



**Scientific  
Drilling**

## Survey Certification

7327 West Barton Road

Casper, WY 82604

(307)-472-6621 Fax (307) 472-5439

Operator	Quicksilver Resources, Inc.
Well Name & No.	Stoddard 33-30
County & State	Moffat County, CO
SDI Job No.	41SHCEF1107913
Rig	DHS 6
Survey Date	28-Jul-11

I, Julie Cruse, having personal knowledge of all the facts, hereby certify that the attached directional survey run from a measured depth of 1200 feet to a measured depth of 8360 feet is true and correct as determined from all available records.

Julie Cruse  
Signature

12-Aug-11  
Date

### Julie Cruse

Rockies Region Engineer

Scientific Drilling - Rocky Mountain District



**Scientific Drilling**

## **Quicksilver Resources, Inc.**

**Moffat County, CO NAD83**

**Stoddard**

**Stoddard 33-30**

**OH**

**Design: OH**

## **Standard Survey Report**

**12 August, 2011**

<b>Company:</b>	Quicksilver Resources, Inc.	<b>Local Co-ordinate Reference:</b>	Well Stoddard 33-30
<b>Project:</b>	Moffat County, CO NAD83	<b>TVD Reference:</b>	GL 6607.8' & KB 16' @ 6623.80ft (DHS 6)
<b>Site:</b>	Stoddard	<b>MD Reference:</b>	GL 6607.8' & KB 16' @ 6623.80ft (DHS 6)
<b>Well:</b>	Stoddard 33-30	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	OH	<b>Database:</b>	Rockies Compass Server

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

Site	Stoddard				
Site Position:		Northing:	1,412,285.30 usft	Latitude:	40° 26' 50.440 N
From:	Lat/Long	Easting:	2,434,600.57 usft	Longitude:	107° 31' 54.050 W
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in	Grid Convergence:	-1.31 °

Well	Stoddard 33-30, 2160' FSL 2016' FEL Sec 30 T6N R90W					
Well Position	+N/-S	0.00 ft	Northing:	1,412,285.28 usft	Latitude:	40° 26' 50.440 N
	+E/-W	0.00 ft	Easting:	2,434,600.57 usft	Longitude:	107° 31' 54.050 W
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	6,607.80 ft

<b>Wellbore</b>	OH				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	2011-07-22	10.25	66.60	52,807

<b>Design</b>	OH				
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>	
	0.00	0.00	0.00	164.53	

<b>Survey Program</b>	<b>Date</b>	2011-08-12			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
200.00	1,535.00	Survey #1 - Surface (OH)	NS-GYRO-MS	North sensing gyrocompassing m/s	
1,200.00	6,358.00	Survey #2 - Intermediate (OH)	MWD SDI	MWD - Standard ver 1.0.1	
6,466.00	8,360.00	Survey #3 - Production (OH)	MWD SDI	MWD - Standard ver 1.0.1	

<b>Survey</b>										
<b>Measured Depth (ft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Vertical Section (ft)</b>	<b>Dogleg Rate (°/100ft)</b>	<b>Build Rate (°/100ft)</b>	<b>Turn Rate (°/100ft)</b>	
1,200.00	2.85	162.30	1,199.54	-25.01	9.69	26.69	0.37	0.37	0.49	
1,327.00	3.18	177.38	1,326.37	-31.54	10.81	33.28	0.67	0.26	11.87	
<b>First SDI MWD Survey</b>										
1,422.00	1.22	182.57	1,421.30	-35.18	10.89	36.81	2.07	-2.06	5.46	
1,517.00	0.43	192.83	1,516.29	-36.54	10.76	38.08	0.84	-0.83	10.80	
1,612.00	1.15	211.29	1,611.28	-37.70	10.19	39.05	0.79	0.76	19.43	
1,706.00	1.79	206.19	1,705.24	-39.82	9.05	40.79	0.69	0.68	-5.43	
1,801.00	1.35	175.72	1,800.21	-42.27	8.48	43.00	0.98	-0.46	-32.07	
1,896.00	3.33	118.59	1,895.14	-44.71	10.99	46.02	2.98	2.08	-60.14	

<b>Company:</b>	Quicksilver Resources, Inc.	<b>Local Co-ordinate Reference:</b>	Well Stoddard 33-30
<b>Project:</b>	Moffat County, CO NAD83	<b>TVD Reference:</b>	GL 6607.8' & KB 16' @ 6623.80ft (DHS 6)
<b>Site:</b>	Stoddard	<b>MD Reference:</b>	GL 6607.8' & KB 16' @ 6623.80ft (DHS 6)
<b>Well:</b>	Stoddard 33-30	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	OH	<b>Database:</b>	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)	
1,991.00	3.23	125.94	1,989.98	-47.60	15.58	50.03	0.45	-0.11	7.74	
2,085.00	3.20	128.16	2,083.83	-50.77	19.78	54.21	0.14	-0.03	2.36	
2,180.00	3.01	136.59	2,178.69	-54.22	23.58	58.55	0.52	-0.20	8.87	
2,275.00	3.15	156.80	2,273.56	-58.43	26.33	63.34	1.15	0.15	21.27	
2,369.00	2.37	111.22	2,367.46	-61.51	29.16	67.06	2.40	-0.83	-48.49	
2,464.00	2.33	115.72	2,462.38	-63.06	32.73	69.51	0.20	-0.04	4.74	
2,559.00	1.64	123.33	2,557.32	-64.65	35.60	71.80	0.78	-0.73	8.01	
2,653.00	1.79	159.07	2,651.28	-66.76	37.25	74.27	1.13	0.16	38.02	
2,748.00	1.88	182.84	2,746.24	-69.70	37.70	77.23	0.80	0.09	25.02	
2,843.00	1.69	162.25	2,841.19	-72.59	38.05	80.11	0.70	-0.20	-21.67	
2,937.00	2.62	201.32	2,935.13	-75.91	37.69	83.22	1.79	0.99	41.56	
3,030.00	1.04	251.63	3,028.08	-78.16	36.12	84.96	2.27	-1.70	54.10	
3,126.00	0.27	64.37	3,124.08	-78.33	35.50	84.96	1.36	-0.80	179.94	
3,221.00	1.34	99.07	3,219.07	-78.41	36.80	85.39	1.19	1.13	36.53	
3,316.00	1.54	157.70	3,314.04	-79.77	38.38	87.12	1.50	0.21	61.72	
3,411.00	1.38	162.32	3,409.01	-82.04	39.21	89.53	0.21	-0.17	4.86	
3,507.00	0.68	182.56	3,505.00	-83.71	39.53	91.22	0.81	-0.73	21.08	
3,601.00	1.16	186.35	3,598.98	-85.21	39.40	92.64	0.51	0.51	4.03	
3,696.00	1.57	194.85	3,693.96	-87.43	38.96	94.65	0.48	0.43	8.95	
3,791.00	2.16	228.80	3,788.91	-89.86	37.28	96.55	1.29	0.62	35.74	
3,887.00	1.86	194.49	3,884.85	-92.56	35.53	98.69	1.27	-0.31	-35.74	
3,983.00	1.92	142.76	3,980.81	-95.35	36.12	101.53	1.72	0.06	-53.89	
4,078.00	1.37	171.40	4,075.77	-97.74	37.25	104.14	1.02	-0.58	30.15	
4,173.00	1.59	109.82	4,170.74	-99.31	38.66	106.03	1.61	0.23	-64.82	
4,268.00	0.74	120.88	4,265.72	-100.07	40.43	107.23	0.92	-0.89	11.64	
4,363.00	1.56	151.91	4,360.70	-101.53	41.56	108.94	1.05	0.86	32.66	
4,457.00	1.41	112.64	4,454.67	-103.10	43.23	110.90	1.07	-0.16	-41.78	
4,552.00	1.04	143.34	4,549.65	-104.25	44.82	112.43	0.78	-0.39	32.32	
4,647.00	1.30	202.77	4,644.64	-105.93	44.92	114.08	1.24	0.27	62.56	
4,743.00	2.33	193.67	4,740.59	-108.83	44.04	116.64	1.11	1.07	-9.48	
4,837.00	2.66	223.48	4,834.50	-112.27	42.09	119.43	1.41	0.35	31.71	
4,931.00	2.81	261.15	4,928.40	-114.21	38.31	120.29	1.88	0.16	40.07	
5,026.00	0.70	315.62	5,023.36	-114.15	35.60	119.51	2.60	-2.22	57.34	
5,120.00	0.67	274.94	5,117.35	-113.69	34.65	118.82	0.51	-0.03	-43.28	
5,214.00	1.58	322.50	5,211.33	-112.62	33.32	117.43	1.31	0.97	50.60	
5,308.00	1.46	274.06	5,305.30	-111.51	31.33	115.82	1.33	-0.13	-51.53	
5,402.00	2.15	308.84	5,399.26	-110.32	28.76	113.99	1.34	0.73	37.00	
5,496.00	1.51	342.88	5,493.21	-108.03	27.03	111.32	1.31	-0.68	36.21	
5,590.00	1.14	48.77	5,587.19	-106.23	27.37	109.68	1.57	-0.39	70.10	
5,684.00	1.36	283.02	5,681.18	-105.36	26.98	108.74	2.37	0.23	-133.78	
5,778.00	2.24	15.64	5,775.15	-103.34	26.39	106.63	2.84	0.94	98.53	
5,872.00	2.04	13.28	5,869.08	-99.94	27.27	103.59	0.23	-0.21	-2.51	
5,966.00	0.95	336.13	5,963.05	-97.60	27.34	101.36	1.49	-1.16	-39.52	

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<b>Well:</b>	Stoddard 33-30	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	OH	<b>Database:</b>	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)
6,060.00	1.24	340.11	6,057.04	-95.93	26.68	99.57	0.32	0.31	4.23
6,154.00	0.81	322.96	6,151.02	-94.44	25.93	97.94	0.56	-0.46	-18.24
6,250.00	0.38	28.91	6,247.02	-93.62	25.68	97.08	0.77	-0.45	68.70
6,358.00	1.44	44.66	6,355.00	-92.34	26.80	96.15	1.00	0.98	14.58
Last Survey in 8 3/4" Hole									
6,466.00	0.88	127.73	6,462.98	-91.89	28.41	96.14	1.48	-0.52	76.92
First Survey in 6 1/8" Hole									
6,561.00	2.09	164.12	6,557.95	-94.00	29.46	98.45	1.55	1.27	38.31
6,656.00	1.10	142.46	6,652.92	-96.39	30.49	101.03	1.20	-1.04	-22.80
6,751.00	1.05	152.56	6,747.90	-97.88	31.45	102.73	0.21	-0.05	10.63
6,846.00	1.77	155.55	6,842.87	-99.99	32.46	105.03	0.76	0.76	3.15
6,941.00	2.89	84.28	6,937.81	-101.09	35.45	106.88	3.01	1.18	-75.02
7,035.00	1.73	35.10	7,031.74	-99.69	38.62	106.38	2.33	-1.23	-52.32
7,131.00	2.30	84.94	7,127.68	-98.34	41.38	105.81	1.85	0.59	51.92
7,226.00	0.74	48.93	7,222.65	-97.77	43.74	105.89	1.85	-1.64	-37.91
7,320.00	0.24	336.44	7,316.65	-97.19	44.12	105.43	0.75	-0.53	-77.12
7,415.00	2.14	83.63	7,411.62	-96.81	45.80	105.52	2.34	2.00	112.83
7,510.00	1.97	172.71	7,506.58	-98.23	47.77	107.41	3.04	-0.18	93.77
7,605.00	3.77	170.86	7,601.46	-102.93	48.47	112.13	1.90	1.89	-1.95
7,701.00	1.92	229.88	7,697.35	-107.09	47.75	115.94	3.37	-1.93	61.48
7,796.00	2.05	218.68	7,792.30	-109.44	45.47	117.60	0.43	0.14	-11.79
7,891.00	2.47	258.79	7,887.23	-111.16	42.40	118.44	1.68	0.44	42.22
7,985.00	1.91	264.89	7,981.16	-111.70	38.85	118.01	0.64	-0.60	6.49
8,080.00	2.01	199.14	8,076.12	-113.41	36.73	119.10	2.24	0.11	-69.21
8,175.00	3.49	160.39	8,171.01	-117.71	37.15	123.35	2.42	1.56	-40.79
8,270.00	4.11	161.83	8,265.80	-123.67	39.18	129.64	0.66	0.65	1.52
8,321.00	4.71	151.68	8,316.65	-127.25	40.75	133.51	1.93	1.18	-19.90
Last SDI MWD Survey									
8,360.00	4.71	151.68	8,355.52	-130.07	42.26	136.63	0.00	0.00	0.00
Projection to TD									

Design Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
200.00	200.00	-0.26	0.47	First Vaughn Gyro Survey
1,327.00	1,326.37	-31.54	10.81	First SDI MWD Survey
6,358.00	6,355.00	-92.34	26.80	Last Survey in 8 3/4" Hole
6,466.00	6,462.98	-91.89	28.41	First Survey in 6 1/8" Hole
8,321.00	8,316.65	-127.25	40.75	Last SDI MWD Survey
8,360.00	8,355.52	-130.07	42.26	Projection to TD

Checked By: _____	Approved By: _____	Date: _____
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