19.136		
800.0	800.0	800.0	800.0	1.7	1.7	-116.13	-24.6	-50.2	55.9	52.5	3.37	16.585		
900.0	900.0	900.0	900.0	1.9	1.9	-116.13	-24.6	-50.2	55.9	52.1	3.82	14.634		
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-116.13	-24.6	-50.2	55.9	51.6	4.27	13.093		
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	-116.13	-24.6	-50.2	55.9	51.2	4.72	11.846		
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	-116.13	-24.6	-50.2	55.9	50.7	5.17	10.816		
1,300.0	1,300.0	1,300.0	1,300.0	2.8	2.8	-116.13	-24.6	-50.2	55.9	50.3	5.62	9.951		
1,400.0	1,400.0	1,400.0	1,400.0	3.0	3.0	-116.13	-24.6	-50.2	55.9	49.8	6.07	9.214		
1,500.0	1,500.0	1,500.0	1,500.0	3.3	3.3	-116.13	-24.6	-50.2	55.9	49.4	6.52	8.578		
1,600.0	1,600.0	1,600.0	1,600.0	3.5	3.5	-116.13	-24.6	-50.2	55.9	48.9	6.97	8.025 CC, ES		
1,700.0	1,700.0	1,700.0	1,700.0	3.7	3.7	-160.73	-24.6	-50.2	57.6	50.2	7.41	7.768		
1,800.0	1,799.8	1,799.8	1,799.8	3.9	3.9	-162.28	-24.6	-50.2	62.5	54.7	7.84	7.973		
1,900.0	1,899.5	1,901.9	1,901.9	4.2	4.2	-164.61	-23.9	-48.5	69.1	60.9	8.26	8.367		
2,000.0	1,998.7	2,004.2	2,004.0	4.4	4.4	-167.56	-21.7	-43.6	75.7	67.0	8.66	8.735		
2,100.0	2,097.5	2,106.6	2,106.0	4.6	4.6	-171.00	-18.0	-35.2	82.4	73.3	9.06	9.089		
2,200.0	2,195.8	2,209.3	2,207.9	4.9	4.8	-174.75	-12.8	-23.5	88.2	78.7	9.50	9.284		
2,300.0	2,294.2	2,312.1	2,309.4	5.2	5.1	-178.80	-6.1	-8.5	91.1	81.1	9.96	9.140		
2,400.0	2,392.6	2,414.2	2,409.5	5.5	5.4	176.52	2.0	9.6	91.1	80.7	10.45	8.722		
2,493.0	2,484.1	2,506.9	2,500.3	5.8	5.7	172.00	9.8	27.0	90.9	79.9	10.93	8.317		
2,500.0	2,490.9	2,513.9	2,507.1	5.8	5.7	171.66	10.3	28.3	90.9	79.9	10.96	8.288		
2,600.0	2,589.3	2,613.6	2,604.7	6.2	6.0	166.80	18.7	47.0	91.2	79.7	11.51	7.926		
2,700.0	2,687.6	2,713.3	2,702.2	6.5	6.4	162.01	27.0	65.7	92.3	80.2	12.10	7.623		
2,800.0	2,786.0	2,813.0	2,799.8	6.9	6.7	157.36	35.3	84.4	93.9	81.2	12.74	7.372		
2,900.0	2,884.4	2,912.7	2,897.4	7.2	7.1	152.89	43.7	103.1	96.2	82.8	13.42	7.166		
3,000.0	2,982.7	3,012.4	2,995.0	7.6	7.5	148.66	52.0	121.8	99.0	84.9	14.14	7.001		
3,100.0	3,081.1	3,112.1	3,092.5	7.9	7.8	144.68	60.3	140.5	102.3	87.4	14.90	6.870		
3,200.0	3,179.5	3,211.8	3,190.1	8.3	8.2	140.96	68.6	159.2	106.1	90.5	15.68	6.770		
3,300.0	3,277.8	3,311.5	3,287.7	8.7	8.6	137.52	77.0	177.9	110.3	93.9	16.48	6.695		
3,400.0	3,376.2	3,411.2	3,385.3	9.0	9.0	134.33	85.3	196.6	114.9	97.6	17.30	6.643		
3,500.0	3,474.5	3,510.9	3,482.8	9.4	9.4	131.40	93.6	215.3	119.8	101.7	18.13	6.609		
3,600.0	3,572.9	3,610.6	3,580.4	9.8	9.8	128.71	101.9	234.0	125.0	106.0	18.97	6.591		
3,700.0	3,671.3	3,710.3	3,678.0	10.2	10.3	126.23	110.3	252.7	130.5	110.7	19.81	6.585		
3,800.0	3,769.6	3,810.0	3,775.6	10.6	10.7	123.95	118.6	271.4	136.1	115.5	20.66	6.590		
3,900.0	3,868.0	3,909.7	3,873.2	10.9	11.1	121.86	126.9	290.1	142.0	120.5	21.50	6.604		
4,000.0	3,966.3	4,009.4	3,970.7	11.3	11.5	119.94	135.2	308.7	148.0	125.7	22.35	6.624		
4,100.0	4,064.7	4,109.1	4,068.3	11.7	11.9	118.17	143.6	327.4	154.2	131.0	23.20	6.650		
4,200.0	4,163.1	4,208.8	4,165.9	12.1	12.4	116.54	151.9	346.1	160.6	136.5	24.04	6.679		
4,300.0	4,261.4	4,308.5	4,263.5	12.5	12.8	115.03	160.2	364.8	167.0	142.1	24.88	6.712		
4,400.0	4,359.8	4,408.2	4,361.0	12.9	13.2	113.64	168.5	383.5	173.6	147.9	25.73	6.748		
4,500.0	4,458.2	4,507.9	4,458.6	13.3	13.6	112.35	176.9	402.2	180.2	153.7	26.56	6.785		
4,600.0	4,556.5	4,607.6	4,556.2	13.7	14.1	111.15	185.2	420.9	187.0	159.6	27.40	6.824		
4,700.0	4,654.9	4,707.3	4,653.8	14.0	14.5	110.03	193.5	439.6	193.8	165.6	28.24	6.863		
4,800.0	4,753.2	4,807.0	4,751.3	14.4	14.9	108.99	201.8	458.3	200.7	171.6	29.07	6.903		
4,900.0	4,851.6	4,906.7	4,848.9	14.8	15.4	108.02	210.2	477.0	207.6	177.7	29.90	6.943		
5,000.0	4,950.0	5,006.6	4,946.7	15.2	15.8	107.17	218.4	495.5	214.6	183.9	30.71	6.988		

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 1-6H
Project:	SEC.1-T5N-R67W	TVD Reference:	WELL @ 4891.0ft (RKB - 15')
Reference Site:	Greeley-Rothe Pad Sec.1-T5N-R67W	MD Reference:	WELL @ 4891.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Greeley-Rothe 1-6H	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	
5,100.0	5,048.3	5,106.9	5,045.5	15.6	16.1	107.08	225.6	511.7	221.4	190.0	31.41	7.049	
5,200.0	5,146.7	5,207.3	5,144.8	16.0	16.4	107.89	231.4	524.6	227.9	195.9	32.06	7.110	
5,300.0	5,245.0	5,307.3	5,244.3	16.4	16.6	109.50	235.7	534.4	234.4	201.7	32.64	7.180	
5,400.0	5,343.4	5,406.7	5,343.5	16.8	16.8	111.84	238.6	540.9	240.9	207.8	33.15	7.268	
5,500.0	5,441.8	5,505.4	5,442.1	17.2	17.0	114.82	240.1	544.3	248.1	214.5	33.56	7.392	
5,600.0	5,540.1	5,603.5	5,540.1	17.6	17.1	118.29	240.4	544.8	256.2	222.3	33.86	7.566	
5,700.0	5,638.5	5,701.8	5,638.5	18.0	17.3	121.68	240.4	544.8	265.3	231.2	34.12	7.775	
5,800.0	5,736.9	5,800.2	5,736.9	18.4	17.4	124.84	240.4	544.8	275.3	241.0	34.36	8.014	
5,900.0	5,835.2	5,898.6	5,835.2	18.8	17.6	127.77	240.4	544.8	286.1	251.5	34.57	8.276	
6,000.0	5,933.7	5,997.0	5,933.7	19.2	17.7	130.52	240.4	544.8	297.3	262.6	34.76	8.553	
6,100.0	6,032.6	6,095.9	6,032.6	19.4	17.9	132.71	240.4	544.8	307.0	272.1	34.92	8.794	
6,200.0	6,132.0	6,195.3	6,132.0	19.7	18.0	134.30	240.4	544.8	314.7	279.6	35.10	8.965	
6,300.0	6,231.7	6,295.0	6,231.7	19.9	18.2	135.35	240.4	544.8	320.1	284.8	35.32	9.063	
6,400.0	6,331.6	6,394.9	6,331.6	20.1	18.4	135.91	240.4	544.8	323.0	287.5	35.56	9.085	
6,500.0	6,431.6	6,494.9	6,431.6	20.2	18.5	-179.96	240.4	544.8	323.6	290.4	33.20	9.746	
6,600.0	6,531.6	6,594.9	6,531.6	20.4	18.7	-179.96	240.4	544.8	323.6	290.1	33.57	9.640	
6,700.0	6,631.5	6,693.9	6,630.5	20.5	18.8	-88.08	240.3	541.9	323.6	287.2	36.46	8.877	
6,800.0	6,730.1	6,792.5	6,727.7	20.5	18.9	-88.12	239.8	526.3	323.6	287.1	36.51	8.863	
6,900.0	6,825.5	6,891.0	6,821.9	20.4	18.8	-88.20	238.8	497.5	323.6	287.2	36.41	8.888	
7,000.0	6,915.9	6,989.7	6,911.3	20.3	18.7	-88.32	237.4	456.0	323.6	287.4	36.21	8.935	
7,100.0	6,999.4	7,088.4	6,994.2	20.1	18.5	-88.46	235.7	402.6	323.6	287.5	36.03	8.981	
7,200.0	7,074.5	7,187.3	7,069.1	19.9	18.5	-88.64	233.6	338.2	323.5	287.5	35.99	8.989	
7,300.0	7,139.7	7,286.3	7,134.5	19.8	18.5	-88.84	231.1	264.0	323.5	287.2	36.27	8.919	
7,400.0	7,193.8	7,385.5	7,189.2	19.7	18.8	-89.06	228.4	181.4	323.5	286.4	37.03	8.736	
7,500.0	7,235.6	7,484.8	7,232.0	19.8	19.4	-89.30	225.4	91.9	323.4	285.1	38.37	8.428	
7,600.0	7,264.4	7,584.4	7,262.0	20.3	20.3	-89.56	222.3	-2.9	323.4	283.1	40.36	8.013	
7,700.0	7,279.6	7,684.1	7,278.6	21.4	21.5	-89.83	219.1	-101.1	323.4	280.5	42.93	7.533	
7,800.0	7,282.0	7,784.0	7,282.0	22.9	23.0	-90.00	215.8	-200.9	323.4	277.4	45.98	7.034	
7,900.0	7,282.0	7,884.0	7,282.0	24.7	24.8	-90.00	212.5	-300.9	323.4	273.9	49.45	6.540	
8,000.0	7,282.0	7,984.0	7,282.0	26.7	26.7	-90.00	209.2	-400.8	323.4	270.1	53.28	6.069	
8,100.0	7,282.0	8,084.0	7,282.0	28.8	28.7	-90.00	205.9	-500.7	323.4	266.0	57.40	5.633	
8,200.0	7,282.0	8,184.0	7,282.0	31.0	30.9	-90.00	202.6	-600.7	323.4	261.6	61.76	5.236	
8,300.0	7,282.0	8,284.0	7,282.0	33.3	33.2	-90.00	199.3	-700.6	323.4	257.1	66.30	4.877	
8,400.0	7,282.0	8,384.0	7,282.0	35.6	35.5	-90.00	196.0	-800.6	323.4	252.4	70.99	4.555	
8,500.0	7,282.0	8,484.0	7,282.0	38.0	37.9	-90.00	192.7	-900.5	323.4	247.5	75.81	4.265	
8,600.0	7,282.0	8,584.0	7,282.0	40.5	40.4	-90.00	189.4	-1,000.5	323.3	242.6	80.73	4.005	
8,700.0	7,282.0	8,684.0	7,282.0	43.0	42.9	-90.00	186.2	-1,100.4	323.3	237.6	85.73	3.772	
8,800.0	7,282.0	8,784.0	7,282.0	45.5	45.4	-90.00	182.9	-1,200.4	323.3	232.5	90.81	3.561	
8,900.0	7,282.0	8,884.0	7,282.0	48.1	48.0	-90.00	179.6	-1,300.3	323.3	227.4	95.94	3.370	
9,000.0	7,282.0	8,984.0	7,282.0	50.7	50.6	-90.00	176.3	-1,400.3	323.3	222.2	101.12	3.198	
9,100.0	7,282.0	9,084.0	7,282.0	53.3	53.2	-90.00	173.0	-1,500.2	323.3	217.0	106.34	3.040	
9,200.0	7,282.0	9,184.0	7,282.0	56.0	55.8	-90.00	169.7	-1,600.1	323.3	211.7	111.60	2.897	
9,300.0	7,282.0	9,284.0	7,282.0	58.6	58.4	-90.00	166.4	-1,700.1	323.3	206.4	116.89	2.766	
9,400.0	7,282.0	9,384.0	7,282.0	61.3	61.1	-90.00	163.1	-1,800.0	323.3	201.1	122.21	2.645	
9,500.0	7,282.0	9,484.0	7,282.0	63.9	63.8	-90.00	159.8	-1,900.0	323.3	195.7	127.56	2.535	
9,600.0	7,282.0	9,584.0	7,282.0	66.6	66.5	-90.00	156.5	-1,999.9	323.3	190.4	132.92	2.432	
9,700.0	7,282.0	9,684.0	7,282.0	69.3	69.1	-90.00	153.2	-2,099.9	323.3	185.0	138.30	2.337	
9,800.0	7,282.0	9,784.0	7,282.0	72.0	71.8	-90.00	149.9	-2,199.8	323.3	179.6	143.70	2.250	
9,900.0	7,282.0	9,884.0	7,282.0	74.7	74.5	-90.00	146.6	-2,299.8	323.3	174.1	149.12	2.168	
10,000.0	7,282.0	9,984.0	7,282.0	77.4	77.3	-90.00	143.3	-2,399.7	323.3	168.7	154.55	2.092	
10,100.0	7,282.0	10,084.0	7,282.0	80.1	80.0	-90.00	140.0	-2,499.7	323.3	163.3	159.99	2.021	
10,200.0	7,282.0	10,184.0	7,282.0	82.9	82.7	-90.00	136.7	-2,599.6	323.3	157.8	165.44	1.954	

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 1-6H
Project:	SEC.1-T5N-R67W	TVD Reference:	WELL @ 4891.0ft (RKB - 15')
Reference Site:	Greeley-Rothe Pad Sec.1-T5N-R67W	MD Reference:	WELL @ 4891.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Greeley-Rothe 1-6H	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 1-7H - 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	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor					
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)						
10,300.0	7,282.0	10,284.0	7,282.0	85.6	85.4	-90.00	133.5	-2,699.5	323.2	152.3	170.90	1.891					
10,400.0	7,282.0	10,384.0	7,282.0	88.3	88.2	-90.00	130.2	-2,799.5	323.2	146.9	176.37	1.833					
10,500.0	7,282.0	10,484.0	7,282.0	91.1	90.9	-90.00	126.9	-2,899.4	323.2	141.4	181.85	1.778					
10,600.0	7,282.0	10,584.0	7,282.0	93.8	93.6	-90.00	123.6	-2,999.4	323.2	135.9	187.33	1.725					
10,700.0	7,282.0	10,684.0	7,282.0	96.5	96.4	-90.00	120.3	-3,099.3	323.2	130.4	192.82	1.676					
10,800.0	7,282.0	10,784.0	7,282.0	99.3	99.1	-90.00	117.0	-3,199.3	323.2	124.9	198.32	1.630					
10,900.0	7,282.0	10,884.0	7,282.0	102.0	101.9	-90.00	113.7	-3,299.2	323.2	119.4	203.82	1.586					
11,000.0	7,282.0	10,984.0	7,282.0	104.8	104.6	-90.00	110.4	-3,399.2	323.2	113.9	209.33	1.544					
11,100.0	7,282.0	11,084.0	7,282.0	107.5	107.4	-90.00	107.1	-3,499.1	323.2	108.4	214.84	1.504					
11,200.0	7,282.0	11,184.0	7,282.0	110.3	110.2	-90.00	103.8	-3,599.1	323.2	102.8	220.36	1.467 Level 3					
11,300.0	7,282.0	11,284.0	7,282.0	113.1	112.9	-90.00	100.5	-3,699.0	323.2	97.3	225.88	1.431 Level 3					
11,400.0	7,282.0	11,384.0	7,282.0	115.8	115.7	-90.00	97.2	-3,799.0	323.2	91.8	231.41	1.397 Level 3					
11,500.0	7,282.0	11,484.0	7,282.0	118.6	118.4	-90.00	93.9	-3,898.9	323.2	86.2	236.94	1.364 Level 3					
11,600.0	7,282.0	11,584.0	7,282.0	121.4	121.2	-90.00	90.6	-3,998.8	323.2	80.7	242.47	1.333 Level 3					
11,700.0	7,282.0	11,684.0	7,282.0	124.1	124.0	-90.00	87.3	-4,098.8	323.2	75.2	248.00	1.303 Level 3					
11,800.0	7,282.0	11,784.0	7,282.0	126.9	126.7	-90.00	84.0	-4,198.7	323.2	69.6	253.54	1.275 Level 3					
11,854.2	7,282.0	11,838.2	7,282.0	128.4	128.2	-90.00	82.3	-4,252.9	323.1	66.6	256.54	1.260 Level 3, SF					

Company:	KP KAUFFMAN	Local Co-ordinate Reference:	Well Greeley-Rothe 1-6H
Project:	SEC.1-T5N-R67W	TVD Reference:	WELL @ 4891.0ft (RKB - 15')
Reference Site:	Greeley-Rothe Pad Sec.1-T5N-R67W	MD Reference:	WELL @ 4891.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Greeley-Rothe 1-6H	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									
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	1.0	1.0	0.0	0.0	-134.56	-24.8	-25.2	35.4	35.4	0.00	N/A		
100.0	100.0	101.0	101.0	0.1	0.1	-134.56	-24.8	-25.2	35.4	35.1	0.23	155.768		
200.0	200.0	201.0	201.0	0.3	0.3	-134.56	-24.8	-25.2	35.4	34.7	0.68	52.268		
300.0	300.0	301.0	301.0	0.6	0.6	-134.56	-24.8	-25.2	35.4	34.2	1.13	31.402		
400.0	400.0	401.0	401.0	0.8	0.8	-134.56	-24.8	-25.2	35.4	33.8	1.58	22.443		
500.0	500.0	501.0	501.0	1.0	1.0	-134.56	-24.8	-25.2	35.4	33.3	2.03	17.461		
600.0	600.0	601.0	601.0	1.2	1.2	-134.56	-24.8	-25.2	35.4	32.9	2.47	14.289		
700.0	700.0	701.0	701.0	1.5	1.5	-134.56	-24.8	-25.2	35.4	32.4	2.92	12.093		
800.0	800.0	801.0	801.0	1.7	1.7	-134.56	-24.8	-25.2	35.4	32.0	3.37	10.481		
900.0	900.0	901.0	901.0	1.9	1.9	-134.56	-24.8	-25.2	35.4	31.5	3.82	9.249		
1,000.0	1,000.0	1,001.0	1,001.0	2.1	2.1	-134.56	-24.8	-25.2	35.4	31.1	4.27	8.276		
1,100.0	1,100.0	1,101.0	1,101.0	2.4	2.4	-134.56	-24.8	-25.2	35.4	30.6	4.72	7.488		
1,200.0	1,200.0	1,201.0	1,201.0	2.6	2.6	-134.56	-24.8	-25.2	35.4	30.2	5.17	6.837		
1,300.0	1,300.0	1,301.5	1,301.5	2.8	2.8	-137.21	-25.4	-23.5	34.6	29.0	5.60	6.170		
1,400.0	1,400.0	1,401.8	1,401.6	3.0	3.0	-145.69	-27.0	-18.5	32.7	26.7	6.03	5.434		
1,500.0	1,500.0	1,501.6	1,501.0	3.3	3.2	-161.20	-29.8	-10.1	31.5	25.0	6.46	4.876		
1,502.4	1,502.4	1,503.9	1,503.4	3.3	3.2	-161.65	-29.9	-9.9	31.5	25.0	6.47	4.868 CC, ES, SF		
1,600.0	1,600.0	1,600.6	1,599.3	3.5	3.4	177.70	-33.6	1.3	33.7	26.8	6.89	4.891		
1,700.0	1,700.0	1,699.1	1,696.6	3.7	3.7	115.56	-38.4	15.8	42.5	35.1	7.36	5.772		
1,800.0	1,799.8	1,798.0	1,794.2	3.9	4.0	107.02	-43.5	31.2	55.6	47.8	7.81	7.118		
1,900.0	1,899.5	1,896.9	1,891.7	4.2	4.3	104.46	-48.6	46.5	70.2	61.9	8.27	8.483		
2,000.0	1,998.7	1,995.7	1,989.2	4.4	4.6	104.96	-53.6	61.8	85.7	76.9	8.76	9.778		
2,100.0	2,097.5	2,094.2	2,086.4	4.6	4.9	107.11	-58.7	77.1	102.2	92.9	9.29	11.001		
2,200.0	2,195.8	2,192.5	2,183.4	4.9	5.2	109.91	-63.8	92.3	119.6	109.7	9.85	12.138		
2,300.0	2,294.2	2,290.9	2,280.4	5.2	5.5	112.07	-68.8	107.5	137.2	126.8	10.44	13.147		
2,400.0	2,392.6	2,389.2	2,377.4	5.5	5.9	113.73	-73.9	122.8	155.0	144.0	11.04	14.042		
2,500.0	2,490.9	2,487.5	2,474.4	5.8	6.2	115.06	-78.9	138.0	172.9	161.2	11.65	14.836		
2,600.0	2,589.3	2,585.8	2,571.4	6.2	6.6	116.13	-84.0	153.2	190.8	178.6	12.28	15.542		
2,700.0	2,687.6	2,684.1	2,668.4	6.5	6.9	117.02	-89.0	168.5	208.8	195.9	12.91	16.173		
2,800.0	2,786.0	2,782.4	2,765.4	6.9	7.3	117.77	-94.1	183.7	226.9	213.3	13.56	16.737		
2,900.0	2,884.4	2,880.8	2,862.4	7.2	7.6	118.40	-99.1	198.9	245.0	230.8	14.21	17.244		
3,000.0	2,982.7	2,979.1	2,959.4	7.6	8.0	118.95	-104.2	214.2	263.1	248.2	14.86	17.702		
3,100.0	3,081.1	3,077.4	3,056.4	7.9	8.4	119.43	-109.2	229.4	281.2	265.7	15.52	18.117		
3,200.0	3,179.5	3,175.7	3,153.4	8.3	8.7	119.85	-114.3	244.6	299.4	283.2	16.19	18.493		
3,300.0	3,277.8	3,274.0	3,250.4	8.7	9.1	120.23	-119.3	259.9	317.5	300.7	16.86	18.837		
3,400.0	3,376.2	3,372.4	3,347.4	9.0	9.5	120.56	-124.4	275.1	335.7	318.2	17.53	19.151		
3,500.0	3,474.5	3,470.7	3,444.4	9.4	9.8	120.86	-129.4	290.3	353.9	335.7	18.21	19.439		
3,600.0	3,572.9	3,569.0	3,541.4	9.8	10.2	121.13	-134.5	305.6	372.1	353.2	18.88	19.704		
3,700.0	3,671.3	3,667.3	3,638.4	10.2	10.6	121.37	-139.5	320.8	390.3	370.7	19.56	19.949		
3,800.0	3,769.6	3,765.6	3,735.4	10.6	10.9	121.59	-144.6	336.0	408.5	388.2	20.25	20.175		
3,900.0	3,868.0	3,863.9	3,832.4	10.9	11.3	121.80	-149.6	351.3	426.7	405.8	20.93	20.385		
4,000.0	3,966.3	3,962.3	3,929.4	11.3	11.7	121.98	-154.7	366.5	444.9	423.3	21.62	20.580		
4,100.0	4,064.7	4,060.6	4,026.4	11.7	12.0	122.16	-159.7	381.7	463.1	440.8	22.31	20.762		
4,200.0	4,163.1	4,158.9	4,123.4	12.1	12.4	122.32	-164.8	397.0	481.4	458.4	23.00	20.932		
4,300.0	4,261.4	4,257.2	4,220.4	12.5	12.8	122.46	-169.8	412.2	499.6	475.9	23.69	21.091		

Company:	KP KAUFFMAN	Local Co-ordinate Reference:	Well Greeley-Rothe 1-6H
Project:	SEC.1-T5N-R67W	TVD Reference:	WELL @ 4891.0ft (RKB - 15')
Reference Site:	Greeley-Rothe Pad Sec.1-T5N-R67W	MD Reference:	WELL @ 4891.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Greeley-Rothe 1-6H	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	-177.96	-25.0	-0.9	25.0	25.0	0.00	N/A		
100.0	100.0	101.0	101.0	0.1	0.1	-177.96	-25.0	-0.9	25.0	24.8	0.23	110.338		
200.0	200.0	201.0	201.0	0.3	0.3	-177.96	-25.0	-0.9	25.0	24.4	0.68	37.024		
300.0	300.0	301.0	301.0	0.6	0.6	-177.96	-25.0	-0.9	25.0	23.9	1.13	22.244		
400.0	400.0	401.0	401.0	0.8	0.8	-177.96	-25.0	-0.9	25.0	23.5	1.58	15.898		
500.0	500.0	501.0	501.0	1.0	1.0	-177.96	-25.0	-0.9	25.0	23.0	2.03	12.369		
600.0	600.0	601.0	601.0	1.2	1.2	-177.96	-25.0	-0.9	25.0	22.6	2.47	10.122		
700.0	700.0	701.0	701.0	1.5	1.5	-177.96	-25.0	-0.9	25.0	22.1	2.92	8.566		
800.0	800.0	801.0	801.0	1.7	1.7	-177.96	-25.0	-0.9	25.0	21.7	3.37	7.424		
900.0	900.0	901.0	901.0	1.9	1.9	-177.96	-25.0	-0.9	25.0	21.2	3.82	6.552		
966.3	966.3	967.3	967.3	2.1	2.1	-177.96	-25.0	-0.9	25.0	20.9	4.12	6.078 CC		
1,000.0	1,000.0	1,001.0	1,001.0	2.1	2.1	-177.96	-25.0	-0.9	25.0	20.8	4.27	5.863 ES		
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.3	179.48	-26.4	0.2	26.4	21.7	4.70	5.618 SF		
1,200.0	1,200.0	1,199.4	1,199.2	2.6	2.5	173.21	-30.3	3.6	30.6	25.5	5.10	5.991		
1,300.0	1,300.0	1,298.0	1,297.5	2.8	2.7	166.03	-36.8	9.2	38.1	32.6	5.52	6.905		
1,400.0	1,400.0	1,395.9	1,394.6	3.0	2.9	159.83	-45.8	16.8	49.2	43.3	5.94	8.283		
1,500.0	1,500.0	1,492.9	1,490.4	3.3	3.2	155.10	-57.2	26.6	64.0	57.6	6.38	10.022		
1,600.0	1,600.0	1,590.3	1,586.2	3.5	3.5	151.70	-70.7	38.1	81.6	74.8	6.84	11.936		
1,700.0	1,700.0	1,688.5	1,682.8	3.7	3.8	106.06	-84.5	49.8	100.3	93.0	7.25	13.836		
1,800.0	1,799.8	1,786.6	1,779.1	3.9	4.1	106.46	-98.3	61.6	119.9	112.2	7.68	15.599		
1,900.0	1,899.5	1,884.3	1,875.2	4.2	4.5	108.00	-112.0	73.3	140.5	132.4	8.13	17.275		
2,000.0	1,998.7	1,981.6	1,970.8	4.4	4.8	110.20	-125.7	85.0	162.5	153.9	8.60	18.882		
2,100.0	2,097.5	2,078.4	2,066.0	4.6	5.2	112.77	-139.3	96.6	186.0	176.9	9.10	20.444		
2,200.0	2,195.8	2,174.8	2,160.7	4.9	5.6	115.60	-152.9	108.2	210.8	201.2	9.62	21.907		
2,300.0	2,294.2	2,271.1	2,255.3	5.2	5.9	117.92	-166.4	119.7	236.1	225.9	10.17	23.212		
2,400.0	2,392.6	2,367.5	2,350.0	5.5	6.3	119.80	-180.0	131.3	261.7	251.0	10.74	24.377		
2,500.0	2,490.9	2,463.8	2,444.7	5.8	6.7	121.34	-193.5	142.8	287.5	276.2	11.31	25.418		
2,600.0	2,589.3	2,560.2	2,539.4	6.2	7.1	122.63	-207.1	154.4	313.5	301.6	11.90	26.351		
2,700.0	2,687.6	2,656.5	2,634.1	6.5	7.5	123.72	-220.6	165.9	339.6	327.1	12.49	27.189		
2,800.0	2,786.0	2,752.9	2,728.8	6.9	7.9	124.65	-234.2	177.5	365.8	352.7	13.09	27.944		
2,900.0	2,884.4	2,849.2	2,823.5	7.2	8.2	125.46	-247.7	189.0	392.1	378.4	13.70	28.626		
3,000.0	2,982.7	2,945.5	2,918.1	7.6	8.6	126.17	-261.3	200.6	418.4	404.1	14.31	29.246		
3,100.0	3,081.1	3,041.9	3,012.8	7.9	9.0	126.80	-274.8	212.2	444.8	429.9	14.92	29.810		
3,200.0	3,179.5	3,138.2	3,107.5	8.3	9.4	127.35	-288.4	223.7	471.3	455.7	15.54	30.325		
3,300.0	3,277.8	3,234.6	3,202.2	8.7	9.8	127.85	-301.9	235.3	497.7	481.6	16.16	30.796		

Company:	KP KAUFFMAN	Local Co-ordinate Reference:	Well Greeley-Rothe 1-6H
Project:	SEC.1-T5N-R67W	TVD Reference:	WELL @ 4891.0ft (RKB - 15')
Reference Site:	Greeley-Rothe Pad Sec.1-T5N-R67W	MD Reference:	WELL @ 4891.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Greeley-Rothe 1-6H	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 #1-34 (Exist.) - Wellbore #1 - Wellbore #1												Offset Site Error:	0.0 ft
Survey Program: 7342-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	
10,400.0	7,282.0	7,288.0	7,288.0	88.3	8.2	-90.00	-42.0	-2,874.0	499.3	402.9	96.41	5.179	
10,480.1	7,282.0	7,288.0	7,288.0	90.5	8.2	-90.00	-42.0	-2,874.0	492.8	394.2	98.60	4.998 CC	
10,500.0	7,282.0	7,288.0	7,288.0	91.1	8.2	-90.00	-42.0	-2,874.0	493.2	394.1	99.15	4.975 ES, SF	

Company:	KP KAUFFMAN	Local Co-ordinate Reference:	Well Greeley-Rothe 1-6H
Project:	SEC.1-T5N-R67W	TVD Reference:	WELL @ 4891.0ft (RKB - 15')
Reference Site:	Greeley-Rothe Pad Sec.1-T5N-R67W	MD Reference:	WELL @ 4891.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Greeley-Rothe 1-6H	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 (RKB - 15')

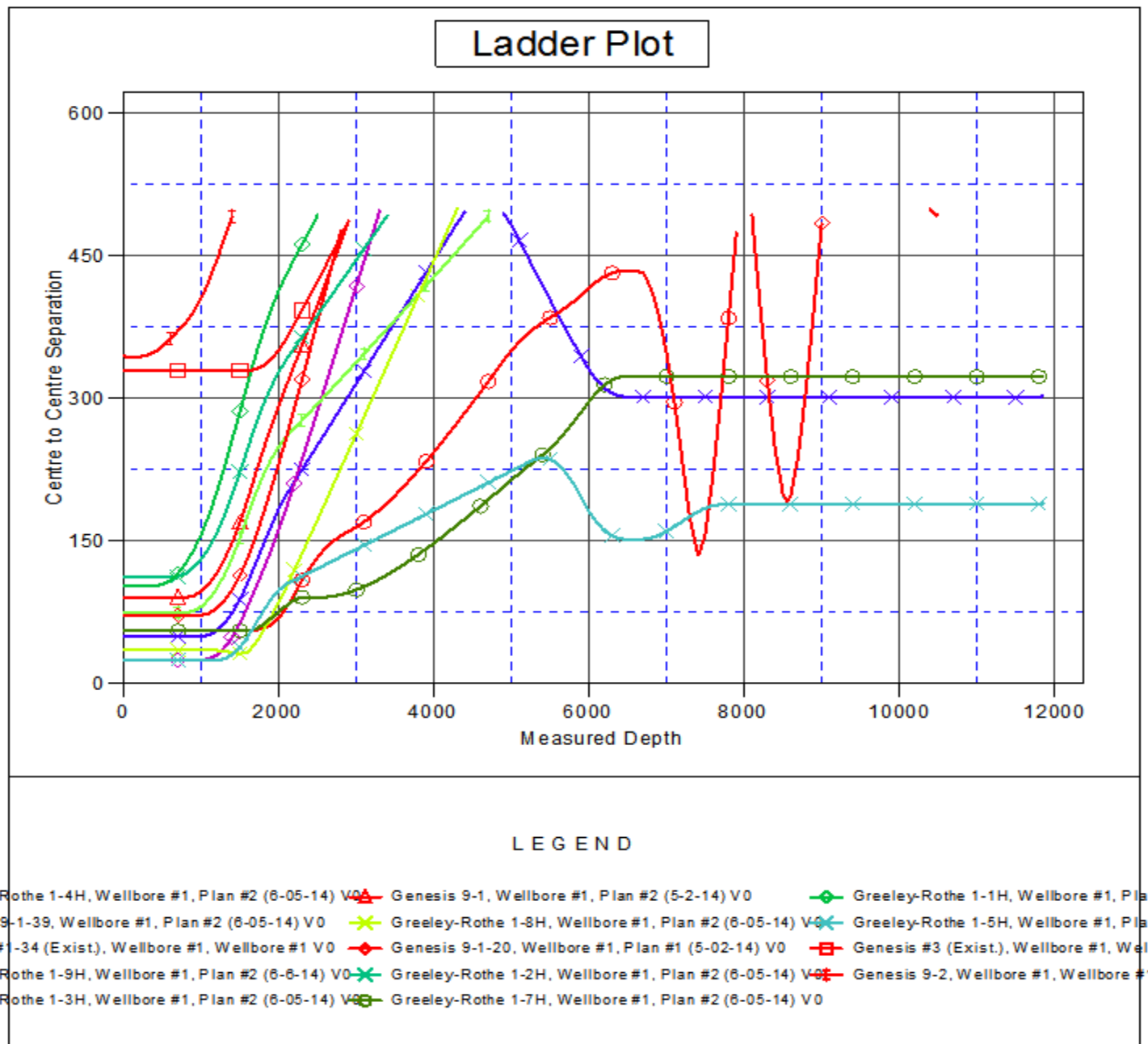
Offset Depths are relative to Offset Datum

Central Meridian is -105.500000 °

Coordinates are relative to: Greeley-Rothe 1-6H

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 1-6H
Project:	SEC.1-T5N-R67W	TVD Reference:	WELL @ 4891.0ft (RKB - 15')
Reference Site:	Greeley-Rothe Pad Sec.1-T5N-R67W	MD Reference:	WELL @ 4891.0ft (RKB - 15')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Greeley-Rothe 1-6H	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 (RKB - 15')

Offset Depths are relative to Offset Datum

Central Meridian is -105.500000 °

Coordinates are relative to: Greeley-Rothe 1-6H

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.43°

