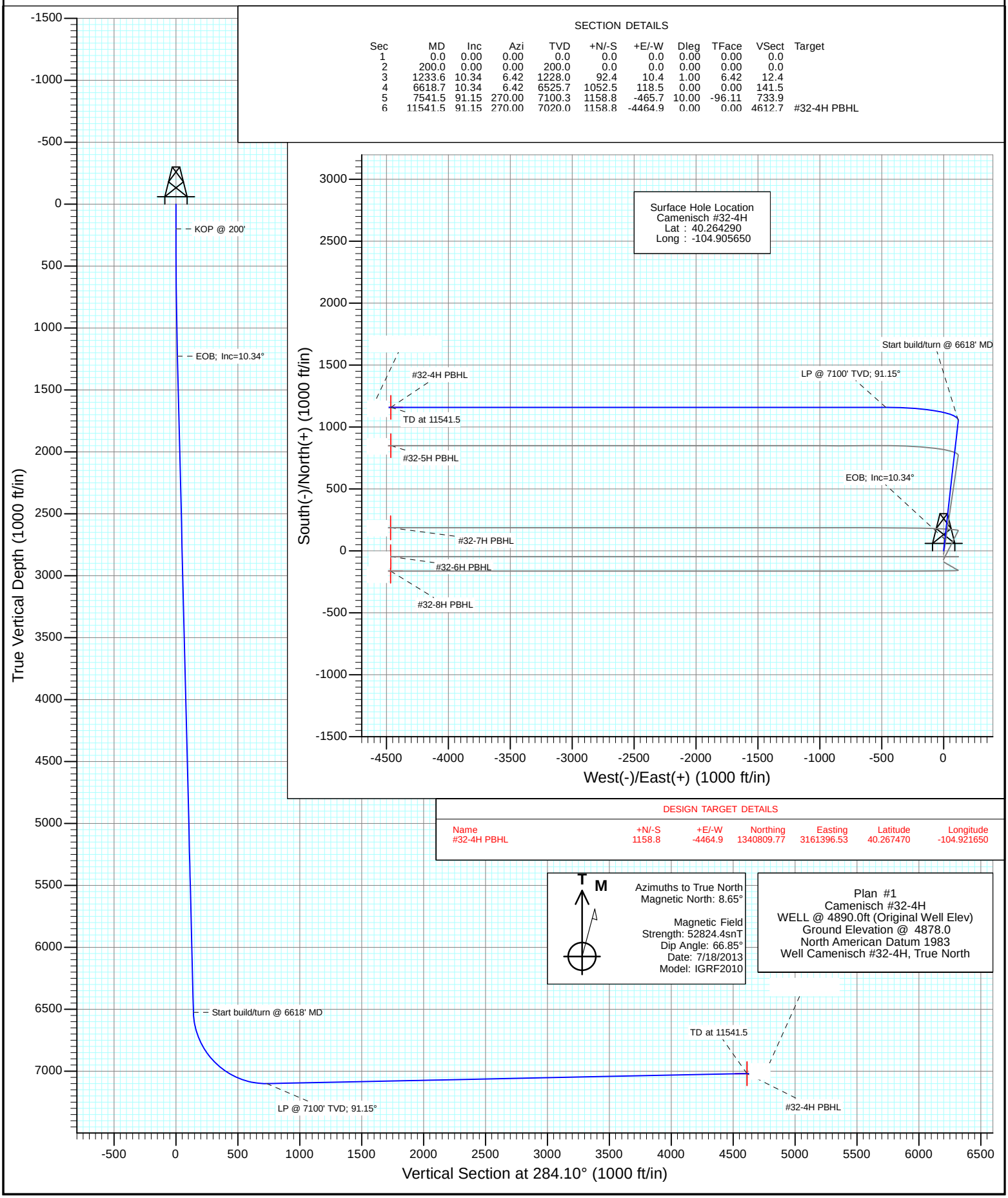
K.P. KAUFFMAN COMPANY, INC.

Project: Wattenberg
Site: S32-T4N-R67W (Camenisch)
Well: Camenisch #32-4H
Wellbore: HZ
Design: Plan #1

CATHEDRAL

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DIeg	TFace	VSect	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.0	
3	1233.6	10.34	6.42	1228.0	92.4	10.4	1.00	6.42	12.4	
4	6618.7	10.34	6.42	6525.7	1052.5	118.5	0.00	0.00	141.5	
5	7541.5	91.15	270.00	7100.3	1158.8	-465.7	10.00	-96.11	733.9	
6	11541.5	91.15	270.00	7020.0	1158.8	-4464.9	0.00	0.00	4612.7	#32-4H PBHL



DESIGN TARGET DETAILS

Name	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
#32-4H PBHL	1158.8	-4464.9	1340809.77	3161396.53	40.267470	-104.921650

Azimuths to True North
Magnetic North: 8.65°

Magnetic Field
Strength: 52824.4snT
Dip Angle: 66.85°
Date: 7/18/2013
Model: IGRF2010

Plan #1
Camenisch #32-4H
WELL @ 4890.0ft (Original Well Elev)
Ground Elevation @ 4878.0
North American Datum 1983
Well Camenisch #32-4H, True North

Planning Report

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Camenisch #32-4H
Company:	K. P. Kauffman Company, Inc.	**TVD Reference:**	WELL @ 4890.0ft (Original Well Elev)
Project:	Wattenberg	**MD Reference:**	WELL @ 4890.0ft (Original Well Elev)
Site:	S32-T4N-R67W (Camenisch)	**North Reference:**	True
Well:	Camenisch #32-4H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #1		

Project Wattenberg

Map System:	US State Plane 1983	**System Datum:**	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		

Site S32-T4N-R67W (Camenisch)

Site Position:		**Northing:**	1,339,680.88 ft	**Latitude:**	40.264290
From:	Lat/Long	**Easting:**	3,165,869.08 ft	**Longitude:**	-104.905650
Position Uncertainty:	0.0 ft	**Slot Radius:**	13.200 in	**Grid Convergence:**	0.38 °

Well Camenisch #32-4H

Well Position	**+N/-S**	0.0 ft	**Northing:**	1,339,680.88 ft	**Latitude:**	40.264290
	+E/-W	0.0 ft	**Easting:**	3,165,869.08 ft	**Longitude:**	-104.905650
Position Uncertainty		0.0 ft	**Wellhead Elevation:**	ft	**Ground Level:**	4,878.0 ft

Wellbore HZ

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	7/18/2013	8.65	66.85	52,824

Design Plan #1

Audit Notes:

Version:		**Phase:**	PLAN	**Tie On Depth:**	0.0

Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	284.10

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	
200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,233.6	10.34	6.42	1,228.0	92.4	10.4	1.00	1.00	0.00	6.42	
6,618.7	10.34	6.42	6,525.7	1,052.5	118.5	0.00	0.00	0.00	0.00	
7,541.5	91.15	270.00	7,100.3	1,158.8	-465.7	10.00	8.76	-10.45	-96.11	
11,541.5	91.15	270.00	7,020.0	1,158.8	-4,464.9	0.00	0.00	0.00	0.00	#32-4H PBHL

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Camenisch #32-4H
Company:	K. P. Kauffman Company, Inc.	**TVD Reference:**	WELL @ 4890.0ft (Original Well Elev)
Project:	Wattenberg	**MD Reference:**	WELL @ 4890.0ft (Original Well Elev)
Site:	S32-T4N-R67W (Camenisch)	**North Reference:**	True
Well:	Camenisch #32-4H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #1		

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)	Comments / Formations
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	KOP @ 200'
300.0	1.00	6.42	300.0	0.9	0.1	0.1	1.00	1.00	
400.0	2.00	6.42	400.0	3.5	0.4	0.5	1.00	1.00	
500.0	3.00	6.42	499.9	7.8	0.9	1.0	1.00	1.00	
600.0	4.00	6.42	599.7	13.9	1.6	1.9	1.00	1.00	
700.0	5.00	6.42	699.4	21.7	2.4	2.9	1.00	1.00	
800.0	6.00	6.42	798.9	31.2	3.5	4.2	1.00	1.00	
900.0	7.00	6.42	898.3	42.4	4.8	5.7	1.00	1.00	
1,000.0	8.00	6.42	997.4	55.4	6.2	7.4	1.00	1.00	
1,100.0	9.00	6.42	1,096.3	70.1	7.9	9.4	1.00	1.00	
1,200.0	10.00	6.42	1,194.9	86.5	9.7	11.6	1.00	1.00	
1,233.6	10.34	6.42	1,228.0	92.4	10.4	12.4	1.00	1.00	EOB; Inc=10.34°
1,300.0	10.34	6.42	1,293.3	104.2	11.7	14.0	0.00	0.00	
1,400.0	10.34	6.42	1,391.7	122.1	13.7	16.4	0.00	0.00	
1,500.0	10.34	6.42	1,490.1	139.9	15.7	18.8	0.00	0.00	
1,600.0	10.34	6.42	1,588.5	157.7	17.8	21.2	0.00	0.00	
1,700.0	10.34	6.42	1,686.8	175.6	19.8	23.6	0.00	0.00	
1,800.0	10.34	6.42	1,785.2	193.4	21.8	26.0	0.00	0.00	
1,900.0	10.34	6.42	1,883.6	211.2	23.8	28.4	0.00	0.00	
2,000.0	10.34	6.42	1,982.0	229.0	25.8	30.8	0.00	0.00	
2,100.0	10.34	6.42	2,080.3	246.9	27.8	33.2	0.00	0.00	
2,200.0	10.34	6.42	2,178.7	264.7	29.8	35.6	0.00	0.00	
2,300.0	10.34	6.42	2,277.1	282.5	31.8	38.0	0.00	0.00	
2,400.0	10.34	6.42	2,375.5	300.4	33.8	40.4	0.00	0.00	
2,500.0	10.34	6.42	2,473.9	318.2	35.8	42.8	0.00	0.00	
2,600.0	10.34	6.42	2,572.2	336.0	37.8	45.2	0.00	0.00	
2,700.0	10.34	6.42	2,670.6	353.8	39.8	47.6	0.00	0.00	
2,800.0	10.34	6.42	2,769.0	371.7	41.8	50.0	0.00	0.00	
2,900.0	10.34	6.42	2,867.4	389.5	43.8	52.3	0.00	0.00	
3,000.0	10.34	6.42	2,965.7	407.3	45.8	54.7	0.00	0.00	
3,100.0	10.34	6.42	3,064.1	425.2	47.9	57.1	0.00	0.00	
3,200.0	10.34	6.42	3,162.5	443.0	49.9	59.5	0.00	0.00	
3,300.0	10.34	6.42	3,260.9	460.8	51.9	61.9	0.00	0.00	
3,400.0	10.34	6.42	3,359.2	478.7	53.9	64.3	0.00	0.00	
3,500.0	10.34	6.42	3,457.6	496.5	55.9	66.7	0.00	0.00	
3,600.0	10.34	6.42	3,556.0	514.3	57.9	69.1	0.00	0.00	
3,700.0	10.34	6.42	3,654.4	532.1	59.9	71.5	0.00	0.00	
3,800.0	10.34	6.42	3,752.8	550.0	61.9	73.9	0.00	0.00	
3,900.0	10.34	6.42	3,851.1	567.8	63.9	76.3	0.00	0.00	
4,000.0	10.34	6.42	3,949.5	585.6	65.9	78.7	0.00	0.00	
4,100.0	10.34	6.42	4,047.9	603.5	67.9	81.1	0.00	0.00	
4,200.0	10.34	6.42	4,146.3	621.3	69.9	83.5	0.00	0.00	
4,300.0	10.34	6.42	4,244.6	639.1	71.9	85.9	0.00	0.00	
4,400.0	10.34	6.42	4,343.0	657.0	73.9	88.3	0.00	0.00	
4,500.0	10.34	6.42	4,441.4	674.8	75.9	90.7	0.00	0.00	
4,600.0	10.34	6.42	4,539.8	692.6	78.0	93.1	0.00	0.00	
4,700.0	10.34	6.42	4,638.2	710.4	80.0	95.5	0.00	0.00	
4,800.0	10.34	6.42	4,736.5	728.3	82.0	97.9	0.00	0.00	
4,900.0	10.34	6.42	4,834.9	746.1	84.0	100.3	0.00	0.00	
5,000.0	10.34	6.42	4,933.3	763.9	86.0	102.7	0.00	0.00	

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Project:	Wattenberg	**MD Reference:**	WELL @ 4890.0ft (Original Well Elev)
Site:	S32-T4N-R67W (Camenisch)	**North Reference:**	True
Well:	Camenisch #32-4H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #1		

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)	Comments / Formations
5,100.0	10.34	6.42	5,031.7	781.8	88.0	105.1	0.00	0.00	
5,200.0	10.34	6.42	5,130.0	799.6	90.0	107.5	0.00	0.00	
5,300.0	10.34	6.42	5,228.4	817.4	92.0	109.9	0.00	0.00	
5,400.0	10.34	6.42	5,326.8	835.3	94.0	112.3	0.00	0.00	
5,500.0	10.34	6.42	5,425.2	853.1	96.0	114.6	0.00	0.00	
5,600.0	10.34	6.42	5,523.5	870.9	98.0	117.0	0.00	0.00	
5,700.0	10.34	6.42	5,621.9	888.7	100.0	119.4	0.00	0.00	
5,800.0	10.34	6.42	5,720.3	906.6	102.0	121.8	0.00	0.00	
5,900.0	10.34	6.42	5,818.7	924.4	104.0	124.2	0.00	0.00	
6,000.0	10.34	6.42	5,917.1	942.2	106.0	126.6	0.00	0.00	
6,100.0	10.34	6.42	6,015.4	960.1	108.1	129.0	0.00	0.00	
6,200.0	10.34	6.42	6,113.8	977.9	110.1	131.4	0.00	0.00	
6,300.0	10.34	6.42	6,212.2	995.7	112.1	133.8	0.00	0.00	
6,400.0	10.34	6.42	6,310.6	1,013.6	114.1	136.2	0.00	0.00	
6,500.0	10.34	6.42	6,408.9	1,031.4	116.1	138.6	0.00	0.00	
6,600.0	10.34	6.42	6,507.3	1,049.2	118.1	141.0	0.00	0.00	
6,618.7	10.34	6.42	6,525.7	1,052.5	118.5	141.5	0.00	0.00	Start build/turn @ 6618' MD
6,700.0	12.42	325.59	6,605.5	1,067.0	114.3	149.0	10.00	2.57	
6,800.0	19.80	300.44	6,701.7	1,084.5	93.6	173.4	10.00	7.38	
6,900.0	28.77	289.49	6,792.8	1,101.2	56.2	213.7	10.00	8.97	
7,000.0	38.22	283.52	6,876.1	1,116.5	3.3	268.7	10.00	9.45	
7,100.0	47.87	279.65	6,949.1	1,130.0	-63.5	336.8	10.00	9.65	
7,200.0	57.61	276.81	7,009.6	1,141.2	-142.2	415.8	10.00	9.74	
7,300.0	67.41	274.53	7,055.7	1,149.9	-230.4	503.5	10.00	9.79	
7,400.0	77.23	272.56	7,086.0	1,155.7	-325.3	597.0	10.00	9.82	
7,500.0	87.07	270.74	7,099.6	1,158.6	-424.2	693.6	10.00	9.84	
7,541.5	91.15	270.00	7,100.3	1,158.8	-465.7	733.9	10.00	9.84	LP @ 7100' TVD; 91.15°
7,600.0	91.15	270.00	7,099.1	1,158.8	-524.2	790.6	0.00	0.00	
7,700.0	91.15	270.00	7,097.1	1,158.8	-624.2	887.6	0.00	0.00	
7,800.0	91.15	270.00	7,095.1	1,158.8	-724.2	984.6	0.00	0.00	
7,900.0	91.15	270.00	7,093.1	1,158.8	-824.1	1,081.6	0.00	0.00	
8,000.0	91.15	270.00	7,091.1	1,158.8	-924.1	1,178.5	0.00	0.00	
8,100.0	91.15	270.00	7,089.1	1,158.8	-1,024.1	1,275.5	0.00	0.00	
8,200.0	91.15	270.00	7,087.1	1,158.8	-1,124.1	1,372.5	0.00	0.00	
8,300.0	91.15	270.00	7,085.1	1,158.8	-1,224.1	1,469.4	0.00	0.00	
8,400.0	91.15	270.00	7,083.0	1,158.8	-1,324.0	1,566.4	0.00	0.00	
8,500.0	91.15	270.00	7,081.0	1,158.8	-1,424.0	1,663.4	0.00	0.00	
8,600.0	91.15	270.00	7,079.0	1,158.8	-1,524.0	1,760.3	0.00	0.00	
8,700.0	91.15	270.00	7,077.0	1,158.8	-1,624.0	1,857.3	0.00	0.00	
8,800.0	91.15	270.00	7,075.0	1,158.8	-1,724.0	1,954.3	0.00	0.00	
8,900.0	91.15	270.00	7,073.0	1,158.8	-1,823.9	2,051.3	0.00	0.00	
9,000.0	91.15	270.00	7,071.0	1,158.8	-1,923.9	2,148.2	0.00	0.00	
9,100.0	91.15	270.00	7,069.0	1,158.8	-2,023.9	2,245.2	0.00	0.00	
9,200.0	91.15	270.00	7,067.0	1,158.8	-2,123.9	2,342.2	0.00	0.00	
9,300.0	91.15	270.00	7,065.0	1,158.8	-2,223.9	2,439.1	0.00	0.00	
9,400.0	91.15	270.00	7,063.0	1,158.8	-2,323.8	2,536.1	0.00	0.00	
9,500.0	91.15	270.00	7,061.0	1,158.8	-2,423.8	2,633.1	0.00	0.00	
9,600.0	91.15	270.00	7,059.0	1,158.8	-2,523.8	2,730.0	0.00	0.00	
9,700.0	91.15	270.00	7,057.0	1,158.8	-2,623.8	2,827.0	0.00	0.00	
9,800.0	91.15	270.00	7,055.0	1,158.8	-2,723.8	2,924.0	0.00	0.00	
9,900.0	91.15	270.00	7,052.9	1,158.8	-2,823.7	3,020.9	0.00	0.00	
10,000.0	91.15	270.00	7,050.9	1,158.8	-2,923.7	3,117.9	0.00	0.00	

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Site:	S32-T4N-R67W (Camenisch)	**North Reference:**	True
Well:	Camenisch #32-4H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #1		

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)	Comments / Formations
10,100.0	91.15	270.00	7,048.9	1,158.8	-3,023.7	3,214.9	0.00	0.00	
10,200.0	91.15	270.00	7,046.9	1,158.8	-3,123.7	3,311.9	0.00	0.00	
10,300.0	91.15	270.00	7,044.9	1,158.8	-3,223.7	3,408.8	0.00	0.00	
10,400.0	91.15	270.00	7,042.9	1,158.8	-3,323.6	3,505.8	0.00	0.00	
10,500.0	91.15	270.00	7,040.9	1,158.8	-3,423.6	3,602.8	0.00	0.00	
10,600.0	91.15	270.00	7,038.9	1,158.8	-3,523.6	3,699.7	0.00	0.00	
10,700.0	91.15	270.00	7,036.9	1,158.8	-3,623.6	3,796.7	0.00	0.00	
10,800.0	91.15	270.00	7,034.9	1,158.8	-3,723.6	3,893.7	0.00	0.00	
10,900.0	91.15	270.00	7,032.9	1,158.8	-3,823.5	3,990.6	0.00	0.00	
11,000.0	91.15	270.00	7,030.9	1,158.8	-3,923.5	4,087.6	0.00	0.00	
11,100.0	91.15	270.00	7,028.9	1,158.8	-4,023.5	4,184.6	0.00	0.00	
11,200.0	91.15	270.00	7,026.9	1,158.8	-4,123.5	4,281.5	0.00	0.00	
11,300.0	91.15	270.00	7,024.8	1,158.8	-4,223.5	4,378.5	0.00	0.00	
11,400.0	91.15	270.00	7,022.8	1,158.8	-4,323.4	4,475.5	0.00	0.00	
11,500.0	91.15	270.00	7,020.8	1,158.8	-4,423.4	4,572.5	0.00	0.00	
11,541.5	91.15	270.00	7,020.0	1,158.8	-4,464.9	4,612.7	0.00	0.00	TD at 11541.5 - #32-4H PBHL

Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
#32-4H PBHL - plan hits target center - Point	0.00	0.00	7,020.0	1,158.8	-4,464.9	1,340,809.77	3,161,396.53	40.267470	-104.921650

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
200.0	200.0	0.0	0.0	KOP @ 200'
1,233.6	1,228.0	92.4	10.4	EOB; Inc=10.34°
6,618.7	6,525.7	1,052.5	118.5	Start build/turn @ 6618' MD
7,541.5	7,100.3	1,158.8	-465.7	LP @ 7100' TVD; 91.15°
11.541.5	7.020.0	1.158.8	-4.464.9	TD at 11541.5

K. P. Kauffman Company, Inc.

Wattenberg
S32-T4N-R67W (Camenisch)
Camenisch #32-4H
HZ
Plan #1

Anticollision Report

19 July, 2013

Company:	K. P. Kauffman Company, Inc.	**Local Co-ordinate Reference:**	Well Camenisch #32-4H
Project:	Wattenberg	**TVD Reference:**	WELL @ 4890.0ft (Original Well Elev)
Reference Site:	S32-T4N-R67W (Camenisch)	**MD Reference:**	WELL @ 4890.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Camenisch #32-4H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Reference Plan #1

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 1,344.0ft	**Error Surface:**	Elliptical Conic
Warning Levels Evaluated at:	2.00 **Sigma**		

Survey Tool Program **Date** 7/19/2013

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	11,691.5	Plan #1 (HZ)	Geolink MWD	Geolink MWD

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
S32-T4N-R67W (Camenisch)						
Camenisch #32-5H - HZ - Plan #1	200.0	199.0	25.5	24.8	38.961	CC, ES
Camenisch #32-5H - HZ - Plan #1	11,691.5	11,648.2	309.6	77.2	1.332	Level 3, SF
Camenisch #32-6H - HZ - Plan #1	200.0	198.0	47.4	46.7	72.550	CC, ES
Camenisch #32-6H - HZ - Plan #1	11,691.5	11,590.0	1,205.8	973.4	5.189	SF
Camenisch #32-7H - HZ - Plan #1	200.0	198.0	69.2	68.6	106.041	CC
Camenisch #32-7H - HZ - Plan #1	400.0	400.1	69.6	68.3	51.347	ES
Camenisch #32-7H - HZ - Plan #1	11,691.5	11,594.7	972.7	740.3	4.185	SF
Camenisch #32-8H - HZ - Plan #1	200.0	197.0	91.1	90.5	139.959	CC, ES
Camenisch #32-8H - HZ - Plan #1	11,691.5	11,590.2	1,322.4	1,089.9	5.689	SF

Company:	K. P. Kauffman Company, Inc.	**Local Co-ordinate Reference:**	Well Camenisch #32-4H
Project:	Wattenberg	**TVD Reference:**	WELL @ 4890.0ft (Original Well Elev)
Reference Site:	S32-T4N-R67W (Camenisch)	**MD Reference:**	WELL @ 4890.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Camenisch #32-4H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S32-T4N-R67W (Camenisch) - Camenisch #32-5H - HZ - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-Geolink 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)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-180.00	-25.5	0.0	25.5				
100.0	100.0	99.0	99.0	0.2	0.2	-180.00	-25.5	0.0	25.5	25.2	0.31	83.431	
200.0	200.0	199.0	199.0	0.3	0.3	-180.00	-25.5	0.0	25.5	24.8	0.65	38.961	CC, ES
300.0	300.0	299.0	299.0	0.5	0.5	173.79	-25.5	0.0	26.4	25.4	1.00	26.276	
400.0	400.0	399.4	399.4	0.7	0.7	174.11	-24.6	0.1	28.1	26.8	1.35	20.783	
500.0	499.9	499.9	499.9	0.9	0.9	174.28	-22.1	0.5	29.9	28.2	1.70	17.545	
600.0	599.7	600.5	600.3	1.1	1.0	174.31	-17.7	1.2	31.6	29.6	2.05	15.410	
700.0	699.4	701.0	700.7	1.3	1.2	174.23	-11.6	2.1	33.4	31.0	2.40	13.895	
800.0	798.9	801.6	800.9	1.5	1.5	174.05	-3.8	3.2	35.1	32.4	2.75	12.762	
900.0	898.3	902.2	901.1	1.8	1.7	173.79	5.8	4.7	36.9	33.8	3.10	11.882	
1,000.0	997.4	1,002.8	1,001.1	2.0	1.9	173.45	17.1	6.4	38.6	35.2	3.45	11.177	
1,100.0	1,096.3	1,103.4	1,100.7	2.3	2.2	173.06	30.1	8.3	40.4	36.6	3.81	10.607	
1,200.0	1,194.9	1,203.3	1,199.8	2.7	2.5	172.88	43.6	10.3	43.3	39.2	4.16	10.415	
1,300.0	1,293.3	1,303.2	1,298.7	3.0	2.7	172.93	57.1	12.3	47.6	43.1	4.51	10.547	
1,400.0	1,391.7	1,403.1	1,397.7	3.3	3.0	172.98	70.5	14.3	52.0	47.1	4.87	10.675	
1,500.0	1,490.1	1,503.0	1,496.7	3.7	3.3	173.02	84.0	16.3	56.4	51.1	5.23	10.786	
1,600.0	1,588.5	1,602.9	1,595.6	4.0	3.6	173.06	97.5	18.4	60.8	55.2	5.58	10.882	
1,700.0	1,686.8	1,702.9	1,694.6	4.4	3.9	173.10	111.0	20.4	65.1	59.2	5.94	10.967	
1,800.0	1,785.2	1,802.8	1,793.6	4.7	4.2	173.13	124.5	22.4	69.5	63.2	6.30	11.042	
1,900.0	1,883.6	1,902.7	1,892.6	5.1	4.5	173.15	138.0	24.4	73.9	67.3	6.65	11.109	
2,000.0	1,982.0	2,002.6	1,991.5	5.4	4.8	173.18	151.5	26.4	78.3	71.3	7.01	11.170	
2,100.0	2,080.3	2,102.5	2,090.5	5.8	5.0	173.20	164.9	28.4	82.7	75.3	7.37	11.224	
2,200.0	2,178.7	2,202.4	2,189.5	6.1	5.3	173.21	178.4	30.4	87.1	79.3	7.72	11.273	
2,300.0	2,277.1	2,302.3	2,288.4	6.5	5.6	173.23	191.9	32.4	91.5	83.4	8.08	11.318	
2,400.0	2,375.5	2,402.2	2,387.4	6.8	5.9	173.25	205.4	34.4	95.8	87.4	8.44	11.359	
2,500.0	2,473.9	2,502.1	2,486.4	7.2	6.2	173.26	218.9	36.5	100.2	91.4	8.79	11.397	
2,600.0	2,572.2	2,602.0	2,585.3	7.6	6.5	173.27	232.4	38.5	104.6	95.5	9.15	11.432	
2,700.0	2,670.6	2,701.9	2,684.3	7.9	6.8	173.28	245.9	40.5	109.0	99.5	9.51	11.464	
2,800.0	2,769.0	2,801.8	2,783.3	8.3	7.1	173.30	259.3	42.5	113.4	103.5	9.86	11.494	
2,900.0	2,867.4	2,901.7	2,882.2	8.6	7.4	173.31	272.8	44.5	117.8	107.5	10.22	11.522	
3,000.0	2,965.7	3,001.6	2,981.2	9.0	7.7	173.32	286.3	46.5	122.1	111.6	10.58	11.548	
3,100.0	3,064.1	3,101.5	3,080.2	9.3	8.0	173.32	299.8	48.5	126.5	115.6	10.93	11.572	
3,200.0	3,162.5	3,201.4	3,179.2	9.7	8.3	173.33	313.3	50.5	130.9	119.6	11.29	11.594	
3,300.0	3,260.9	3,301.3	3,278.1	10.0	8.5	173.34	326.8	52.6	135.3	123.6	11.65	11.616	
3,400.0	3,359.2	3,401.2	3,377.1	10.4	8.8	173.35	340.3	54.6	139.7	127.7	12.00	11.636	
3,500.0	3,457.6	3,501.1	3,476.1	10.8	9.1	173.35	353.7	56.6	144.1	131.7	12.36	11.654	
3,600.0	3,556.0	3,601.0	3,575.0	11.1	9.4	173.36	367.2	58.6	148.5	135.7	12.72	11.672	
3,700.0	3,654.4	3,700.9	3,674.0	11.5	9.7	173.37	380.7	60.6	152.8	139.8	13.08	11.689	
3,800.0	3,752.8	3,800.8	3,773.0	11.8	10.0	173.37	394.2	62.6	157.2	143.8	13.43	11.705	
3,900.0	3,851.1	3,900.7	3,871.9	12.2	10.3	173.38	407.7	64.6	161.6	147.8	13.79	11.720	
4,000.0	3,949.5	4,000.6	3,970.9	12.5	10.6	173.38	421.2	66.6	166.0	151.8	14.15	11.734	
4,100.0	4,047.9	4,100.5	4,069.9	12.9	10.9	173.39	434.7	68.6	170.4	155.9	14.50	11.748	
4,200.0	4,146.3	4,200.4	4,168.8	13.3	11.2	173.39	448.1	70.7	174.8	159.9	14.86	11.761	
4,300.0	4,244.6	4,300.4	4,267.8	13.6	11.5	173.39	461.6	72.7	179.1	163.9	15.22	11.773	
4,400.0	4,343.0	4,400.3	4,366.8	14.0	11.8	173.40	475.1	74.7	183.5	168.0	15.57	11.785	
4,500.0	4,441.4	4,500.2	4,465.8	14.3	12.1	173.40	488.6	76.7	187.9	172.0	15.93	11.796	
4,600.0	4,539.8	4,600.1	4,564.7	14.7	12.4	173.41	502.1	78.7	192.3	176.0	16.29	11.807	
4,700.0	4,638.2	4,700.0	4,663.7	15.1	12.7	173.41	515.6	80.7	196.7	180.0	16.64	11.817	
4,800.0	4,736.5	4,799.9	4,762.7	15.4	13.0	173.41	529.1	82.7	201.1	184.1	17.00	11.827	
4,900.0	4,834.9	4,899.8	4,861.6	15.8	13.3	173.42	542.5	84.7	205.4	188.1	17.36	11.837	
5,000.0	4,933.3	4,999.7	4,960.6	16.1	13.5	173.42	556.0	86.8	209.8	192.1	17.71	11.846	
5,100.0	5,031.7	5,099.6	5,059.6	16.5	13.8	173.42	569.5	88.8	214.2	196.1	18.07	11.855	

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

Company:	K. P. Kauffman Company, Inc.	**Local Co-ordinate Reference:**	Well Camenisch #32-4H
Project:	Wattenberg	**TVD Reference:**	WELL @ 4890.0ft (Original Well Elev)
Reference Site:	S32-T4N-R67W (Camenisch)	**MD Reference:**	WELL @ 4890.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Camenisch #32-4H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S32-T4N-R67W (Camenisch) - Camenisch #32-5H - HZ - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-Geolink 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)	Total Uncertainty Axis	Separation Factor	Warning
5,200.0	5,130.0	5,199.5	5,158.5	16.8	14.1	173.42	583.0	90.8	218.6	200.2	18.43	11.863	
5,300.0	5,228.4	5,299.4	5,257.5	17.2	14.4	173.43	596.5	92.8	223.0	204.2	18.78	11.871	
5,400.0	5,326.8	5,399.3	5,356.5	17.6	14.7	173.43	610.0	94.8	227.4	208.2	19.14	11.879	
5,500.0	5,425.2	5,499.2	5,455.4	17.9	15.0	173.43	623.4	96.8	231.8	212.3	19.50	11.886	
5,600.0	5,523.5	5,599.1	5,554.4	18.3	15.3	173.44	636.9	98.8	236.1	216.3	19.85	11.894	
5,700.0	5,621.9	5,699.0	5,653.4	18.6	15.6	173.44	650.4	100.8	240.5	220.3	20.21	11.901	
5,800.0	5,720.3	5,798.9	5,752.3	19.0	15.9	173.44	663.9	102.9	244.9	224.3	20.57	11.907	
5,900.0	5,818.7	5,898.8	5,851.3	19.3	16.2	173.44	677.4	104.9	249.3	228.4	20.92	11.914	
6,000.0	5,917.1	5,998.7	5,950.3	19.7	16.5	173.44	690.9	106.9	253.7	232.4	21.28	11.920	
6,100.0	6,015.4	6,098.6	6,049.3	20.1	16.8	173.45	704.4	108.9	258.1	236.4	21.64	11.926	
6,200.0	6,113.8	6,198.5	6,148.2	20.4	17.1	173.45	717.8	110.9	262.4	240.5	22.00	11.932	
6,300.0	6,212.2	6,298.4	6,247.2	20.8	17.4	173.45	731.3	112.9	266.8	244.5	22.35	11.938	
6,400.0	6,310.6	6,398.3	6,346.2	21.1	17.7	173.45	744.8	114.9	271.2	248.5	22.71	11.943	
6,500.0	6,408.9	6,498.2	6,445.1	21.5	18.0	173.45	758.3	116.9	275.6	252.5	23.07	11.948	
6,600.0	6,507.3	6,598.2	6,544.2	21.9	18.3	173.55	771.8	118.5	280.0	256.6	23.41	11.960	
6,700.0	6,605.5	6,697.5	6,641.9	22.2	18.5	-144.61	785.1	107.9	284.4	260.9	23.55	12.075	
6,800.0	6,701.7	6,795.6	6,735.2	22.5	18.8	-118.58	797.9	81.0	288.9	265.2	23.76	12.161	
6,900.0	6,792.8	6,892.6	6,821.6	22.8	19.0	-106.92	809.8	38.9	293.4	269.2	24.16	12.146	
7,000.0	6,876.1	6,988.6	6,899.1	23.1	19.2	-100.47	820.6	-16.6	297.6	272.7	24.83	11.984	
7,100.0	6,949.1	7,083.9	6,965.8	23.5	19.5	-96.38	829.8	-83.8	301.3	275.5	25.88	11.644	
7,200.0	7,009.6	7,178.4	7,020.2	23.9	20.0	-93.64	837.5	-160.6	304.5	277.2	27.35	11.136	
7,300.0	7,055.7	7,272.4	7,061.2	24.3	20.5	-91.82	843.3	-244.9	307.0	277.8	29.26	10.492	
7,400.0	7,086.0	7,366.0	7,087.9	25.0	21.2	-90.71	847.2	-334.5	308.7	277.1	31.60	9.770	
7,500.0	7,099.6	7,459.5	7,099.8	25.7	22.1	-90.22	849.0	-427.0	309.6	275.3	34.29	9.028	
7,600.0	7,099.1	7,556.7	7,099.1	26.6	23.2	-90.19	849.2	-524.2	309.6	272.0	37.66	8.223	
7,700.0	7,097.1	7,656.7	7,097.1	27.8	24.6	-90.19	849.2	-624.2	309.6	268.1	41.55	7.453	
7,800.0	7,095.1	7,756.7	7,095.1	29.1	26.2	-90.19	849.2	-724.2	309.6	264.0	45.65	6.784	
7,900.0	7,093.1	7,856.7	7,093.1	30.6	28.0	-90.19	849.2	-824.2	309.6	259.7	49.90	6.205	
8,000.0	7,091.1	7,956.7	7,091.1	32.2	29.9	-90.19	849.2	-924.1	309.6	255.4	54.27	5.706	
8,100.0	7,089.1	8,056.7	7,089.1	34.0	31.9	-90.19	849.2	-1,024.1	309.6	250.9	58.73	5.272	
8,200.0	7,087.1	8,156.7	7,087.1	35.8	33.9	-90.19	849.2	-1,124.1	309.6	246.4	63.27	4.894	
8,300.0	7,085.1	8,256.7	7,085.1	37.8	36.0	-90.19	849.2	-1,224.1	309.6	241.8	67.86	4.563	
8,400.0	7,083.0	8,356.7	7,083.1	39.8	38.2	-90.19	849.2	-1,324.1	309.6	237.1	72.50	4.271	
8,500.0	7,081.0	8,456.7	7,081.0	41.9	40.4	-90.19	849.2	-1,424.0	309.6	232.5	77.18	4.012	
8,600.0	7,079.0	8,556.7	7,079.0	44.0	42.6	-90.19	849.2	-1,524.0	309.6	227.8	81.89	3.781	
8,700.0	7,077.0	8,656.7	7,077.0	46.2	44.9	-90.19	849.2	-1,624.0	309.6	223.0	86.62	3.575	
8,800.0	7,075.0	8,756.7	7,075.0	48.4	47.2	-90.19	849.2	-1,724.0	309.6	218.3	91.38	3.389	
8,900.0	7,073.0	8,856.7	7,073.0	50.7	49.5	-90.19	849.2	-1,824.0	309.6	213.5	96.16	3.220	
9,000.0	7,071.0	8,956.7	7,071.0	52.9	51.8	-90.19	849.2	-1,923.9	309.6	208.7	100.95	3.067	
9,100.0	7,069.0	9,056.7	7,069.0	55.2	54.2	-90.19	849.2	-2,023.9	309.6	203.9	105.76	2.928	
9,200.0	7,067.0	9,156.7	7,067.0	57.5	56.5	-90.19	849.2	-2,123.9	309.6	199.1	110.58	2.800	
9,300.0	7,065.0	9,256.7	7,065.0	59.8	58.9	-90.19	849.2	-2,223.9	309.6	194.2	115.41	2.683	
9,400.0	7,063.0	9,356.7	7,063.0	62.2	61.3	-90.19	849.2	-2,323.9	309.6	189.4	120.25	2.575	
9,500.0	7,061.0	9,456.7	7,061.0	64.5	63.6	-90.19	849.2	-2,423.8	309.6	184.5	125.10	2.475	
9,600.0	7,059.0	9,556.7	7,059.0	66.8	66.0	-90.19	849.2	-2,523.8	309.6	179.7	129.96	2.383	
9,700.0	7,057.0	9,656.7	7,057.0	69.2	68.4	-90.19	849.2	-2,623.8	309.6	174.8	134.82	2.297	
9,800.0	7,055.0	9,756.7	7,055.0	71.6	70.8	-90.19	849.2	-2,723.8	309.6	170.0	139.69	2.217	
9,900.0	7,052.9	9,856.7	7,052.9	74.0	73.2	-90.19	849.2	-2,823.8	309.6	165.1	144.56	2.142	
10,000.0	7,050.9	9,956.7	7,050.9	76.3	75.6	-90.19	849.2	-2,923.7	309.6	160.2	149.44	2.072	
10,100.0	7,048.9	10,056.7	7,048.9	78.7	78.0	-90.19	849.2	-3,023.7	309.6	155.3	154.32	2.006	
10,200.0	7,046.9	10,156.7	7,046.9	81.1	80.5	-90.19	849.2	-3,123.7	309.6	150.4	159.21	1.945	
10,300.0	7,044.9	10,256.7	7,044.9	83.5	82.9	-90.19	849.2	-3,223.7	309.6	145.5	164.10	1.887	

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

Company:	K. P. Kauffman Company, Inc.	**Local Co-ordinate Reference:**	Well Camenisch #32-4H
Project:	Wattenberg	**TVD Reference:**	WELL @ 4890.0ft (Original Well Elev)
Reference Site:	S32-T4N-R67W (Camenisch)	**MD Reference:**	WELL @ 4890.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Camenisch #32-4H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S32-T4N-R67W (Camenisch) - Camenisch #32-5H - HZ - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-Geolink 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)	Total Uncertainty Axis	Separation Factor	Warning
10,400.0	7,042.9	10,356.7	7,042.9	85.9	85.3	-90.19	849.2	-3,323.7	309.6	140.6	169.00	1.832	
10,500.0	7,040.9	10,456.7	7,040.9	88.3	87.7	-90.19	849.2	-3,423.6	309.6	135.8	173.89	1.781	
10,600.0	7,038.9	10,556.7	7,038.9	90.7	90.1	-90.19	849.2	-3,523.6	309.6	130.9	178.79	1.732	
10,700.0	7,036.9	10,656.7	7,036.9	93.2	92.6	-90.19	849.2	-3,623.6	309.6	125.9	183.70	1.686	
10,800.0	7,034.9	10,756.7	7,034.9	95.6	95.0	-90.19	849.2	-3,723.6	309.6	121.0	188.60	1.642	
10,900.0	7,032.9	10,856.7	7,032.9	98.0	97.4	-90.19	849.2	-3,823.6	309.6	116.1	193.51	1.600	
11,000.0	7,030.9	10,956.7	7,030.9	100.4	99.9	-90.19	849.2	-3,923.5	309.6	111.2	198.42	1.561	
11,100.0	7,028.9	11,056.7	7,028.9	102.8	102.3	-90.19	849.2	-4,023.5	309.6	106.3	203.33	1.523	
11,200.0	7,026.9	11,156.7	7,026.9	105.3	104.8	-90.19	849.2	-4,123.5	309.6	101.4	208.24	1.487	Level 3
11,300.0	7,024.8	11,256.7	7,024.8	107.7	107.2	-90.19	849.2	-4,223.5	309.6	96.5	213.16	1.453	Level 3
11,400.0	7,022.8	11,356.7	7,022.8	110.1	109.6	-90.19	849.2	-4,323.5	309.6	91.6	218.07	1.420	Level 3
11,500.0	7,020.8	11,456.7	7,020.8	112.6	112.1	-90.19	849.2	-4,423.4	309.6	86.7	222.99	1.389	Level 3
11,600.0	7,018.8	11,556.7	7,018.8	115.0	114.5	-90.19	849.2	-4,523.4	309.6	81.7	227.91	1.359	Level 3
11,691.5	7,017.0	11,648.2	7,017.0	117.2	116.8	-90.19	849.2	-4,614.9	309.6	77.2	232.41	1.332	Level 3, SF

Company:	K. P. Kauffman Company, Inc.	**Local Co-ordinate Reference:**	Well Camenisch #32-4H
Project:	Wattenberg	**TVD Reference:**	WELL @ 4890.0ft (Original Well Elev)
Reference Site:	S32-T4N-R67W (Camenisch)	**MD Reference:**	WELL @ 4890.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Camenisch #32-4H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S32-T4N-R67W (Camenisch) - Camenisch #32-6H - HZ - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-Geolink 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)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	180.00	-47.4	0.0	47.4				
100.0	100.0	98.0	98.0	0.2	0.2	180.00	-47.4	0.0	47.4	47.1	0.30	155.726	
200.0	200.0	198.0	198.0	0.3	0.3	180.00	-47.4	0.0	47.4	46.7	0.65	72.550	CC, ES
300.0	300.0	298.0	298.0	0.5	0.5	173.69	-47.4	0.0	48.2	47.2	1.00	48.141	
400.0	400.0	398.0	398.0	0.7	0.7	174.01	-47.4	0.0	50.8	49.5	1.35	37.637	
500.0	499.9	497.9	497.9	0.9	0.8	174.48	-47.4	0.0	55.2	53.5	1.70	32.475	
600.0	599.7	597.7	597.7	1.1	1.0	175.03	-47.4	0.0	61.2	59.2	2.05	29.929	
700.0	699.4	697.4	697.4	1.3	1.2	175.59	-47.4	0.0	69.1	66.7	2.39	28.858	
800.0	798.9	796.9	796.9	1.5	1.4	176.12	-47.4	0.0	78.6	75.9	2.74	28.704	
900.0	898.3	896.3	896.3	1.8	1.5	176.60	-47.4	0.0	89.9	86.8	3.08	29.160	
1,000.0	997.4	995.4	995.4	2.0	1.7	177.02	-47.4	0.0	103.0	99.5	3.43	30.042	
1,100.0	1,096.3	1,094.4	1,094.4	2.3	1.9	177.01	-47.4	0.8	117.7	113.9	3.77	31.215	
1,200.0	1,194.9	1,193.1	1,193.1	2.7	2.1	176.47	-47.3	2.8	134.0	129.9	4.11	32.596	
1,300.0	1,293.3	1,291.5	1,291.5	3.0	2.2	176.07	-47.3	5.0	151.7	147.3	4.46	34.035	
1,400.0	1,391.7	1,389.9	1,389.9	3.3	2.4	175.75	-47.3	7.1	169.5	164.7	4.81	35.266	
1,500.0	1,490.1	1,488.3	1,488.2	3.7	2.6	175.49	-47.3	9.3	187.3	182.2	5.16	36.329	
1,600.0	1,588.5	1,586.7	1,586.6	4.0	2.8	175.28	-47.3	11.4	205.1	199.6	5.51	37.254	
1,700.0	1,686.8	1,685.1	1,685.0	4.4	2.9	175.10	-47.3	13.5	223.0	217.1	5.86	38.067	
1,800.0	1,785.2	1,783.5	1,783.4	4.7	3.1	174.95	-47.3	15.7	240.8	234.6	6.21	38.786	
1,900.0	1,883.6	1,881.9	1,881.7	5.1	3.3	174.82	-47.3	17.8	258.6	252.0	6.56	39.427	
2,000.0	1,982.0	1,980.3	1,980.1	5.4	3.5	174.71	-47.3	19.9	276.4	269.5	6.91	40.002	
2,100.0	2,080.3	2,078.7	2,078.5	5.8	3.6	174.60	-47.3	22.1	294.2	287.0	7.26	40.521	
2,200.0	2,178.7	2,177.1	2,176.9	6.1	3.8	174.52	-47.3	24.2	312.0	304.4	7.61	40.991	
2,300.0	2,277.1	2,275.5	2,275.2	6.5	4.0	174.44	-47.3	26.3	329.9	321.9	7.96	41.419	
2,400.0	2,375.5	2,373.9	2,373.6	6.8	4.2	174.37	-47.3	28.5	347.7	339.4	8.32	41.810	
2,500.0	2,473.9	2,472.3	2,472.0	7.2	4.3	174.30	-47.3	30.6	365.5	356.8	8.67	42.168	
2,600.0	2,572.2	2,570.7	2,570.4	7.6	4.5	174.24	-47.3	32.8	383.3	374.3	9.02	42.499	
2,700.0	2,670.6	2,669.1	2,668.7	7.9	4.7	174.19	-47.2	34.9	401.1	391.8	9.37	42.804	
2,800.0	2,769.0	2,767.5	2,767.1	8.3	4.9	174.14	-47.2	37.0	418.9	409.2	9.72	43.087	
2,900.0	2,867.4	2,865.9	2,865.5	8.6	5.0	174.10	-47.2	39.2	436.8	426.7	10.08	43.350	
3,000.0	2,965.7	2,964.3	2,963.9	9.0	5.2	174.06	-47.2	41.3	454.6	444.2	10.43	43.595	
3,100.0	3,064.1	3,062.7	3,062.2	9.3	5.4	174.02	-47.2	43.4	472.4	461.6	10.78	43.823	
3,200.0	3,162.5	3,161.1	3,160.6	9.7	5.6	173.98	-47.2	45.6	490.2	479.1	11.13	44.037	
3,300.0	3,260.9	3,259.5	3,259.0	10.0	5.7	173.95	-47.2	47.7	508.1	496.6	11.48	44.238	
3,400.0	3,359.2	3,357.9	3,357.4	10.4	5.9	173.92	-47.2	49.8	525.9	514.0	11.84	44.426	
3,500.0	3,457.6	3,456.3	3,455.7	10.8	6.1	173.89	-47.2	52.0	543.7	531.5	12.19	44.604	
3,600.0	3,556.0	3,554.7	3,554.1	11.1	6.3	173.86	-47.2	54.1	561.5	549.0	12.54	44.771	
3,700.0	3,654.4	3,653.1	3,652.5	11.5	6.4	173.84	-47.2	56.3	579.3	566.4	12.89	44.929	
3,800.0	3,752.8	3,751.5	3,750.9	11.8	6.6	173.82	-47.2	58.4	597.2	583.9	13.25	45.079	
3,900.0	3,851.1	3,849.9	3,849.2	12.2	6.8	173.79	-47.2	60.5	615.0	601.4	13.60	45.221	
4,000.0	3,949.5	3,948.3	3,947.6	12.5	7.0	173.77	-47.2	62.7	632.8	618.9	13.95	45.355	
4,100.0	4,047.9	4,046.7	4,046.0	12.9	7.1	173.75	-47.2	64.8	650.6	636.3	14.30	45.483	
4,200.0	4,146.3	4,145.1	4,144.4	13.3	7.3	173.73	-47.1	66.9	668.5	653.8	14.66	45.605	
4,300.0	4,244.6	4,243.5	4,242.8	13.6	7.5	173.72	-47.1	69.1	686.3	671.3	15.01	45.721	
4,400.0	4,343.0	4,341.9	4,341.1	14.0	7.7	173.70	-47.1	71.2	704.1	688.7	15.36	45.831	
4,500.0	4,441.4	4,440.3	4,439.5	14.3	7.8	173.68	-47.1	73.3	721.9	706.2	15.72	45.937	
4,600.0	4,539.8	4,538.7	4,537.9	14.7	8.0	173.67	-47.1	75.5	739.7	723.7	16.07	46.038	
4,700.0	4,638.2	4,637.1	4,636.3	15.1	8.2	173.65	-47.1	77.6	757.6	741.1	16.42	46.134	
4,800.0	4,736.5	4,735.5	4,734.6	15.4	8.4	173.64	-47.1	79.8	775.4	758.6	16.77	46.226	
4,900.0	4,834.9	4,833.9	4,833.0	15.8	8.5	173.63	-47.1	81.9	793.2	776.1	17.13	46.315	
5,000.0	4,933.3	4,932.3	4,931.4	16.1	8.7	173.61	-47.1	84.0	811.0	793.6	17.48	46.400	
5,100.0	5,031.7	5,030.7	5,029.8	16.5	8.9	173.60	-47.1	86.2	828.9	811.0	17.83	46.481	

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

Company:	K. P. Kauffman Company, Inc.	**Local Co-ordinate Reference:**	Well Camenisch #32-4H
Project:	Wattenberg	**TVD Reference:**	WELL @ 4890.0ft (Original Well Elev)
Reference Site:	S32-T4N-R67W (Camenisch)	**MD Reference:**	WELL @ 4890.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Camenisch #32-4H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S32-T4N-R67W (Camenisch) - Camenisch #32-6H - HZ - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-Geolink 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)	Total Uncertainty Axis	Separation Factor	Warning
5,200.0	5,130.0	5,129.1	5,128.1	16.8	9.1	173.59	-47.1	88.3	846.7	828.5	18.18	46.560	
5,300.0	5,228.4	5,227.5	5,226.5	17.2	9.2	173.58	-47.1	90.4	864.5	846.0	18.54	46.635	
5,400.0	5,326.8	5,325.9	5,324.9	17.6	9.4	173.57	-47.1	92.6	882.3	863.4	18.89	46.707	
5,500.0	5,425.2	5,424.3	5,423.3	17.9	9.6	173.56	-47.1	94.7	900.1	880.9	19.24	46.777	
5,600.0	5,523.5	5,522.7	5,521.6	18.3	9.8	173.55	-47.1	96.8	918.0	898.4	19.60	46.845	
5,700.0	5,621.9	5,621.1	5,620.0	18.6	9.9	173.54	-47.0	99.0	935.8	915.8	19.95	46.909	
5,800.0	5,720.3	5,719.5	5,718.4	19.0	10.1	173.53	-47.0	101.1	953.6	933.3	20.30	46.972	
5,900.0	5,818.7	5,817.9	5,816.8	19.3	10.3	173.52	-47.0	103.2	971.4	950.8	20.65	47.032	
6,000.0	5,917.1	5,916.3	5,915.1	19.7	10.5	173.51	-47.0	105.4	989.3	968.3	21.01	47.091	
6,100.0	6,015.4	6,014.7	6,013.5	20.1	10.6	173.50	-47.0	107.5	1,007.1	985.7	21.36	47.147	
6,200.0	6,113.8	6,113.1	6,111.9	20.4	10.8	173.50	-47.0	109.7	1,024.9	1,003.2	21.71	47.202	
6,300.0	6,212.2	6,211.5	6,210.3	20.8	11.0	173.49	-47.0	111.8	1,042.7	1,020.7	22.07	47.255	
6,400.0	6,310.6	6,309.9	6,308.6	21.1	11.2	173.48	-47.0	113.9	1,060.6	1,038.1	22.42	47.306	
6,500.0	6,408.9	6,408.3	6,407.0	21.5	11.3	173.47	-47.0	116.1	1,078.4	1,055.6	22.77	47.355	
6,600.0	6,507.3	6,506.7	6,505.4	21.9	11.5	173.47	-47.0	118.2	1,096.2	1,073.1	23.12	47.403	
6,700.0	6,605.5	6,605.0	6,603.5	22.2	11.7	-144.91	-47.0	113.5	1,114.0	1,090.7	23.35	47.707	
6,800.0	6,701.7	6,703.3	6,699.3	22.5	11.8	-118.86	-47.0	92.2	1,131.5	1,107.9	23.56	48.017	
6,900.0	6,792.8	6,801.6	6,790.1	22.8	11.9	-107.16	-47.0	54.8	1,148.2	1,124.3	23.89	48.066	
7,000.0	6,876.1	6,900.2	6,873.4	23.1	12.1	-100.64	-47.0	2.3	1,163.5	1,139.0	24.43	47.629	
7,100.0	6,949.1	6,999.1	6,946.7	23.5	12.4	-96.48	-47.0	-63.9	1,176.9	1,151.6	25.31	46.496	
7,200.0	7,009.6	7,098.4	7,007.8	23.9	13.0	-93.67	-47.0	-142.1	1,188.2	1,161.5	26.67	44.546	
7,300.0	7,055.7	7,198.1	7,054.6	24.3	14.0	-91.79	-46.9	-230.0	1,196.8	1,168.2	28.60	41.848	
7,400.0	7,086.0	7,298.2	7,085.6	25.0	15.3	-90.64	-46.9	-325.0	1,202.7	1,171.6	31.10	38.667	
7,500.0	7,099.6	7,398.4	7,099.6	25.7	16.9	-90.13	-46.9	-424.1	1,205.5	1,171.4	34.09	35.364	
7,600.0	7,099.1	7,498.6	7,099.1	26.6	18.8	-90.10	-46.9	-524.2	1,205.8	1,168.2	37.59	32.077	
7,700.0	7,097.1	7,598.6	7,097.1	27.8	20.7	-90.10	-46.9	-624.2	1,205.8	1,164.3	41.49	29.062	
7,800.0	7,095.1	7,698.6	7,095.1	29.1	22.8	-90.10	-46.9	-724.2	1,205.8	1,160.2	45.59	26.446	
7,900.0	7,093.1	7,798.6	7,093.1	30.6	24.9	-90.10	-46.9	-824.2	1,205.8	1,155.9	49.85	24.187	
8,000.0	7,091.1	7,898.6	7,091.1	32.2	27.1	-90.10	-46.9	-924.2	1,205.8	1,151.6	54.23	22.236	
8,100.0	7,089.1	7,998.6	7,089.1	34.0	29.3	-90.10	-46.9	-1,024.1	1,205.8	1,147.1	58.69	20.544	
8,200.0	7,087.1	8,098.6	7,087.1	35.8	31.6	-90.10	-46.9	-1,124.1	1,205.8	1,142.6	63.23	19.070	
8,300.0	7,085.1	8,198.6	7,085.1	37.8	33.9	-90.10	-46.9	-1,224.1	1,205.8	1,138.0	67.82	17.778	
8,400.0	7,083.0	8,298.6	7,083.1	39.8	36.2	-90.10	-46.9	-1,324.1	1,205.8	1,133.3	72.47	16.639	
8,500.0	7,081.0	8,398.6	7,081.0	41.9	38.5	-90.10	-46.9	-1,424.1	1,205.8	1,128.6	77.15	15.630	
8,600.0	7,079.0	8,498.6	7,079.0	44.0	40.9	-90.10	-46.9	-1,524.0	1,205.8	1,123.9	81.86	14.731	
8,700.0	7,077.0	8,598.6	7,077.0	46.2	43.3	-90.10	-46.9	-1,624.0	1,205.8	1,119.2	86.59	13.925	
8,800.0	7,075.0	8,698.6	7,075.0	48.4	45.7	-90.10	-46.9	-1,724.0	1,205.8	1,114.4	91.35	13.199	
8,900.0	7,073.0	8,798.6	7,073.0	50.7	48.0	-90.10	-46.9	-1,824.0	1,205.8	1,109.7	96.13	12.543	
9,000.0	7,071.0	8,898.6	7,071.0	52.9	50.4	-90.10	-46.9	-1,924.0	1,205.8	1,104.9	100.93	11.947	
9,100.0	7,069.0	8,998.6	7,069.0	55.2	52.8	-90.10	-46.9	-2,023.9	1,205.8	1,100.1	105.73	11.404	
9,200.0	7,067.0	9,098.6	7,067.0	57.5	55.3	-90.10	-46.9	-2,123.9	1,205.8	1,095.2	110.56	10.907	
9,300.0	7,065.0	9,198.6	7,065.0	59.8	57.7	-90.10	-46.9	-2,223.9	1,205.8	1,090.4	115.39	10.450	
9,400.0	7,063.0	9,298.6	7,063.0	62.2	60.1	-90.10	-46.9	-2,323.9	1,205.8	1,085.6	120.23	10.029	
9,500.0	7,061.0	9,398.6	7,061.0	64.5	62.5	-90.10	-46.9	-2,423.9	1,205.8	1,080.7	125.08	9.640	
9,600.0	7,059.0	9,498.6	7,059.0	66.8	65.0	-90.10	-46.9	-2,523.8	1,205.8	1,075.9	129.93	9.280	
9,700.0	7,057.0	9,598.6	7,057.0	69.2	67.4	-90.10	-46.9	-2,623.8	1,205.8	1,071.0	134.80	8.945	
9,800.0	7,055.0	9,698.6	7,055.0	71.6	69.8	-90.10	-46.9	-2,723.8	1,205.8	1,066.1	139.67	8.633	
9,900.0	7,052.9	9,798.6	7,052.9	74.0	72.3	-90.10	-46.9	-2,823.8	1,205.8	1,061.3	144.54	8.342	
10,000.0	7,050.9	9,898.6	7,050.9	76.3	74.7	-90.10	-46.9	-2,923.8	1,205.8	1,056.4	149.42	8.070	
10,100.0	7,048.9	9,998.6	7,048.9	78.7	77.1	-90.10	-46.9	-3,023.7	1,205.8	1,051.5	154.31	7.814	
10,200.0	7,046.9	10,098.6	7,046.9	81.1	79.6	-90.10	-46.9	-3,123.7	1,205.8	1,046.6	159.19	7.574	
10,300.0	7,044.9	10,198.6	7,044.9	83.5	82.0	-90.10	-46.9	-3,223.7	1,205.8	1,041.7	164.08	7.349	

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

Company:	K. P. Kauffman Company, Inc.	**Local Co-ordinate Reference:**	Well Camenisch #32-4H
Project:	Wattenberg	**TVD Reference:**	WELL @ 4890.0ft (Original Well Elev)
Reference Site:	S32-T4N-R67W (Camenisch)	**MD Reference:**	WELL @ 4890.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Camenisch #32-4H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S32-T4N-R67W (Camenisch) - Camenisch #32-6H - HZ - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-Geolink 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)	Total Uncertainty Axis	Separation Factor	Warning
10,400.0	7,042.9	10,298.6	7,042.9	85.9	84.5	-90.10	-46.9	-3,323.7	1,205.8	1,036.8	168.98	7.136	
10,500.0	7,040.9	10,398.6	7,040.9	88.3	86.9	-90.10	-46.9	-3,423.7	1,205.8	1,031.9	173.88	6.935	
10,600.0	7,038.9	10,498.6	7,038.9	90.7	89.4	-90.10	-46.9	-3,523.6	1,205.8	1,027.0	178.78	6.745	
10,700.0	7,036.9	10,598.6	7,036.9	93.2	91.8	-90.10	-46.9	-3,623.6	1,205.8	1,022.1	183.68	6.565	
10,800.0	7,034.9	10,698.6	7,034.9	95.6	94.3	-90.10	-46.9	-3,723.6	1,205.8	1,017.2	188.58	6.394	
10,900.0	7,032.9	10,798.6	7,032.9	98.0	96.7	-90.10	-46.9	-3,823.6	1,205.8	1,012.3	193.49	6.232	
11,000.0	7,030.9	10,898.6	7,030.9	100.4	99.2	-90.10	-46.9	-3,923.6	1,205.8	1,007.4	198.40	6.078	
11,100.0	7,028.9	10,998.6	7,028.9	102.8	101.6	-90.10	-46.9	-4,023.5	1,205.8	1,002.5	203.31	5.931	
11,200.0	7,026.9	11,098.6	7,026.9	105.3	104.1	-90.10	-46.9	-4,123.5	1,205.8	997.6	208.22	5.791	
11,300.0	7,024.8	11,198.6	7,024.9	107.7	106.6	-90.10	-46.9	-4,223.5	1,205.8	992.7	213.14	5.657	
11,400.0	7,022.8	11,298.6	7,022.8	110.1	109.0	-90.10	-46.9	-4,323.5	1,205.8	987.7	218.06	5.530	
11,500.0	7,020.8	11,398.6	7,020.8	112.6	111.5	-90.10	-46.9	-4,423.5	1,205.8	982.8	222.97	5.408	
11,600.0	7,018.8	11,498.6	7,018.8	115.0	113.9	-90.10	-46.9	-4,523.4	1,205.8	977.9	227.89	5.291	
11,691.5	7,017.0	11,590.0	7,017.0	117.2	116.2	-90.10	-46.9	-4,614.9	1,205.8	973.4	232.39	5.189	SF

Company:	K. P. Kauffman Company, Inc.	**Local Co-ordinate Reference:**	Well Camenisch #32-4H
Project:	Wattenberg	**TVD Reference:**	WELL @ 4890.0ft (Original Well Elev)
Reference Site:	S32-T4N-R67W (Camenisch)	**MD Reference:**	WELL @ 4890.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Camenisch #32-4H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S32-T4N-R67W (Camenisch) - Camenisch #32-7H - HZ - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-Geolink 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)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-180.00	-69.2	0.0	69.2				
100.0	100.0	98.0	98.0	0.2	0.2	-180.00	-69.2	0.0	69.2	68.9	0.30	227.614	
200.0	200.0	198.0	198.0	0.3	0.3	-180.00	-69.2	0.0	69.2	68.6	0.65	106.041	CC
300.0	300.0	299.1	299.1	0.5	0.5	173.34	-68.5	0.4	69.3	68.3	1.00	69.069	
400.0	400.0	400.1	400.1	0.7	0.7	172.60	-66.1	1.6	69.6	68.3	1.36	51.347	ES
500.0	499.9	500.6	500.5	0.9	0.9	171.50	-62.5	3.4	70.4	68.7	1.71	41.198	
600.0	599.7	600.5	600.3	1.1	1.1	170.60	-58.7	5.3	72.7	70.7	2.06	35.303	
700.0	699.4	700.5	700.2	1.3	1.2	169.98	-55.0	7.3	76.8	74.4	2.41	31.842	
800.0	798.9	800.3	799.9	1.5	1.4	169.64	-51.2	9.2	82.6	79.9	2.77	29.884	
900.0	898.3	900.0	899.5	1.8	1.6	169.55	-47.5	11.1	90.2	87.1	3.12	28.920	
1,000.0	997.4	999.6	999.0	2.0	1.8	169.65	-43.7	13.0	99.4	95.9	3.47	28.650	
1,100.0	1,096.3	1,099.0	1,098.3	2.3	2.0	169.89	-40.0	14.9	110.4	106.5	3.82	28.885	
1,200.0	1,194.9	1,198.2	1,197.4	2.7	2.2	170.22	-36.3	16.8	123.0	118.9	4.17	29.500	
1,300.0	1,293.3	1,297.2	1,296.3	3.0	2.4	170.59	-32.5	18.7	137.0	132.5	4.52	30.298	
1,400.0	1,391.7	1,396.2	1,395.2	3.3	2.6	170.91	-28.8	20.5	151.1	146.3	4.88	30.990	
1,500.0	1,490.1	1,495.2	1,494.2	3.7	2.7	171.17	-25.1	22.4	165.2	160.0	5.23	31.590	
1,600.0	1,588.5	1,594.2	1,593.1	4.0	2.9	171.39	-21.4	24.3	179.3	173.8	5.58	32.115	
1,700.0	1,686.8	1,693.2	1,692.0	4.4	3.1	171.58	-17.7	26.2	193.4	187.5	5.94	32.579	
1,800.0	1,785.2	1,792.2	1,790.9	4.7	3.3	171.75	-13.9	28.1	207.6	201.3	6.29	32.991	
1,900.0	1,883.6	1,891.2	1,889.8	5.1	3.5	171.89	-10.2	30.0	221.7	215.0	6.64	33.359	
2,000.0	1,982.0	1,990.2	1,988.7	5.4	3.7	172.02	-6.5	31.9	235.8	228.8	7.00	33.691	
2,100.0	2,080.3	2,089.2	2,087.6	5.8	3.9	172.13	-2.8	33.8	249.9	242.5	7.35	33.992	
2,200.0	2,178.7	2,188.2	2,186.5	6.1	4.1	172.23	0.9	35.7	264.0	256.3	7.70	34.265	
2,300.0	2,277.1	2,287.1	2,285.4	6.5	4.2	172.32	4.7	37.6	278.1	270.1	8.06	34.514	
2,400.0	2,375.5	2,386.1	2,384.3	6.8	4.4	172.40	8.4	39.5	292.2	283.8	8.41	34.743	
2,500.0	2,473.9	2,485.1	2,483.3	7.2	4.6	172.47	12.1	41.3	306.3	297.6	8.76	34.953	
2,600.0	2,572.2	2,584.1	2,582.2	7.6	4.8	172.54	15.8	43.2	320.5	311.3	9.12	35.147	
2,700.0	2,670.6	2,683.1	2,681.1	7.9	5.0	172.60	19.5	45.1	334.6	325.1	9.47	35.327	
2,800.0	2,769.0	2,782.1	2,780.0	8.3	5.2	172.66	23.3	47.0	348.7	338.9	9.82	35.494	
2,900.0	2,867.4	2,881.1	2,878.9	8.6	5.4	172.71	27.0	48.9	362.8	352.6	10.18	35.650	
3,000.0	2,965.7	2,980.1	2,977.8	9.0	5.5	172.76	30.7	50.8	376.9	366.4	10.53	35.795	
3,100.0	3,064.1	3,079.1	3,076.7	9.3	5.7	172.80	34.4	52.7	391.0	380.2	10.88	35.931	
3,200.0	3,162.5	3,178.1	3,175.6	9.7	5.9	172.84	38.1	54.6	405.2	393.9	11.24	36.058	
3,300.0	3,260.9	3,277.1	3,274.5	10.0	6.1	172.88	41.9	56.5	419.3	407.7	11.59	36.178	
3,400.0	3,359.2	3,376.1	3,373.4	10.4	6.3	172.92	45.6	58.4	433.4	421.5	11.94	36.290	
3,500.0	3,457.6	3,475.1	3,472.4	10.8	6.5	172.95	49.3	60.3	447.5	435.2	12.30	36.397	
3,600.0	3,556.0	3,574.1	3,571.3	11.1	6.7	172.98	53.0	62.2	461.6	449.0	12.65	36.497	
3,700.0	3,654.4	3,673.1	3,670.2	11.5	6.9	173.01	56.7	64.0	475.8	462.7	13.00	36.592	
3,800.0	3,752.8	3,772.1	3,769.1	11.8	7.0	173.04	60.5	65.9	489.9	476.5	13.35	36.682	
3,900.0	3,851.1	3,871.1	3,868.0	12.2	7.2	173.07	64.2	67.8	504.0	490.3	13.71	36.767	
4,000.0	3,949.5	3,970.1	3,966.9	12.5	7.4	173.09	67.9	69.7	518.1	504.0	14.06	36.848	
4,100.0	4,047.9	4,069.1	4,065.8	12.9	7.6	173.12	71.6	71.6	532.2	517.8	14.41	36.925	
4,200.0	4,146.3	4,168.1	4,164.7	13.3	7.8	173.14	75.3	73.5	546.3	531.6	14.77	36.998	
4,300.0	4,244.6	4,267.1	4,263.6	13.6	8.0	173.16	79.1	75.4	560.5	545.3	15.12	37.068	
4,400.0	4,343.0	4,366.1	4,362.5	14.0	8.2	173.18	82.8	77.3	574.6	559.1	15.47	37.135	
4,500.0	4,441.4	4,465.1	4,461.5	14.3	8.4	173.20	86.5	79.2	588.7	572.9	15.83	37.199	
4,600.0	4,539.8	4,564.1	4,560.4	14.7	8.5	173.22	90.2	81.1	602.8	586.6	16.18	37.260	
4,700.0	4,638.2	4,663.1	4,659.3	15.1	8.7	173.24	93.9	83.0	616.9	600.4	16.53	37.319	
4,800.0	4,736.5	4,762.1	4,758.2	15.4	8.9	173.25	97.7	84.8	631.1	614.2	16.88	37.375	
4,900.0	4,834.9	4,861.1	4,857.1	15.8	9.1	173.27	101.4	86.7	645.2	627.9	17.24	37.429	
5,000.0	4,933.3	4,960.1	4,956.0	16.1	9.3	173.29	105.1	88.6	659.3	641.7	17.59	37.480	
5,100.0	5,031.7	5,059.1	5,054.9	16.5	9.5	173.30	108.8	90.5	673.4	655.5	17.94	37.530	

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

Company:	K. P. Kauffman Company, Inc.	**Local Co-ordinate Reference:**	Well Camenisch #32-4H
Project:	Wattenberg	**TVD Reference:**	WELL @ 4890.0ft (Original Well Elev)
Reference Site:	S32-T4N-R67W (Camenisch)	**MD Reference:**	WELL @ 4890.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Camenisch #32-4H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S32-T4N-R67W (Camenisch) - Camenisch #32-7H - HZ - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-Geolink 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)	Total Uncertainty Axis	Separation Factor	Warning
5,200.0	5,130.0	5,158.1	5,153.8	16.8	9.7	173.31	112.5	92.4	687.5	669.2	18.30	37.577	
5,300.0	5,228.4	5,257.1	5,252.7	17.2	9.9	173.33	116.3	94.3	701.7	683.0	18.65	37.623	
5,400.0	5,326.8	5,356.1	5,351.6	17.6	10.0	173.34	120.0	96.2	715.8	696.8	19.00	37.668	
5,500.0	5,425.2	5,455.1	5,450.6	17.9	10.2	173.35	123.7	98.1	729.9	710.5	19.36	37.710	
5,600.0	5,523.5	5,554.1	5,549.5	18.3	10.4	173.37	127.4	100.0	744.0	724.3	19.71	37.751	
5,700.0	5,621.9	5,653.1	5,648.4	18.6	10.6	173.38	131.1	101.9	758.1	738.1	20.06	37.791	
5,800.0	5,720.3	5,752.1	5,747.3	19.0	10.8	173.39	134.9	103.8	772.3	751.8	20.41	37.829	
5,900.0	5,818.7	5,851.1	5,846.2	19.3	11.0	173.40	138.6	105.7	786.4	765.6	20.77	37.866	
6,000.0	5,917.1	5,950.1	5,945.1	19.7	11.2	173.41	142.3	107.5	800.5	779.4	21.12	37.902	
6,100.0	6,015.4	6,049.1	6,044.0	20.1	11.4	173.42	146.0	109.4	814.6	793.1	21.47	37.936	
6,200.0	6,113.8	6,148.1	6,142.9	20.4	11.5	173.43	149.7	111.3	828.7	806.9	21.83	37.970	
6,300.0	6,212.2	6,247.1	6,241.8	20.8	11.7	173.44	153.5	113.2	842.9	820.7	22.18	38.002	
6,400.0	6,310.6	6,346.1	6,340.7	21.1	11.9	173.45	157.2	115.1	857.0	834.4	22.53	38.034	
6,500.0	6,408.9	6,445.1	6,439.7	21.5	12.1	173.46	160.9	117.0	871.1	848.2	22.88	38.064	
6,600.0	6,507.3	6,544.1	6,538.6	21.9	12.3	173.49	164.6	118.5	885.2	862.0	23.23	38.102	
6,700.0	6,605.5	6,642.5	6,636.3	22.2	12.4	-144.83	168.3	108.2	899.3	875.9	23.42	38.395	
6,800.0	6,701.7	6,739.9	6,729.8	22.5	12.5	-118.79	171.8	81.8	913.3	889.6	23.62	38.657	
6,900.0	6,792.8	6,836.3	6,816.7	22.8	12.7	-107.10	175.1	40.3	926.5	902.6	23.97	38.653	
7,000.0	6,876.1	6,932.1	6,894.9	23.1	12.8	-100.60	178.1	-14.7	938.8	914.2	24.57	38.209	
7,100.0	6,949.1	7,027.4	6,962.6	23.5	13.2	-96.46	180.7	-81.5	949.5	924.0	25.53	37.188	
7,200.0	7,009.6	7,122.2	7,018.0	23.9	13.7	-93.67	182.9	-158.3	958.5	931.6	26.96	35.559	
7,300.0	7,055.7	7,216.8	7,060.0	24.3	14.6	-91.80	184.5	-243.0	965.5	936.6	28.89	33.418	
7,400.0	7,086.0	7,311.2	7,087.4	25.0	15.9	-90.66	185.6	-333.2	970.2	938.8	31.32	30.971	
7,500.0	7,099.6	7,405.6	7,099.7	25.7	17.3	-90.15	186.1	-426.6	972.4	938.3	34.17	28.460	
7,600.0	7,099.1	7,503.2	7,099.1	26.6	19.1	-90.12	186.2	-524.2	972.7	935.1	37.60	25.869	
7,700.0	7,097.1	7,603.2	7,097.1	27.8	21.0	-90.12	186.2	-624.2	972.7	931.2	41.50	23.438	
7,800.0	7,095.1	7,703.2	7,095.1	29.1	23.0	-90.12	186.2	-724.2	972.7	927.0	45.60	21.329	
7,900.0	7,093.1	7,803.2	7,093.1	30.6	25.1	-90.12	186.2	-824.2	972.7	922.8	49.86	19.508	
8,000.0	7,091.1	7,903.2	7,091.1	32.2	27.3	-90.12	186.2	-924.2	972.7	918.4	54.23	17.935	
8,100.0	7,089.1	8,003.2	7,089.1	34.0	29.5	-90.12	186.2	-1,024.1	972.7	914.0	58.70	16.570	
8,200.0	7,087.1	8,103.2	7,087.1	35.8	31.8	-90.12	186.2	-1,124.1	972.7	909.4	63.24	15.381	
8,300.0	7,085.1	8,203.2	7,085.1	37.8	34.1	-90.12	186.2	-1,224.1	972.7	904.8	67.83	14.339	
8,400.0	7,083.0	8,303.2	7,083.1	39.8	36.4	-90.12	186.2	-1,324.1	972.7	900.2	72.47	13.421	
8,500.0	7,081.0	8,403.2	7,081.0	41.9	38.7	-90.12	186.2	-1,424.1	972.7	895.5	77.15	12.607	
8,600.0	7,079.0	8,503.2	7,079.0	44.0	41.1	-90.12	186.2	-1,524.0	972.7	890.8	81.86	11.882	
8,700.0	7,077.0	8,603.2	7,077.0	46.2	43.4	-90.12	186.2	-1,624.0	972.7	886.1	86.60	11.232	
8,800.0	7,075.0	8,703.2	7,075.0	48.4	45.8	-90.12	186.2	-1,724.0	972.7	881.3	91.36	10.647	
8,900.0	7,073.0	8,803.2	7,073.0	50.7	48.2	-90.12	186.2	-1,824.0	972.7	876.5	96.14	10.117	
9,000.0	7,071.0	8,903.2	7,071.0	52.9	50.6	-90.12	186.2	-1,924.0	972.7	871.7	100.93	9.637	
9,100.0	7,069.0	9,003.2	7,069.0	55.2	53.0	-90.12	186.2	-2,023.9	972.7	866.9	105.74	9.199	
9,200.0	7,067.0	9,103.2	7,067.0	57.5	55.4	-90.12	186.2	-2,123.9	972.7	862.1	110.56	8.797	
9,300.0	7,065.0	9,203.2	7,065.0	59.8	57.8	-90.12	186.2	-2,223.9	972.7	857.3	115.39	8.429	
9,400.0	7,063.0	9,303.2	7,063.0	62.2	60.2	-90.12	186.2	-2,323.9	972.7	852.4	120.23	8.090	
9,500.0	7,061.0	9,403.2	7,061.0	64.5	62.6	-90.12	186.2	-2,423.9	972.7	847.6	125.08	7.776	
9,600.0	7,059.0	9,503.2	7,059.0	66.8	65.0	-90.12	186.2	-2,523.8	972.7	842.7	129.94	7.485	
9,700.0	7,057.0	9,603.2	7,057.0	69.2	67.5	-90.12	186.2	-2,623.8	972.7	837.8	134.80	7.215	
9,800.0	7,055.0	9,703.2	7,055.0	71.6	69.9	-90.12	186.2	-2,723.8	972.7	833.0	139.67	6.964	
9,900.0	7,052.9	9,803.2	7,052.9	74.0	72.3	-90.12	186.2	-2,823.8	972.7	828.1	144.55	6.729	
10,000.0	7,050.9	9,903.2	7,050.9	76.3	74.8	-90.12	186.2	-2,923.8	972.7	823.2	149.43	6.509	
10,100.0	7,048.9	10,003.2	7,048.9	78.7	77.2	-90.12	186.2	-3,023.7	972.7	818.3	154.31	6.303	
10,200.0	7,046.9	10,103.2	7,046.9	81.1	79.7	-90.12	186.2	-3,123.7	972.7	813.5	159.20	6.110	
10,300.0	7,044.9	10,203.2	7,044.9	83.5	82.1	-90.12	186.2	-3,223.7	972.7	808.6	164.09	5.928	

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

Company:	K. P. Kauffman Company, Inc.	**Local Co-ordinate Reference:**	Well Camenisch #32-4H
Project:	Wattenberg	**TVD Reference:**	WELL @ 4890.0ft (Original Well Elev)
Reference Site:	S32-T4N-R67W (Camenisch)	**MD Reference:**	WELL @ 4890.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Camenisch #32-4H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S32-T4N-R67W (Camenisch) - Camenisch #32-7H - HZ - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-Geolink 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)	Total Uncertainty Axis	Separation Factor	Warning
10,400.0	7,042.9	10,303.2	7,042.9	85.9	84.5	-90.12	186.2	-3,323.7	972.7	803.7	168.98	5.756	
10,500.0	7,040.9	10,403.2	7,040.9	88.3	87.0	-90.12	186.2	-3,423.7	972.7	798.8	173.88	5.594	
10,600.0	7,038.9	10,503.2	7,038.9	90.7	89.4	-90.12	186.2	-3,523.6	972.7	793.9	178.78	5.440	
10,700.0	7,036.9	10,603.2	7,036.9	93.2	91.9	-90.12	186.2	-3,623.6	972.7	789.0	183.68	5.295	
10,800.0	7,034.9	10,703.2	7,034.9	95.6	94.3	-90.12	186.2	-3,723.6	972.7	784.1	188.59	5.158	
10,900.0	7,032.9	10,803.2	7,032.9	98.0	96.8	-90.12	186.2	-3,823.6	972.7	779.2	193.50	5.027	
11,000.0	7,030.9	10,903.2	7,030.9	100.4	99.2	-90.12	186.2	-3,923.6	972.7	774.2	198.41	4.902	
11,100.0	7,028.9	11,003.2	7,028.9	102.8	101.7	-90.12	186.2	-4,023.5	972.7	769.3	203.32	4.784	
11,200.0	7,026.9	11,103.2	7,026.9	105.3	104.2	-90.12	186.2	-4,123.5	972.7	764.4	208.23	4.671	
11,300.0	7,024.8	11,203.2	7,024.8	107.7	106.6	-90.12	186.2	-4,223.5	972.7	759.5	213.14	4.563	
11,400.0	7,022.8	11,303.2	7,022.8	110.1	109.1	-90.12	186.2	-4,323.5	972.7	754.6	218.06	4.460	
11,500.0	7,020.8	11,403.2	7,020.8	112.6	111.5	-90.12	186.2	-4,423.5	972.7	749.7	222.98	4.362	
11,600.0	7,018.8	11,503.2	7,018.8	115.0	114.0	-90.12	186.2	-4,523.4	972.7	744.8	227.90	4.268	
11,691.5	7,017.0	11,594.7	7,017.0	117.2	116.2	-90.12	186.2	-4,614.9	972.7	740.3	232.40	4.185	SF

Company:	K. P. Kauffman Company, Inc.	**Local Co-ordinate Reference:**	Well Camenisch #32-4H
Project:	Wattenberg	**TVD Reference:**	WELL @ 4890.0ft (Original Well Elev)
Reference Site:	S32-T4N-R67W (Camenisch)	**MD Reference:**	WELL @ 4890.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Camenisch #32-4H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S32-T4N-R67W (Camenisch) - Camenisch #32-8H - HZ - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-Geolink 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)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	178.24	-91.1	2.8	91.2				
100.0	100.0	97.0	97.0	0.2	0.1	178.24	-91.1	2.8	91.1	90.8	0.30	301.135	
200.0	200.0	197.0	197.0	0.3	0.3	178.24	-91.1	2.8	91.1	90.5	0.65	139.959	CC, ES
300.0	300.0	296.2	296.2	0.5	0.5	171.47	-91.5	3.5	92.4	91.4	1.00	92.479	
400.0	400.0	395.9	395.9	0.7	0.7	170.65	-92.5	5.3	96.1	94.7	1.35	71.226	
500.0	499.9	495.7	495.7	0.9	0.9	170.03	-93.6	7.1	101.6	99.9	1.70	59.750	
600.0	599.7	595.5	595.4	1.1	1.0	169.64	-94.6	9.0	108.7	106.7	2.05	53.040	
700.0	699.4	695.1	695.0	1.3	1.2	169.45	-95.7	10.8	117.6	115.2	2.40	49.008	
800.0	798.9	794.5	794.4	1.5	1.4	169.42	-96.7	12.7	128.2	125.5	2.75	46.629	
900.0	898.3	893.7	893.6	1.8	1.6	169.53	-97.8	14.5	140.5	137.4	3.10	45.344	
1,000.0	997.4	992.7	992.6	2.0	1.7	169.73	-98.8	16.3	154.6	151.1	3.45	44.824	
1,100.0	1,096.3	1,091.5	1,091.3	2.3	1.9	169.99	-99.9	18.1	170.3	166.5	3.80	44.859	
1,200.0	1,194.9	1,190.0	1,189.8	2.7	2.1	170.29	-100.9	20.0	187.7	183.5	4.14	45.312	
1,300.0	1,293.3	1,288.2	1,288.0	3.0	2.3	170.62	-101.9	21.8	206.4	201.9	4.49	45.958	
1,400.0	1,391.7	1,386.4	1,386.1	3.3	2.4	170.91	-103.0	23.6	225.3	220.4	4.84	46.512	
1,500.0	1,490.1	1,484.6	1,484.3	3.7	2.6	171.15	-104.0	25.4	244.1	238.9	5.19	46.993	
1,600.0	1,588.5	1,582.8	1,582.5	4.0	2.8	171.36	-105.0	27.2	263.0	257.4	5.55	47.414	
1,700.0	1,686.8	1,681.0	1,680.7	4.4	3.0	171.54	-106.1	29.0	281.8	275.9	5.90	47.787	
1,800.0	1,785.2	1,779.2	1,778.9	4.7	3.1	171.70	-107.1	30.8	300.7	294.4	6.25	48.118	
1,900.0	1,883.6	1,877.4	1,877.0	5.1	3.3	171.84	-108.2	32.7	319.5	312.9	6.60	48.416	
2,000.0	1,982.0	1,975.6	1,975.2	5.4	3.5	171.96	-109.2	34.5	338.4	331.4	6.95	48.683	
2,100.0	2,080.3	2,073.8	2,073.4	5.8	3.7	172.07	-110.2	36.3	357.2	349.9	7.30	48.926	
2,200.0	2,178.7	2,172.0	2,171.6	6.1	3.8	172.17	-111.3	38.1	376.1	368.4	7.65	49.147	
2,300.0	2,277.1	2,270.2	2,269.8	6.5	4.0	172.26	-112.3	39.9	395.0	386.9	8.00	49.349	
2,400.0	2,375.5	2,368.4	2,368.0	6.8	4.2	172.34	-113.4	41.7	413.8	405.5	8.35	49.534	
2,500.0	2,473.9	2,466.6	2,466.1	7.2	4.4	172.42	-114.4	43.6	432.7	424.0	8.70	49.705	
2,600.0	2,572.2	2,564.8	2,564.3	7.6	4.5	172.49	-115.4	45.4	451.5	442.5	9.06	49.863	
2,700.0	2,670.6	2,663.0	2,662.5	7.9	4.7	172.55	-116.5	47.2	470.4	461.0	9.41	50.009	
2,800.0	2,769.0	2,761.2	2,760.7	8.3	4.9	172.61	-117.5	49.0	489.3	479.5	9.76	50.145	
2,900.0	2,867.4	2,859.4	2,858.9	8.6	5.1	172.66	-118.5	50.8	508.1	498.0	10.11	50.271	
3,000.0	2,965.7	2,957.6	2,957.0	9.0	5.2	172.71	-119.6	52.6	527.0	516.5	10.46	50.389	
3,100.0	3,064.1	3,055.9	3,055.2	9.3	5.4	172.76	-120.6	54.4	545.9	535.0	10.81	50.500	
3,200.0	3,162.5	3,154.1	3,153.4	9.7	5.6	172.80	-121.7	56.3	564.7	553.6	11.16	50.604	
3,300.0	3,260.9	3,252.3	3,251.6	10.0	5.8	172.84	-122.7	58.1	583.6	572.1	11.51	50.701	
3,400.0	3,359.2	3,350.5	3,349.8	10.4	5.9	172.88	-123.7	59.9	602.5	590.6	11.86	50.793	
3,500.0	3,457.6	3,448.7	3,447.9	10.8	6.1	172.91	-124.8	61.7	621.3	609.1	12.21	50.880	
3,600.0	3,556.0	3,546.9	3,546.1	11.1	6.3	172.95	-125.8	63.5	640.2	627.6	12.56	50.961	
3,700.0	3,654.4	3,645.1	3,644.3	11.5	6.5	172.98	-126.8	65.3	659.1	646.1	12.91	51.039	
3,800.0	3,752.8	3,743.3	3,742.5	11.8	6.6	173.01	-127.9	67.1	677.9	664.7	13.26	51.112	
3,900.0	3,851.1	3,841.5	3,840.7	12.2	6.8	173.04	-128.9	69.0	696.8	683.2	13.61	51.182	
4,000.0	3,949.5	3,939.7	3,938.9	12.5	7.0	173.06	-130.0	70.8	715.7	701.7	13.96	51.248	
4,100.0	4,047.9	4,037.9	4,037.0	12.9	7.2	173.09	-131.0	72.6	734.5	720.2	14.32	51.311	
4,200.0	4,146.3	4,136.1	4,135.2	13.3	7.3	173.11	-132.0	74.4	753.4	738.7	14.67	51.371	
4,300.0	4,244.6	4,234.3	4,233.4	13.6	7.5	173.14	-133.1	76.2	772.3	757.2	15.02	51.429	
4,400.0	4,343.0	4,332.5	4,331.6	14.0	7.7	173.16	-134.1	78.0	791.1	775.8	15.37	51.483	
4,500.0	4,441.4	4,430.7	4,429.8	14.3	7.9	173.18	-135.2	79.8	810.0	794.3	15.72	51.536	
4,600.0	4,539.8	4,528.9	4,527.9	14.7	8.0	173.20	-136.2	81.7	828.9	812.8	16.07	51.586	
4,700.0	4,638.2	4,627.1	4,626.1	15.1	8.2	173.22	-137.2	83.5	847.7	831.3	16.42	51.633	
4,800.0	4,736.5	4,725.3	4,724.3	15.4	8.4	173.24	-138.3	85.3	866.6	849.8	16.77	51.679	
4,900.0	4,834.9	4,823.5	4,822.5	15.8	8.6	173.25	-139.3	87.1	885.5	868.3	17.12	51.723	
5,000.0	4,933.3	4,921.7	4,920.7	16.1	8.7	173.27	-140.3	88.9	904.3	886.9	17.47	51.766	
5,100.0	5,031.7	5,019.9	5,018.8	16.5	8.9	173.29	-141.4	90.7	923.2	905.4	17.82	51.806	

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

Company:	K. P. Kauffman Company, Inc.	**Local Co-ordinate Reference:**	Well Camenisch #32-4H
Project:	Wattenberg	**TVD Reference:**	WELL @ 4890.0ft (Original Well Elev)
Reference Site:	S32-T4N-R67W (Camenisch)	**MD Reference:**	WELL @ 4890.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Camenisch #32-4H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S32-T4N-R67W (Camenisch) - Camenisch #32-8H - HZ - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-Geolink 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)	Total Uncertainty Axis	Separation Factor	Warning
5,200.0	5,130.0	5,118.1	5,117.0	16.8	9.1	173.30	-142.4	92.6	942.1	923.9	18.17	51.845	
5,300.0	5,228.4	5,216.3	5,215.2	17.2	9.3	173.32	-143.5	94.4	960.9	942.4	18.52	51.883	
5,400.0	5,326.8	5,314.5	5,313.4	17.6	9.4	173.33	-144.5	96.2	979.8	960.9	18.87	51.919	
5,500.0	5,425.2	5,412.7	5,411.6	17.9	9.6	173.34	-145.5	98.0	998.7	979.5	19.22	51.954	
5,600.0	5,523.5	5,510.9	5,509.8	18.3	9.8	173.36	-146.6	99.8	1,017.5	998.0	19.57	51.988	
5,700.0	5,621.9	5,609.1	5,607.9	18.6	10.0	173.37	-147.6	101.6	1,036.4	1,016.5	19.92	52.020	
5,800.0	5,720.3	5,707.3	5,706.1	19.0	10.1	173.38	-148.6	103.4	1,055.3	1,035.0	20.27	52.052	
5,900.0	5,818.7	5,805.5	5,804.3	19.3	10.3	173.39	-149.7	105.3	1,074.2	1,053.5	20.62	52.082	
6,000.0	5,917.1	5,903.8	5,902.5	19.7	10.5	173.41	-150.7	107.1	1,093.0	1,072.0	20.97	52.112	
6,100.0	6,015.4	6,002.0	6,000.7	20.1	10.7	173.42	-151.8	108.9	1,111.9	1,090.6	21.33	52.140	
6,200.0	6,113.8	6,100.2	6,098.8	20.4	10.8	173.43	-152.8	110.7	1,130.8	1,109.1	21.68	52.167	
6,300.0	6,212.2	6,198.4	6,197.0	20.8	11.0	173.44	-153.8	112.5	1,149.6	1,127.6	22.03	52.194	
6,400.0	6,310.6	6,296.6	6,295.2	21.1	11.2	173.45	-154.9	114.3	1,168.5	1,146.1	22.38	52.220	
6,500.0	6,408.9	6,394.8	6,393.4	21.5	11.4	173.46	-155.9	116.1	1,187.4	1,164.6	22.73	52.245	
6,600.0	6,507.3	6,493.0	6,491.6	21.9	11.5	173.47	-157.0	118.0	1,206.2	1,183.2	23.08	52.269	
6,700.0	6,605.5	6,591.2	6,589.6	22.2	11.7	-144.92	-158.0	115.1	1,225.1	1,201.8	23.32	52.542	
6,800.0	6,701.7	6,689.7	6,686.1	22.5	11.8	-118.88	-159.0	96.1	1,243.6	1,220.1	23.54	52.830	
6,900.0	6,792.8	6,788.7	6,778.4	22.8	11.9	-107.18	-160.0	60.6	1,261.2	1,237.4	23.86	52.854	
7,000.0	6,876.1	6,888.4	6,863.8	23.1	12.1	-100.66	-160.9	9.4	1,277.5	1,253.1	24.39	52.372	
7,100.0	6,949.1	6,988.8	6,939.5	23.5	12.4	-96.51	-161.7	-56.4	1,291.7	1,266.5	25.26	51.146	
7,200.0	7,009.6	7,090.0	7,003.1	23.9	13.0	-93.70	-162.4	-135.0	1,303.7	1,277.1	26.60	49.018	
7,300.0	7,055.7	7,192.0	7,052.1	24.3	14.0	-91.83	-163.0	-224.2	1,312.9	1,284.4	28.52	46.034	
7,400.0	7,086.0	7,294.5	7,084.7	25.0	15.3	-90.68	-163.3	-321.3	1,319.1	1,288.0	31.05	42.484	
7,500.0	7,099.6	7,397.5	7,099.5	25.7	17.0	-90.17	-163.5	-423.0	1,322.1	1,288.0	34.09	38.784	
7,600.0	7,099.1	7,498.7	7,099.1	26.6	18.8	-90.13	-163.5	-524.3	1,322.4	1,284.7	37.62	35.151	
7,700.0	7,097.1	7,598.7	7,097.1	27.8	20.8	-90.13	-163.5	-624.2	1,322.4	1,280.8	41.52	31.847	
7,800.0	7,095.1	7,698.7	7,095.1	29.1	22.8	-90.13	-163.5	-724.2	1,322.4	1,276.7	45.63	28.982	
7,900.0	7,093.1	7,798.7	7,093.1	30.6	24.9	-90.13	-163.5	-824.2	1,322.4	1,272.5	49.89	26.508	
8,000.0	7,091.1	7,898.7	7,091.1	32.2	27.1	-90.13	-163.5	-924.2	1,322.4	1,268.1	54.26	24.370	
8,100.0	7,089.1	7,998.7	7,089.1	34.0	29.4	-90.13	-163.5	-1,024.2	1,322.4	1,263.6	58.73	22.517	
8,200.0	7,087.1	8,098.7	7,087.1	35.8	31.6	-90.13	-163.5	-1,124.1	1,322.4	1,259.1	63.27	20.902	
8,300.0	7,085.1	8,198.7	7,085.1	37.8	33.9	-90.13	-163.5	-1,224.1	1,322.4	1,254.5	67.86	19.486	
8,400.0	7,083.0	8,298.7	7,083.1	39.8	36.3	-90.13	-163.5	-1,324.1	1,322.4	1,249.9	72.50	18.239	
8,500.0	7,081.0	8,398.7	7,081.0	41.9	38.6	-90.13	-163.5	-1,424.1	1,322.4	1,245.2	77.18	17.133	
8,600.0	7,079.0	8,498.7	7,079.0	44.0	41.0	-90.13	-163.5	-1,524.1	1,322.4	1,240.5	81.89	16.147	
8,700.0	7,077.0	8,598.7	7,077.0	46.2	43.3	-90.13	-163.5	-1,624.0	1,322.4	1,235.7	86.63	15.264	
8,800.0	7,075.0	8,698.7	7,075.0	48.4	45.7	-90.13	-163.5	-1,724.0	1,322.4	1,231.0	91.39	14.469	
8,900.0	7,073.0	8,798.7	7,073.0	50.7	48.1	-90.13	-163.5	-1,824.0	1,322.4	1,226.2	96.17	13.750	
9,000.0	7,071.0	8,898.7	7,071.0	52.9	50.5	-90.13	-163.5	-1,924.0	1,322.4	1,221.4	100.96	13.097	
9,100.0	7,069.0	8,998.7	7,069.0	55.2	52.9	-90.13	-163.5	-2,024.0	1,322.4	1,216.6	105.77	12.502	
9,200.0	7,067.0	9,098.7	7,067.0	57.5	55.3	-90.13	-163.5	-2,123.9	1,322.4	1,211.8	110.59	11.957	
9,300.0	7,065.0	9,198.7	7,065.0	59.8	57.7	-90.13	-163.5	-2,223.9	1,322.4	1,206.9	115.43	11.456	
9,400.0	7,063.0	9,298.7	7,063.0	62.2	60.1	-90.13	-163.5	-2,323.9	1,322.4	1,202.1	120.27	10.995	
9,500.0	7,061.0	9,398.7	7,061.0	64.5	62.6	-90.13	-163.5	-2,423.9	1,322.4	1,197.3	125.12	10.569	
9,600.0	7,059.0	9,498.7	7,059.0	66.8	65.0	-90.13	-163.5	-2,523.9	1,322.4	1,192.4	129.97	10.174	
9,700.0	7,057.0	9,598.7	7,057.0	69.2	67.4	-90.13	-163.5	-2,623.8	1,322.4	1,187.5	134.84	9.807	
9,800.0	7,055.0	9,698.7	7,055.0	71.6	69.9	-90.13	-163.5	-2,723.8	1,322.4	1,182.7	139.71	9.465	
9,900.0	7,052.9	9,798.7	7,052.9	74.0	72.3	-90.13	-163.5	-2,823.8	1,322.4	1,177.8	144.58	9.146	
10,000.0	7,050.9	9,898.7	7,050.9	76.3	74.7	-90.13	-163.5	-2,923.8	1,322.4	1,172.9	149.46	8.848	
10,100.0	7,048.9	9,998.7	7,048.9	78.7	77.2	-90.13	-163.5	-3,023.8	1,322.4	1,168.0	154.34	8.568	
10,200.0	7,046.9	10,098.7	7,046.9	81.1	79.6	-90.13	-163.5	-3,123.7	1,322.4	1,163.1	159.23	8.305	
10,300.0	7,044.9	10,198.7	7,044.9	83.5	82.1	-90.13	-163.5	-3,223.7	1,322.4	1,158.2	164.12	8.057	

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

Company:	K. P. Kauffman Company, Inc.	**Local Co-ordinate Reference:**	Well Camenisch #32-4H
Project:	Wattenberg	**TVD Reference:**	WELL @ 4890.0ft (Original Well Elev)
Reference Site:	S32-T4N-R67W (Camenisch)	**MD Reference:**	WELL @ 4890.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Camenisch #32-4H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design S32-T4N-R67W (Camenisch) - Camenisch #32-8H - HZ - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-Geolink 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)	Total Uncertainty Axis	Separation Factor	Warning
10,400.0	7,042.9	10,298.7	7,042.9	85.9	84.5	-90.13	-163.5	-3,323.7	1,322.4	1,153.4	169.02	7.824	
10,500.0	7,040.9	10,398.7	7,040.9	88.3	87.0	-90.13	-163.5	-3,423.7	1,322.4	1,148.5	173.92	7.604	
10,600.0	7,038.9	10,498.7	7,038.9	90.7	89.4	-90.13	-163.5	-3,523.7	1,322.4	1,143.6	178.82	7.395	
10,700.0	7,036.9	10,598.7	7,036.9	93.2	91.9	-90.13	-163.5	-3,623.6	1,322.4	1,138.6	183.72	7.198	
10,800.0	7,034.9	10,698.7	7,034.9	95.6	94.3	-90.13	-163.5	-3,723.6	1,322.4	1,133.7	188.62	7.011	
10,900.0	7,032.9	10,798.7	7,032.9	98.0	96.8	-90.13	-163.5	-3,823.6	1,322.4	1,128.8	193.53	6.833	
11,000.0	7,030.9	10,898.7	7,030.9	100.4	99.2	-90.13	-163.5	-3,923.6	1,322.4	1,123.9	198.44	6.664	
11,100.0	7,028.9	10,998.7	7,028.9	102.8	101.7	-90.13	-163.5	-4,023.6	1,322.4	1,119.0	203.35	6.503	
11,200.0	7,026.9	11,098.7	7,026.9	105.3	104.1	-90.13	-163.5	-4,123.5	1,322.4	1,114.1	208.26	6.349	
11,300.0	7,024.8	11,198.7	7,024.9	107.7	106.6	-90.13	-163.5	-4,223.5	1,322.4	1,109.2	213.18	6.203	
11,400.0	7,022.8	11,298.7	7,022.8	110.1	109.1	-90.13	-163.5	-4,323.5	1,322.4	1,104.3	218.09	6.063	
11,500.0	7,020.8	11,398.7	7,020.8	112.6	111.5	-90.13	-163.5	-4,423.5	1,322.4	1,099.4	223.01	5.930	
11,600.0	7,018.8	11,498.7	7,018.8	115.0	114.0	-90.13	-163.5	-4,523.5	1,322.4	1,094.4	227.93	5.802	
11,691.5	7,017.0	11,590.2	7,017.0	117.2	116.2	-90.13	-163.5	-4,614.9	1,322.4	1,089.9	232.43	5.689 SF	

Company:	K. P. Kauffman Company, Inc.	**Local Co-ordinate Reference:**	Well Camenisch #32-4H
Project:	Wattenberg	**TVD Reference:**	WELL @ 4890.0ft (Original Well Elev)
Reference Site:	S32-T4N-R67W (Camenisch)	**MD Reference:**	WELL @ 4890.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Camenisch #32-4H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	HZ	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Reference Depths are relative to WELL @ 4890.0ft (Original Well Elev)
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000 °

Coordinates are relative to: Camenisch #32-4H
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.38°