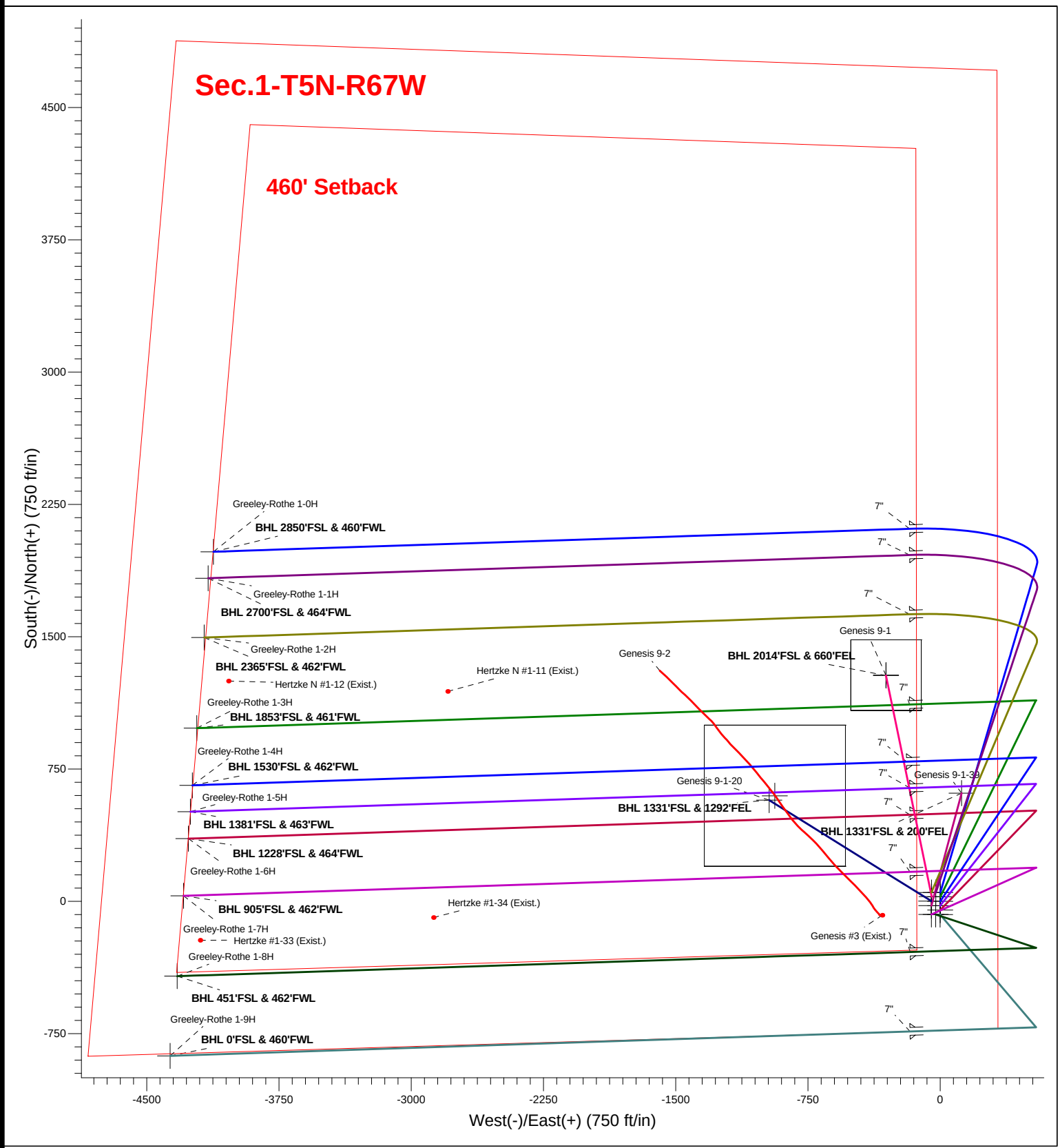
ENSIGN Directional

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	Latittude	Longitude	Slot
0.0	0.0	1397831.58	3185528.81	40.423536	-104.833615	

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



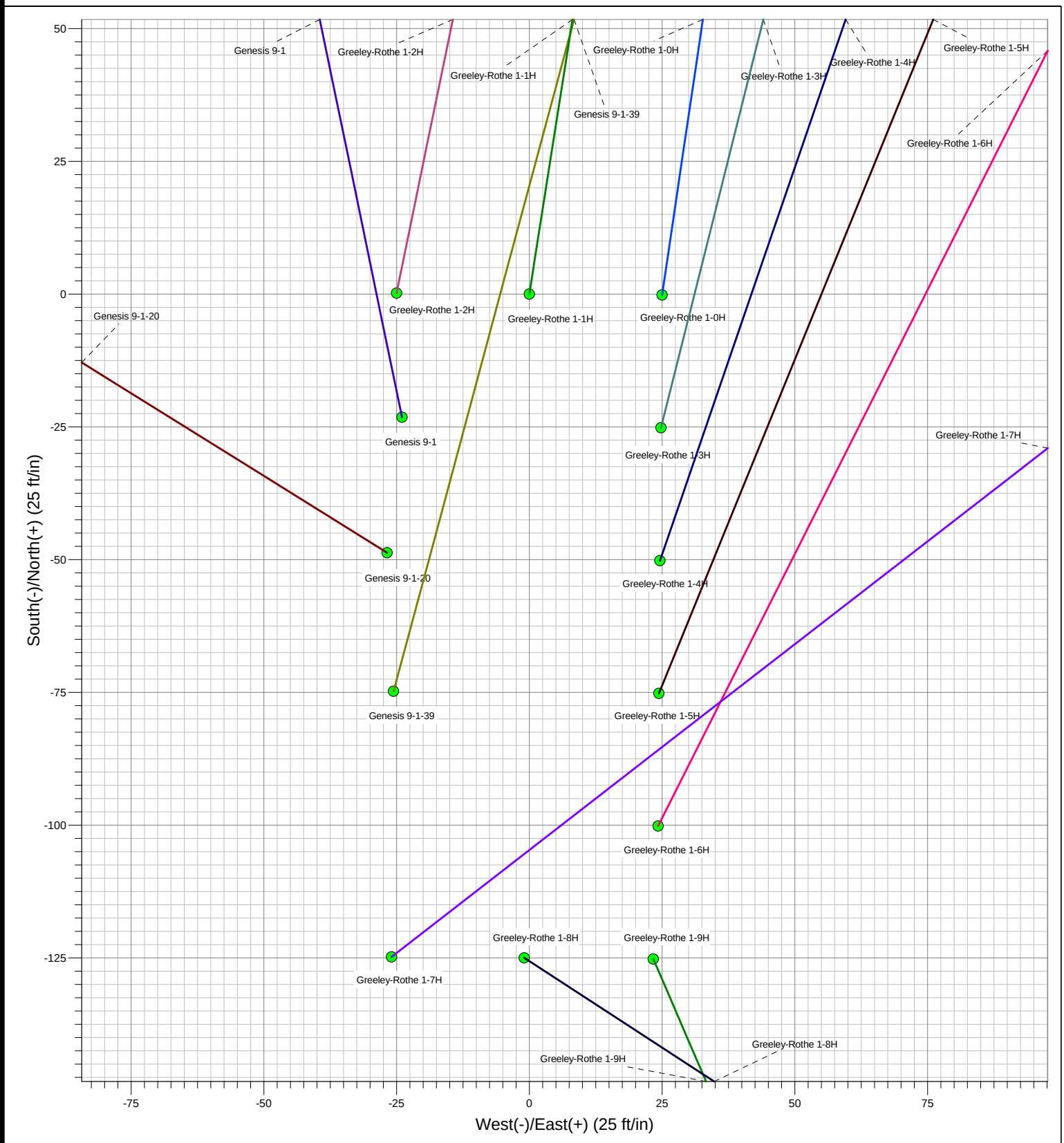
ENSIGN Directional

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	Latittude	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 1-5H**

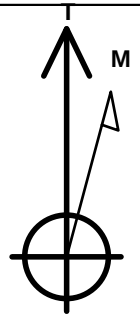
Surface Location: Greeley-Rothe Pad Sec.1-T5N-R67W
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone
Ground Elevation: 4876.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1397806.59	3185528.80	40.423467	-104.833616	

RKB - 15' WELL @ 4891.0ft (RKB - 15')

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SHL 698'FSL & 328'FEL	1.0	0.0	0.0	Point
BHL 1381'FSL & 463'FWL	7394.0	533.3	-4252.5	Point



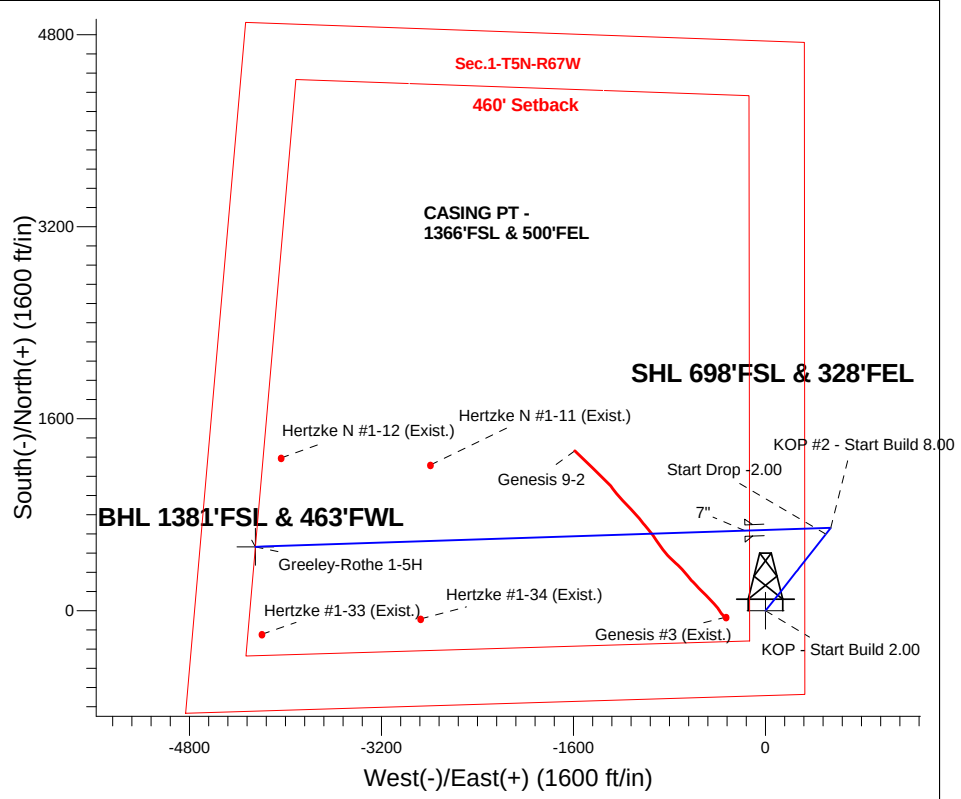
Azimuths to True North
Magnetic North: 8.50°

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

Greeley-Rothe Pad Sec.1-T5N-R67W
Greeley-Rothe 1-5H
Plan #2 (6-05-14)
14:56, June 06 2014

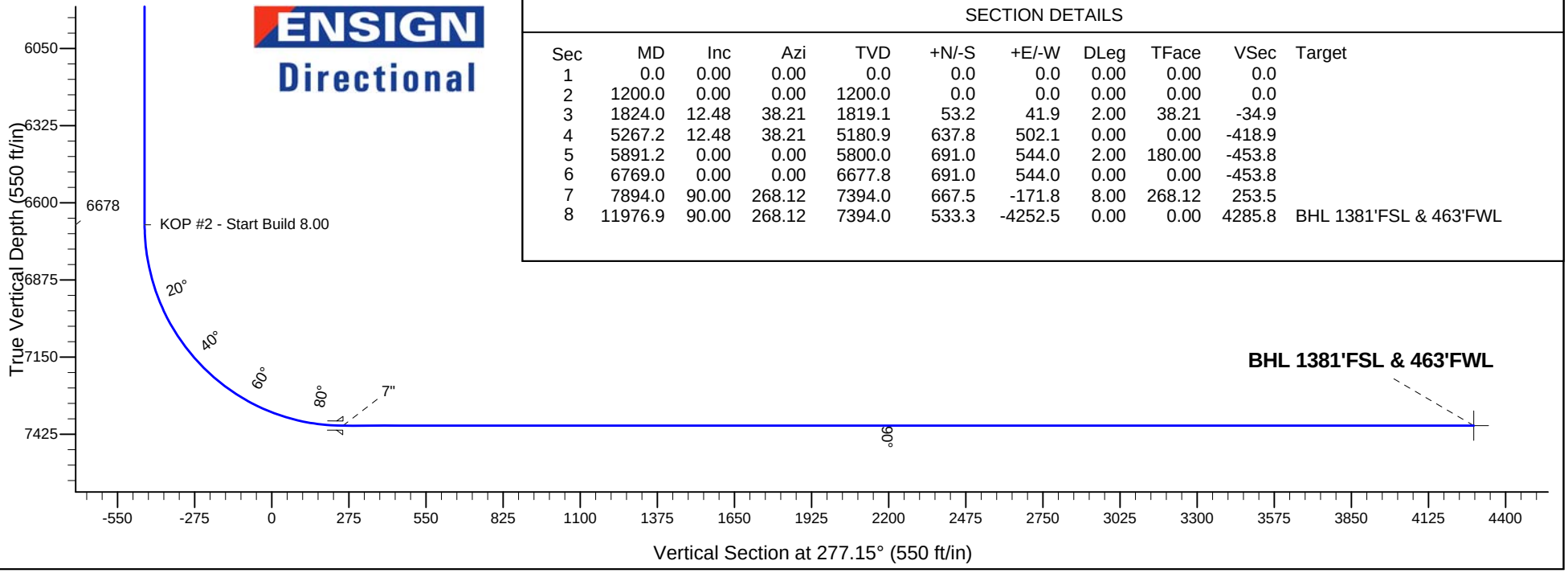
ANNOTATIONS

TVD	MD	Annotation
1200.0	1200.0	KOP - Start Build 2.00
5180.9	5267.2	Start Drop -2.00
6677.8	6769.0	KOP #2 - Start Build 8.00
7394.0	11976.9	TD at 11976.9



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	1200.0	0.00	0.00	1200.0	0.0	0.0	0.00	0.00	0.0	
3	1824.0	12.48	38.21	1819.1	53.2	41.9	2.00	38.21	-34.9	
4	5267.2	12.48	38.21	5180.9	637.8	502.1	0.00	0.00	-418.9	
5	5891.2	0.00	0.00	5800.0	691.0	544.0	2.00	180.00	-453.8	
6	6769.0	0.00	0.00	6677.8	691.0	544.0	0.00	0.00	-453.8	
7	7894.0	90.00	268.12	7394.0	667.5	-171.8	8.00	268.12	253.5	
8	11976.9	90.00	268.12	7394.0	533.3	-4252.5	0.00	0.00	4285.8	BHL 1381'FSL & 463'FWL



KP KAUFFMAN

SEC.1-T5N-R67W
Greeley-Rothe Pad Sec.1-T5N-R67W
Greeley-Rothe 1-5H

Wellbore #1

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

Standard Planning Report

06 June, 2014

Database:	landmark	**Local Co-ordinate Reference:**	Well Greeley-Rothe 1-5H
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 1-5H	**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 1-5H

Well Position	**+N/-S**	-73.9 ft	**Northing:**	1,397,806.59 ft	**Latitude:**	40.423467
	+E/-W	-1.7 ft	**Easting:**	3,185,528.80 ft	**Longitude:**	-104.833616
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	277.15

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	
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,824.0	12.48	38.21	1,819.1	53.2	41.9	2.00	2.00	0.00	38.21	
5,267.2	12.48	38.21	5,180.9	637.8	502.1	0.00	0.00	0.00	0.00	
5,891.2	0.00	0.00	5,800.0	691.0	544.0	2.00	-2.00	0.00	180.00	
6,769.0	0.00	0.00	6,677.8	691.0	544.0	0.00	0.00	0.00	0.00	
7,894.0	90.00	268.12	7,394.0	667.5	-171.8	8.00	8.00	0.00	268.12	
11,976.9	90.00	268.12	7,394.0	533.3	-4,252.5	0.00	0.00	0.00	0.00	BHL 1381'FSL & 46

Database:	landmark	**Local Co-ordinate Reference:**	Well Greeley-Rothe 1-5H
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 1-5H	**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
KOP - Start Build 2.00									
1,300.0	2.00	38.21	1,300.0	1.4	1.1	-0.9	2.00	2.00	0.00
1,400.0	4.00	38.21	1,399.8	5.5	4.3	-3.6	2.00	2.00	0.00
1,500.0	6.00	38.21	1,499.5	12.3	9.7	-8.1	2.00	2.00	0.00
1,600.0	8.00	38.21	1,598.7	21.9	17.2	-14.4	2.00	2.00	0.00
1,700.0	10.00	38.21	1,697.5	34.2	26.9	-22.5	2.00	2.00	0.00
1,800.0	12.00	38.21	1,795.6	49.2	38.7	-32.3	2.00	2.00	0.00
1,824.0	12.48	38.21	1,819.1	53.2	41.9	-34.9	2.00	2.00	0.00
1,900.0	12.48	38.21	1,893.3	66.1	52.0	-43.4	0.00	0.00	0.00
2,000.0	12.48	38.21	1,990.9	83.1	65.4	-54.6	0.00	0.00	0.00
2,100.0	12.48	38.21	2,088.6	100.0	78.8	-65.7	0.00	0.00	0.00
2,200.0	12.48	38.21	2,186.2	117.0	92.1	-76.9	0.00	0.00	0.00
2,300.0	12.48	38.21	2,283.8	134.0	105.5	-88.0	0.00	0.00	0.00
2,400.0	12.48	38.21	2,381.5	151.0	118.9	-99.2	0.00	0.00	0.00
2,500.0	12.48	38.21	2,479.1	168.0	132.2	-110.3	0.00	0.00	0.00
2,600.0	12.48	38.21	2,576.7	184.9	145.6	-121.5	0.00	0.00	0.00
2,700.0	12.48	38.21	2,674.4	201.9	159.0	-132.6	0.00	0.00	0.00
2,800.0	12.48	38.21	2,772.0	218.9	172.3	-143.8	0.00	0.00	0.00
2,900.0	12.48	38.21	2,869.7	235.9	185.7	-154.9	0.00	0.00	0.00
3,000.0	12.48	38.21	2,967.3	252.9	199.1	-166.1	0.00	0.00	0.00
3,100.0	12.48	38.21	3,064.9	269.8	212.4	-177.2	0.00	0.00	0.00
3,200.0	12.48	38.21	3,162.6	286.8	225.8	-188.4	0.00	0.00	0.00
3,300.0	12.48	38.21	3,260.2	303.8	239.2	-199.5	0.00	0.00	0.00
3,400.0	12.48	38.21	3,357.8	320.8	252.5	-210.7	0.00	0.00	0.00
3,500.0	12.48	38.21	3,455.5	337.8	265.9	-221.8	0.00	0.00	0.00
3,600.0	12.48	38.21	3,553.1	354.7	279.3	-233.0	0.00	0.00	0.00
3,700.0	12.48	38.21	3,650.8	371.7	292.6	-244.1	0.00	0.00	0.00
3,800.0	12.48	38.21	3,748.4	388.7	306.0	-255.3	0.00	0.00	0.00
3,900.0	12.48	38.21	3,846.0	405.7	319.4	-266.4	0.00	0.00	0.00
4,000.0	12.48	38.21	3,943.7	422.7	332.7	-277.6	0.00	0.00	0.00
4,100.0	12.48	38.21	4,041.3	439.6	346.1	-288.7	0.00	0.00	0.00
4,200.0	12.48	38.21	4,138.9	456.6	359.5	-299.9	0.00	0.00	0.00
4,300.0	12.48	38.21	4,236.6	473.6	372.8	-311.0	0.00	0.00	0.00
4,400.0	12.48	38.21	4,334.2	490.6	386.2	-322.2	0.00	0.00	0.00
4,500.0	12.48	38.21	4,431.8	507.5	399.6	-333.3	0.00	0.00	0.00
4,600.0	12.48	38.21	4,529.5	524.5	412.9	-344.5	0.00	0.00	0.00
4,700.0	12.48	38.21	4,627.1	541.5	426.3	-355.6	0.00	0.00	0.00
4,800.0	12.48	38.21	4,724.8	558.5	439.7	-366.8	0.00	0.00	0.00
4,900.0	12.48	38.21	4,822.4	575.5	453.0	-377.9	0.00	0.00	0.00
5,000.0	12.48	38.21	4,920.0	592.4	466.4	-389.1	0.00	0.00	0.00
5,100.0	12.48	38.21	5,017.7	609.4	479.8	-400.2	0.00	0.00	0.00

Database:	landmark	**Local Co-ordinate Reference:**	Well Greeley-Rothe 1-5H
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 1-5H	**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	12.48	38.21	5,115.3	626.4	493.1	-411.4	0.00	0.00	0.00
5,267.2	12.48	38.21	5,180.9	637.8	502.1	-418.9	0.00	0.00	0.00
Start Drop -2.00									
5,300.0	11.82	38.21	5,213.0	643.2	506.4	-422.4	2.00	-2.00	0.00
5,400.0	9.82	38.21	5,311.2	658.0	518.0	-432.1	2.00	-2.00	0.00
5,500.0	7.82	38.21	5,410.0	670.0	527.5	-440.0	2.00	-2.00	0.00
5,600.0	5.82	38.21	5,509.3	679.4	534.9	-446.2	2.00	-2.00	0.00
5,700.0	3.82	38.21	5,608.9	686.0	540.1	-450.5	2.00	-2.00	0.00
5,800.0	1.82	38.21	5,708.8	689.9	543.1	-453.0	2.00	-2.00	0.00
5,891.2	0.00	0.00	5,800.0	691.0	544.0	-453.8	2.00	-2.00	0.00
5,900.0	0.00	0.00	5,808.8	691.0	544.0	-453.8	0.00	0.00	0.00
6,000.0	0.00	0.00	5,908.8	691.0	544.0	-453.8	0.00	0.00	0.00
6,100.0	0.00	0.00	6,008.8	691.0	544.0	-453.8	0.00	0.00	0.00
6,200.0	0.00	0.00	6,108.8	691.0	544.0	-453.8	0.00	0.00	0.00
6,300.0	0.00	0.00	6,208.8	691.0	544.0	-453.8	0.00	0.00	0.00
6,400.0	0.00	0.00	6,308.8	691.0	544.0	-453.8	0.00	0.00	0.00
6,500.0	0.00	0.00	6,408.8	691.0	544.0	-453.8	0.00	0.00	0.00
6,600.0	0.00	0.00	6,508.8	691.0	544.0	-453.8	0.00	0.00	0.00
6,700.0	0.00	0.00	6,608.8	691.0	544.0	-453.8	0.00	0.00	0.00
6,769.0	0.00	0.00	6,677.8	691.0	544.0	-453.8	0.00	0.00	0.00
KOP #2 - Start Build 8.00									
6,800.0	2.48	268.12	6,708.8	691.0	543.3	-453.1	8.00	8.00	0.00
6,900.0	10.48	268.12	6,808.1	690.6	532.1	-442.0	8.00	8.00	0.00
7,000.0	18.48	268.12	6,904.8	689.8	507.1	-417.3	8.00	8.00	0.00
7,100.0	26.48	268.12	6,997.1	688.5	468.9	-379.6	8.00	8.00	0.00
7,200.0	34.48	268.12	7,083.3	686.9	418.3	-329.5	8.00	8.00	0.00
7,300.0	42.48	268.12	7,161.5	684.8	356.1	-268.1	8.00	8.00	0.00
7,400.0	50.48	268.12	7,230.3	682.4	283.7	-196.6	8.00	8.00	0.00
7,500.0	58.48	268.12	7,288.3	679.8	202.4	-116.3	8.00	8.00	0.00
7,600.0	66.48	268.12	7,334.5	676.9	113.8	-28.7	8.00	8.00	0.00
7,700.0	74.48	268.12	7,367.9	673.8	19.7	64.3	8.00	8.00	0.00
7,800.0	82.48	268.12	7,387.8	670.5	-78.1	161.0	8.00	8.00	0.00
7,894.0	90.00	268.12	7,394.0	667.5	-171.8	253.5	8.00	8.00	0.00
7"									
7,900.0	90.00	268.12	7,394.0	667.3	-177.8	259.4	0.00	0.00	0.00
8,000.0	90.00	268.12	7,394.0	664.0	-277.8	358.2	0.00	0.00	0.00
8,100.0	90.00	268.12	7,394.0	660.7	-377.7	457.0	0.00	0.00	0.00
8,200.0	90.00	268.12	7,394.0	657.4	-477.6	555.7	0.00	0.00	0.00
8,300.0	90.00	268.12	7,394.0	654.1	-577.6	654.5	0.00	0.00	0.00
8,400.0	90.00	268.12	7,394.0	650.8	-677.5	753.2	0.00	0.00	0.00
8,500.0	90.00	268.12	7,394.0	647.5	-777.5	852.0	0.00	0.00	0.00
8,600.0	90.00	268.12	7,394.0	644.3	-877.4	950.8	0.00	0.00	0.00
8,700.0	90.00	268.12	7,394.0	641.0	-977.4	1,049.5	0.00	0.00	0.00
8,800.0	90.00	268.12	7,394.0	637.7	-1,077.3	1,148.3	0.00	0.00	0.00
8,900.0	90.00	268.12	7,394.0	634.4	-1,177.3	1,247.0	0.00	0.00	0.00
9,000.0	90.00	268.12	7,394.0	631.1	-1,277.2	1,345.8	0.00	0.00	0.00
9,100.0	90.00	268.12	7,394.0	627.8	-1,377.2	1,444.6	0.00	0.00	0.00
9,200.0	90.00	268.12	7,394.0	624.5	-1,477.1	1,543.3	0.00	0.00	0.00
9,300.0	90.00	268.12	7,394.0	621.2	-1,577.0	1,642.1	0.00	0.00	0.00
9,400.0	90.00	268.12	7,394.0	618.0	-1,677.0	1,740.9	0.00	0.00	0.00
9,500.0	90.00	268.12	7,394.0	614.7	-1,776.9	1,839.6	0.00	0.00	0.00
9,600.0	90.00	268.12	7,394.0	611.4	-1,876.9	1,938.4	0.00	0.00	0.00
9,700.0	90.00	268.12	7,394.0	608.1	-1,976.8	2,037.1	0.00	0.00	0.00

Database:	landmark	**Local Co-ordinate Reference:**	Well Greeley-Rothe 1-5H
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 1-5H	**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	268.12	7,394.0	604.8	-2,076.8	2,135.9	0.00	0.00	0.00
9,900.0	90.00	268.12	7,394.0	601.5	-2,176.7	2,234.7	0.00	0.00	0.00
10,000.0	90.00	268.12	7,394.0	598.2	-2,276.7	2,333.4	0.00	0.00	0.00
10,100.0	90.00	268.12	7,394.0	594.9	-2,376.6	2,432.2	0.00	0.00	0.00
10,200.0	90.00	268.12	7,394.0	591.7	-2,476.6	2,530.9	0.00	0.00	0.00
10,300.0	90.00	268.12	7,394.0	588.4	-2,576.5	2,629.7	0.00	0.00	0.00
10,400.0	90.00	268.12	7,394.0	585.1	-2,676.5	2,728.5	0.00	0.00	0.00
10,500.0	90.00	268.12	7,394.0	581.8	-2,776.4	2,827.2	0.00	0.00	0.00
10,600.0	90.00	268.12	7,394.0	578.5	-2,876.3	2,926.0	0.00	0.00	0.00
10,700.0	90.00	268.12	7,394.0	575.2	-2,976.3	3,024.7	0.00	0.00	0.00
10,800.0	90.00	268.12	7,394.0	571.9	-3,076.2	3,123.5	0.00	0.00	0.00
10,900.0	90.00	268.12	7,394.0	568.7	-3,176.2	3,222.3	0.00	0.00	0.00
11,000.0	90.00	268.12	7,394.0	565.4	-3,276.1	3,321.0	0.00	0.00	0.00
11,100.0	90.00	268.12	7,394.0	562.1	-3,376.1	3,419.8	0.00	0.00	0.00
11,200.0	90.00	268.12	7,394.0	558.8	-3,476.0	3,518.5	0.00	0.00	0.00
11,300.0	90.00	268.12	7,394.0	555.5	-3,576.0	3,617.3	0.00	0.00	0.00
11,400.0	90.00	268.12	7,394.0	552.2	-3,675.9	3,716.1	0.00	0.00	0.00
11,500.0	90.00	268.12	7,394.0	548.9	-3,775.9	3,814.8	0.00	0.00	0.00
11,600.0	90.00	268.12	7,394.0	545.6	-3,875.8	3,913.6	0.00	0.00	0.00
11,700.0	90.00	268.12	7,394.0	542.4	-3,975.8	4,012.3	0.00	0.00	0.00
11,800.0	90.00	268.12	7,394.0	539.1	-4,075.7	4,111.1	0.00	0.00	0.00
11,900.0	90.00	268.12	7,394.0	535.8	-4,175.6	4,209.9	0.00	0.00	0.00
11,976.9	90.00	268.12	7,394.0	533.3	-4,252.5	4,285.8	0.00	0.00	0.00
TD at 11976.9									

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,894.0	7,394.0	7"	7	7-1/2

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
1,200.0	1,200.0	0.0	0.0	KOP - Start Build 2.00
5,267.2	5,180.9	53.2	41.9	Start Drop -2.00
6,769.0	6,677.8	637.8	502.1	KOP #2 - Start Build 8.00
11,976.9	7,394.0	691.0	544.0	TD at 11976.9

ENSIGN Directional

KP KAUFFMAN

SEC.1-T5N-R67W
Greeley-Rothe Pad Sec.1-T5N-R67W
Greeley-Rothe 1-5H

Wellbore #1
Plan #2 (6-05-14)

Anticollision Report

06 June, 2014

Company:	KP KAUFFMAN	**Local Co-ordinate Reference:**	Well Greeley-Rothe 1-5H
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 1-5H	**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	11,976.7	Plan #2 (6-05-14) (Wellbore #1)	MWD	MWD - Standard

Summary

Site Name / Offset Well - Wellbore - Design	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	1,200.0	1,204.0	332.8	306.2	12.482	CC
Genesis #3 (Exist.) - Wellbore #1 - Wellbore #1	1,300.0	1,304.0	334.1	305.2	11.571	ES
Genesis #3 (Exist.) - Wellbore #1 - Wellbore #1	2,400.0	2,385.5	491.9	439.6	9.397	SF
Genesis 9-2 - Wellbore #1 - Wellbore #1	163.2	165.2	347.1	346.6	664.947	CC
Genesis 9-2 - Wellbore #1 - Wellbore #1	200.0	200.3	347.2	346.5	511.427	ES
Genesis 9-2 - Wellbore #1 - Wellbore #1	1,400.0	1,312.7	489.3	482.6	73.006	SF
Greeley-Rothe Pad Sec.1-T5N-R67W						
Genesis 9-1 - Wellbore #1 - Plan #2 (5-2-14)	800.0	800.0	71.0	67.7	21.066	CC, ES
Genesis 9-1 - Wellbore #1 - Plan #2 (5-2-14)	1,100.0	1,092.8	84.5	79.8	17.947	SF
Genesis 9-1-20 - Wellbore #1 - Plan #1 (5-02-14)	1,000.0	1,000.0	57.6	53.3	13.492	CC, ES
Genesis 9-1-20 - Wellbore #1 - Plan #1 (5-02-14)	8,700.0	7,251.2	273.4	250.3	11.837	SF
Genesis 9-1-39 - Wellbore #1 - Plan #2 (6-05-14)	1,200.0	1,200.0	50.0	44.8	9.668	CC, ES
Genesis 9-1-39 - Wellbore #1 - Plan #2 (6-05-14)	7,400.0	7,210.8	193.2	167.4	7.473	SF
Greeley-Rothe 1-0H - Wellbore #1 - Plan #1 (6-5-14)	200.0	199.0	75.0	74.3	111.620	CC, ES
Greeley-Rothe 1-0H - Wellbore #1 - Plan #1 (6-5-14)	2,800.0	2,718.5	489.7	474.8	32.791	SF
Greeley-Rothe 1-1H - Wellbore #1 - Plan #2 (6-05-14)	400.0	399.0	79.1	77.5	50.321	CC, ES
Greeley-Rothe 1-1H - Wellbore #1 - Plan #2 (6-05-14)	3,400.0	3,329.0	491.1	471.6	25.181	SF
Greeley-Rothe 1-2H - Wellbore #1 - Plan #2 (6-05-14)	600.0	599.0	90.1	87.7	36.489	CC, ES
Greeley-Rothe 1-2H - Wellbore #1 - Plan #2 (6-05-14)	5,200.0	5,151.9	497.0	462.7	14.488	SF
Greeley-Rothe 1-3H - Wellbore #1 - Plan #2 (6-05-14)	800.0	799.0	50.0	46.7	14.847	CC, ES
Greeley-Rothe 1-3H - Wellbore #1 - Plan #2 (6-05-14)	11,976.9	11,884.2	487.8	239.0	1.961	SF
Greeley-Rothe 1-4H - Wellbore #1 - Plan #2 (6-05-14)	1,000.0	1,000.0	25.0	20.7	5.852	CC
Greeley-Rothe 1-4H - Wellbore #1 - Plan #2 (6-05-14)	11,976.9	11,899.6	187.0	-24.3	0.885	Level 1, ES, SF
Greeley-Rothe 1-6H - Wellbore #1 - Plan #2 (6-05-14)	1,200.0	1,200.0	25.0	19.8	4.834	CC
Greeley-Rothe 1-6H - Wellbore #1 - Plan #2 (6-05-14)	11,976.9	11,838.0	189.3	-19.5	0.907	Level 1, ES, SF
Greeley-Rothe 1-7H - Wellbore #1 - Plan #2 (6-05-14)	1,200.0	1,200.0	70.7	65.5	13.677	CC, ES
Greeley-Rothe 1-7H - Wellbore #1 - Plan #2 (6-05-14)	11,976.9	11,822.0	488.7	239.8	1.963	SF
Greeley-Rothe 1-8H - Wellbore #1 - Plan #2 (6-05-14)	1,200.2	1,201.2	55.9	50.7	10.805	CC, ES
Greeley-Rothe 1-8H - Wellbore #1 - Plan #2 (6-05-14)	1,300.0	1,301.3	57.4	51.8	10.242	SF
Greeley-Rothe 1-9H - Wellbore #1 - Plan #2 (6-6-14)	966.3	967.3	50.0	45.9	12.140	CC
Greeley-Rothe 1-9H - Wellbore #1 - Plan #2 (6-6-14)	1,000.0	1,001.0	50.0	45.8	11.711	ES
Greeley-Rothe 1-9H - Wellbore #1 - Plan #2 (6-6-14)	1,200.0	1,198.1	55.4	50.3	10.864	SF
Hertzke #1-33 (Exist.) - Wellbore #1 - Wellbore #1						Out of range
Hertzke #1-34 (Exist.) - Wellbore #1 - Wellbore #1						Out of range
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 covergent point, SF - min separation factor, ES - min ellipse separation

Company:	KP KAUFFMAN	**Local Co-ordinate Reference:**	Well Greeley-Rothe 1-5H
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 1-5H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	landmark
Reference Design:	Plan #2 (6-05-14)	**Offset TVD Reference:**	Offset Datum

Summary

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning

Offset Design Genesis 9-1 Pad Sec.1-T5N-R67W - Genesis #3 (Exist.) - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

Survey Program: 7800-UNKNOWN

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	4.0	4.0	0.0	0.1	-99.28	-53.7	-328.5	332.8	332.7	0.08	4,149.965	
100.0	100.0	104.0	104.0	0.1	2.1	-99.28	-53.7	-328.5	332.8	330.6	2.19	151.797	
200.0	200.0	204.0	204.0	0.3	4.1	-99.28	-53.7	-328.5	332.8	328.4	4.42	75.345	
300.0	300.0	304.0	304.0	0.6	6.1	-99.28	-53.7	-328.5	332.8	326.2	6.64	50.109	
400.0	400.0	404.0	404.0	0.8	8.1	-99.28	-53.7	-328.5	332.8	324.0	8.87	37.536	
500.0	500.0	504.0	504.0	1.0	10.1	-99.28	-53.7	-328.5	332.8	321.7	11.09	30.007	
600.0	600.0	604.0	604.0	1.2	12.1	-99.28	-53.7	-328.5	332.8	319.5	13.32	24.994	
700.0	700.0	704.0	704.0	1.5	14.1	-99.28	-53.7	-328.5	332.8	317.3	15.54	21.416	
800.0	800.0	804.0	804.0	1.7	16.1	-99.28	-53.7	-328.5	332.8	315.1	17.77	18.734	
900.0	900.0	904.0	904.0	1.9	18.1	-99.28	-53.7	-328.5	332.8	312.8	19.99	16.649	
1,000.0	1,000.0	1,004.0	1,004.0	2.1	20.1	-99.28	-53.7	-328.5	332.8	310.6	22.22	14.982	
1,100.0	1,100.0	1,104.0	1,104.0	2.4	22.1	-99.28	-53.7	-328.5	332.8	308.4	24.44	13.618	
1,200.0	1,200.0	1,204.0	1,204.0	2.6	24.1	-99.28	-53.7	-328.5	332.8	306.2	26.66	12.482	CC
1,300.0	1,300.0	1,304.0	1,304.0	2.8	26.1	-137.67	-53.7	-328.5	334.1	305.2	28.88	11.571	ES
1,400.0	1,399.8	1,403.8	1,403.8	3.0	28.1	-138.22	-53.7	-328.5	338.0	306.9	31.06	10.882	
1,500.0	1,499.5	1,503.5	1,503.5	3.3	30.1	-139.10	-53.7	-328.5	344.6	311.3	33.21	10.374	
1,600.0	1,598.7	1,602.7	1,602.7	3.5	32.1	-140.27	-53.7	-328.5	353.9	318.6	35.33	10.017	
1,700.0	1,697.5	1,701.5	1,701.5	3.8	34.0	-141.67	-53.7	-328.5	366.1	328.7	37.40	9.789	
1,800.0	1,795.6	1,799.6	1,799.6	4.1	36.0	-143.25	-53.7	-328.5	381.3	341.9	39.41	9.676	
1,900.0	1,893.3	1,897.3	1,897.3	4.4	37.9	-145.04	-53.7	-328.5	398.9	357.4	41.52	9.607	
2,000.0	1,990.9	1,994.9	1,994.9	4.7	39.9	-146.73	-53.7	-328.5	416.9	373.2	43.68	9.545	
2,100.0	2,088.6	2,092.6	2,092.6	5.1	41.9	-148.28	-53.7	-328.5	435.3	389.4	45.85	9.494	
2,200.0	2,186.2	2,190.2	2,190.2	5.5	43.8	-149.71	-53.7	-328.5	453.9	405.9	48.01	9.454	
2,300.0	2,283.8	2,287.8	2,287.8	5.9	45.8	-151.02	-53.7	-328.5	472.8	422.6	50.18	9.422	
2,400.0	2,381.5	2,385.5	2,385.5	6.3	47.7	-152.23	-53.7	-328.5	491.9	439.6	52.35	9.397	SF

Company:	KP KAUFFMAN	**Local Co-ordinate Reference:**	Well Greeley-Rothe 1-5H
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 1-5H	**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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	2.1	2.1	0.0	0.0	-98.88	-53.7	-343.5	347.7				
100.0	100.0	103.8	103.8	0.1	0.1	-98.97	-54.2	-343.0	347.2	347.0	0.25	1,368.397	
163.2	163.2	165.2	165.2	0.3	0.3	-98.95	-54.0	-342.9	347.1	346.6	0.52	664.947	CC
200.0	200.0	200.3	200.3	0.3	0.3	-98.88	-53.6	-343.0	347.2	346.5	0.68	511.427	ES
300.0	300.0	294.3	294.2	0.6	0.6	-98.37	-50.7	-344.7	348.5	347.3	1.11	314.447	
400.0	400.0	386.8	386.6	0.8	0.8	-97.56	-46.2	-348.4	351.8	350.2	1.55	227.012	
500.0	500.0	479.4	478.7	1.0	1.0	-96.38	-39.6	-354.2	357.2	355.2	2.01	177.315	
600.0	600.0	575.5	574.1	1.2	1.3	-94.89	-31.0	-362.1	364.5	362.0	2.51	144.993	
700.0	700.0	674.8	672.6	1.5	1.6	-93.31	-21.4	-370.5	372.3	369.3	3.04	122.278	
800.0	800.0	771.0	767.6	1.7	1.9	-91.35	-8.9	-378.6	380.3	376.7	3.58	106.104	
900.0	900.0	861.8	856.7	1.9	2.3	-89.14	5.8	-387.5	390.2	386.1	4.16	93.705	
1,000.0	1,000.0	946.1	939.0	2.1	2.6	-86.94	21.3	-398.2	403.7	399.0	4.75	84.941	
1,100.0	1,100.0	1,027.0	1,017.3	2.4	3.0	-84.90	36.7	-411.3	421.5	416.1	5.35	78.771	
1,200.0	1,200.0	1,120.3	1,107.1	2.6	3.5	-82.63	55.4	-428.3	442.2	436.1	6.06	73.024	
1,300.0	1,300.0	1,216.7	1,199.6	2.8	4.0	-118.37	75.7	-446.3	464.9	458.8	6.18	75.207	
1,400.0	1,399.8	1,312.7	1,291.8	3.0	4.5	-116.45	95.5	-463.9	489.3	482.6	6.70	73.006	SF

Company:	KP KAUFFMAN	**Local Co-ordinate Reference:**	Well Greeley-Rothe 1-5H
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 1-5H	**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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-42.95	52.0	-48.4	71.0				
100.0	100.0	100.0	100.0	0.1	0.1	-42.95	52.0	-48.4	71.0	70.8	0.22	315.988	
200.0	200.0	200.0	200.0	0.3	0.3	-42.95	52.0	-48.4	71.0	70.3	0.67	105.329	
300.0	300.0	300.0	300.0	0.6	0.6	-42.95	52.0	-48.4	71.0	69.9	1.12	63.198	
400.0	400.0	400.0	400.0	0.8	0.8	-42.95	52.0	-48.4	71.0	69.5	1.57	45.141	
500.0	500.0	500.0	500.0	1.0	1.0	-42.95	52.0	-48.4	71.0	69.0	2.02	35.110	
600.0	600.0	600.0	600.0	1.2	1.2	-42.95	52.0	-48.4	71.0	68.6	2.47	28.726	
700.0	700.0	700.0	700.0	1.5	1.5	-42.95	52.0	-48.4	71.0	68.1	2.92	24.307	
800.0	800.0	800.0	800.0	1.7	1.7	-42.95	52.0	-48.4	71.0	67.7	3.37	21.066	CC, ES
900.0	900.0	897.9	897.9	1.9	1.9	-42.26	53.6	-48.7	72.5	68.7	3.82	19.000	
1,000.0	1,000.0	995.5	995.4	2.1	2.1	-40.36	58.5	-49.7	76.9	72.7	4.26	18.064	
1,100.0	1,100.0	1,092.8	1,092.2	2.4	2.4	-37.66	66.6	-51.4	84.5	79.8	4.71	17.947	SF
1,200.0	1,200.0	1,189.3	1,188.1	2.6	2.6	-34.61	77.9	-53.7	95.3	90.2	5.17	18.444	
1,300.0	1,300.0	1,285.1	1,282.8	2.8	2.9	-70.40	92.1	-56.7	108.9	103.3	5.61	19.406	
1,400.0	1,399.8	1,380.2	1,376.3	3.0	3.2	-69.40	109.3	-60.2	124.5	118.5	6.07	20.527	
1,500.0	1,499.5	1,474.6	1,468.3	3.3	3.5	-69.38	129.4	-64.4	142.0	135.5	6.53	21.730	
1,600.0	1,598.7	1,568.0	1,558.9	3.5	3.9	-70.00	152.2	-69.1	161.3	154.3	7.03	22.956	
1,700.0	1,697.5	1,663.2	1,650.3	3.8	4.3	-71.10	178.0	-74.4	182.1	174.6	7.56	24.080	
1,800.0	1,795.6	1,760.9	1,744.1	4.1	4.8	-72.84	204.8	-80.0	202.4	194.2	8.15	24.826	
1,900.0	1,893.3	1,858.5	1,837.8	4.4	5.2	-75.12	231.6	-85.5	222.3	213.5	8.81	25.234	
2,000.0	1,990.9	1,956.1	1,931.5	4.7	5.7	-77.12	258.4	-91.0	242.4	232.9	9.51	25.502	
2,100.0	2,088.6	2,053.8	2,025.2	5.1	6.2	-78.82	285.3	-96.6	262.8	252.6	10.23	25.676	
2,200.0	2,186.2	2,151.4	2,118.9	5.5	6.8	-80.27	312.1	-102.1	283.4	272.4	10.99	25.781	
2,300.0	2,283.8	2,249.0	2,212.6	5.9	7.3	-81.53	338.9	-107.7	304.1	292.3	11.77	25.838	
2,400.0	2,381.5	2,346.6	2,306.3	6.3	7.8	-82.62	365.7	-113.2	325.0	312.4	12.57	25.859	
2,500.0	2,479.1	2,444.3	2,400.0	6.7	8.3	-83.59	392.5	-118.7	345.9	332.5	13.38	25.857	
2,600.0	2,576.7	2,541.9	2,493.7	7.1	8.9	-84.44	419.3	-124.3	367.0	352.7	14.20	25.838	
2,700.0	2,674.4	2,639.5	2,587.4	7.6	9.4	-85.20	446.1	-129.8	388.1	373.0	15.04	25.808	
2,800.0	2,772.0	2,737.1	2,681.1	8.0	10.0	-85.89	472.9	-135.4	409.2	393.3	15.88	25.771	
2,900.0	2,869.7	2,834.7	2,774.9	8.4	10.5	-86.50	499.7	-140.9	430.4	413.7	16.73	25.729	
3,000.0	2,967.3	2,932.4	2,868.6	8.9	11.0	-87.06	526.6	-146.4	451.7	434.1	17.59	25.684	
3,100.0	3,064.9	3,030.0	2,962.3	9.3	11.6	-87.57	553.4	-152.0	473.0	454.5	18.45	25.638	
3,200.0	3,162.6	3,127.6	3,056.0	9.7	12.1	-88.03	580.2	-157.5	494.3	475.0	19.32	25.591	

Company:	KP KAUFFMAN	**Local Co-ordinate Reference:**	Well Greeley-Rothe 1-5H
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 1-5H	**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 9-1-20 - Wellbore #1 - Plan #1 (5-02-14) — **Offset Site Error:** 0.0 ft

Survey Program: 0-MWD — **Offset Well Error:** 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-62.64	26.5	-51.2	57.6				
100.0	100.0	100.0	100.0	0.1	0.1	-62.64	26.5	-51.2	57.6	57.4	0.22	256.349	
200.0	200.0	200.0	200.0	0.3	0.3	-62.64	26.5	-51.2	57.6	56.9	0.67	85.450	
300.0	300.0	300.0	300.0	0.6	0.6	-62.64	26.5	-51.2	57.6	56.5	1.12	51.270	
400.0	400.0	400.0	400.0	0.8	0.8	-62.64	26.5	-51.2	57.6	56.0	1.57	36.621	
500.0	500.0	500.0	500.0	1.0	1.0	-62.64	26.5	-51.2	57.6	55.6	2.02	28.483	
600.0	600.0	600.0	600.0	1.2	1.2	-62.64	26.5	-51.2	57.6	55.1	2.47	23.304	
700.0	700.0	700.0	700.0	1.5	1.5	-62.64	26.5	-51.2	57.6	54.7	2.92	19.719	
800.0	800.0	800.0	800.0	1.7	1.7	-62.64	26.5	-51.2	57.6	54.2	3.37	17.090	
900.0	900.0	900.0	900.0	1.9	1.9	-62.64	26.5	-51.2	57.6	53.8	3.82	15.079	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-62.64	26.5	-51.2	57.6	53.3	4.27	13.492	CC, ES
1,100.0	1,100.0	1,098.0	1,098.0	2.4	2.4	-62.51	27.4	-52.6	59.3	54.6	4.71	12.597	
1,200.0	1,200.0	1,195.8	1,195.6	2.6	2.6	-62.17	30.0	-56.9	64.4	59.3	5.14	12.524	
1,300.0	1,300.0	1,293.0	1,292.5	2.8	2.8	-101.06	34.4	-63.9	73.3	67.7	5.58	13.123	
1,400.0	1,399.8	1,389.5	1,388.3	3.0	3.0	-103.49	40.4	-73.6	86.2	80.2	6.02	14.322	
1,500.0	1,499.5	1,484.7	1,482.4	3.3	3.3	-106.65	48.1	-85.9	103.5	97.0	6.46	16.017	
1,600.0	1,598.7	1,578.3	1,574.4	3.5	3.6	-109.85	57.2	-100.6	125.4	118.4	6.92	18.122	
1,700.0	1,697.5	1,670.1	1,664.0	3.8	3.9	-112.73	67.7	-117.4	151.9	144.5	7.39	20.543	
1,800.0	1,795.6	1,762.9	1,754.0	4.1	4.3	-115.31	79.6	-136.5	182.6	174.7	7.90	23.113	
1,900.0	1,893.3	1,857.0	1,845.3	4.4	4.7	-118.06	91.8	-156.0	215.1	206.6	8.44	25.468	
2,000.0	1,990.9	1,951.1	1,936.5	4.7	5.1	-120.22	103.9	-175.6	247.9	238.9	9.02	27.495	
2,100.0	2,088.6	2,045.2	2,027.7	5.1	5.5	-121.87	116.1	-195.1	281.0	271.4	9.61	29.250	
2,200.0	2,186.2	2,139.3	2,119.0	5.5	5.9	-123.18	128.3	-214.7	314.3	304.1	10.22	30.758	
2,300.0	2,283.8	2,233.3	2,210.2	5.9	6.4	-124.23	140.4	-234.2	347.7	336.8	10.84	32.062	
2,400.0	2,381.5	2,327.4	2,301.4	6.3	6.8	-125.11	152.6	-253.8	381.1	369.6	11.48	33.195	
2,500.0	2,479.1	2,421.5	2,392.6	6.7	7.3	-125.84	164.8	-273.3	414.7	402.5	12.13	34.184	
2,600.0	2,576.7	2,515.6	2,483.9	7.1	7.7	-126.46	176.9	-292.8	448.2	435.5	12.79	35.052	
2,700.0	2,674.4	2,609.7	2,575.1	7.6	8.2	-127.00	189.1	-312.4	481.9	468.4	13.45	35.818	
8,300.0	7,394.0	7,251.2	7,124.0	30.5	25.9	-8.99	598.5	-970.0	479.5	459.0	20.50	23.386	
8,400.0	7,394.0	7,251.2	7,124.0	32.7	25.9	-8.99	598.5	-970.0	401.4	380.3	21.12	19.009	
8,500.0	7,394.0	7,251.2	7,124.0	35.0	25.9	-8.99	598.5	-970.0	335.2	313.4	21.76	15.406	
8,600.0	7,394.0	7,251.2	7,124.0	37.4	25.9	-8.99	598.5	-970.0	289.1	266.6	22.42	12.893	
8,693.9	7,394.0	7,251.2	7,124.0	39.7	25.9	-8.99	598.5	-970.0	273.4	250.3	23.06	11.855	
8,700.0	7,394.0	7,251.2	7,124.0	39.9	25.9	-8.99	598.5	-970.0	273.4	250.3	23.10	11.837	SF
8,800.0	7,394.0	7,251.2	7,124.0	42.4	25.9	-8.99	598.5	-970.0	293.2	269.4	23.80	12.321	
8,900.0	7,394.0	7,251.2	7,124.0	44.9	25.9	-8.99	598.5	-970.0	342.3	317.8	24.51	13.967	
9,000.0	7,394.0	7,251.2	7,124.0	47.4	25.9	-8.99	598.5	-970.0	410.3	385.1	25.23	16.262	
9,100.0	7,394.0	7,251.2	7,124.0	50.0	25.9	-8.99	598.5	-970.0	489.5	463.5	25.97	18.849	

Company:	KP KAUFFMAN	**Local Co-ordinate Reference:**	Well Greeley-Rothe 1-5H
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 1-5H	**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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-89.54	0.4	-50.0	50.0				
100.0	100.0	100.0	100.0	0.1	0.1	-89.54	0.4	-50.0	50.0	49.8	0.22	222.360	
200.0	200.0	200.0	200.0	0.3	0.3	-89.54	0.4	-50.0	50.0	49.3	0.67	74.120	
300.0	300.0	300.0	300.0	0.6	0.6	-89.54	0.4	-50.0	50.0	48.9	1.12	44.472	
400.0	400.0	400.0	400.0	0.8	0.8	-89.54	0.4	-50.0	50.0	48.4	1.57	31.766	
500.0	500.0	500.0	500.0	1.0	1.0	-89.54	0.4	-50.0	50.0	48.0	2.02	24.707	
600.0	600.0	600.0	600.0	1.2	1.2	-89.54	0.4	-50.0	50.0	47.5	2.47	20.215	
700.0	700.0	700.0	700.0	1.5	1.5	-89.54	0.4	-50.0	50.0	47.1	2.92	17.105	
800.0	800.0	800.0	800.0	1.7	1.7	-89.54	0.4	-50.0	50.0	46.6	3.37	14.824	
900.0	900.0	900.0	900.0	1.9	1.9	-89.54	0.4	-50.0	50.0	46.2	3.82	13.080	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-89.54	0.4	-50.0	50.0	45.7	4.27	11.703	
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	-89.54	0.4	-50.0	50.0	45.3	4.72	10.589	
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	-89.54	0.4	-50.0	50.0	44.8	5.17	9.668	CC, ES
1,300.0	1,300.0	1,300.0	1,300.0	2.8	2.8	-129.28	0.4	-50.0	51.1	45.5	5.61	9.095	
1,400.0	1,399.8	1,399.8	1,399.8	3.0	3.0	-133.49	0.4	-50.0	54.5	48.5	6.05	9.007	
1,500.0	1,499.5	1,499.5	1,499.5	3.3	3.3	-139.36	0.4	-50.0	60.9	54.4	6.49	9.377	
1,600.0	1,598.7	1,598.7	1,598.7	3.5	3.5	-145.69	0.4	-50.0	70.6	63.7	6.92	10.194	
1,700.0	1,697.5	1,697.5	1,697.5	3.8	3.7	-151.57	0.4	-50.0	84.0	76.6	7.35	11.429	
1,800.0	1,795.6	1,795.6	1,795.6	4.1	3.9	-156.57	0.4	-50.0	101.2	93.5	7.77	13.033	
1,900.0	1,893.3	1,893.3	1,893.3	4.4	4.1	-160.57	0.4	-50.0	121.3	113.1	8.21	14.783	
2,000.0	1,990.9	1,990.9	1,990.9	4.7	4.4	-163.46	0.4	-50.0	141.9	133.3	8.66	16.391	
2,100.0	2,088.6	2,088.6	2,088.6	5.1	4.6	-165.63	0.4	-50.0	162.8	153.7	9.12	17.859	
2,200.0	2,186.2	2,186.2	2,186.2	5.5	4.8	-167.30	0.4	-50.0	183.8	174.3	9.58	19.199	
2,300.0	2,283.8	2,289.1	2,289.1	5.9	5.0	-168.46	1.7	-49.6	203.9	193.9	10.05	20.297	
2,400.0	2,381.5	2,394.0	2,393.9	6.3	5.3	-168.88	6.7	-48.3	221.1	210.6	10.53	21.008	
2,500.0	2,479.1	2,500.0	2,499.4	6.7	5.5	-168.71	15.6	-45.9	235.3	224.3	11.02	21.363	
2,600.0	2,576.7	2,606.7	2,605.3	7.1	5.8	-168.04	28.2	-42.5	246.5	235.0	11.52	21.400	
2,700.0	2,674.4	2,713.9	2,711.2	7.6	6.0	-166.90	44.8	-38.1	254.7	242.6	12.04	21.153	
2,800.0	2,772.0	2,821.3	2,816.4	8.0	6.3	-165.30	65.2	-32.6	260.0	247.4	12.59	20.652	
2,900.0	2,869.7	2,927.9	2,920.1	8.4	6.6	-163.24	89.2	-26.1	262.5	249.4	13.17	19.936	
3,000.0	2,967.3	3,027.4	3,016.5	8.9	6.9	-161.13	113.1	-19.7	264.2	250.5	13.77	19.190	
3,100.0	3,064.9	3,126.9	3,112.8	9.3	7.3	-159.06	136.9	-13.3	266.3	251.9	14.40	18.488	
3,200.0	3,162.6	3,226.4	3,209.2	9.7	7.7	-157.02	160.8	-6.9	268.7	253.6	15.07	17.830	
3,300.0	3,260.2	3,325.9	3,305.6	10.2	8.0	-155.01	184.7	-0.5	271.4	255.7	15.77	17.212	
3,400.0	3,357.8	3,425.4	3,402.0	10.6	8.4	-153.05	208.5	5.9	274.5	258.0	16.50	16.633	
3,500.0	3,455.5	3,524.9	3,498.4	11.1	8.8	-151.14	232.4	12.3	277.9	260.6	17.27	16.093	
3,600.0	3,553.1	3,624.4	3,594.8	11.5	9.3	-149.27	256.3	18.8	281.6	263.5	18.06	15.590	
3,700.0	3,650.8	3,724.0	3,691.2	12.0	9.7	-147.45	280.2	25.2	285.6	266.7	18.88	15.123	
3,800.0	3,748.4	3,823.5	3,787.6	12.4	10.1	-145.69	304.0	31.6	289.9	270.1	19.73	14.690	
3,900.0	3,846.0	3,923.0	3,884.0	12.9	10.6	-143.97	327.9	38.0	294.4	273.8	20.60	14.290	
4,000.0	3,943.7	4,022.5	3,980.4	13.3	11.0	-142.31	351.8	44.4	299.2	277.7	21.49	13.920	
4,100.0	4,041.3	4,122.0	4,076.8	13.8	11.5	-140.70	375.6	50.8	304.2	281.8	22.40	13.579	
4,200.0	4,138.9	4,221.5	4,173.2	14.2	11.9	-139.15	399.5	57.2	309.5	286.2	23.33	13.266	
4,300.0	4,236.6	4,321.0	4,269.6	14.7	12.4	-137.65	423.4	63.6	315.0	290.7	24.27	12.978	
4,400.0	4,334.2	4,420.5	4,366.0	15.1	12.8	-136.20	447.2	70.1	320.7	295.5	25.23	12.713	
4,500.0	4,431.8	4,520.1	4,462.4	15.6	13.3	-134.80	471.1	76.5	326.6	300.4	26.19	12.470	
4,600.0	4,529.5	4,619.6	4,558.8	16.0	13.8	-133.45	495.0	82.9	332.7	305.5	27.17	12.247	
4,700.0	4,627.1	4,719.1	4,655.2	16.5	14.3	-132.15	518.8	89.3	338.9	310.8	28.15	12.042	
4,800.0	4,724.8	4,818.6	4,751.5	16.9	14.7	-130.90	542.7	95.7	345.4	316.2	29.14	11.854	
4,900.0	4,822.4	4,916.0	4,846.0	17.4	15.1	-129.81	565.5	101.8	352.2	322.1	30.06	11.714	
5,000.0	4,920.0	5,012.1	4,940.0	17.9	15.5	-129.24	585.2	107.1	359.9	329.1	30.85	11.668	
5,100.0	5,017.7	5,108.3	5,034.6	18.3	15.8	-129.18	601.8	111.6	368.7	337.1	31.55	11.687	

Company:	KP KAUFFMAN	**Local Co-ordinate Reference:**	Well Greeley-Rothe 1-5H
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 1-5H	**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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,200.0	5,115.3	5,204.2	5,129.5	18.8	16.1	-129.58	615.3	115.2	378.4	346.2	32.15	11.769	
5,300.0	5,213.0	5,300.0	5,224.7	19.2	16.3	-130.46	625.7	118.0	389.0	356.3	32.65	11.913	
5,400.0	5,311.2	5,394.9	5,319.3	19.5	16.5	-131.53	633.0	120.0	398.9	365.9	33.02	12.082	
5,500.0	5,410.0	5,489.9	5,414.1	19.8	16.7	-132.61	637.3	121.1	407.7	374.4	33.31	12.241	
5,600.0	5,509.3	5,585.1	5,509.3	20.1	16.8	-133.71	638.5	121.4	415.4	381.9	33.52	12.393	
5,700.0	5,608.9	5,684.7	5,608.9	20.3	17.0	-134.61	638.5	121.4	421.3	387.6	33.73	12.489	
5,800.0	5,708.8	5,784.6	5,708.8	20.4	17.1	-135.14	638.5	121.4	424.8	390.8	33.96	12.506	
5,900.0	5,808.8	5,884.6	5,808.8	20.6	17.3	-97.08	638.5	121.4	425.8	394.4	31.39	13.566	
6,000.0	5,908.8	5,984.6	5,908.8	20.7	17.4	-97.08	638.5	121.4	425.8	394.1	31.75	13.412	
6,100.0	6,008.8	6,084.6	6,008.8	20.8	17.6	-97.08	638.5	121.4	425.8	393.7	32.11	13.261	
6,200.0	6,108.8	6,184.6	6,108.8	21.0	17.8	-97.08	638.5	121.4	425.8	393.3	32.47	13.112	
6,300.0	6,208.8	6,284.6	6,208.8	21.1	17.9	-97.08	638.5	121.4	425.8	393.0	32.84	12.965	
6,400.0	6,308.8	6,384.6	6,308.8	21.3	18.1	-97.08	638.5	121.4	425.8	392.6	33.21	12.821	
6,500.0	6,408.8	6,484.6	6,408.8	21.4	18.3	-97.08	638.5	121.4	425.8	392.2	33.58	12.680	
6,600.0	6,508.8	6,584.6	6,508.8	21.5	18.4	-97.08	638.5	121.4	425.8	391.8	33.95	12.541	
6,700.0	6,608.8	6,684.6	6,608.8	21.7	18.6	-97.08	638.5	121.4	425.8	391.5	34.33	12.404	
6,800.0	6,708.8	6,784.6	6,708.8	21.8	18.8	-5.21	638.5	121.4	425.1	388.0	37.08	11.464	
6,900.0	6,808.1	6,883.8	6,808.1	21.9	18.9	-5.43	638.5	121.4	413.9	377.2	36.66	11.291	
7,000.0	6,904.8	6,980.6	6,904.8	21.8	19.1	-5.99	638.5	121.4	389.0	353.5	35.56	10.939	
7,100.0	6,997.1	7,072.9	6,997.1	21.7	19.3	-7.04	638.5	121.4	351.0	317.2	33.83	10.378	
7,200.0	7,083.3	7,159.0	7,083.3	21.6	19.4	-8.91	638.5	121.4	300.7	269.2	31.49	9.549	
7,300.0	7,161.5	7,210.8	7,135.0	21.4	19.5	-11.35	638.5	121.4	240.6	211.9	28.71	8.381	
7,400.0	7,230.3	7,210.8	7,135.0	21.2	19.5	-12.24	638.5	121.4	193.2	167.4	25.86	7.473 SF	
7,486.8	7,281.3	7,210.8	7,135.0	21.0	19.5	-12.52	638.5	121.4	177.9	154.4	23.42	7.596	
7,500.0	7,288.3	7,210.8	7,135.0	21.0	19.5	-12.51	638.5	121.4	178.2	155.2	23.05	7.732	
7,600.0	7,334.5	7,210.8	7,135.0	20.9	19.5	-12.06	638.5	121.4	203.3	182.8	20.52	9.909	
7,700.0	7,367.9	7,210.8	7,135.0	20.9	19.5	-11.04	638.5	121.4	256.6	238.0	18.54	13.836	
7,800.0	7,387.8	7,210.8	7,135.0	21.4	19.5	-9.73	638.5	121.4	323.7	306.2	17.51	18.482	
7,900.0	7,394.0	7,210.8	7,135.0	22.7	19.5	-8.46	638.5	121.4	396.8	379.1	17.72	22.393	
8,000.0	7,394.0	7,210.8	7,135.0	24.4	19.5	-8.46	638.5	121.4	476.5	458.4	18.18	26.218	

Company:	KP KAUFFMAN	**Local Co-ordinate Reference:**	Well Greeley-Rothe 1-5H
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 1-5H	**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 1-0H - Wellbore #1 - Plan #1 (6-5-14)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	0.45	75.0	0.6	75.0				
100.0	100.0	99.0	99.0	0.1	0.1	0.45	75.0	0.6	75.0	74.8	0.22	335.419	
200.0	200.0	199.0	199.0	0.3	0.3	0.45	75.0	0.6	75.0	74.3	0.67	111.620	CC, ES
300.0	300.0	296.5	296.5	0.6	0.6	0.78	76.6	1.0	76.6	75.5	1.12	68.618	
400.0	400.0	393.8	393.7	0.8	0.8	1.72	81.3	2.4	81.5	79.9	1.57	51.984	
500.0	500.0	490.7	490.2	1.0	1.0	3.05	89.1	4.8	89.7	87.7	2.03	44.170	
600.0	600.0	586.8	585.7	1.2	1.3	4.55	100.0	8.0	101.2	98.7	2.51	40.322	
700.0	700.0	682.1	679.9	1.5	1.6	6.03	113.8	12.0	116.1	113.0	3.01	38.561	
800.0	800.0	776.4	772.5	1.7	1.9	7.39	130.4	16.9	134.2	130.6	3.53	38.012	
900.0	900.0	869.4	863.3	1.9	2.3	8.59	149.7	22.6	155.5	151.5	4.07	38.200	
1,000.0	1,000.0	961.0	952.0	2.1	2.7	9.60	171.4	29.0	180.0	175.4	4.63	38.855	
1,100.0	1,100.0	1,051.0	1,038.5	2.4	3.2	10.46	195.4	36.1	207.7	202.4	5.22	39.810	
1,200.0	1,200.0	1,143.0	1,126.2	2.6	3.7	11.19	222.2	44.0	237.9	232.1	5.83	40.819	
1,300.0	1,300.0	1,238.6	1,217.2	2.8	4.3	-26.32	250.4	52.3	267.0	261.2	5.81	45.983	
1,400.0	1,399.8	1,335.2	1,309.1	3.0	4.8	-26.05	278.8	60.7	293.1	286.9	6.29	46.581	
1,500.0	1,499.5	1,432.4	1,401.6	3.3	5.4	-26.11	307.5	69.1	316.2	309.4	6.79	46.542	
1,600.0	1,598.7	1,530.4	1,494.8	3.5	6.0	-26.42	336.3	77.6	336.3	329.0	7.31	46.008	
1,700.0	1,697.5	1,628.8	1,588.5	3.8	6.6	-26.97	365.3	86.2	353.3	345.5	7.84	45.066	
1,800.0	1,795.6	1,727.7	1,682.6	4.1	7.2	-27.73	394.5	94.8	367.3	358.9	8.39	43.781	
1,900.0	1,893.3	1,826.7	1,776.9	4.4	7.8	-28.70	423.7	103.4	379.2	370.2	8.98	42.252	
2,000.0	1,990.9	1,925.8	1,871.2	4.7	8.4	-29.65	452.9	112.0	391.2	381.6	9.58	40.819	
2,100.0	2,088.6	2,024.9	1,965.4	5.1	9.0	-30.55	482.0	120.6	403.2	393.0	10.21	39.504	
2,200.0	2,186.2	2,124.0	2,059.7	5.5	9.6	-31.39	511.2	129.2	415.4	404.5	10.85	38.296	
2,300.0	2,283.8	2,223.1	2,154.0	5.9	10.2	-32.18	540.4	137.8	427.6	416.1	11.50	37.186	
2,400.0	2,381.5	2,322.1	2,248.3	6.3	10.8	-32.93	569.6	146.4	439.9	427.7	12.16	36.162	
2,500.0	2,479.1	2,421.2	2,342.6	6.7	11.4	-33.64	598.8	155.0	452.3	439.4	12.84	35.219	
2,600.0	2,576.7	2,520.3	2,436.9	7.1	12.0	-34.31	628.0	163.6	464.7	451.2	13.53	34.346	
2,700.0	2,674.4	2,619.4	2,531.2	7.6	12.6	-34.95	657.2	172.2	477.2	463.0	14.23	33.539	
2,800.0	2,772.0	2,718.5	2,625.5	8.0	13.2	-35.56	686.4	180.8	489.7	474.8	14.94	32.791	SF

Company:	KP KAUFFMAN	**Local Co-ordinate Reference:**	Well Greeley-Rothe 1-5H
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 1-5H	**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 1-1H - Wellbore #1 - Plan #2 (6-05-14)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-17.99	75.2	-24.4	79.1				
100.0	100.0	99.0	99.0	0.1	0.1	-17.99	75.2	-24.4	79.1	78.8	0.22	353.506	
200.0	200.0	199.0	199.0	0.3	0.3	-17.99	75.2	-24.4	79.1	78.4	0.67	117.639	
300.0	300.0	299.0	299.0	0.6	0.6	-17.99	75.2	-24.4	79.1	77.9	1.12	70.489	
400.0	400.0	399.0	399.0	0.8	0.8	-17.99	75.2	-24.4	79.1	77.5	1.57	50.321	CC, ES
500.0	500.0	496.8	496.8	1.0	1.0	-17.30	76.7	-23.9	80.4	78.4	2.01	39.911	
600.0	600.0	594.4	594.2	1.2	1.2	-15.33	81.4	-22.3	84.6	82.1	2.46	34.364	
700.0	700.0	691.5	691.0	1.5	1.5	-12.46	89.2	-19.7	91.8	88.8	2.92	31.428	
800.0	800.0	787.9	786.8	1.7	1.7	-9.15	100.1	-16.1	102.1	98.7	3.40	30.066	
900.0	900.0	883.5	881.2	1.9	2.0	-5.78	113.8	-11.5	115.8	111.9	3.89	29.722	
1,000.0	1,000.0	978.0	974.1	2.1	2.3	-2.64	130.3	-6.0	132.8	128.4	4.42	30.062	
1,100.0	1,100.0	1,071.3	1,065.1	2.4	2.7	0.15	149.4	0.4	153.2	148.3	4.96	30.869	
1,200.0	1,200.0	1,163.1	1,154.1	2.6	3.1	2.54	171.0	7.6	177.0	171.5	5.53	31.991	
1,300.0	1,300.0	1,253.7	1,241.2	2.8	3.5	-33.62	195.0	15.6	202.6	196.8	5.73	35.347	
1,400.0	1,399.8	1,348.5	1,331.6	3.0	4.0	-32.26	222.1	24.6	227.7	221.5	6.21	36.649	
1,500.0	1,499.5	1,446.0	1,424.4	3.3	4.6	-31.55	250.0	34.0	250.1	243.4	6.70	37.325	
1,600.0	1,598.7	1,544.0	1,517.9	3.5	5.1	-31.35	278.2	43.4	269.7	262.5	7.21	37.399	
1,700.0	1,697.5	1,642.6	1,611.8	3.8	5.7	-31.55	306.5	52.8	286.3	278.6	7.74	36.986	
1,800.0	1,795.6	1,741.6	1,706.2	4.1	6.3	-32.09	334.9	62.3	300.0	291.7	8.30	36.159	
1,900.0	1,893.3	1,840.8	1,800.7	4.4	6.9	-32.94	363.4	71.8	311.7	302.8	8.90	35.032	
2,000.0	1,990.9	1,940.0	1,895.3	4.7	7.5	-33.77	391.9	81.3	323.4	313.8	9.52	33.957	
2,100.0	2,088.6	2,039.2	1,989.9	5.1	8.0	-34.53	420.4	90.8	335.1	324.9	10.17	32.965	
2,200.0	2,186.2	2,138.5	2,084.4	5.5	8.6	-35.25	448.8	100.4	346.9	336.1	10.82	32.049	
2,300.0	2,283.8	2,237.7	2,179.0	5.9	9.2	-35.92	477.3	109.9	358.7	347.2	11.50	31.205	
2,400.0	2,381.5	2,336.9	2,273.5	6.3	9.8	-36.54	505.8	119.4	370.6	358.4	12.18	30.426	
2,500.0	2,479.1	2,436.1	2,368.1	6.7	10.4	-37.13	534.3	128.9	382.5	369.6	12.88	29.707	
2,600.0	2,576.7	2,535.3	2,462.7	7.1	11.0	-37.68	562.8	138.4	394.5	380.9	13.58	29.043	
2,700.0	2,674.4	2,634.5	2,557.2	7.6	11.6	-38.20	591.3	147.9	406.4	392.1	14.30	28.428	
2,800.0	2,772.0	2,733.7	2,651.8	8.0	12.2	-38.69	619.7	157.4	418.5	403.4	15.02	27.858	
2,900.0	2,869.7	2,833.0	2,746.3	8.4	12.8	-39.15	648.2	166.9	430.5	414.8	15.75	27.329	
3,000.0	2,967.3	2,932.2	2,840.9	8.9	13.4	-39.58	676.7	176.5	442.6	426.1	16.49	26.838	
3,100.0	3,064.9	3,031.4	2,935.5	9.3	14.0	-40.00	705.2	186.0	454.7	437.4	17.24	26.380	
3,200.0	3,162.6	3,130.6	3,030.0	9.7	14.6	-40.39	733.7	195.5	466.8	448.8	17.99	25.953	
3,300.0	3,260.2	3,229.8	3,124.6	10.2	15.2	-40.76	762.2	205.0	478.9	460.2	18.74	25.554	
3,400.0	3,357.8	3,329.0	3,219.1	10.6	15.8	-41.11	790.6	214.5	491.1	471.6	19.50	25.181	SF

Company:	KP KAUFFMAN	**Local Co-ordinate Reference:**	Well Greeley-Rothe 1-5H
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 1-5H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	landmark
Reference Design:	Plan #2 (6-05-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Greeley-Rothe Pad Sec.1-T5N-R67W - Greeley-Rothe 1-2H - Wellbore #1 - Plan #2 (6-05-14) — **Offset Site Error:** 0.0 ft

Survey Program: 0-MWD — **Offset Well Error:** 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-33.25	75.4	-49.4	90.1				
100.0	100.0	99.0	99.0	0.1	0.1	-33.25	75.4	-49.4	90.1	89.9	0.22	403.020	
200.0	200.0	199.0	199.0	0.3	0.3	-33.25	75.4	-49.4	90.1	89.5	0.67	134.117	
300.0	300.0	299.0	299.0	0.6	0.6	-33.25	75.4	-49.4	90.1	89.0	1.12	80.363	
400.0	400.0	399.0	399.0	0.8	0.8	-33.25	75.4	-49.4	90.1	88.6	1.57	57.369	
500.0	500.0	499.0	499.0	1.0	1.0	-33.25	75.4	-49.4	90.1	88.1	2.02	44.606	
600.0	600.0	599.0	599.0	1.2	1.2	-33.25	75.4	-49.4	90.1	87.7	2.47	36.489	CC, ES
700.0	700.0	697.3	697.2	1.5	1.5	-32.39	76.9	-48.8	91.1	88.2	2.91	31.255	
800.0	800.0	795.3	795.1	1.7	1.7	-29.88	81.5	-46.8	94.1	90.7	3.36	28.010	
900.0	900.0	892.8	892.3	1.9	1.9	-26.06	89.1	-43.6	99.5	95.7	3.81	26.086	
1,000.0	1,000.0	989.7	988.5	2.1	2.2	-21.41	99.8	-39.1	107.7	103.4	4.29	25.124	
1,100.0	1,100.0	1,085.7	1,083.4	2.4	2.4	-16.45	113.2	-33.4	119.1	114.3	4.78	24.897	
1,200.0	1,200.0	1,180.6	1,176.6	2.6	2.7	-11.61	129.4	-26.6	134.0	128.7	5.31	25.238	
1,300.0	1,300.0	1,274.6	1,268.4	2.8	3.1	-45.58	148.2	-18.6	151.3	145.6	5.71	26.505	
1,400.0	1,399.8	1,368.0	1,358.8	3.0	3.5	-42.46	169.6	-9.6	169.5	163.3	6.19	27.406	
1,500.0	1,499.5	1,465.9	1,453.2	3.3	3.9	-40.28	193.7	0.6	187.1	180.4	6.68	27.994	
1,600.0	1,598.7	1,564.7	1,548.4	3.5	4.4	-39.09	217.9	10.9	202.2	195.0	7.20	28.104	
1,700.0	1,697.5	1,663.9	1,644.1	3.8	4.9	-38.65	242.3	21.2	214.7	206.9	7.73	27.775	
1,800.0	1,795.6	1,763.5	1,740.0	4.1	5.4	-38.84	266.7	31.5	224.4	216.1	8.30	27.053	
1,900.0	1,893.3	1,863.1	1,836.0	4.4	5.9	-39.49	291.2	41.8	232.3	223.4	8.91	26.061	
2,000.0	1,990.9	1,962.8	1,932.1	4.7	6.4	-40.14	315.7	52.2	240.1	230.5	9.56	25.121	
2,100.0	2,088.6	2,062.4	2,028.1	5.1	6.9	-40.74	340.2	62.5	247.9	237.7	10.22	24.259	
2,200.0	2,186.2	2,162.1	2,124.2	5.5	7.4	-41.31	364.6	72.9	255.7	244.8	10.90	23.469	
2,300.0	2,283.8	2,261.8	2,220.2	5.9	8.0	-41.84	389.1	83.2	263.6	252.0	11.59	22.746	
2,400.0	2,381.5	2,361.4	2,316.3	6.3	8.5	-42.35	413.6	93.6	271.5	259.2	12.29	22.083	
2,500.0	2,479.1	2,461.1	2,412.3	6.7	9.0	-42.82	438.0	103.9	279.4	266.4	13.01	21.475	
2,600.0	2,576.7	2,560.7	2,508.4	7.1	9.6	-43.27	462.5	114.3	287.3	273.6	13.74	20.916	
2,700.0	2,674.4	2,660.4	2,604.4	7.6	10.1	-43.69	487.0	124.6	295.3	280.8	14.47	20.402	
2,800.0	2,772.0	2,760.1	2,700.5	8.0	10.6	-44.09	511.5	135.0	303.3	288.0	15.22	19.928	
2,900.0	2,869.7	2,859.7	2,796.6	8.4	11.2	-44.47	535.9	145.3	311.2	295.3	15.97	19.490	
3,000.0	2,967.3	2,959.4	2,892.6	8.9	11.7	-44.84	560.4	155.6	319.2	302.5	16.73	19.085	
3,100.0	3,064.9	3,059.0	2,988.7	9.3	12.2	-45.18	584.9	166.0	327.2	309.7	17.49	18.709	
3,200.0	3,162.6	3,158.7	3,084.7	9.7	12.8	-45.51	609.4	176.3	335.2	317.0	18.26	18.360	
3,300.0	3,260.2	3,258.4	3,180.8	10.2	13.3	-45.82	633.8	186.7	343.3	324.2	19.03	18.035	
3,400.0	3,357.8	3,358.0	3,276.8	10.6	13.8	-46.12	658.3	197.0	351.3	331.5	19.81	17.732	
3,500.0	3,455.5	3,457.7	3,372.9	11.1	14.4	-46.41	682.8	207.4	359.3	338.8	20.59	17.449	
3,600.0	3,553.1	3,557.3	3,468.9	11.5	14.9	-46.68	707.3	217.7	367.4	346.0	21.38	17.183	
3,700.0	3,650.8	3,657.0	3,565.0	12.0	15.4	-46.94	731.7	228.1	375.5	353.3	22.17	16.935	
3,800.0	3,748.4	3,756.7	3,661.0	12.4	16.0	-47.19	756.2	238.4	383.5	360.6	22.96	16.701	
3,900.0	3,846.0	3,856.3	3,757.1	12.9	16.5	-47.43	780.7	248.8	391.6	367.8	23.76	16.481	
4,000.0	3,943.7	3,956.0	3,853.1	13.3	17.1	-47.66	805.2	259.1	399.7	375.1	24.56	16.274	
4,100.0	4,041.3	4,055.6	3,949.2	13.8	17.6	-47.88	829.6	269.5	407.8	382.4	25.36	16.078	
4,200.0	4,138.9	4,155.3	4,045.2	14.2	18.1	-48.09	854.1	279.8	415.9	389.7	26.17	15.894	
4,300.0	4,236.6	4,255.0	4,141.3	14.7	18.7	-48.30	878.6	290.2	424.0	397.0	26.97	15.719	
4,400.0	4,334.2	4,354.6	4,237.3	15.1	19.2	-48.49	903.0	300.5	432.1	404.3	27.78	15.553	
4,500.0	4,431.8	4,454.3	4,333.4	15.6	19.8	-48.68	927.5	310.9	440.2	411.6	28.59	15.396	
4,600.0	4,529.5	4,553.9	4,429.5	16.0	20.3	-48.86	952.0	321.2	448.3	418.9	29.40	15.246	
4,700.0	4,627.1	4,653.6	4,525.5	16.5	20.8	-49.04	976.5	331.6	456.4	426.2	30.22	15.104	
4,800.0	4,724.8	4,753.3	4,621.6	16.9	21.4	-49.21	1,000.9	341.9	464.5	433.5	31.03	14.969	
4,900.0	4,822.4	4,852.9	4,717.6	17.4	21.9	-49.37	1,025.4	352.2	472.6	440.8	31.85	14.840	
5,000.0	4,920.0	4,952.6	4,813.7	17.9	22.5	-49.53	1,049.9	362.6	480.8	448.1	32.67	14.717	
5,100.0	5,017.7	5,052.2	4,909.7	18.3	23.0	-49.68	1,074.4	372.9	488.9	455.4	33.49	14.600	

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

Company:	KP KAUFFMAN	**Local Co-ordinate Reference:**	Well Greeley-Rothe 1-5H
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 1-5H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	landmark
Reference Design:	Plan #2 (6-05-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Greeley-Rothe Pad Sec.1-T5N-R67W - Greeley-Rothe 1-2H - Wellbore #1 - Plan #2 (6-05-14)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,200.0	5,115.3	5,151.9	5,005.8	18.8	23.5	-49.83	1,098.8	383.3	497.0	462.7	34.31	14.488 SF	

Company:	KP KAUFFMAN	**Local Co-ordinate Reference:**	Well Greeley-Rothe 1-5H
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 1-5H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	landmark
Reference Design:	Plan #2 (6-05-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Greeley-Rothe Pad Sec.1-T5N-R67W - Greeley-Rothe 1-3H - Wellbore #1 - Plan #2 (6-05-14) — **Offset Site Error:** 0.0 ft

Survey Program: 0-MWD — **Offset Well Error:** 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	0.45	50.0	0.4	50.0				
100.0	100.0	99.0	99.0	0.1	0.1	0.45	50.0	0.4	50.0	49.8	0.22	223.667	
200.0	200.0	199.0	199.0	0.3	0.3	0.45	50.0	0.4	50.0	49.3	0.67	74.432	
300.0	300.0	299.0	299.0	0.6	0.6	0.45	50.0	0.4	50.0	48.9	1.12	44.599	
400.0	400.0	399.0	399.0	0.8	0.8	0.45	50.0	0.4	50.0	48.5	1.57	31.838	
500.0	500.0	499.0	499.0	1.0	1.0	0.45	50.0	0.4	50.0	48.0	2.02	24.755	
600.0	600.0	599.0	599.0	1.2	1.2	0.45	50.0	0.4	50.0	47.6	2.47	20.250	
700.0	700.0	699.0	699.0	1.5	1.5	0.45	50.0	0.4	50.0	47.1	2.92	17.132	
800.0	800.0	799.0	799.0	1.7	1.7	0.45	50.0	0.4	50.0	46.7	3.37	14.847	CC, ES
900.0	900.0	897.4	897.4	1.9	1.9	1.24	51.5	1.1	51.5	47.7	3.81	13.516	
1,000.0	1,000.0	995.6	995.5	2.1	2.1	3.39	56.0	3.3	56.2	52.0	4.26	13.202	
1,100.0	1,100.0	1,093.3	1,092.8	2.4	2.4	6.26	63.5	7.0	64.2	59.5	4.71	13.623	
1,200.0	1,200.0	1,190.4	1,189.2	2.6	2.6	9.24	73.9	12.0	75.5	70.3	5.17	14.592	
1,300.0	1,300.0	1,286.8	1,284.4	2.8	2.9	-26.61	87.1	18.5	88.7	83.1	5.61	15.803	
1,400.0	1,399.8	1,382.8	1,378.7	3.0	3.2	-25.25	103.1	26.3	102.1	96.0	6.06	16.852	
1,500.0	1,499.5	1,478.3	1,472.0	3.3	3.5	-24.54	121.9	35.4	115.6	109.1	6.51	17.763	
1,600.0	1,598.7	1,576.1	1,566.8	3.5	3.9	-24.34	143.3	45.9	128.5	121.5	6.97	18.434	
1,700.0	1,697.5	1,675.6	1,663.3	3.8	4.3	-24.76	165.3	56.6	138.5	131.0	7.45	18.590	
1,800.0	1,795.6	1,775.3	1,759.9	4.1	4.7	-25.73	187.4	67.3	145.3	137.4	7.94	18.297	
1,900.0	1,893.3	1,875.2	1,856.7	4.4	5.2	-27.08	209.4	78.1	150.0	141.5	8.49	17.662	
2,000.0	1,990.9	1,975.0	1,953.5	4.7	5.7	-28.37	231.5	88.8	154.6	145.6	9.07	17.053	
2,100.0	2,088.6	2,074.8	2,050.2	5.1	6.1	-29.58	253.6	99.6	159.4	149.7	9.66	16.491	
2,200.0	2,186.2	2,174.7	2,147.0	5.5	6.6	-30.73	275.6	110.4	164.2	153.9	10.28	15.971	
2,300.0	2,283.8	2,274.5	2,243.8	5.9	7.1	-31.81	297.7	121.1	169.0	158.1	10.91	15.490	
2,400.0	2,381.5	2,374.3	2,340.5	6.3	7.6	-32.83	319.8	131.9	173.9	162.4	11.56	15.045	
2,500.0	2,479.1	2,474.1	2,437.3	6.7	8.0	-33.79	341.8	142.6	178.9	166.7	12.23	14.633	
2,600.0	2,576.7	2,574.0	2,534.1	7.1	8.5	-34.71	363.9	153.4	183.9	171.0	12.90	14.252	
2,700.0	2,674.4	2,673.8	2,630.8	7.6	9.0	-35.57	386.0	164.1	189.0	175.4	13.60	13.899	
2,800.0	2,772.0	2,773.6	2,727.6	8.0	9.5	-36.38	408.1	174.9	194.1	179.8	14.30	13.571	
2,900.0	2,869.7	2,873.5	2,824.4	8.4	10.0	-37.16	430.1	185.7	199.2	184.2	15.02	13.267	
3,000.0	2,967.3	2,973.3	2,921.1	8.9	10.5	-37.90	452.2	196.4	204.4	188.7	15.74	12.984	
3,100.0	3,064.9	3,073.1	3,017.9	9.3	11.0	-38.60	474.3	207.2	209.6	193.1	16.48	12.721	
3,200.0	3,162.6	3,173.0	3,114.7	9.7	11.5	-39.26	496.3	217.9	214.8	197.6	17.22	12.475	
3,300.0	3,260.2	3,272.8	3,211.4	10.2	12.0	-39.90	518.4	228.7	220.1	202.1	17.97	12.246	
3,400.0	3,357.8	3,372.6	3,308.2	10.6	12.5	-40.50	540.5	239.4	225.4	206.7	18.73	12.032	
3,500.0	3,455.5	3,472.5	3,405.0	11.1	13.0	-41.08	562.5	250.2	230.7	211.2	19.50	11.832	
3,600.0	3,553.1	3,572.3	3,501.7	11.5	13.5	-41.63	584.6	261.0	236.0	215.8	20.27	11.644	
3,700.0	3,650.8	3,672.1	3,598.5	12.0	14.0	-42.15	606.7	271.7	241.4	220.3	21.05	11.468	
3,800.0	3,748.4	3,772.0	3,695.3	12.4	14.5	-42.66	628.7	282.5	246.8	224.9	21.83	11.302	
3,900.0	3,846.0	3,871.8	3,792.0	12.9	15.0	-43.14	650.8	293.2	252.2	229.5	22.62	11.146	
4,000.0	3,943.7	3,971.6	3,888.8	13.3	15.5	-43.60	672.9	304.0	257.6	234.2	23.42	11.000	
4,100.0	4,041.3	4,071.5	3,985.6	13.8	16.0	-44.04	695.0	314.8	263.0	238.8	24.21	10.861	
4,200.0	4,138.9	4,171.3	4,082.3	14.2	16.5	-44.47	717.0	325.5	268.4	243.4	25.02	10.731	
4,300.0	4,236.6	4,271.1	4,179.1	14.7	17.0	-44.88	739.1	336.3	273.9	248.1	25.82	10.607	
4,400.0	4,334.2	4,371.0	4,275.9	15.1	17.5	-45.27	761.2	347.0	279.4	252.7	26.63	10.490	
4,500.0	4,431.8	4,470.8	4,372.6	15.6	18.0	-45.65	783.2	357.8	284.8	257.4	27.44	10.379	
4,600.0	4,529.5	4,570.6	4,469.4	16.0	18.5	-46.01	805.3	368.5	290.3	262.1	28.26	10.274	
4,700.0	4,627.1	4,670.5	4,566.2	16.5	19.0	-46.36	827.4	379.3	295.8	266.8	29.08	10.174	
4,800.0	4,724.8	4,770.3	4,662.9	16.9	19.6	-46.69	849.4	390.1	301.4	271.5	29.90	10.079	
4,900.0	4,822.4	4,870.1	4,759.7	17.4	20.1	-47.02	871.5	400.8	306.9	276.2	30.72	9.989	
5,000.0	4,920.0	4,970.0	4,856.5	17.9	20.6	-47.33	893.6	411.6	312.4	280.9	31.55	9.903	
5,100.0	5,017.7	5,069.8	4,953.2	18.3	21.1	-47.63	915.6	422.3	318.0	285.6	32.38	9.821	

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

Company:	KP KAUFFMAN	**Local Co-ordinate Reference:**	Well Greeley-Rothe 1-5H
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 1-5H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	landmark
Reference Design:	Plan #2 (6-05-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Greeley-Rothe Pad Sec.1-T5N-R67W - Greeley-Rothe 1-3H - Wellbore #1 - Plan #2 (6-05-14)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,200.0	5,115.3	5,169.6	5,050.0	18.8	21.6	-47.93	937.7	433.1	323.5	290.3	33.21	9.742	
5,300.0	5,213.0	5,269.5	5,146.7	19.2	22.1	-48.21	959.8	443.8	329.2	295.2	34.02	9.677	
5,400.0	5,311.2	5,369.2	5,243.4	19.5	22.6	-48.23	981.8	454.6	336.7	302.0	34.66	9.714	
5,500.0	5,410.0	5,468.6	5,339.8	19.8	23.1	-47.85	1,003.8	465.3	346.5	311.3	35.16	9.854	
5,600.0	5,509.3	5,567.7	5,435.9	20.1	23.6	-47.13	1,025.7	476.0	358.7	323.2	35.53	10.097	
5,700.0	5,608.9	5,666.3	5,531.4	20.3	24.1	-46.11	1,047.5	486.6	373.4	337.6	35.76	10.441	
5,800.0	5,708.8	5,764.3	5,626.4	20.4	24.6	-44.86	1,069.2	497.2	390.7	354.8	35.88	10.889	
5,900.0	5,808.8	5,865.2	5,724.3	20.6	25.1	-5.14	1,091.4	508.0	410.6	369.7	40.90	10.038	
6,000.0	5,908.8	5,977.1	5,833.5	20.7	25.5	-3.44	1,113.2	518.6	429.4	387.6	41.85	10.261	
6,100.0	6,008.8	6,090.8	5,945.3	20.8	25.9	-2.15	1,131.4	527.5	445.1	402.5	42.64	10.437	
6,200.0	6,108.8	6,205.9	6,059.3	21.0	26.2	-1.20	1,145.7	534.5	457.4	414.1	43.31	10.562	
6,300.0	6,208.8	6,322.2	6,175.0	21.1	26.4	-0.55	1,156.1	539.5	466.2	422.4	43.85	10.632	
6,400.0	6,308.8	6,439.2	6,291.8	21.3	26.6	-0.18	1,162.2	542.5	471.5	427.2	44.28	10.647	
6,500.0	6,408.8	6,555.2	6,407.8	21.4	26.8	-0.07	1,164.0	543.4	473.0	428.4	44.61	10.604	
6,600.0	6,508.8	6,655.2	6,507.8	21.5	26.9	-0.07	1,164.0	543.4	473.0	428.1	44.88	10.541	
6,700.0	6,608.8	6,756.0	6,608.6	21.7	27.0	-0.23	1,164.0	542.1	473.0	427.9	45.11	10.484	
6,800.0	6,708.8	6,856.4	6,708.1	21.8	27.0	90.16	1,163.5	529.1	472.8	434.7	38.13	12.401	
6,809.2	6,718.0	6,865.6	6,717.0	21.8	27.0	89.99	1,163.5	527.3	472.8	434.6	38.18	12.384	
6,900.0	6,808.1	6,954.4	6,802.4	21.9	27.0	88.31	1,162.7	503.2	473.0	434.4	38.64	12.242	
7,000.0	6,904.8	7,050.0	6,890.3	21.8	26.9	86.51	1,161.5	465.7	473.7	434.7	38.94	12.164	
7,100.0	6,997.1	7,144.5	6,971.5	21.7	26.7	84.79	1,159.9	417.5	474.8	435.7	39.05	12.157	
7,200.0	7,083.3	7,237.1	7,044.2	21.6	26.5	83.18	1,158.0	360.3	476.2	437.1	39.04	12.199	
7,300.0	7,161.5	7,328.3	7,108.0	21.4	26.3	81.71	1,155.8	295.3	477.8	438.8	38.99	12.254	
7,400.0	7,230.3	7,418.2	7,162.4	21.2	26.1	80.40	1,153.5	223.7	479.5	440.5	39.07	12.273	
7,500.0	7,288.3	7,507.2	7,206.9	21.0	25.9	79.27	1,150.9	146.8	481.2	441.8	39.44	12.200	
7,600.0	7,334.5	7,595.3	7,241.2	20.9	25.8	78.33	1,148.2	65.7	482.7	442.5	40.27	11.988	
7,700.0	7,367.9	7,682.8	7,265.2	20.9	25.6	77.59	1,145.5	-18.3	484.0	442.4	41.67	11.617	
7,800.0	7,387.8	7,769.7	7,278.7	21.4	25.5	77.07	1,142.6	-104.1	485.0	441.4	43.66	11.109	
7,900.0	7,394.0	7,859.2	7,282.0	22.7	25.5	76.78	1,139.7	-193.4	485.5	439.3	46.25	10.499	
8,000.0	7,394.0	7,959.2	7,282.0	24.4	26.0	76.78	1,136.4	-293.3	485.5	436.1	49.45	9.819	
8,100.0	7,394.0	8,059.2	7,282.0	26.3	27.5	76.78	1,133.1	-393.3	485.5	432.5	53.00	9.160	
8,200.0	7,394.0	8,159.2	7,282.0	28.3	29.4	76.78	1,129.8	-493.2	485.5	428.6	56.87	8.538	
8,300.0	7,394.0	8,259.2	7,282.0	30.5	31.5	76.78	1,126.5	-593.2	485.5	424.5	60.97	7.962	
8,400.0	7,394.0	8,359.2	7,282.0	32.7	33.7	76.78	1,123.2	-693.1	485.5	420.2	65.28	7.437	
8,500.0	7,394.0	8,459.2	7,282.0	35.0	36.0	76.78	1,119.9	-793.1	485.5	415.7	69.75	6.960	
8,600.0	7,394.0	8,559.2	7,282.0	37.4	38.4	76.78	1,116.6	-893.0	485.5	411.1	74.35	6.529	
8,700.0	7,394.0	8,659.2	7,282.0	39.9	40.8	76.78	1,113.3	-993.0	485.4	406.4	79.07	6.140	
8,800.0	7,394.0	8,759.2	7,282.0	42.4	43.2	76.78	1,110.0	-1,092.9	485.4	401.6	83.87	5.788	
8,900.0	7,394.0	8,859.2	7,282.0	44.9	45.7	76.78	1,106.7	-1,192.9	485.4	396.7	88.75	5.469	
9,000.0	7,394.0	8,959.2	7,282.0	47.4	48.2	76.78	1,103.4	-1,292.8	485.4	391.7	93.70	5.181	
9,100.0	7,394.0	9,059.2	7,282.0	50.0	50.8	76.78	1,100.1	-1,392.8	485.4	386.7	98.70	4.918	
9,200.0	7,394.0	9,159.2	7,282.0	52.6	53.3	76.78	1,096.8	-1,492.7	485.4	381.6	103.74	4.679	
9,300.0	7,394.0	9,259.2	7,282.0	55.2	55.9	76.78	1,093.5	-1,592.6	485.4	376.5	108.83	4.460	
9,400.0	7,394.0	9,359.2	7,282.0	57.9	58.5	76.78	1,090.2	-1,692.6	485.4	371.4	113.95	4.259	
9,500.0	7,394.0	9,459.2	7,282.0	60.5	61.2	76.78	1,086.9	-1,792.5	485.3	366.2	119.11	4.075	
9,600.0	7,394.0	9,559.2	7,282.0	63.2	63.8	76.78	1,083.6	-1,892.5	485.3	361.0	124.29	3.905	
9,700.0	7,394.0	9,659.2	7,282.0	65.8	66.5	76.78	1,080.3	-1,992.4	485.3	355.8	129.49	3.748	
9,800.0	7,394.0	9,759.2	7,282.0	68.5	69.1	76.78	1,077.0	-2,092.4	485.3	350.6	134.71	3.602	
9,900.0	7,394.0	9,859.2	7,282.0	71.2	71.8	76.78	1,073.7	-2,192.3	485.3	345.3	139.96	3.467	
10,000.0	7,394.0	9,959.2	7,282.0	73.9	74.5	76.78	1,070.4	-2,292.3	485.3	340.1	145.22	3.342	
10,100.0	7,394.0	10,059.2	7,282.0	76.6	77.2	76.78	1,067.1	-2,392.2	485.3	334.8	150.49	3.225	
10,200.0	7,394.0	10,159.2	7,282.0	79.3	79.9	76.78	1,063.8	-2,492.2	485.2	329.5	155.78	3.115	

Company:	KP KAUFFMAN	**Local Co-ordinate Reference:**	Well Greeley-Rothe 1-5H
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 1-5H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	landmark
Reference Design:	Plan #2 (6-05-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Greeley-Rothe Pad Sec.1-T5N-R67W - Greeley-Rothe 1-3H - Wellbore #1 - Plan #2 (6-05-14)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,300.0	7,394.0	10,259.2	7,282.0	82.0	82.6	76.78	1,060.5	-2,592.1	485.2	324.2	161.07	3.012	
10,400.0	7,394.0	10,359.2	7,282.0	84.8	85.3	76.78	1,057.2	-2,692.0	485.2	318.8	166.38	2.916	
10,500.0	7,394.0	10,459.2	7,282.0	87.5	88.0	76.78	1,053.9	-2,792.0	485.2	313.5	171.70	2.826	
10,600.0	7,394.0	10,559.2	7,282.0	90.2	90.7	76.78	1,050.6	-2,891.9	485.2	308.2	177.03	2.741	
10,700.0	7,394.0	10,659.2	7,282.0	93.0	93.5	76.77	1,047.3	-2,991.9	485.2	302.8	182.37	2.660	
10,800.0	7,394.0	10,759.2	7,282.0	95.7	96.2	76.77	1,044.0	-3,091.8	485.2	297.5	187.71	2.585	
10,900.0	7,394.0	10,859.2	7,282.0	98.5	98.9	76.77	1,040.7	-3,191.8	485.2	292.1	193.06	2.513	
11,000.0	7,394.0	10,959.2	7,282.0	101.2	101.7	76.77	1,037.4	-3,291.7	485.1	286.7	198.42	2.445	
11,100.0	7,394.0	11,059.2	7,282.0	103.9	104.4	76.77	1,034.1	-3,391.7	485.1	281.4	203.78	2.381	
11,200.0	7,394.0	11,159.2	7,282.0	106.7	107.1	76.77	1,030.8	-3,491.6	485.1	276.0	209.15	2.320	
11,300.0	7,394.0	11,259.2	7,282.0	109.5	109.9	76.77	1,027.5	-3,591.6	485.1	270.6	214.52	2.261	
11,400.0	7,394.0	11,359.2	7,282.0	112.2	112.6	76.77	1,024.2	-3,691.5	485.1	265.2	219.90	2.206	
11,500.0	7,394.0	11,459.2	7,282.0	115.0	115.4	76.77	1,020.9	-3,791.4	485.1	259.8	225.28	2.153	
11,600.0	7,394.0	11,559.2	7,282.0	117.7	118.1	76.77	1,017.6	-3,891.4	485.1	254.4	230.66	2.103	
11,700.0	7,394.0	11,659.2	7,282.0	120.5	120.9	76.77	1,014.3	-3,991.3	485.1	249.0	236.05	2.055	
11,800.0	7,394.0	11,759.2	7,282.0	123.3	123.6	76.77	1,011.0	-4,091.3	485.0	243.6	241.44	2.009	
11,900.0	7,394.0	11,859.2	7,282.0	126.0	125.8	76.77	1,007.7	-4,191.2	485.0	238.8	246.26	1.970	
11,906.9	7,394.0	11,866.1	7,282.0	126.2	125.9	76.77	1,007.5	-4,198.1	485.0	238.5	246.56	1.967	
11,976.9	7,394.0	11,884.2	7,282.0	128.2	126.3	76.77	1,006.9	-4,216.2	487.8	239.0	248.77	1.961	SF

Company:	KP KAUFFMAN	**Local Co-ordinate Reference:**	Well Greeley-Rothe 1-5H
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 1-5H	**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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	0.45	25.0	0.2	25.0				
100.0	100.0	100.0	100.0	0.1	0.1	0.45	25.0	0.2	25.0	24.8	0.22	111.194	
200.0	200.0	200.0	200.0	0.3	0.3	0.45	25.0	0.2	25.0	24.3	0.67	37.065	
300.0	300.0	300.0	300.0	0.6	0.6	0.45	25.0	0.2	25.0	23.9	1.12	22.239	
400.0	400.0	400.0	400.0	0.8	0.8	0.45	25.0	0.2	25.0	23.4	1.57	15.885	
500.0	500.0	500.0	500.0	1.0	1.0	0.45	25.0	0.2	25.0	23.0	2.02	12.355	
600.0	600.0	600.0	600.0	1.2	1.2	0.45	25.0	0.2	25.0	22.5	2.47	10.109	
700.0	700.0	700.0	700.0	1.5	1.5	0.45	25.0	0.2	25.0	22.1	2.92	8.553	
800.0	800.0	800.0	800.0	1.7	1.7	0.45	25.0	0.2	25.0	21.6	3.37	7.413	
900.0	900.0	900.0	900.0	1.9	1.9	0.45	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	0.45	25.0	0.2	25.0	20.7	4.27	5.852	CC
1,100.0	1,100.0	1,099.2	1,099.2	2.4	2.4	2.49	26.4	1.1	26.5	21.7	4.72	5.610	
1,200.0	1,200.0	1,198.2	1,198.1	2.6	2.6	7.42	30.7	4.0	31.0	25.9	5.16	6.009	
1,300.0	1,300.0	1,296.9	1,296.4	2.8	2.8	-26.29	37.8	8.7	37.4	31.8	5.61	6.667	
1,400.0	1,399.8	1,395.4	1,394.1	3.0	3.0	-23.45	47.7	15.3	44.0	37.9	6.05	7.270	
1,500.0	1,499.5	1,493.6	1,491.2	3.3	3.3	-21.66	60.3	23.7	50.6	44.2	6.49	7.807	
1,600.0	1,598.7	1,591.6	1,587.4	3.5	3.6	-20.56	75.6	34.0	57.4	50.5	6.93	8.280	
1,700.0	1,697.5	1,689.4	1,682.7	3.8	3.9	-19.92	93.7	46.0	64.2	56.8	7.38	8.691	
1,800.0	1,795.6	1,786.9	1,777.1	4.1	4.3	-19.62	114.4	59.8	71.0	63.1	7.85	9.042	
1,900.0	1,893.3	1,884.5	1,870.5	4.4	4.8	-19.37	137.7	75.3	78.7	70.3	8.36	9.413	
2,000.0	1,990.9	1,984.1	1,965.5	4.7	5.3	-18.97	162.5	91.9	87.5	78.6	8.89	9.848	
2,100.0	2,088.6	2,083.7	2,060.6	5.1	5.8	-18.64	187.4	108.4	96.4	87.0	9.43	10.218	
2,200.0	2,186.2	2,183.3	2,155.6	5.5	6.3	-18.37	212.2	125.0	105.3	95.3	9.98	10.542	
2,300.0	2,283.8	2,282.9	2,250.6	5.9	6.8	-18.14	237.1	141.6	114.1	103.6	10.54	10.824	
2,400.0	2,381.5	2,382.5	2,345.6	6.3	7.4	-17.95	261.9	158.1	123.0	111.9	11.11	11.071	
2,500.0	2,479.1	2,482.1	2,440.6	6.7	7.9	-17.78	286.7	174.7	131.9	120.2	11.68	11.290	
2,600.0	2,576.7	2,581.7	2,535.7	7.1	8.5	-17.63	311.6	191.3	140.8	128.5	12.26	11.484	
2,700.0	2,674.4	2,681.3	2,630.7	7.6	9.1	-17.50	336.4	207.8	149.6	136.8	12.83	11.658	
2,800.0	2,772.0	2,780.9	2,725.7	8.0	9.7	-17.38	361.3	224.4	158.5	145.1	13.42	11.813	
2,900.0	2,869.7	2,880.5	2,820.7	8.4	10.2	-17.28	386.1	240.9	167.4	153.4	14.00	11.953	
3,000.0	2,967.3	2,980.1	2,915.8	8.9	10.8	-17.19	411.0	257.5	176.3	161.7	14.59	12.080	
3,100.0	3,064.9	3,079.7	3,010.8	9.3	11.4	-17.10	435.8	274.1	185.1	170.0	15.18	12.195	
3,200.0	3,162.6	3,179.3	3,105.8	9.7	12.0	-17.03	460.7	290.6	194.0	178.2	15.77	12.300	
3,300.0	3,260.2	3,278.9	3,200.8	10.2	12.6	-16.96	485.5	307.2	202.9	186.5	16.37	12.396	
3,400.0	3,357.8	3,378.6	3,295.9	10.6	13.2	-16.89	510.3	323.8	211.8	194.8	16.96	12.485	
3,500.0	3,455.5	3,478.2	3,390.9	11.1	13.8	-16.83	535.2	340.3	220.7	203.1	17.56	12.566	
3,600.0	3,553.1	3,577.8	3,485.9	11.5	14.3	-16.78	560.0	356.9	229.5	211.4	18.16	12.641	
3,700.0	3,650.8	3,677.4	3,580.9	12.0	14.9	-16.73	584.9	373.5	238.4	219.7	18.76	12.710	
3,800.0	3,748.4	3,777.0	3,676.0	12.4	15.5	-16.68	609.7	390.0	247.3	227.9	19.36	12.775	
3,900.0	3,846.0	3,876.6	3,771.0	12.9	16.1	-16.64	634.6	406.6	256.2	236.2	19.96	12.834	
4,000.0	3,943.7	3,976.2	3,866.0	13.3	16.7	-16.60	659.4	423.1	265.1	244.5	20.56	12.890	
4,100.0	4,041.3	4,075.8	3,961.0	13.8	17.3	-16.56	684.3	439.7	273.9	252.8	21.17	12.943	
4,200.0	4,138.9	4,175.4	4,056.1	14.2	17.9	-16.53	709.1	456.3	282.8	261.1	21.77	12.991	
4,300.0	4,236.6	4,276.1	4,152.2	14.7	18.5	-16.49	734.2	473.0	291.7	269.3	22.38	13.036	
4,400.0	4,334.2	4,387.1	4,258.8	15.1	19.0	-16.56	759.8	490.1	298.3	275.3	22.96	12.989	
4,500.0	4,431.8	4,498.4	4,366.9	15.6	19.5	-16.80	782.0	504.9	301.1	277.6	23.56	12.781	
4,600.0	4,529.5	4,609.8	4,475.9	16.0	19.9	-17.22	800.8	517.4	300.1	276.0	24.16	12.422	
4,700.0	4,627.1	4,720.9	4,585.5	16.5	20.2	-17.83	815.9	527.5	295.4	270.6	24.78	11.920	
4,800.0	4,724.8	4,831.4	4,695.1	16.9	20.5	-18.66	827.5	535.2	287.0	261.5	25.42	11.288	
4,900.0	4,822.4	4,941.0	4,804.3	17.4	20.7	-19.78	835.4	540.5	274.9	248.8	26.10	10.532	
5,000.0	4,920.0	5,049.3	4,912.4	17.9	20.9	-21.24	839.9	543.5	259.3	232.4	26.83	9.663	
5,100.0	5,017.7	5,154.5	5,017.7	18.3	21.0	-23.16	841.0	544.2	240.4	212.7	27.65	8.693	

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

Company:	KP KAUFFMAN	**Local Co-ordinate Reference:**	Well Greeley-Rothe 1-5H
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 1-5H	**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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,200.0	5,115.3	5,252.2	5,115.3	18.8	21.1	-25.36	841.0	544.2	220.6	192.0	28.56	7.724	
5,300.0	5,213.0	5,349.8	5,213.0	19.2	21.2	-27.90	841.0	544.2	201.3	171.8	29.57	6.809	
5,400.0	5,311.2	5,448.1	5,311.2	19.5	21.3	-30.44	841.0	544.2	184.9	154.3	30.54	6.054	
5,500.0	5,410.0	5,546.9	5,410.0	19.8	21.5	-32.88	841.0	544.2	171.8	140.3	31.47	5.458	
5,600.0	5,509.3	5,646.2	5,509.3	20.1	21.6	-35.04	841.0	544.2	161.9	129.6	32.32	5.008	
5,700.0	5,608.9	5,745.8	5,608.9	20.3	21.7	-36.74	841.0	544.2	155.1	122.0	33.03	4.694	
5,800.0	5,708.8	5,845.7	5,708.8	20.4	21.8	-37.81	841.0	544.2	151.1	117.6	33.56	4.503	
5,900.0	5,808.8	5,945.7	5,808.8	20.6	21.9	0.07	841.0	544.2	150.0	111.5	38.45	3.901	
6,000.0	5,908.8	6,045.7	5,908.8	20.7	22.1	0.07	841.0	544.2	150.0	111.3	38.73	3.873	
6,100.0	6,008.8	6,145.7	6,008.8	20.8	22.2	0.07	841.0	544.2	150.0	111.0	39.01	3.845	
6,200.0	6,108.8	6,245.7	6,108.8	21.0	22.3	0.07	841.0	544.2	150.0	110.7	39.30	3.817	
6,300.0	6,208.8	6,345.7	6,208.8	21.1	22.4	0.07	841.0	544.2	150.0	110.4	39.59	3.789	
6,400.0	6,308.8	6,445.7	6,308.8	21.3	22.6	0.07	841.0	544.2	150.0	110.1	39.88	3.761	
6,500.0	6,408.8	6,545.7	6,408.8	21.4	22.7	0.07	841.0	544.2	150.0	109.8	40.18	3.733	
6,600.0	6,508.8	6,645.7	6,508.8	21.5	22.8	0.07	841.0	544.2	150.0	109.5	40.47	3.706	
6,700.0	6,608.8	6,745.9	6,609.0	21.7	23.0	-0.42	840.9	542.9	150.0	109.3	40.67	3.687	
6,743.8	6,652.6	6,789.7	6,652.6	21.8	23.0	90.10	840.8	538.9	149.9	112.8	37.10	4.041	
6,800.0	6,708.8	6,844.9	6,707.1	21.8	23.0	86.81	840.5	530.1	150.1	112.2	37.97	3.954	
6,900.0	6,808.1	6,941.6	6,800.3	21.9	23.0	81.11	839.7	504.7	151.8	112.5	39.26	3.866	
7,000.0	6,904.8	7,036.4	6,887.6	21.8	22.8	75.78	838.5	467.9	154.7	114.6	40.09	3.860	
7,100.0	6,997.1	7,129.5	6,967.8	21.7	22.7	70.95	836.9	420.8	158.7	118.4	40.35	3.934	
7,200.0	7,083.3	7,221.2	7,040.2	21.6	22.5	66.71	835.0	364.6	163.4	123.3	40.07	4.077	
7,300.0	7,161.5	7,311.6	7,104.0	21.4	22.3	63.08	832.9	300.7	168.3	128.9	39.38	4.273	
7,400.0	7,230.3	7,400.0	7,158.1	21.2	22.2	60.09	830.6	230.9	173.1	134.6	38.51	4.495	
7,500.0	7,288.3	7,489.3	7,203.5	21.0	22.0	57.63	828.1	154.1	177.5	139.8	37.75	4.703	
7,600.0	7,334.5	7,576.9	7,238.6	20.9	21.9	55.76	825.4	73.9	181.3	143.9	37.39	4.849	
7,700.0	7,367.9	7,664.1	7,263.4	20.9	21.7	54.41	822.7	-9.5	184.2	146.5	37.70	4.887	
7,800.0	7,387.8	7,750.0	7,277.8	21.4	21.8	53.57	819.9	-94.1	186.2	147.3	38.84	4.793	
7,900.0	7,394.0	7,838.8	7,282.0	22.7	22.7	53.21	816.9	-182.8	187.0	146.1	40.88	4.574	
8,000.0	7,394.0	7,938.8	7,282.0	24.4	24.4	53.20	813.6	-282.7	187.0	143.4	43.61	4.288	
8,100.0	7,394.0	8,038.8	7,282.0	26.3	26.4	53.20	810.3	-382.6	187.0	140.4	46.61	4.011	
8,200.0	7,394.0	8,138.8	7,282.0	28.3	28.4	53.20	807.0	-482.6	187.0	137.1	49.85	3.750	
8,300.0	7,394.0	8,238.8	7,282.0	30.5	30.6	53.19	803.7	-582.5	186.9	133.6	53.29	3.508	
8,400.0	7,394.0	8,338.8	7,282.0	32.7	32.9	53.19	800.4	-682.5	186.9	130.0	56.89	3.286	
8,500.0	7,394.0	8,438.8	7,282.0	35.0	35.2	53.18	797.1	-782.4	186.9	126.3	60.62	3.083	
8,600.0	7,394.0	8,538.8	7,282.0	37.4	37.6	53.18	793.8	-882.4	186.9	122.4	64.46	2.899	
8,700.0	7,394.0	8,638.8	7,282.0	39.9	40.1	53.18	790.5	-982.3	186.9	118.5	68.39	2.733	
8,800.0	7,394.0	8,738.8	7,282.0	42.4	42.6	53.17	787.2	-1,082.3	186.9	114.5	72.39	2.581	
8,900.0	7,394.0	8,838.8	7,282.0	44.9	45.1	53.17	783.9	-1,182.2	186.8	110.4	76.46	2.444	
9,000.0	7,394.0	8,938.8	7,282.0	47.4	47.7	53.17	780.6	-1,282.2	186.8	106.2	80.58	2.318	
9,100.0	7,394.0	9,038.8	7,282.0	50.0	50.2	53.16	777.2	-1,382.1	186.8	102.1	84.75	2.204	
9,200.0	7,394.0	9,138.8	7,282.0	52.6	52.9	53.16	773.9	-1,482.0	186.8	97.8	88.95	2.100	
9,300.0	7,394.0	9,238.8	7,282.0	55.2	55.5	53.15	770.6	-1,582.0	186.8	93.6	93.20	2.004	
9,400.0	7,394.0	9,338.8	7,282.0	57.9	58.1	53.15	767.3	-1,681.9	186.8	89.3	97.47	1.916	
9,500.0	7,394.0	9,438.8	7,282.0	60.5	60.8	53.15	764.0	-1,781.9	186.7	85.0	101.76	1.835	
9,600.0	7,394.0	9,538.8	7,282.0	63.2	63.4	53.14	760.7	-1,881.8	186.7	80.6	106.08	1.760	
9,700.0	7,394.0	9,638.8	7,282.0	65.8	66.1	53.14	757.4	-1,981.8	186.7	76.3	110.42	1.691	
9,800.0	7,394.0	9,738.8	7,282.0	68.5	68.8	53.14	754.1	-2,081.7	186.7	71.9	114.77	1.627	
9,900.0	7,394.0	9,838.8	7,282.0	71.2	71.5	53.13	750.8	-2,181.7	186.7	67.5	119.15	1.567	
10,000.0	7,394.0	9,938.8	7,282.0	73.9	74.2	53.13	747.5	-2,281.6	186.7	63.1	123.53	1.511	
10,100.0	7,394.0	10,038.8	7,282.0	76.6	76.9	53.12	744.2	-2,381.6	186.6	58.7	127.93	1.459	Level 3
10,200.0	7,394.0	10,138.8	7,282.0	79.3	79.6	53.12	740.9	-2,481.5	186.6	54.3	132.34	1.410	Level 3

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

Company:	KP KAUFFMAN	**Local Co-ordinate Reference:**	Well Greeley-Rothe 1-5H
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 1-5H	**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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,300.0	7,394.0	10,238.8	7,282.0	82.0	82.3	53.12	737.6	-2,581.4	186.6	49.9	136.76	1.365	Level 3
10,400.0	7,394.0	10,338.8	7,282.0	84.8	85.0	53.11	734.2	-2,681.4	186.6	45.4	141.18	1.322	Level 3
10,500.0	7,394.0	10,438.8	7,282.0	87.5	87.8	53.11	730.9	-2,781.3	186.6	41.0	145.62	1.281	Level 3
10,600.0	7,394.0	10,538.8	7,282.0	90.2	90.5	53.11	727.6	-2,881.3	186.6	36.5	150.06	1.243	Level 2
10,700.0	7,394.0	10,638.8	7,282.0	93.0	93.2	53.10	724.3	-2,981.2	186.5	32.0	154.51	1.207	Level 2
10,800.0	7,394.0	10,738.8	7,282.0	95.7	96.0	53.10	721.0	-3,081.2	186.5	27.6	158.97	1.173	Level 2
10,900.0	7,394.0	10,838.8	7,282.0	98.5	98.7	53.09	717.7	-3,181.1	186.5	23.1	163.43	1.141	Level 2
11,000.0	7,394.0	10,938.8	7,282.0	101.2	101.5	53.09	714.4	-3,281.1	186.5	18.6	167.90	1.111	Level 2
11,100.0	7,394.0	11,038.8	7,282.0	103.9	104.2	53.09	711.1	-3,381.0	186.5	14.1	172.37	1.082	Level 2
11,200.0	7,394.0	11,138.8	7,282.0	106.7	107.0	53.08	707.8	-3,481.0	186.5	9.6	176.85	1.054	Level 2
11,300.0	7,394.0	11,238.8	7,282.0	109.5	109.7	53.08	704.5	-3,580.9	186.4	5.1	181.33	1.028	Level 2
11,400.0	7,394.0	11,338.8	7,282.0	112.2	112.5	53.08	701.2	-3,680.8	186.4	0.6	185.81	1.003	Level 2
11,500.0	7,394.0	11,438.8	7,282.0	115.0	115.2	53.07	697.9	-3,780.8	186.4	-3.9	190.30	0.980	Level 1
11,600.0	7,394.0	11,538.8	7,282.0	117.7	118.0	53.07	694.6	-3,880.7	186.4	-8.4	194.79	0.957	Level 1
11,700.0	7,394.0	11,638.8	7,282.0	120.5	120.8	53.06	691.2	-3,980.7	186.4	-12.9	199.28	0.935	Level 1
11,800.0	7,394.0	11,738.8	7,282.0	123.3	123.5	53.06	687.9	-4,080.6	186.4	-17.4	203.77	0.915	Level 1
11,900.0	7,394.0	11,838.8	7,282.0	126.0	126.3	53.06	684.6	-4,180.6	186.3	-21.9	208.27	0.895	Level 1
11,949.6	7,394.0	11,888.4	7,282.0	127.4	127.7	53.05	683.0	-4,230.1	186.3	-24.2	210.50	0.885	Level 1
11,976.9	7,394.0	11,899.6	7,282.0	128.2	128.0	53.05	682.6	-4,241.4	187.0	-24.3	211.37	0.885	Level 1, ES, SF

Company:	KP KAUFFMAN	**Local Co-ordinate Reference:**	Well Greeley-Rothe 1-5H
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 1-5H	**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 1-6H - Wellbore #1 - Plan #2 (6-05-14) — **Offset Site Error:** 0.0 ft

Survey Program: 0-MWD — **Offset Well Error:** 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-179.62	-25.0	-0.2	25.0				
100.0	100.0	100.0	100.0	0.1	0.1	-179.62	-25.0	-0.2	25.0	24.8	0.22	111.193	
200.0	200.0	200.0	200.0	0.3	0.3	-179.62	-25.0	-0.2	25.0	24.3	0.67	37.064	
300.0	300.0	300.0	300.0	0.6	0.6	-179.62	-25.0	-0.2	25.0	23.9	1.12	22.239	
400.0	400.0	400.0	400.0	0.8	0.8	-179.62	-25.0	-0.2	25.0	23.4	1.57	15.885	
500.0	500.0	500.0	500.0	1.0	1.0	-179.62	-25.0	-0.2	25.0	23.0	2.02	12.355	
600.0	600.0	600.0	600.0	1.2	1.2	-179.62	-25.0	-0.2	25.0	22.5	2.47	10.108	
700.0	700.0	700.0	700.0	1.5	1.5	-179.62	-25.0	-0.2	25.0	22.1	2.92	8.553	
800.0	800.0	800.0	800.0	1.7	1.7	-179.62	-25.0	-0.2	25.0	21.6	3.37	7.413	
900.0	900.0	900.0	900.0	1.9	1.9	-179.62	-25.0	-0.2	25.0	21.2	3.82	6.541	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-179.62	-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	-179.62	-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	-179.62	-25.0	-0.2	25.0	19.8	5.17	4.834	CC
1,300.0	1,300.0	1,300.0	1,300.0	2.8	2.8	144.48	-25.0	-0.2	26.4	20.8	5.62	4.700	
1,400.0	1,399.8	1,399.8	1,399.8	3.0	3.0	150.10	-25.0	-0.2	30.8	24.7	6.06	5.086	
1,500.0	1,499.5	1,499.5	1,499.5	3.3	3.3	156.49	-25.0	-0.2	38.6	32.1	6.49	5.947	
1,600.0	1,598.7	1,598.7	1,598.7	3.5	3.5	161.99	-25.0	-0.2	50.0	43.1	6.92	7.228	
1,700.0	1,697.5	1,699.6	1,699.5	3.8	3.7	165.73	-23.7	1.0	63.5	56.2	7.34	8.649	
1,800.0	1,795.6	1,800.9	1,800.8	4.1	3.9	167.89	-19.9	4.7	77.2	69.4	7.75	9.956	
1,900.0	1,893.3	1,902.9	1,902.4	4.4	4.2	169.08	-13.5	11.0	90.0	81.8	8.20	10.977	
2,000.0	1,990.9	2,005.8	2,004.4	4.7	4.4	169.41	-4.4	19.8	99.5	90.9	8.67	11.481	
2,100.0	2,088.6	2,109.1	2,106.5	5.1	4.7	169.13	7.5	31.2	105.6	96.5	9.16	11.538	
2,200.0	2,186.2	2,209.4	2,205.1	5.5	4.9	168.57	20.4	43.7	109.7	100.0	9.65	11.366	
2,300.0	2,283.8	2,309.3	2,303.4	5.9	5.2	168.04	33.4	56.3	113.7	103.6	10.15	11.202	
2,400.0	2,381.5	2,409.2	2,401.6	6.3	5.6	167.55	46.3	68.8	117.8	107.1	10.66	11.045	
2,500.0	2,479.1	2,509.1	2,499.9	6.7	5.9	167.09	59.3	81.3	121.8	110.6	11.18	10.896	
2,600.0	2,576.7	2,609.1	2,598.2	7.1	6.2	166.66	72.3	93.8	125.9	114.2	11.70	10.754	
2,700.0	2,674.4	2,709.0	2,696.5	7.6	6.5	166.26	85.2	106.3	129.9	117.7	12.24	10.619	
2,800.0	2,772.0	2,808.9	2,794.7	8.0	6.9	165.89	98.2	118.8	134.0	121.2	12.77	10.492	
2,900.0	2,869.7	2,908.8	2,893.0	8.4	7.2	165.53	111.1	131.4	138.1	124.8	13.32	10.370	
3,000.0	2,967.3	3,008.7	2,991.3	8.9	7.6	165.20	124.1	143.9	142.2	128.3	13.86	10.256	
3,100.0	3,064.9	3,108.6	3,089.6	9.3	8.0	164.88	137.0	156.4	146.3	131.8	14.41	10.147	
3,200.0	3,162.6	3,208.5	3,187.8	9.7	8.3	164.58	150.0	168.9	150.4	135.4	14.97	10.043	
3,300.0	3,260.2	3,308.4	3,286.1	10.2	8.7	164.30	162.9	181.4	154.4	138.9	15.53	9.945	
3,400.0	3,357.8	3,408.4	3,384.4	10.6	9.1	164.03	175.9	193.9	158.5	142.5	16.09	9.851	
3,500.0	3,455.5	3,508.3	3,482.7	11.1	9.4	163.77	188.8	206.4	162.7	146.0	16.66	9.763	
3,600.0	3,553.1	3,608.2	3,581.0	11.5	9.8	163.53	201.8	219.0	166.8	149.5	17.23	9.678	
3,700.0	3,650.8	3,708.1	3,679.2	12.0	10.2	163.30	214.7	231.5	170.9	153.1	17.80	9.598	
3,800.0	3,748.4	3,808.0	3,777.5	12.4	10.6	163.08	227.7	244.0	175.0	156.6	18.38	9.521	
3,900.0	3,846.0	3,907.9	3,875.8	12.9	11.0	162.87	240.6	256.5	179.1	160.1	18.96	9.448	
4,000.0	3,943.7	4,007.8	3,974.1	13.3	11.4	162.67	253.6	269.0	183.2	163.7	19.54	9.378	
4,100.0	4,041.3	4,107.8	4,072.3	13.8	11.7	162.48	266.5	281.5	187.3	167.2	20.12	9.311	
4,200.0	4,138.9	4,207.7	4,170.6	14.2	12.1	162.30	279.5	294.1	191.4	170.7	20.70	9.248	
4,300.0	4,236.6	4,307.6	4,268.9	14.7	12.5	162.12	292.4	306.6	195.6	174.3	21.29	9.187	
4,400.0	4,334.2	4,407.5	4,367.2	15.1	12.9	161.95	305.4	319.1	199.7	177.8	21.88	9.128	
4,500.0	4,431.8	4,507.4	4,465.4	15.6	13.3	161.79	318.4	331.6	203.8	181.4	22.47	9.073	
4,600.0	4,529.5	4,607.3	4,563.7	16.0	13.7	161.64	331.3	344.1	207.9	184.9	23.06	9.019	
4,700.0	4,627.1	4,707.2	4,662.0	16.5	14.1	161.49	344.3	356.6	212.1	188.4	23.65	8.968	
4,800.0	4,724.8	4,807.1	4,760.3	16.9	14.5	161.35	357.2	369.2	216.2	192.0	24.24	8.918	
4,900.0	4,822.4	4,907.1	4,858.5	17.4	14.9	161.21	370.2	381.7	220.3	195.5	24.84	8.871	
5,000.0	4,920.0	5,007.0	4,956.8	17.9	15.3	161.07	383.1	394.2	224.5	199.0	25.43	8.825	
5,100.0	5,017.7	5,106.9	5,055.1	18.3	15.7	160.95	396.1	406.7	228.6	202.6	26.03	8.782	

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

Company:	KP KAUFFMAN	**Local Co-ordinate Reference:**	Well Greeley-Rothe 1-5H
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 1-5H	**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 1-6H - Wellbore #1 - Plan #2 (6-05-14)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,200.0	5,115.3	5,206.8	5,153.4	18.8	16.0	160.82	409.0	419.2	232.7	206.1	26.63	8.739	
5,300.0	5,213.0	5,306.7	5,251.7	19.2	16.4	160.70	422.0	431.7	236.7	209.5	27.24	8.691	
5,400.0	5,311.2	5,406.7	5,350.0	19.5	16.8	160.36	434.9	444.3	238.1	210.3	27.83	8.557	
5,500.0	5,410.0	5,506.6	5,448.3	19.8	17.2	159.72	447.9	456.8	236.3	207.8	28.43	8.310	
5,600.0	5,509.3	5,606.4	5,546.5	20.1	17.6	158.73	460.8	469.3	231.2	202.1	29.06	7.955	
5,700.0	5,608.9	5,705.9	5,644.3	20.3	18.0	157.34	473.7	481.8	222.9	193.2	29.73	7.500	
5,800.0	5,708.8	5,805.1	5,741.8	20.4	18.4	155.43	486.6	494.2	211.7	181.2	30.46	6.949	
5,900.0	5,808.8	5,903.7	5,838.8	20.6	18.8	-168.93	499.4	506.5	197.6	160.6	36.98	5.342	
6,000.0	5,908.8	6,000.0	5,933.7	20.7	19.2	-171.84	511.5	518.3	183.0	146.0	36.98	4.949	
6,100.0	6,008.8	6,093.7	6,026.3	20.8	19.4	-174.55	521.4	527.8	171.3	134.4	36.90	4.641	
6,200.0	6,108.8	6,188.8	6,120.8	21.0	19.7	-176.94	529.2	535.4	162.5	125.6	36.84	4.411	
6,300.0	6,208.8	6,284.5	6,216.2	21.1	19.9	-178.80	534.8	540.7	156.4	119.6	36.84	4.247	
6,400.0	6,308.8	6,380.6	6,312.2	21.3	20.0	-179.96	538.0	543.9	153.0	116.1	36.94	4.142	
6,500.0	6,408.8	6,477.2	6,408.8	21.4	20.2	179.69	539.0	544.8	152.0	114.8	37.18	4.088	
6,600.0	6,508.8	6,577.2	6,508.8	21.5	20.3	179.69	539.0	544.8	152.0	114.5	37.50	4.053	
6,646.2	6,555.0	6,623.5	6,555.0	21.6	20.4	179.69	539.0	544.8	152.0	114.3	37.65	4.037	
6,700.0	6,608.8	6,676.9	6,608.5	21.7	20.4	-179.83	539.0	543.6	152.0	114.1	37.90	4.011	
6,800.0	6,708.8	6,774.7	6,705.4	21.8	20.5	-83.48	538.6	531.1	153.0	117.2	35.71	4.283	
6,900.0	6,808.1	6,870.2	6,797.5	21.9	20.4	-78.05	537.7	506.3	155.4	120.7	34.70	4.478	
7,000.0	6,904.8	6,964.0	6,884.1	21.8	20.3	-73.07	536.5	470.3	159.0	125.3	33.70	4.717	
7,100.0	6,997.1	7,056.3	6,963.8	21.7	20.2	-68.63	535.0	424.1	163.3	130.6	32.76	4.986	
7,200.0	7,083.3	7,147.1	7,036.0	21.6	20.0	-64.80	533.2	369.0	168.1	136.2	31.92	5.268	
7,300.0	7,161.5	7,236.9	7,099.8	21.4	19.9	-61.57	531.1	306.0	173.0	141.8	31.22	5.541	
7,400.0	7,230.3	7,325.6	7,154.7	21.2	19.7	-58.92	528.8	236.4	177.6	146.9	30.75	5.775	
7,500.0	7,288.3	7,413.5	7,200.2	21.0	19.7	-56.85	526.3	161.3	181.7	151.0	30.64	5.929	
7,600.0	7,334.5	7,500.0	7,235.6	20.9	19.8	-55.31	523.7	82.5	185.0	154.0	31.00	5.966	
7,700.0	7,367.9	7,587.7	7,261.6	20.9	20.2	-54.26	521.0	-1.2	187.3	155.3	31.98	5.856	
7,800.0	7,387.8	7,674.3	7,277.0	21.4	21.1	-53.71	518.2	-86.3	188.6	155.0	33.60	5.614	
7,900.0	7,394.0	7,761.0	7,282.0	22.7	22.3	-53.62	515.3	-172.8	188.8	153.0	35.80	5.275	
8,000.0	7,394.0	7,861.0	7,282.0	24.4	24.0	-53.62	512.0	-272.7	188.8	150.3	38.50	4.905	
8,100.0	7,394.0	7,961.0	7,282.0	26.3	25.9	-53.63	508.7	-372.7	188.9	147.3	41.51	4.550	
8,200.0	7,394.0	8,061.0	7,282.0	28.3	27.9	-53.63	505.4	-472.6	188.9	144.1	44.78	4.217	
8,300.0	7,394.0	8,161.0	7,282.0	30.5	30.1	-53.63	502.1	-572.6	188.9	140.6	48.28	3.912	
8,400.0	7,394.0	8,261.0	7,282.0	32.7	32.4	-53.63	498.8	-672.5	188.9	136.9	51.94	3.637	
8,500.0	7,394.0	8,361.0	7,282.0	35.0	34.7	-53.64	495.5	-772.5	188.9	133.2	55.74	3.389	
8,600.0	7,394.0	8,461.0	7,282.0	37.4	37.1	-53.64	492.2	-872.4	188.9	129.3	59.65	3.167	
8,700.0	7,394.0	8,561.0	7,282.0	39.9	39.5	-53.64	488.9	-972.4	188.9	125.3	63.66	2.968	
8,800.0	7,394.0	8,661.0	7,282.0	42.4	42.0	-53.64	485.6	-1,072.3	188.9	121.2	67.73	2.789	
8,900.0	7,394.0	8,761.0	7,282.0	44.9	44.6	-53.64	482.3	-1,172.2	188.9	117.1	71.87	2.629	
9,000.0	7,394.0	8,861.0	7,282.0	47.4	47.1	-53.65	479.0	-1,272.2	188.9	112.9	76.06	2.484	
9,100.0	7,394.0	8,961.0	7,282.0	50.0	49.7	-53.65	475.7	-1,372.1	189.0	108.7	80.30	2.353	
9,200.0	7,394.0	9,061.0	7,282.0	52.6	52.3	-53.65	472.4	-1,472.1	189.0	104.4	84.57	2.234	
9,300.0	7,394.0	9,161.0	7,282.0	55.2	54.9	-53.65	469.1	-1,572.0	189.0	100.1	88.88	2.126	
9,400.0	7,394.0	9,261.0	7,282.0	57.9	57.6	-53.66	465.8	-1,672.0	189.0	95.8	93.21	2.028	
9,500.0	7,394.0	9,361.0	7,282.0	60.5	60.2	-53.66	462.5	-1,771.9	189.0	91.4	97.56	1.937	
9,600.0	7,394.0	9,461.0	7,282.0	63.2	62.9	-53.66	459.2	-1,871.9	189.0	87.1	101.94	1.854	
9,700.0	7,394.0	9,561.0	7,282.0	65.8	65.6	-53.66	455.9	-1,971.8	189.0	82.7	106.33	1.778	
9,800.0	7,394.0	9,661.0	7,282.0	68.5	68.2	-53.67	452.6	-2,071.8	189.0	78.3	110.75	1.707	
9,900.0	7,394.0	9,761.0	7,282.0	71.2	70.9	-53.67	449.3	-2,171.7	189.0	73.9	115.17	1.641	
10,000.0	7,394.0	9,861.0	7,282.0	73.9	73.6	-53.67	446.0	-2,271.6	189.1	69.4	119.61	1.581	
10,100.0	7,394.0	9,961.0	7,282.0	76.6	76.4	-53.67	442.7	-2,371.6	189.1	65.0	124.06	1.524	
10,200.0	7,394.0	10,061.0	7,282.0	79.3	79.1	-53.67	439.4	-2,471.5	189.1	60.6	128.52	1.471	Level 3

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

Company:	KP KAUFFMAN	**Local Co-ordinate Reference:**	Well Greeley-Rothe 1-5H
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 1-5H	**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 1-6H - Wellbore #1 - Plan #2 (6-05-14)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,300.0	7,394.0	10,161.0	7,282.0	82.0	81.8	-53.68	436.1	-2,571.5	189.1	56.1	132.99	1.422	Level 3
10,400.0	7,394.0	10,261.0	7,282.0	84.8	84.5	-53.68	432.8	-2,671.4	189.1	51.6	137.46	1.376	Level 3
10,500.0	7,394.0	10,361.0	7,282.0	87.5	87.3	-53.68	429.5	-2,771.4	189.1	47.2	141.95	1.332	Level 3
10,600.0	7,394.0	10,461.0	7,282.0	90.2	90.0	-53.68	426.2	-2,871.3	189.1	42.7	146.44	1.291	Level 3
10,700.0	7,394.0	10,561.0	7,282.0	93.0	92.7	-53.69	422.9	-2,971.3	189.1	38.2	150.94	1.253	Level 3
10,800.0	7,394.0	10,661.0	7,282.0	95.7	95.5	-53.69	419.6	-3,071.2	189.1	33.7	155.44	1.217	Level 2
10,900.0	7,394.0	10,761.0	7,282.0	98.5	98.2	-53.69	416.3	-3,171.2	189.1	29.2	159.95	1.182	Level 2
11,000.0	7,394.0	10,861.0	7,282.0	101.2	101.0	-53.69	413.0	-3,271.1	189.2	24.7	164.47	1.150	Level 2
11,100.0	7,394.0	10,961.0	7,282.0	103.9	103.7	-53.70	409.7	-3,371.0	189.2	20.2	168.99	1.119	Level 2
11,200.0	7,394.0	11,061.0	7,282.0	106.7	106.5	-53.70	406.4	-3,471.0	189.2	15.7	173.51	1.090	Level 2
11,300.0	7,394.0	11,161.0	7,282.0	109.5	109.2	-53.70	403.1	-3,570.9	189.2	11.1	178.04	1.063	Level 2
11,400.0	7,394.0	11,261.0	7,282.0	112.2	112.0	-53.70	399.8	-3,670.9	189.2	6.6	182.57	1.036	Level 2
11,500.0	7,394.0	11,361.0	7,282.0	115.0	114.7	-53.70	396.5	-3,770.8	189.2	2.1	187.10	1.011	Level 2
11,600.0	7,394.0	11,461.0	7,282.0	117.7	117.5	-53.71	393.2	-3,870.8	189.2	-2.4	191.64	0.987	Level 1
11,700.0	7,394.0	11,561.0	7,282.0	120.5	120.3	-53.71	389.9	-3,970.7	189.2	-7.0	196.18	0.965	Level 1
11,800.0	7,394.0	11,661.0	7,282.0	123.3	123.0	-53.71	386.6	-4,070.7	189.2	-11.5	200.72	0.943	Level 1
11,900.0	7,394.0	11,761.0	7,282.0	126.0	125.8	-53.71	383.3	-4,170.6	189.2	-16.0	205.27	0.922	Level 1
11,976.9	7,394.0	11,838.0	7,282.0	128.2	127.9	-53.72	380.8	-4,247.5	189.3	-19.5	208.77	0.907	Level 1, ES, SF

Company:	KP KAUFFMAN	**Local Co-ordinate Reference:**	Well Greeley-Rothe 1-5H
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 1-5H	**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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-134.57	-49.6	-50.4	70.7				
100.0	100.0	100.0	100.0	0.1	0.1	-134.57	-49.6	-50.4	70.7	70.5	0.22	314.564	
200.0	200.0	200.0	200.0	0.3	0.3	-134.57	-49.6	-50.4	70.7	70.0	0.67	104.855	
300.0	300.0	300.0	300.0	0.6	0.6	-134.57	-49.6	-50.4	70.7	69.6	1.12	62.913	
400.0	400.0	400.0	400.0	0.8	0.8	-134.57	-49.6	-50.4	70.7	69.1	1.57	44.938	
500.0	500.0	500.0	500.0	1.0	1.0	-134.57	-49.6	-50.4	70.7	68.7	2.02	34.952	
600.0	600.0	600.0	600.0	1.2	1.2	-134.57	-49.6	-50.4	70.7	68.2	2.47	28.597	
700.0	700.0	700.0	700.0	1.5	1.5	-134.57	-49.6	-50.4	70.7	67.8	2.92	24.197	
800.0	800.0	800.0	800.0	1.7	1.7	-134.57	-49.6	-50.4	70.7	67.3	3.37	20.971	
900.0	900.0	900.0	900.0	1.9	1.9	-134.57	-49.6	-50.4	70.7	66.9	3.82	18.504	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-134.57	-49.6	-50.4	70.7	66.4	4.27	16.556	
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	-134.57	-49.6	-50.4	70.7	66.0	4.72	14.979	
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	-134.57	-49.6	-50.4	70.7	65.5	5.17	13.677	CC, ES
1,300.0	1,300.0	1,300.0	1,300.0	2.8	2.8	-172.95	-49.6	-50.4	72.4	66.8	5.61	12.902	
1,400.0	1,399.8	1,399.8	1,399.8	3.0	3.0	-173.41	-49.6	-50.4	77.6	71.6	6.05	12.827	
1,500.0	1,499.5	1,499.5	1,499.5	3.3	3.3	-174.06	-49.6	-50.4	86.3	79.8	6.48	13.309	
1,600.0	1,598.7	1,598.7	1,598.7	3.5	3.5	-174.77	-49.6	-50.4	98.4	91.5	6.91	14.245	
1,700.0	1,697.5	1,697.5	1,697.5	3.8	3.7	-175.46	-49.6	-50.4	114.0	106.7	7.33	15.557	
1,800.0	1,795.6	1,795.6	1,795.6	4.1	3.9	-176.09	-49.6	-50.4	133.0	125.3	7.74	17.187	
1,900.0	1,893.3	1,898.1	1,898.0	4.4	4.1	-176.91	-48.9	-48.8	153.1	144.9	8.18	18.712	
2,000.0	1,990.9	2,001.9	2,001.7	4.7	4.4	-178.10	-46.7	-43.9	170.0	161.4	8.63	19.703	
2,100.0	2,088.6	2,106.6	2,106.0	5.1	4.6	-179.61	-43.0	-35.4	183.8	174.7	9.09	20.217	
2,200.0	2,186.2	2,212.0	2,210.6	5.5	4.8	178.55	-37.6	-23.4	194.5	184.9	9.57	20.325	
2,300.0	2,283.8	2,317.8	2,315.0	5.9	5.1	176.34	-30.6	-7.7	202.2	192.2	10.07	20.081	
2,400.0	2,381.5	2,421.8	2,416.9	6.3	5.4	173.80	-22.3	10.9	207.3	196.7	10.60	19.559	
2,500.0	2,479.1	2,521.3	2,514.3	6.7	5.7	171.33	-14.0	29.5	211.9	200.8	11.14	19.026	
2,600.0	2,576.7	2,620.7	2,611.7	7.1	6.1	168.98	-5.7	48.2	216.9	205.2	11.71	18.532	
2,700.0	2,674.4	2,720.2	2,709.0	7.6	6.4	166.74	2.6	66.9	222.3	210.0	12.30	18.072	
2,800.0	2,772.0	2,819.7	2,806.4	8.0	6.7	164.60	10.9	85.5	228.0	215.1	12.92	17.643	
2,900.0	2,869.7	2,919.2	2,903.8	8.4	7.1	162.57	19.2	104.2	234.0	220.4	13.57	17.244	
3,000.0	2,967.3	3,018.7	3,001.1	8.9	7.5	160.64	27.5	122.8	240.3	226.1	14.24	16.871	
3,100.0	3,064.9	3,118.2	3,098.5	9.3	7.9	158.82	35.8	141.5	246.8	231.9	14.94	16.524	
3,200.0	3,162.6	3,217.6	3,195.9	9.7	8.3	157.08	44.1	160.1	253.6	238.0	15.65	16.201	
3,300.0	3,260.2	3,317.1	3,293.2	10.2	8.7	155.44	52.4	178.8	260.6	244.2	16.39	15.901	
3,400.0	3,357.8	3,416.6	3,390.6	10.6	9.1	153.89	60.7	197.4	267.8	250.7	17.14	15.623	
3,500.0	3,455.5	3,516.1	3,488.0	11.1	9.5	152.42	69.1	216.1	275.2	257.3	17.91	15.364	
3,600.0	3,553.1	3,615.6	3,585.3	11.5	9.9	151.02	77.4	234.7	282.8	264.1	18.70	15.125	
3,700.0	3,650.8	3,715.1	3,682.7	12.0	10.3	149.70	85.7	253.4	290.5	271.0	19.49	14.903	
3,800.0	3,748.4	3,814.5	3,780.0	12.4	10.7	148.45	94.0	272.0	298.4	278.1	20.30	14.697	
3,900.0	3,846.0	3,914.0	3,877.4	12.9	11.1	147.26	102.3	290.7	306.4	285.2	21.12	14.506	
4,000.0	3,943.7	4,013.5	3,974.8	13.3	11.5	146.13	110.6	309.4	314.5	292.5	21.95	14.330	
4,100.0	4,041.3	4,113.0	4,072.1	13.8	11.9	145.06	118.9	328.0	322.7	299.9	22.78	14.166	
4,200.0	4,138.9	4,212.5	4,169.5	14.2	12.4	144.05	127.2	346.7	331.1	307.4	23.62	14.014	
4,300.0	4,236.6	4,312.0	4,266.9	14.7	12.8	143.08	135.5	365.3	339.5	315.0	24.47	13.873	
4,400.0	4,334.2	4,411.4	4,364.2	15.1	13.2	142.16	143.8	384.0	348.0	322.7	25.33	13.742	
4,500.0	4,431.8	4,510.9	4,461.6	15.6	13.7	141.28	152.1	402.6	356.7	330.5	26.19	13.620	
4,600.0	4,529.5	4,610.4	4,559.0	16.0	14.1	140.45	160.4	421.3	365.4	338.3	27.05	13.507	
4,700.0	4,627.1	4,709.9	4,656.3	16.5	14.5	139.65	168.7	439.9	374.1	346.2	27.92	13.402	
4,800.0	4,724.8	4,809.4	4,753.7	16.9	14.9	138.90	177.1	458.6	383.0	354.2	28.79	13.303	
4,900.0	4,822.4	4,908.8	4,851.0	17.4	15.4	138.17	185.4	477.2	391.9	362.2	29.66	13.212	
5,000.0	4,920.0	5,006.6	4,946.8	17.9	15.8	137.52	193.4	495.4	400.9	370.4	30.50	13.145	
5,100.0	5,017.7	5,100.0	5,038.7	18.3	16.1	137.25	200.2	510.5	410.9	379.8	31.19	13.178	

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

Company:	KP KAUFFMAN	**Local Co-ordinate Reference:**	Well Greeley-Rothe 1-5H
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 1-5H	**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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,200.0	5,115.3	5,196.2	5,133.8	18.8	16.3	137.40	205.8	523.2	422.1	390.3	31.79	13.277	
5,300.0	5,213.0	5,290.4	5,227.5	19.2	16.6	137.96	210.1	532.8	434.2	401.9	32.29	13.444	
5,400.0	5,311.2	5,384.5	5,321.3	19.5	16.8	138.75	213.1	539.5	445.5	412.8	32.67	13.637	
5,500.0	5,410.0	5,478.4	5,415.1	19.8	16.9	139.57	214.9	543.5	455.5	422.5	32.97	13.816	
5,600.0	5,509.3	5,572.6	5,509.3	20.1	17.1	140.43	215.4	544.6	464.1	430.9	33.19	13.982	
5,700.0	5,608.9	5,672.3	5,608.9	20.3	17.2	141.17	215.4	544.6	470.6	437.2	33.41	14.086	
5,800.0	5,708.8	5,772.1	5,708.8	20.4	17.4	141.59	215.4	544.6	474.5	440.8	33.65	14.102	
5,900.0	5,808.8	5,872.1	5,808.8	20.6	17.5	179.92	215.4	544.6	475.6	443.1	32.49	14.641	
6,000.0	5,908.8	5,972.1	5,908.8	20.7	17.7	179.92	215.4	544.6	475.6	442.8	32.82	14.490	
6,100.0	6,008.8	6,072.1	6,008.8	20.8	17.8	179.92	215.4	544.6	475.6	442.5	33.17	14.341	
6,200.0	6,108.8	6,172.1	6,108.8	21.0	18.0	179.92	215.4	544.6	475.6	442.1	33.51	14.194	
6,300.0	6,208.8	6,272.1	6,208.8	21.1	18.2	179.92	215.4	544.6	475.6	441.8	33.85	14.049	
6,400.0	6,308.8	6,372.1	6,308.8	21.3	18.3	179.92	215.4	544.6	475.6	441.4	34.20	13.906	
6,500.0	6,408.8	6,472.1	6,408.8	21.4	18.5	179.92	215.4	544.6	475.6	441.1	34.55	13.765	
6,600.0	6,508.8	6,572.1	6,508.8	21.5	18.7	179.92	215.4	544.6	475.6	440.7	34.91	13.626	
6,643.1	6,551.9	6,615.3	6,551.9	21.6	18.7	179.92	215.4	544.6	475.6	440.6	35.06	13.567	
6,700.0	6,608.8	6,671.2	6,607.8	21.7	18.8	-179.93	215.3	543.4	475.7	440.4	35.27	13.487	
6,800.0	6,708.8	6,767.6	6,703.4	21.8	18.9	-86.64	214.9	531.3	476.2	439.7	36.56	13.025	
6,900.0	6,808.1	6,861.8	6,794.4	21.9	18.8	-84.91	214.1	507.2	477.3	441.0	36.32	13.142	
7,000.0	6,904.8	6,954.5	6,880.0	21.8	18.7	-83.29	213.0	472.0	478.7	442.8	35.96	13.313	
7,100.0	6,997.1	7,045.7	6,959.2	21.7	18.6	-81.80	211.5	426.9	480.4	444.8	35.57	13.506	
7,200.0	7,083.3	7,135.6	7,031.1	21.6	18.5	-80.48	209.7	373.0	482.1	446.9	35.24	13.682	
7,300.0	7,161.5	7,224.6	7,095.0	21.4	18.5	-79.33	207.7	311.2	483.8	448.8	35.08	13.791	
7,400.0	7,230.3	7,312.7	7,150.2	21.2	18.6	-78.37	205.4	242.6	485.4	450.2	35.24	13.776	
7,500.0	7,288.3	7,400.0	7,196.2	21.0	18.9	-77.61	203.0	168.5	486.8	451.0	35.81	13.593	
7,600.0	7,334.5	7,487.0	7,232.7	20.9	19.4	-77.07	200.4	89.7	487.8	450.9	36.93	13.210	
7,700.0	7,367.9	7,573.5	7,259.3	20.9	20.2	-76.74	197.7	7.4	488.5	449.9	38.60	12.655	
7,800.0	7,387.8	7,659.9	7,275.8	21.4	21.2	-76.63	194.9	-77.3	488.7	447.9	40.80	11.977	
7,900.0	7,394.0	7,746.3	7,282.0	22.7	22.4	-76.74	192.0	-163.4	488.5	445.0	43.46	11.240	
7,929.6	7,394.0	7,774.7	7,282.0	23.2	22.9	-76.74	191.1	-191.7	488.4	444.1	44.37	11.009	
8,000.0	7,394.0	7,845.1	7,282.0	24.4	24.1	-76.74	188.8	-262.1	488.5	441.8	46.66	10.468	
8,100.0	7,394.0	7,945.1	7,282.0	26.3	25.9	-76.74	185.5	-362.0	488.5	438.2	50.25	9.720	
8,200.0	7,394.0	8,045.1	7,282.0	28.3	27.9	-76.74	182.2	-462.0	488.5	434.3	54.16	9.020	
8,300.0	7,394.0	8,145.1	7,282.0	30.5	30.0	-76.74	178.9	-561.9	488.5	430.2	58.31	8.377	
8,400.0	7,394.0	8,245.1	7,282.0	32.7	32.3	-76.75	175.6	-661.9	488.5	425.8	62.66	7.795	
8,500.0	7,394.0	8,345.1	7,282.0	35.0	34.6	-76.75	172.3	-761.8	488.5	421.3	67.18	7.271	
8,600.0	7,394.0	8,445.1	7,282.0	37.4	37.0	-76.75	169.0	-861.8	488.5	416.7	71.83	6.801	
8,700.0	7,394.0	8,545.1	7,282.0	39.9	39.4	-76.75	165.7	-961.7	488.5	411.9	76.58	6.379	
8,800.0	7,394.0	8,645.1	7,282.0	42.4	41.9	-76.75	162.4	-1,061.7	488.5	407.1	81.43	5.999	
8,900.0	7,394.0	8,745.1	7,282.0	44.9	44.4	-76.75	159.2	-1,161.6	488.5	402.2	86.35	5.658	
9,000.0	7,394.0	8,845.1	7,282.0	47.4	47.0	-76.75	155.9	-1,261.5	488.5	397.2	91.32	5.349	
9,100.0	7,394.0	8,945.1	7,282.0	50.0	49.6	-76.75	152.6	-1,361.5	488.5	392.2	96.36	5.070	
9,200.0	7,394.0	9,045.1	7,282.0	52.6	52.2	-76.75	149.3	-1,461.4	488.5	387.1	101.43	4.816	
9,300.0	7,394.0	9,145.1	7,282.0	55.2	54.8	-76.75	146.0	-1,561.4	488.5	382.0	106.54	4.585	
9,400.0	7,394.0	9,245.1	7,282.0	57.9	57.4	-76.75	142.7	-1,661.3	488.5	376.9	111.69	4.374	
9,500.0	7,394.0	9,345.1	7,282.0	60.5	60.1	-76.75	139.4	-1,761.3	488.6	371.7	116.87	4.180	
9,600.0	7,394.0	9,445.1	7,282.0	63.2	62.7	-76.75	136.1	-1,861.2	488.6	366.5	122.07	4.002	
9,700.0	7,394.0	9,545.1	7,282.0	65.8	65.4	-76.75	132.8	-1,961.2	488.6	361.3	127.29	3.838	
9,800.0	7,394.0	9,645.1	7,282.0	68.5	68.1	-76.75	129.5	-2,061.1	488.6	356.0	132.53	3.687	
9,900.0	7,394.0	9,745.1	7,282.0	71.2	70.8	-76.75	126.2	-2,161.1	488.6	350.8	137.79	3.546	
10,000.0	7,394.0	9,845.1	7,282.0	73.9	73.5	-76.75	122.9	-2,261.0	488.6	345.5	143.06	3.415	
10,100.0	7,394.0	9,945.1	7,282.0	76.6	76.2	-76.75	119.6	-2,361.0	488.6	340.2	148.34	3.294	

Company:	KP KAUFFMAN	**Local Co-ordinate Reference:**	Well Greeley-Rothe 1-5H
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 1-5H	**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 Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,200.0	7,394.0	10,045.1	7,282.0	79.3	78.9	-76.75	116.3	-2,460.9	488.6	335.0	153.64	3.180	
10,300.0	7,394.0	10,145.1	7,282.0	82.0	81.6	-76.75	113.0	-2,560.8	488.6	329.7	158.95	3.074	
10,400.0	7,394.0	10,245.1	7,282.0	84.8	84.4	-76.75	109.7	-2,660.8	488.6	324.3	164.27	2.974	
10,500.0	7,394.0	10,345.1	7,282.0	87.5	87.1	-76.75	106.5	-2,760.7	488.6	319.0	169.60	2.881	
10,600.0	7,394.0	10,445.1	7,282.0	90.2	89.8	-76.75	103.2	-2,860.7	488.6	313.7	174.94	2.793	
10,700.0	7,394.0	10,545.1	7,282.0	93.0	92.6	-76.75	99.9	-2,960.6	488.6	308.3	180.28	2.710	
10,800.0	7,394.0	10,645.1	7,282.0	95.7	95.3	-76.75	96.6	-3,060.6	488.6	303.0	185.63	2.632	
10,900.0	7,394.0	10,745.1	7,282.0	98.5	98.1	-76.75	93.3	-3,160.5	488.6	297.7	190.99	2.559	
11,000.0	7,394.0	10,845.1	7,282.0	101.2	100.8	-76.75	90.0	-3,260.5	488.6	292.3	196.35	2.489	
11,100.0	7,394.0	10,945.1	7,282.0	103.9	103.6	-76.75	86.7	-3,360.4	488.7	286.9	201.72	2.422	
11,200.0	7,394.0	11,045.1	7,282.0	106.7	106.3	-76.75	83.4	-3,460.4	488.7	281.6	207.09	2.360	
11,300.0	7,394.0	11,145.1	7,282.0	109.5	109.1	-76.75	80.1	-3,560.3	488.7	276.2	212.47	2.300	
11,400.0	7,394.0	11,245.1	7,282.0	112.2	111.8	-76.75	76.8	-3,660.2	488.7	270.8	217.85	2.243	
11,500.0	7,394.0	11,345.1	7,282.0	115.0	114.6	-76.75	73.5	-3,760.2	488.7	265.5	223.23	2.189	
11,600.0	7,394.0	11,445.1	7,282.0	117.7	117.4	-76.75	70.2	-3,860.1	488.7	260.1	228.62	2.138	
11,700.0	7,394.0	11,545.1	7,282.0	120.5	120.1	-76.75	66.9	-3,960.1	488.7	254.7	234.01	2.088	
11,800.0	7,394.0	11,645.1	7,282.0	123.3	122.9	-76.75	63.6	-4,060.0	488.7	249.3	239.41	2.041	
11,900.0	7,394.0	11,745.1	7,282.0	126.0	125.7	-76.75	60.3	-4,160.0	488.7	243.9	244.80	1.996	
11,976.9	7,394.0	11,822.0	7,282.0	128.2	127.8	-76.75	57.8	-4,236.9	488.7	239.8	248.96	1.963	SF

Company:	KP KAUFFMAN	**Local Co-ordinate Reference:**	Well Greeley-Rothe 1-5H
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 1-5H	**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 1-8H - Wellbore #1 - Plan #2 (6-05-14)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	1.0	1.0	0.0	0.0	-153.01	-49.8	-25.4	55.9	55.9	0.00	N/A	
100.0	100.0	101.0	101.0	0.1	0.1	-153.01	-49.8	-25.4	55.9	55.7	0.23	246.192	
200.0	200.0	201.0	201.0	0.3	0.3	-153.01	-49.8	-25.4	55.9	55.2	0.68	82.609	
300.0	300.0	301.0	301.0	0.6	0.6	-153.01	-49.8	-25.4	55.9	54.8	1.13	49.631	
400.0	400.0	401.0	401.0	0.8	0.8	-153.01	-49.8	-25.4	55.9	54.3	1.58	35.471	
500.0	500.0	501.0	501.0	1.0	1.0	-153.01	-49.8	-25.4	55.9	53.9	2.03	27.598	
600.0	600.0	601.0	601.0	1.2	1.2	-153.01	-49.8	-25.4	55.9	53.4	2.47	22.584	
700.0	700.0	701.0	701.0	1.5	1.5	-153.01	-49.8	-25.4	55.9	53.0	2.92	19.112	
800.0	800.0	801.0	801.0	1.7	1.7	-153.01	-49.8	-25.4	55.9	52.5	3.37	16.566	
900.0	900.0	901.0	901.0	1.9	1.9	-153.01	-49.8	-25.4	55.9	52.1	3.82	14.618	
1,000.0	1,000.0	1,001.0	1,001.0	2.1	2.1	-153.01	-49.8	-25.4	55.9	51.6	4.27	13.080	
1,100.0	1,100.0	1,101.0	1,101.0	2.4	2.4	-153.01	-49.8	-25.4	55.9	51.2	4.72	11.835	
1,200.0	1,200.0	1,201.0	1,201.0	2.6	2.6	-153.01	-49.8	-25.4	55.9	50.7	5.17	10.807	
1,200.2	1,200.2	1,201.2	1,201.2	2.6	2.6	-153.01	-49.8	-25.4	55.9	50.7	5.17	10.805	CC, ES
1,300.0	1,300.0	1,301.3	1,301.2	2.8	2.8	167.34	-50.4	-23.7	57.4	51.8	5.60	10.242	SF
1,400.0	1,399.8	1,401.3	1,401.1	3.0	3.0	163.53	-52.0	-18.7	61.9	55.9	6.01	10.302	
1,500.0	1,499.5	1,500.8	1,500.2	3.3	3.2	158.35	-54.8	-10.4	70.0	63.6	6.44	10.884	
1,600.0	1,598.7	1,599.6	1,598.3	3.5	3.4	152.88	-58.6	1.0	82.1	75.2	6.88	11.928	
1,700.0	1,697.5	1,697.7	1,695.2	3.8	3.7	147.93	-63.3	15.4	98.3	90.9	7.36	13.346	
1,800.0	1,795.6	1,795.6	1,791.8	4.1	4.0	144.86	-68.4	30.6	117.9	110.1	7.87	14.984	
1,900.0	1,893.3	1,893.1	1,888.0	4.4	4.3	143.39	-73.4	45.7	139.7	131.3	8.42	16.594	
2,000.0	1,990.9	1,990.6	1,984.2	4.7	4.6	142.38	-78.4	60.8	161.7	152.7	9.00	17.962	
2,100.0	2,088.6	2,088.2	2,080.4	5.1	4.9	141.62	-83.4	75.9	183.7	174.1	9.60	19.129	
2,200.0	2,186.2	2,185.7	2,176.7	5.5	5.2	141.02	-88.4	91.1	205.7	195.5	10.22	20.129	
2,300.0	2,283.8	2,283.2	2,272.9	5.9	5.5	140.53	-93.4	106.2	227.7	216.9	10.85	20.989	
2,400.0	2,381.5	2,380.7	2,369.1	6.3	5.9	140.13	-98.4	121.3	249.8	238.3	11.49	21.736	
2,500.0	2,479.1	2,478.3	2,465.3	6.7	6.2	139.80	-103.4	136.4	271.8	259.7	12.14	22.386	
2,600.0	2,576.7	2,575.8	2,561.5	7.1	6.5	139.51	-108.4	151.5	293.9	281.1	12.80	22.956	
2,700.0	2,674.4	2,673.3	2,657.8	7.6	6.9	139.27	-113.5	166.6	316.0	302.5	13.47	23.458	
2,800.0	2,772.0	2,770.8	2,754.0	8.0	7.2	139.05	-118.5	181.7	338.0	323.9	14.14	23.903	
2,900.0	2,869.7	2,868.4	2,850.2	8.4	7.6	138.87	-123.5	196.8	360.1	345.3	14.82	24.299	
3,000.0	2,967.3	2,965.9	2,946.4	8.9	8.0	138.70	-128.5	212.0	382.2	366.7	15.50	24.653	
3,100.0	3,064.9	3,063.4	3,042.6	9.3	8.3	138.55	-133.5	227.1	404.3	388.1	16.19	24.971	
3,200.0	3,162.6	3,161.0	3,138.8	9.7	8.7	138.42	-138.5	242.2	426.4	409.5	16.88	25.259	
3,300.0	3,260.2	3,258.5	3,235.1	10.2	9.0	138.30	-143.5	257.3	448.5	430.9	17.57	25.519	
3,400.0	3,357.8	3,356.0	3,331.3	10.6	9.4	138.20	-148.5	272.4	470.5	452.3	18.27	25.756	
3,500.0	3,455.5	3,453.5	3,427.5	11.1	9.8	138.10	-153.5	287.5	492.6	473.7	18.97	25.972	

Company:	KP KAUFFMAN	**Local Co-ordinate Reference:**	Well Greeley-Rothe 1-5H
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 1-5H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	landmark
Reference Design:	Plan #2 (6-05-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Greeley-Rothe Pad Sec.1-T5N-R67W - Greeley-Rothe 1-9H - Wellbore #1 - Plan #2 (6-6-14)

Offset Site Error: 0.0 ft

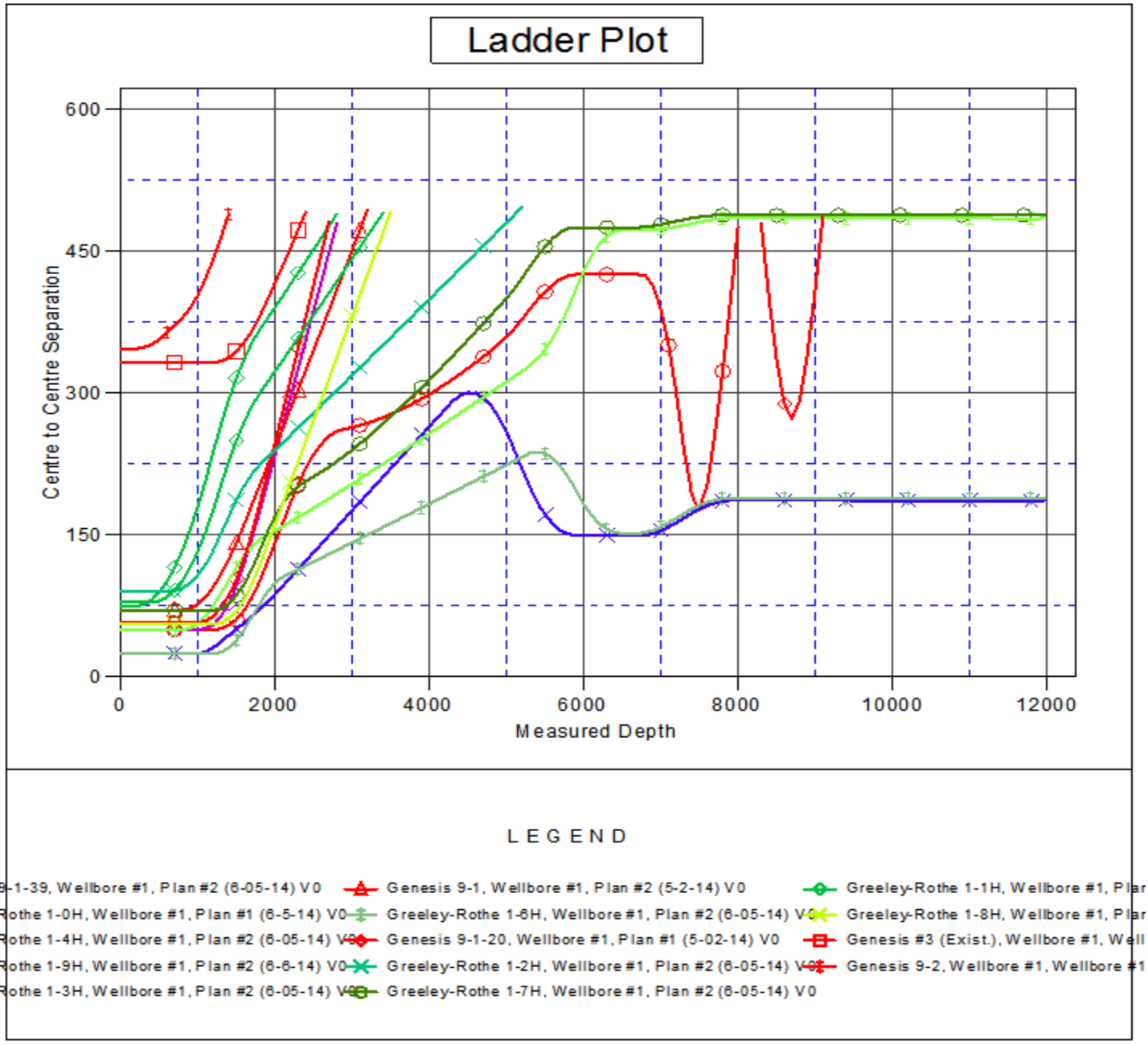
Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	1.0	1.0	0.0	0.0	-178.79	-50.0	-1.1	50.0	50.0	0.00	N/A	
100.0	100.0	101.0	101.0	0.1	0.1	-178.79	-50.0	-1.1	50.0	49.8	0.23	220.408	
200.0	200.0	201.0	201.0	0.3	0.3	-178.79	-50.0	-1.1	50.0	49.4	0.68	73.957	
300.0	300.0	301.0	301.0	0.6	0.6	-178.79	-50.0	-1.1	50.0	48.9	1.13	44.433	
400.0	400.0	401.0	401.0	0.8	0.8	-178.79	-50.0	-1.1	50.0	48.5	1.58	31.756	
500.0	500.0	501.0	501.0	1.0	1.0	-178.79	-50.0	-1.1	50.0	48.0	2.03	24.707	
600.0	600.0	601.0	601.0	1.2	1.2	-178.79	-50.0	-1.1	50.0	47.6	2.47	20.219	
700.0	700.0	701.0	701.0	1.5	1.5	-178.79	-50.0	-1.1	50.0	47.1	2.92	17.111	
800.0	800.0	801.0	801.0	1.7	1.7	-178.79	-50.0	-1.1	50.0	46.7	3.37	14.831	
900.0	900.0	901.0	901.0	1.9	1.9	-178.79	-50.0	-1.1	50.0	46.2	3.82	13.087	
966.3	966.3	967.3	967.3	2.1	2.1	-178.79	-50.0	-1.1	50.0	45.9	4.12	12.140	CC
1,000.0	1,000.0	1,001.0	1,001.0	2.1	2.1	-178.79	-50.0	-1.1	50.0	45.8	4.27	11.711	ES
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.3	179.92	-51.4	0.1	51.4	46.7	4.70	10.938	
1,200.0	1,200.0	1,198.1	1,197.9	2.6	2.5	176.49	-55.2	3.4	55.4	50.3	5.10	10.864	SF
1,300.0	1,300.0	1,296.0	1,295.5	2.8	2.7	134.61	-61.6	8.9	63.7	58.2	5.52	11.546	
1,400.0	1,399.8	1,393.0	1,391.8	3.0	2.9	132.33	-70.5	16.4	77.5	71.5	5.95	13.031	
1,500.0	1,499.5	1,488.7	1,486.3	3.3	3.2	131.17	-81.7	25.9	96.4	90.0	6.38	15.105	
1,600.0	1,598.7	1,584.5	1,580.6	3.5	3.5	130.83	-94.9	37.2	120.0	113.2	6.84	17.546	
1,700.0	1,697.5	1,681.0	1,675.4	3.8	3.8	131.44	-108.5	48.8	146.1	138.8	7.31	19.990	
1,800.0	1,795.6	1,776.8	1,769.5	4.1	4.1	132.59	-121.9	60.3	174.6	166.8	7.80	22.373	
1,900.0	1,893.3	1,872.0	1,863.1	4.4	4.4	134.14	-135.3	71.7	204.7	196.4	8.33	24.575	
2,000.0	1,990.9	1,967.1	1,956.6	4.7	4.8	135.40	-148.7	83.1	235.1	226.2	8.89	26.455	
2,100.0	2,088.6	2,062.3	2,050.1	5.1	5.1	136.37	-162.1	94.5	265.5	256.1	9.45	28.087	
2,200.0	2,186.2	2,157.5	2,143.7	5.5	5.5	137.14	-175.5	105.9	296.0	286.0	10.04	29.499	
2,300.0	2,283.8	2,252.7	2,237.2	5.9	5.9	137.77	-188.8	117.3	326.6	315.9	10.63	30.730	
2,400.0	2,381.5	2,347.8	2,330.7	6.3	6.2	138.29	-202.2	128.7	357.1	345.9	11.23	31.808	
2,500.0	2,479.1	2,443.0	2,424.3	6.7	6.6	138.72	-215.6	140.2	387.7	375.9	11.83	32.759	
2,600.0	2,576.7	2,538.2	2,517.8	7.1	7.0	139.10	-229.0	151.6	418.3	405.8	12.45	33.602	
2,700.0	2,674.4	2,633.3	2,611.3	7.6	7.4	139.42	-242.4	163.0	448.9	435.8	13.07	34.352	
2,800.0	2,772.0	2,728.5	2,704.8	8.0	7.8	139.70	-255.8	174.4	479.5	465.8	13.69	35.023	

Company:	KP KAUFFMAN	**Local Co-ordinate Reference:**	Well Greeley-Rothe 1-5H
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 1-5H	**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')	Coordinates are relative to: Greeley-Rothe 1-5H
Offset Depths are relative to Offset Datum	Coordinate System is US State Plane 1983, Colorado Northern Zone
Central Meridian is -105.500000 °	Grid Convergence at Surface is: 0.43°



Company:	KP KAUFFMAN	**Local Co-ordinate Reference:**	Well Greeley-Rothe 1-5H
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 1-5H	**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 1-5H
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.43°