




Directional Survey Certification

7327 West Barton Road
Casper, WY 82604
(307)-472-6621 Fax (307) 472-5439

Operator	Quicksilver Resources
Well Name & No.	K-Diamond 32-10
County & State	Moffat County, CO
SDI Job No.	42DEF1209235
Rig	DHS 14

I, Janie Collins, having personal knowledge of all the facts, hereby certify that the attached directional survey run from a measured depth of 0 feet to a measured depth of 9,140 feet is true and correct as determined from all available records.



Signature

01-Nov-12

Date

Janie Collins
Grand Junction Well Planner
Scientific Drilling - Rocky Mountain District

Quicksilver Resources, Inc.

Moffat County, CO NAD83

K-Diamond Ranch

K-Diamond Ranch 32-10

OH

Design: OH

Standard Survey Report

01 November, 2012



Scientific Drilling International

Survey Report



Company:	Quicksilver Resources, Inc.	Local Co-ordinate Reference:	Well K-Diamond Ranch 32-10
Project:	Moffat County, CO NAD83	TVD Reference:	GL 6257' & RKB 16' @ 6273.00ft
Site:	K-Diamond Ranch	MD Reference:	GL 6257' & RKB 16' @ 6273.00ft
Well:	K-Diamond Ranch 32-10	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Rockies Compass Server

Project	Moffat County, CO NAD83		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		

Site	K-Diamond Ranch				
Site Position:		Northing:	1,428,501.40 usft	Latitude:	40° 29' 11.550 N
From:	Lat/Long	Easting:	2,355,803.34 usft	Longitude:	107° 48' 58.420 W
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in	Grid Convergence:	-1.50 °

Well	K-Diamond Ranch 32-10					
Well Position	+N/-S	0.00 ft	Northing:	1,428,501.39 usft	Latitude:	40° 29' 11.550 N
	+E/-W	0.00 ft	Easting:	2,355,803.34 usft	Longitude:	107° 48' 58.420 W
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	6,257.00 ft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	08/27/12	10.24	66.55	52,683

Design	OH				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)	
	0.00	0.00	0.00	171.43	

Survey Program	Date	11/01/12			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
152.00	1,084.00	Survey #1 - Surface MWD (OH)	MWD SDI	MWD - Standard ver 1.0.1	
1,244.00	9,140.00	Survey #2 - Production MWD (OH)	MWD SDI	MWD - Standard ver 1.0.1	

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)	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
152.00	0.03	98.06	152.00	-0.01	0.04	0.01	0.02	0.02	0.00	
First SDI Surface MWD Survey										
243.00	0.29	199.97	243.00	-0.23	-0.02	0.22	0.33	0.29	111.99	
334.00	0.34	212.60	334.00	-0.67	-0.24	0.63	0.09	0.05	13.88	
424.00	1.07	209.30	423.99	-1.63	-0.79	1.49	0.81	0.81	-3.67	
516.00	0.59	216.31	515.98	-2.76	-1.50	2.50	0.53	-0.52	7.62	
611.00	0.21	263.86	610.98	-3.17	-1.96	2.84	0.50	-0.40	50.05	
705.00	0.65	301.67	704.98	-2.91	-2.58	2.49	0.53	0.47	40.22	
800.00	0.96	298.18	799.97	-2.25	-3.74	1.67	0.33	0.33	-3.67	

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Site:	K-Diamond Ranch	MD Reference:	GL 6257' & RKB 16' @ 6273.00ft
Well:	K-Diamond Ranch 32-10	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Rockies Compass Server

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)
895.00	0.44	244.24	894.96	-2.03	-4.77	1.30	0.83	-0.55	-56.78
989.00	1.13	181.13	988.95	-3.12	-5.12	2.32	1.07	0.73	-67.14
1,084.00	0.59	190.39	1,083.94	-4.53	-5.22	3.71	0.59	-0.57	9.75
Last SDI Surface MWD Survey									
1,244.00	1.58	82.22	1,243.92	-5.05	-3.19	4.51	1.16	0.62	-67.61
First SDI Production MWD Survey									
1,276.00	1.35	85.57	1,275.91	-4.96	-2.37	4.55	0.77	-0.72	10.47
1,371.00	2.02	24.13	1,370.87	-3.34	-0.57	3.22	1.91	0.71	-64.67
1,466.00	1.93	19.96	1,465.82	-0.31	0.66	0.41	0.18	-0.09	-4.39
1,561.00	0.10	23.57	1,560.80	1.27	1.24	-1.07	1.93	-1.93	3.80
1,655.00	0.34	235.19	1,654.80	1.18	1.04	-1.02	0.46	0.26	-157.85
1,749.00	1.05	242.11	1,748.79	0.62	0.05	-0.61	0.76	0.76	7.36
1,844.00	0.79	192.70	1,843.78	-0.42	-0.86	0.29	0.85	-0.27	-52.01
1,939.00	1.21	208.16	1,938.77	-1.95	-1.48	1.70	0.52	0.44	16.27
2,035.00	0.57	46.96	2,034.76	-2.51	-1.61	2.25	1.83	-0.67	-167.92
2,129.00	0.51	99.05	2,128.76	-2.26	-0.86	2.11	0.51	-0.06	55.41
2,224.00	0.93	143.93	2,223.75	-2.95	0.02	2.92	0.71	0.44	47.24
2,319.00	1.50	96.40	2,318.73	-3.71	1.71	3.93	1.17	0.60	-50.03
2,414.00	1.19	10.14	2,413.71	-2.88	3.12	3.31	1.95	-0.33	-90.80
2,509.00	1.42	348.09	2,508.69	-0.76	3.05	1.20	0.58	0.24	-23.21
2,604.00	0.74	358.42	2,603.67	1.01	2.79	-0.58	0.74	-0.72	10.87
2,699.00	0.48	351.74	2,698.67	2.01	2.71	-1.59	0.28	-0.27	-7.03
2,794.00	0.45	295.51	2,793.66	2.57	2.32	-2.20	0.46	-0.03	-59.19
2,889.00	0.44	313.95	2,888.66	2.98	1.72	-2.69	0.15	-0.01	19.41
2,984.00	0.82	294.19	2,983.65	3.51	0.84	-3.35	0.46	0.40	-20.80
3,079.00	0.93	279.33	3,078.64	3.92	-0.54	-3.96	0.26	0.12	-15.64
3,174.00	1.30	142.11	3,173.63	3.19	-0.64	-3.25	2.19	0.39	-144.44
3,269.00	0.14	282.75	3,268.63	2.37	-0.09	-2.36	1.49	-1.22	148.04
3,364.00	0.42	289.16	3,363.63	2.51	-0.54	-2.56	0.30	0.29	6.75
3,459.00	0.50	268.49	3,458.62	2.61	-1.28	-2.77	0.19	0.08	-21.76
3,553.00	0.66	225.98	3,552.62	2.22	-2.08	-2.51	0.47	0.17	-45.22
3,648.00	0.79	200.35	3,647.61	1.23	-2.70	-1.62	0.36	0.14	-26.98
3,743.00	1.10	199.48	3,742.60	-0.24	-3.23	-0.24	0.33	0.33	-0.92
3,837.00	0.89	142.98	3,836.59	-1.68	-3.09	1.20	1.02	-0.22	-60.11
3,932.00	0.81	165.60	3,931.58	-2.92	-2.48	2.51	0.36	-0.08	23.81
4,026.00	0.86	26.39	4,025.57	-2.93	-2.00	2.60	1.67	0.05	-148.10
4,121.00	0.67	4.83	4,120.56	-1.74	-1.64	1.47	0.36	-0.20	-22.69
4,216.00	0.55	323.21	4,215.56	-0.82	-1.87	0.53	0.47	-0.13	-43.81
4,311.00	0.62	312.41	4,310.55	-0.11	-2.52	-0.27	0.14	0.07	-11.37
4,406.00	0.40	346.43	4,405.55	0.56	-2.98	-1.00	0.38	-0.23	35.81
4,501.00	0.88	264.33	4,500.55	0.81	-3.78	-1.37	0.96	0.51	-86.42
4,596.00	1.72	125.39	4,595.53	-0.08	-3.34	-0.41	2.58	0.88	-146.25
4,691.00	1.88	101.15	4,690.49	-1.21	-0.65	1.10	0.81	0.17	-25.52

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Survey Report



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Project:	Moffat County, CO NAD83	TVD Reference:	GL 6257' & RKB 16' @ 6273.00ft
Site:	K-Diamond Ranch	MD Reference:	GL 6257' & RKB 16' @ 6273.00ft
Well:	K-Diamond Ranch 32-10	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Rockies Compass Server

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)	
4,786.00	1.02	59.64	4,785.46	-1.09	1.61	1.31	1.37	-0.91	-43.69	
4,881.00	0.70	57.00	4,880.45	-0.34	2.82	0.76	0.34	-0.34	-2.78	
4,965.00	0.44	94.63	4,964.44	-0.09	3.57	0.62	0.53	-0.31	44.80	
5,070.00	0.72	340.54	5,069.44	0.50	3.76	0.06	0.94	0.27	-108.66	
5,165.00	0.27	332.04	5,164.44	1.26	3.45	-0.73	0.48	-0.47	-8.95	
5,261.00	0.80	244.25	5,260.43	1.17	2.74	-0.75	0.87	0.55	-91.45	
5,356.00	0.99	227.66	5,355.42	0.33	1.54	-0.10	0.34	0.20	-17.46	
5,451.00	1.26	203.08	5,450.40	-1.18	0.52	1.25	0.58	0.28	-25.87	
5,546.00	1.29	80.39	5,545.39	-1.97	1.17	2.12	2.36	0.03	-129.15	
5,639.00	1.20	359.55	5,638.38	-0.82	2.19	1.14	1.74	-0.10	-86.92	
5,734.00	0.78	335.87	5,733.36	0.77	1.92	-0.47	0.61	-0.44	-24.93	
5,830.00	0.39	241.94	5,829.36	1.21	1.36	-0.99	0.93	-0.41	-97.84	
5,924.00	0.52	217.06	5,923.36	0.72	0.83	-0.59	0.25	0.14	-26.47	
6,019.00	0.64	254.32	6,018.35	0.23	0.05	-0.22	0.41	0.13	39.22	
6,114.00	1.01	15.42	6,113.35	0.89	-0.23	-0.92	1.52	0.39	127.47	
6,210.00	0.46	341.26	6,209.34	2.08	-0.13	-2.07	0.71	-0.57	-35.58	
6,305.00	0.81	240.75	6,304.33	2.11	-0.84	-2.21	1.05	0.37	-105.80	
6,364.00	0.14	223.96	6,363.33	1.85	-1.25	-2.02	1.15	-1.14	-28.46	
6,526.00	1.15	220.63	6,525.32	0.48	-2.45	-0.84	0.62	0.62	-2.06	
6,621.00	1.82	289.12	6,620.29	0.25	-4.50	-0.91	1.85	0.71	72.09	
6,715.00	1.63	263.57	6,714.25	0.59	-7.24	-1.66	0.84	-0.20	-27.18	
6,808.00	0.84	91.93	6,807.24	0.41	-7.87	-1.58	2.65	-0.85	-184.56	
6,903.00	0.97	264.33	6,902.24	0.31	-7.97	-1.50	1.90	0.14	181.47	
6,998.00	2.59	348.74	6,997.20	2.34	-9.19	-3.68	2.82	1.71	88.85	
7,092.00	1.14	264.24	7,091.16	4.33	-10.54	-5.85	2.90	-1.54	-89.89	
7,188.00	0.17	267.35	7,187.15	4.23	-11.63	-5.91	1.01	-1.01	3.24	
7,282.00	1.44	100.22	7,281.14	4.01	-10.61	-5.54	1.71	1.35	-177.80	
7,377.00	1.56	87.24	7,376.11	3.86	-8.14	-5.03	0.38	0.13	-13.66	
7,472.00	1.65	108.50	7,471.08	3.49	-5.55	-4.28	0.63	0.09	22.38	
7,567.00	0.87	119.01	7,566.05	2.70	-3.62	-3.21	0.85	-0.82	11.06	
7,662.00	1.32	188.48	7,661.04	1.27	-3.16	-1.73	1.37	0.47	73.13	
7,754.00	2.11	271.45	7,753.01	0.27	-5.00	-1.01	2.55	0.86	90.18	
7,849.00	1.14	319.70	7,847.97	1.03	-7.36	-2.12	1.68	-1.02	50.79	
7,944.00	3.30	22.01	7,942.91	4.29	-6.95	-5.28	3.10	2.27	65.59	
8,038.00	1.31	27.39	8,036.82	7.75	-5.44	-8.48	2.13	-2.12	5.72	
8,134.00	2.68	84.68	8,132.77	8.93	-2.70	-9.24	2.35	1.43	59.68	
8,228.00	1.08	105.34	8,226.72	8.90	0.34	-8.75	1.82	-1.70	21.98	
8,322.00	0.96	166.23	8,320.71	7.90	1.38	-7.61	1.11	-0.13	64.78	
8,418.00	1.91	153.10	8,416.68	5.70	2.30	-5.29	1.04	0.99	-13.68	
8,513.00	1.72	176.37	8,511.63	2.86	3.10	-2.37	0.80	-0.20	24.49	
8,608.00	1.71	181.13	8,606.59	0.02	3.17	0.45	0.15	-0.01	5.01	
8,703.00	1.93	188.04	8,701.54	-2.98	2.91	3.38	0.33	0.23	7.27	
8,798.00	1.45	310.87	8,796.52	-3.78	1.78	4.00	3.13	-0.51	129.29	
8,894.00	0.53	262.82	8,892.50	-3.04	0.42	3.07	1.21	-0.96	-50.05	

Scientific Drilling International

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Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Rockies Compass Server

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)	
8,989.00	1.16	163.93	8,987.50	-4.02	0.25	4.01	1.42	0.66	-104.09	
9,084.00	1.39	166.33	9,082.47	-6.06	0.79	6.11	0.25	0.24	2.53	
Last SDI Production MWD Survey										
9,140.00	1.39	166.33	9,138.46	-7.38	1.11	7.46	0.00	0.00	0.00	
Projection to TD - K-Diamond Ranch 32-10 PBHL										

Design Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
152.00	152.00	-0.01	0.04	First SDI Surface MWD Survey	
1,084.00	1,083.94	-4.53	-5.22	Last SDI Surface MWD Survey	
1,244.00	1,243.92	-5.05	-3.19	First SDI Production MWD Survey	
9,084.00	9,082.47	-6.06	0.79	Last SDI Production MWD Survey	
9,140.00	9,138.46	-7.38	1.11	Projection to TD	

Checked By: _____ Approved By: _____ Date: _____