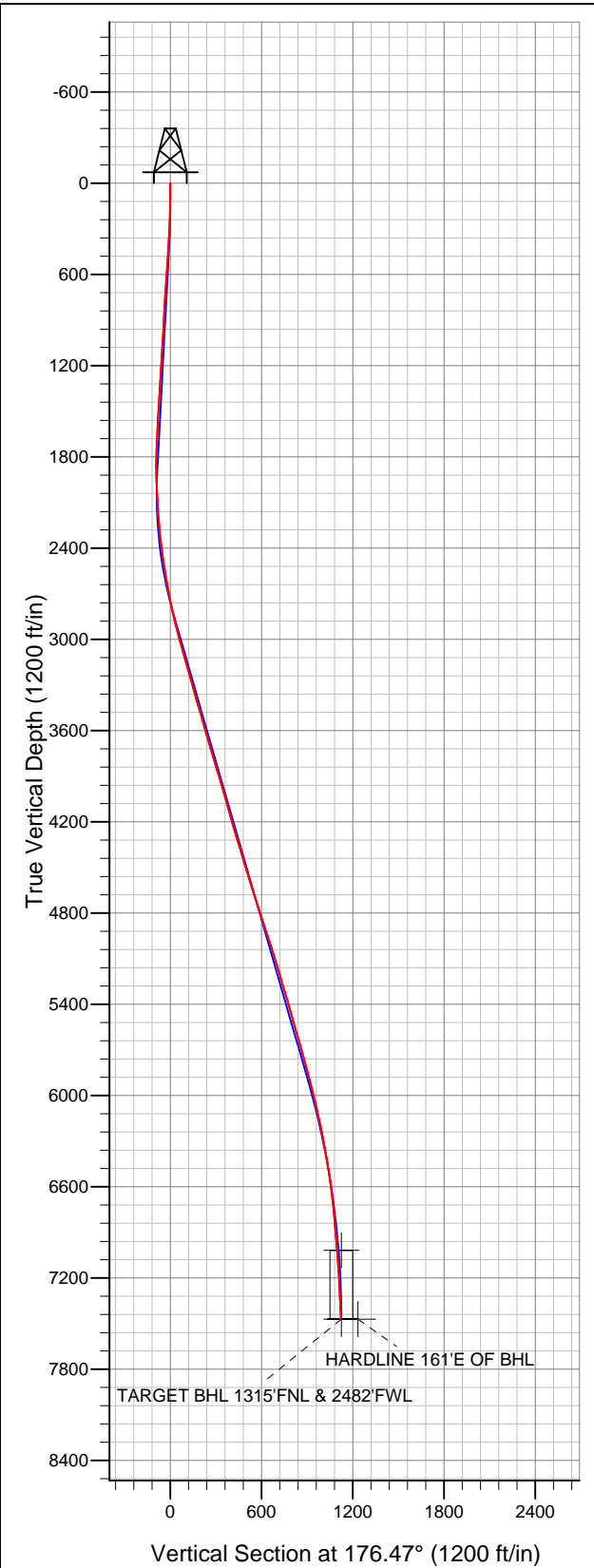


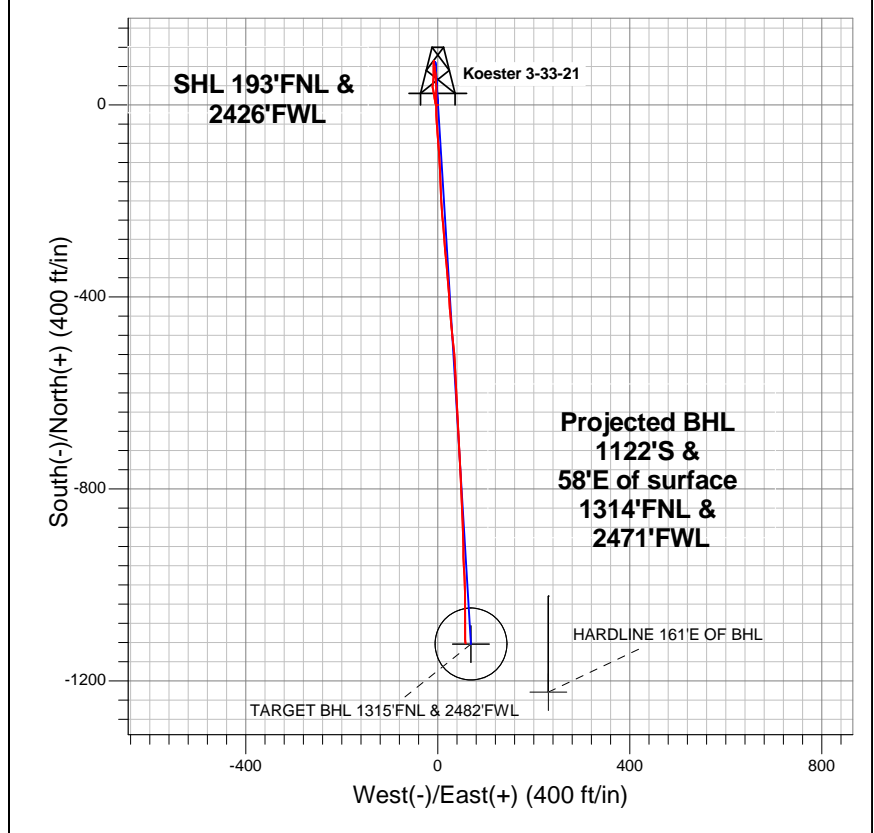
Well Name: Koester 3-33-21

Surface Location: Koester 3-33-29 Pad Sec.33-T4N-R67W
North American Datum 1983 US State Plane 1983Colorado Northern Zone
Ground Elevation: 4955.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1343994.51	3168417.98	40.276091	-104.896389	
Original Well Elev			WELL @ 4967.0ft (Original Well Elev)			



KP KAUFFMAN



LEGEND

- Wellbore #1
- Koester 3-33-21, Wellbore #1, Plan #2 (5-30-12) V0
- Survey #1

Final Survey Plot

Projected Final Survey -
7625'MD & 7468'TVD @ 1123'VS
2.60 deg Inc 176.70 deg AZ

Project: SEC.33-T4N-R67W
Site: Koester 3-33-29 Pad Sec.33-T4N-R67W
Well: Koester 3-33-21
Plan: Wellbore #1



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SEC.33-T4N-R67W

Koester 3-33-29 Pad Sec.33-T4N-R67W

Koester 3-33-21

Wellbore #1

Survey: Survey #1

Standard Survey Report

12 June, 2012

Company:	KP KAUFFMAN	Local Co-ordinate Reference:	Well Koester 3-33-21
Project:	SEC.33-T4N-R67W	TVD Reference:	WELL @ 4967.0ft (Original Well Elev)
Site:	Koester 3-33-29 Pad Sec.33-T4N-R67W	MD Reference:	WELL @ 4967.0ft (Original Well Elev)
Well:	Koester 3-33-21	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Landmark

Project	SEC.33-T4N-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	Koester 3-33-29 Pad Sec.33-T4N-R67W				
Site Position:		Northing:	1,343,994.15ft	Latitude:	40.276090
From:	Lat/Long	Easting:	3,168,416.48ft	Longitude:	-104.896394
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.39 °

Well	Koester 3-33-21					
Well Position	+N/-S	0.0 ft	Northing:	1,343,994.51 ft	Latitude:	40.276091
	+E/-W	0.0 ft	Easting:	3,168,417.98 ft	Longitude:	-104.896389
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,955.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	5/30/2012	8.80	66.90	52,950

Design	Wellbore #1				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)	
	0.0	0.0	0.0	176.47	

Survey Program	Date	6/11/2012			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
99.0	7,625.0	Survey #1 (Wellbore #1)	MWD	MWD - Standard	

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	
99.0	1.20	254.00	99.0	-0.3	-1.0	0.2	1.21	1.21	0.00	
186.0	1.80	305.70	186.0	0.3	-3.0	-0.4	1.63	0.69	59.43	
276.0	2.90	343.00	275.9	3.3	-4.8	-3.6	2.03	1.22	41.44	
367.0	3.30	356.50	366.8	8.1	-5.6	-8.4	0.91	0.44	14.84	
459.0	3.60	348.60	458.6	13.6	-6.4	-13.9	0.61	0.33	-8.59	
550.0	3.70	352.30	549.4	19.3	-7.3	-19.7	0.28	0.11	4.07	
641.0	3.90	348.90	640.2	25.2	-8.3	-25.7	0.33	0.22	-3.74	
742.0	3.90	349.60	741.0	32.0	-9.6	-32.5	0.05	0.00	0.69	
806.0	3.70	350.20	804.8	36.1	-10.3	-36.7	0.32	-0.31	0.94	
900.0	2.60	9.70	898.7	41.2	-10.5	-41.8	1.62	-1.17	20.74	
994.0	3.60	11.80	992.6	46.2	-9.5	-46.7	1.07	1.06	2.23	
1,087.0	3.90	1.10	1,085.4	52.2	-8.9	-52.7	0.82	0.32	-11.51	

Company:	KP KAUFFMAN	Local Co-ordinate Reference:	Well Koester 3-33-21
Project:	SEC.33-T4N-R67W	TVD Reference:	WELL @ 4967.0ft (Original Well Elev)
Site:	Koester 3-33-29 Pad Sec.33-T4N-R67W	MD Reference:	WELL @ 4967.0ft (Original Well Elev)
Well:	Koester 3-33-21	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Landmark

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)	
1,181.0	3.60	359.70	1,179.2	58.4	-8.8	-58.8	0.33	-0.32	-1.49	
1,275.0	3.40	3.20	1,273.0	64.1	-8.7	-64.5	0.31	-0.21	3.72	
1,369.0	3.10	0.70	1,366.8	69.4	-8.5	-69.8	0.35	-0.32	-2.66	
1,462.0	2.90	359.50	1,459.7	74.3	-8.5	-74.7	0.23	-0.22	-1.29	
1,556.0	3.30	0.20	1,553.6	79.4	-8.5	-79.8	0.43	0.43	0.74	
1,650.0	3.20	0.00	1,647.4	84.7	-8.5	-85.1	0.11	-0.11	-0.21	
1,743.0	2.30	7.40	1,740.3	89.2	-8.2	-89.5	1.04	-0.97	7.96	
1,837.0	0.40	18.10	1,834.3	91.4	-7.9	-91.7	2.03	-2.02	11.38	
1,931.0	1.70	192.10	1,928.3	90.3	-8.1	-90.6	2.23	1.38	185.11	
2,024.0	2.60	163.30	2,021.2	86.9	-7.8	-87.2	1.48	0.97	-30.97	
2,118.0	2.90	177.80	2,115.1	82.5	-7.1	-82.8	0.80	0.32	15.43	
2,212.0	4.60	170.20	2,208.9	76.4	-6.3	-76.7	1.88	1.81	-8.09	
2,305.0	6.40	171.00	2,301.5	67.6	-4.9	-67.8	1.94	1.94	0.86	
2,399.0	7.20	176.30	2,394.8	56.6	-3.7	-56.7	1.08	0.85	5.64	
2,493.0	7.70	178.30	2,488.0	44.4	-3.1	-44.5	0.60	0.53	2.13	
2,587.0	10.20	180.90	2,580.9	29.8	-3.1	-29.9	2.69	2.66	2.77	
2,680.0	10.40	179.50	2,672.4	13.2	-3.1	-13.3	0.34	0.22	-1.51	
2,774.0	11.20	180.20	2,764.7	-4.5	-3.1	4.3	0.86	0.85	0.74	
2,868.0	13.00	177.60	2,856.6	-24.2	-2.7	23.9	2.00	1.91	-2.77	
2,961.0	14.90	175.10	2,946.8	-46.5	-1.2	46.4	2.14	2.04	-2.69	
3,055.0	16.00	176.30	3,037.5	-71.5	0.7	71.4	1.22	1.17	1.28	
3,149.0	14.90	176.00	3,128.1	-96.5	2.3	96.4	1.17	-1.17	-0.32	
3,242.0	16.40	176.80	3,217.6	-121.5	3.9	121.5	1.63	1.61	0.86	
3,336.0	16.00	178.10	3,307.9	-147.7	5.1	147.7	0.57	-0.43	1.38	
3,430.0	15.90	177.70	3,398.3	-173.5	6.0	173.6	0.16	-0.11	-0.43	
3,523.0	16.00	176.00	3,487.7	-199.0	7.4	199.1	0.51	0.11	-1.83	
3,617.0	16.20	175.10	3,578.0	-225.0	9.4	225.2	0.34	0.21	-0.96	
3,711.0	16.30	175.30	3,668.2	-251.2	11.6	251.5	0.12	0.11	0.21	
3,804.0	16.40	176.00	3,757.5	-277.3	13.6	277.7	0.24	0.11	0.75	
3,898.0	16.50	175.00	3,847.6	-303.9	15.7	304.3	0.32	0.11	-1.06	
3,992.0	16.90	174.90	3,937.7	-330.8	18.1	331.3	0.43	0.43	-0.11	
4,086.0	16.30	174.40	4,027.7	-357.5	20.6	358.1	0.66	-0.64	-0.53	
4,179.0	14.80	176.10	4,117.3	-382.4	22.7	383.0	1.69	-1.61	1.83	
4,273.0	15.60	177.40	4,208.0	-407.0	24.1	407.7	0.93	0.85	1.38	
4,367.0	17.90	174.60	4,298.1	-434.0	26.0	434.8	2.59	2.45	-2.98	
4,460.0	16.40	174.20	4,386.9	-461.3	28.7	462.2	1.62	-1.61	-0.43	
4,554.0	17.00	174.40	4,476.9	-488.2	31.4	489.2	0.64	0.64	0.21	
4,648.0	16.90	174.70	4,566.9	-515.4	34.0	516.5	0.14	-0.11	0.32	
4,741.0	17.80	176.80	4,655.6	-543.1	36.0	544.3	1.18	0.97	2.26	
4,835.0	17.40	178.30	4,745.2	-571.5	37.2	572.7	0.64	-0.43	1.60	
4,929.0	18.70	176.30	4,834.6	-600.6	38.6	601.8	1.53	1.38	-2.13	
5,022.0	18.50	176.70	4,922.7	-630.2	40.4	631.5	0.26	-0.22	0.43	
5,116.0	17.80	176.80	5,012.1	-659.4	42.1	660.7	0.75	-0.74	0.11	
5,210.0	16.70	177.00	5,101.8	-687.2	43.6	688.6	1.17	-1.17	0.21	
5,304.0	16.80	177.80	5,191.9	-714.3	44.8	715.7	0.27	0.11	0.85	
5,397.0	16.50	177.00	5,281.0	-740.9	46.0	742.4	0.41	-0.32	-0.86	
5,491.0	16.40	177.40	5,371.1	-767.5	47.3	769.0	0.16	-0.11	0.43	
5,585.0	15.70	177.00	5,461.4	-793.5	48.6	795.0	0.75	-0.74	-0.43	
5,678.0	15.60	177.20	5,551.0	-818.5	49.9	820.0	0.12	-0.11	0.22	
5,772.0	16.40	177.60	5,641.4	-844.4	51.0	845.9	0.86	0.85	0.43	
5,866.0	15.60	178.30	5,731.7	-870.3	52.0	871.8	0.88	-0.85	0.74	
5,959.0	15.30	177.70	5,821.3	-895.1	52.8	896.6	0.37	-0.32	-0.65	
6,053.0	14.00	179.00	5,912.3	-918.8	53.5	920.4	1.43	-1.38	1.38	
6,147.0	13.70	179.50	6,003.6	-941.3	53.8	942.8	0.34	-0.32	0.53	

Company:	KP KAUFFMAN	Local Co-ordinate Reference:	Well Koester 3-33-21
Project:	SEC.33-T4N-R67W	TVD Reference:	WELL @ 4967.0ft (Original Well Elev)
Site:	Koester 3-33-29 Pad Sec.33-T4N-R67W	MD Reference:	WELL @ 4967.0ft (Original Well Elev)
Well:	Koester 3-33-21	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Landmark

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)	
6,240.0	13.40	177.40	6,094.0	-963.1	54.4	964.6	0.62	-0.32	-2.26	
6,334.0	11.80	176.10	6,185.7	-983.6	55.6	985.1	1.73	-1.70	-1.38	
6,428.0	10.60	179.10	6,277.9	-1,001.8	56.3	1,003.4	1.42	-1.28	3.19	
6,521.0	10.40	177.90	6,369.4	-1,018.7	56.8	1,020.3	0.32	-0.22	-1.29	
6,615.0	9.50	177.90	6,461.9	-1,035.0	57.4	1,036.5	0.96	-0.96	0.00	
6,709.0	8.00	180.70	6,554.8	-1,049.3	57.6	1,050.8	1.66	-1.60	2.98	
6,803.0	6.90	183.40	6,648.1	-1,061.4	57.2	1,063.0	1.23	-1.17	2.87	
6,896.0	6.00	181.40	6,740.5	-1,071.9	56.7	1,073.3	1.00	-0.97	-2.15	
6,990.0	5.00	176.70	6,834.0	-1,080.9	56.8	1,082.3	1.17	-1.06	-5.00	
7,084.0	4.80	178.60	6,927.7	-1,088.9	57.2	1,090.4	0.27	-0.21	2.02	
7,177.0	4.30	180.20	7,020.4	-1,096.3	57.3	1,097.7	0.55	-0.54	1.72	
7,177.5	4.30	180.20	7,020.9	-1,096.3	57.3	1,097.8	0.43	-0.43	-0.19	
TARGET CIRCLE 1315'FNL & 2482'FWL										
7,271.0	3.90	180.00	7,114.1	-1,103.0	57.2	1,104.4	0.43	-0.43	-0.21	
7,365.0	3.30	181.40	7,208.0	-1,108.9	57.2	1,110.3	0.65	-0.64	1.49	
7,458.0	2.80	176.30	7,300.8	-1,113.8	57.3	1,115.3	0.61	-0.54	-5.48	
7,552.0	2.70	172.30	7,394.7	-1,118.3	57.7	1,119.8	0.23	-0.11	-4.26	
7,583.0	2.60	176.70	7,425.7	-1,119.8	57.8	1,121.2	0.73	-0.32	14.19	
7,625.0	2.60	176.70	7,467.6	-1,121.7	57.9	1,123.1	0.00	0.00	0.00	
TARGET BHL 1315'FNL & 2482'FWL - HARDLINE 161'E OF BHL										

Checked By: _____	Approved By: _____	Date: _____
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