



Weatherford[®]

Drilling Services

Proposal



QUICKSILVER
RESOURCES

PIRTLAW PARTNERS, LTD #34-11

ROUTT COUNTY, CO

WELL FILE: PLAN 1

DECEMBER 13, 2013

Weatherford International, Ltd.
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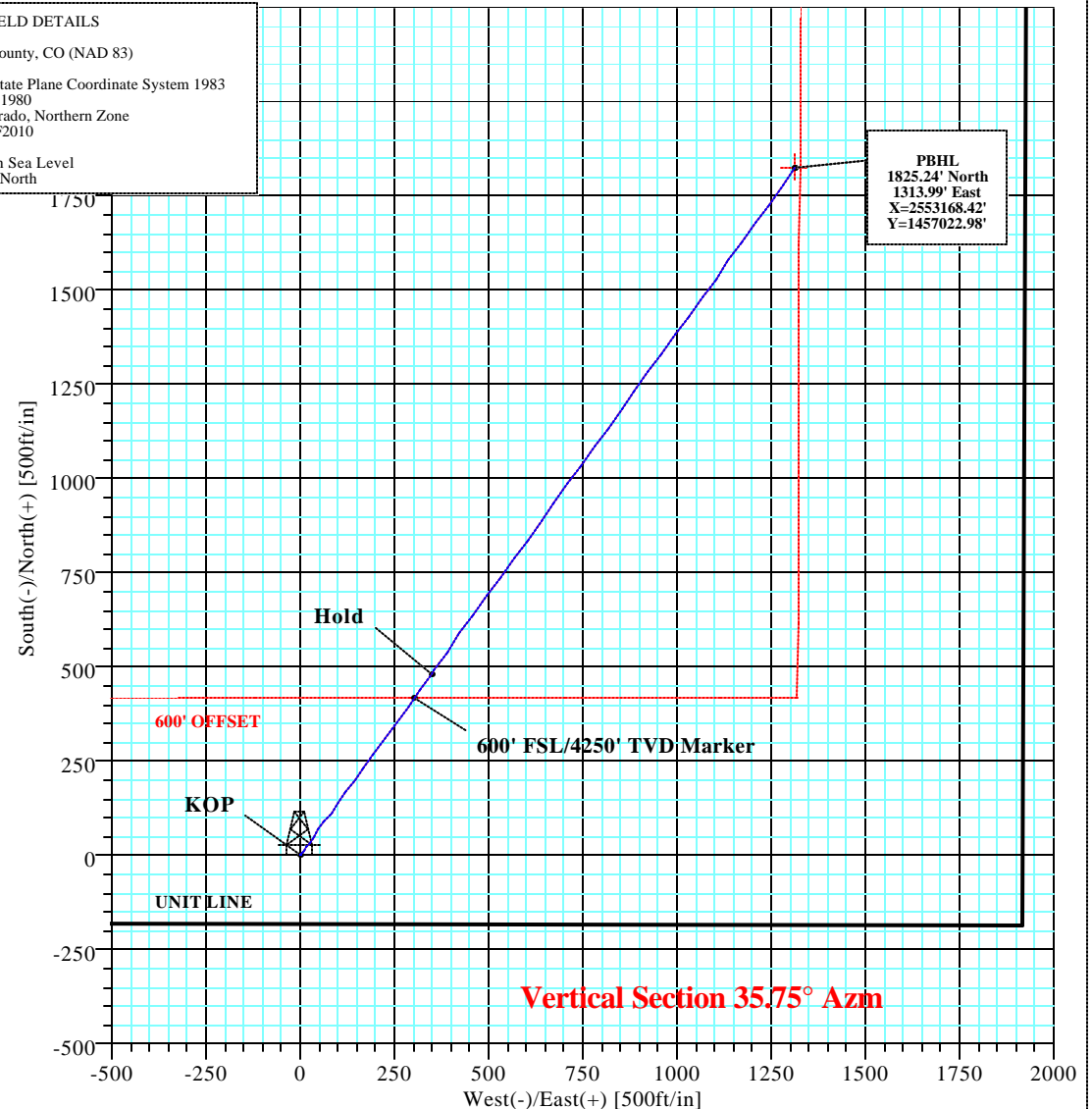
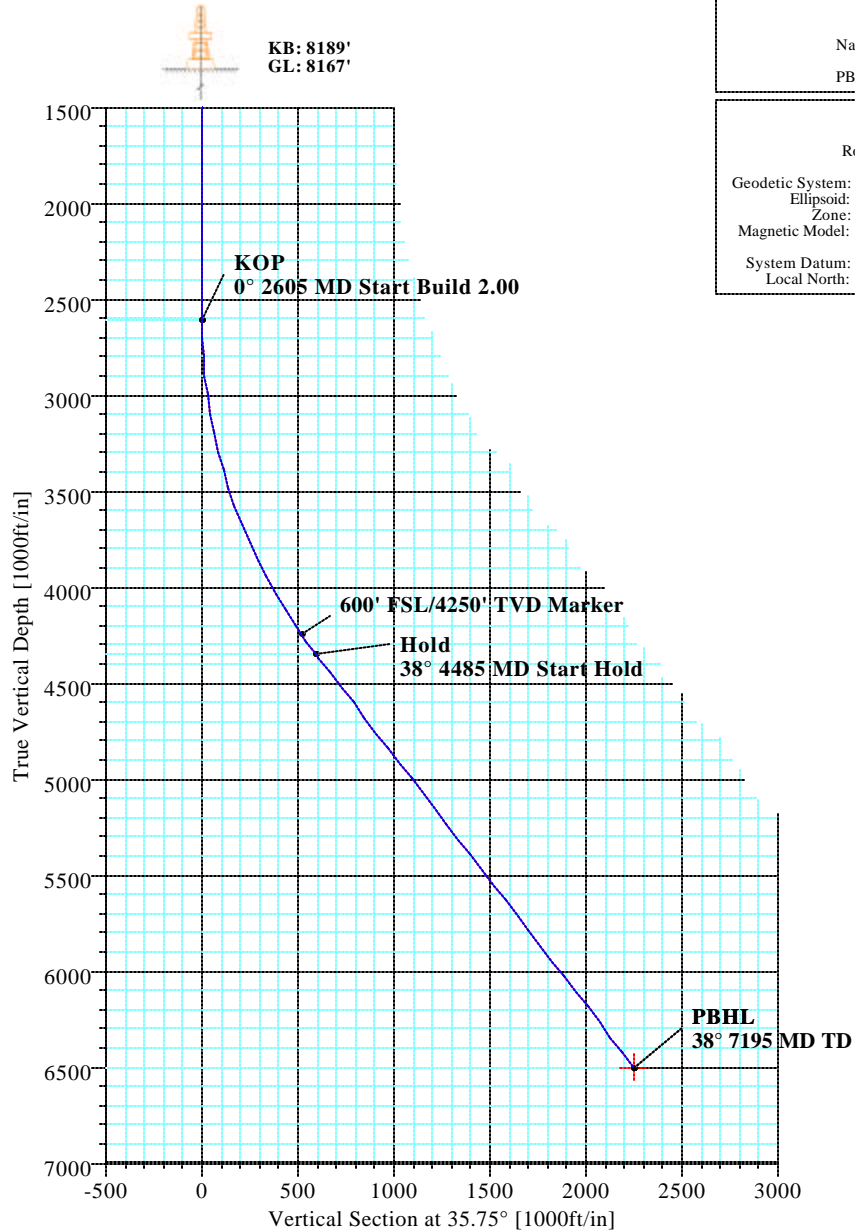
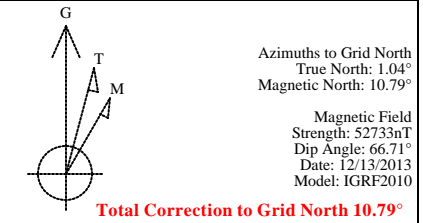
Pirtlaw Partners, LTD #34-11
Routt County, CO
X=2551854.43'
Y=1455197.74'
Plan 1

SECTION DETAILS										
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.00	0.00	35.75	0.00	0.00	0.00	0.00	0.00	0.00	
2	2604.79	0.00	35.75	2604.79	0.00	0.00	0.00	0.00	0.00	
3	4485.08	37.61	35.75	4352.96	483.07	347.76	2.00	35.75	595.22	
4	7195.21	37.61	35.75	6500.00	1825.24	1313.99	0.00	0.00	2249.02	PBHL

WELL DETAILS							
Name	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
Pirtlaw Partners, LTD #34-11	0.00	0.00	1455197.74	2551854.43	40°34'18.186N	107°06'47.786W	N/A

TARGET DETAILS						
Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
PBHL	6500.00	1825.24	1313.99	1457022.98	2553168.42	Point

FIELD DETAILS	
Routt County, CO (NAD 83)	
Geodetic System: US State Plane Coordinate System 1983	
Ellipsoid: GRS 1980	
Zone: Colorado, Northern Zone	
Magnetic Model: IGRF2010	
System Datum: Mean Sea Level	
Local North: Grid North	



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Proposal Plan Report

Company: Quicksilver Resources		Date: 12/13/2013	Time: 15:04:56	Page: 1
Field: Routt County, CO (NAD 83)		Co-ordinate(NE) Reference: Site: Pirtlaw Partners, LTD #34-11		
Site: Pirtlaw Partners, LTD #34-11		Vertical (TVD) Reference: SITE 8189.0		
Well: Pirtlaw Partners, LTD #34-11		Section (VS) Reference: Well (0.00N,0.00E,35.75Azi)		
Wellpath: 1		Survey Calculation Method: Minimum Curvature		Db: Sybase

Survey:	Start Date:
Company:	Engineer:
Tool:	Tied-to:

Field: Routt County, CO (NAD 83)	
Map System: US State Plane Coordinate System 1983 Geo Datum: GRS 1980 Sys Datum: Mean Sea Level	Map Zone: Colorado, Northern Zone Coordinate System: Site Centre Geomagnetic Model: IGRF2010

Site: Pirtlaw Partners, LTD #34-11	
Site Position: From: Map Position Uncertainty: 0.00 ft Ground Level: 8167.00 ft	Northing: 1455197.74 ft Easting: 2551854.43 ft Latitude: 40 34 18.186 N Longitude: 107 6 47.786 W North Reference: Grid Grid Convergence: -1.04 deg

Well: Pirtlaw Partners, LTD #34-11	Slot Name:
Well Position: +N/-S 0.00 ft Position Uncertainty: 0.00 ft	Northing: 1455197.74 ft Easting: 2551854.43 ft Latitude: 40 34 18.186 N Longitude: 107 6 47.786 W

Wellpath: 1	Drilled From: Surface
Current Datum: SITE	Tie-on Depth: 0.00 ft
Magnetic Data: 12/13/2013	Above System Datum: Mean Sea Level
Field Strength: 52733 nT	Declination: 9.75 deg
Vertical Section: Depth From (TVD)	Mag Dip Angle: 66.71 deg
ft	+E/-W
ft	Direction
ft	deg
6500.00	0.00
0.00	35.75

Plan: Plan #1	Date Composed: 12/13/2013
Principal: Yes	Version: 1
	Tied-to: From Surface

Plan Section Information										
MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	TFO deg	Target
0.00	0.00	35.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2604.79	0.00	35.75	2604.79	0.00	0.00	0.00	0.00	0.00	0.00	
4485.08	37.61	35.75	4352.96	483.07	347.76	2.00	2.00	0.00	35.75	
7195.21	37.61	35.75	6500.00	1825.24	1313.99	0.00	0.00	0.00	0.00	PBHL

Survey										
MD ft	Incl deg	Azim deg	TVD ft	N/S ft	E/W ft	VS ft	Build deg/100ft	Turn deg/100ft	DLS deg/100ft	Comment
2604.79	0.00	35.75	2604.79	0.00	0.00	0.00	0.00	0.00	0.00	KOP
2700.00	1.90	35.75	2699.98	1.28	0.92	1.58	2.00	0.00	2.00	
2800.00	3.90	35.75	2799.85	5.40	3.88	6.65	2.00	0.00	2.00	
2900.00	5.90	35.75	2899.48	12.33	8.88	15.20	2.00	0.00	2.00	
3000.00	7.90	35.75	2998.75	22.09	15.90	27.22	2.00	0.00	2.00	
3100.00	9.90	35.75	3097.54	34.65	24.94	42.69	2.00	0.00	2.00	
3200.00	11.90	35.75	3195.73	50.00	36.00	61.61	2.00	0.00	2.00	
3300.00	13.90	35.75	3293.20	68.12	49.04	83.94	2.00	0.00	2.00	
3400.00	15.90	35.75	3389.83	89.00	64.07	109.66	2.00	0.00	2.00	
3500.00	17.90	35.75	3485.50	112.59	81.06	138.74	2.00	0.00	2.00	
3600.00	19.90	35.75	3580.10	138.89	99.98	171.13	2.00	0.00	2.00	
3700.00	21.90	35.75	3673.52	167.84	120.83	206.81	2.00	0.00	2.00	
3800.00	23.90	35.75	3765.63	199.43	143.57	245.73	2.00	0.00	2.00	

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Proposal Plan Report

Company: Quicksilver Resources Field: Routt County, CO (NAD 83) Site: Pirtlaw Partners, LTD #34-11 Well: Pirtlaw Partners, LTD #34-11 Wellpath: 1	Date: 12/13/2013 Time: 15:04:56 Page: 2 Co-ordinate(NE) Reference: Site: Pirtlaw Partners, LTD #34-11 Vertical (TVD) Reference: SITE 8189.0 Section (VS) Reference: Well (0.00N,0.00E,35.75Azi) Survey Calculation Method: Minimum Curvature Db: Sybase
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Survey

MD ft	Incl deg	Azim deg	TVD ft	N/S ft	E/W ft	VS ft	Build deg/100ft	Turn deg/100ft	DLS deg/100ft	Comment
3900.00	25.90	35.75	3856.32	233.60	168.17	287.84	2.00	0.00	2.00	
4000.00	27.90	35.75	3945.50	270.32	194.61	333.09	2.00	0.00	2.00	
4100.00	29.90	35.75	4033.03	309.55	222.84	381.42	2.00	0.00	2.00	
4200.00	31.90	35.75	4118.83	351.23	252.85	432.78	2.00	0.00	2.00	
4300.00	33.90	35.75	4202.79	395.31	284.59	487.10	2.00	0.00	2.00	
4357.27	35.05	35.75	4250.00	421.62	303.53	519.51	2.00	0.00	2.00	600' FSL/4250' TVD M
4400.00	35.90	35.75	4284.79	441.75	318.02	544.31	2.00	0.00	2.00	
4485.08	37.61	35.75	4352.96	483.07	347.76	595.22	2.00	0.00	2.00	Hold
4500.00	37.61	35.75	4364.78	490.46	353.08	604.33	0.00	0.00	0.00	
4600.00	37.61	35.75	4444.00	539.98	388.73	665.35	0.00	0.00	0.00	
4700.00	37.61	35.75	4523.22	589.50	424.38	726.37	0.00	0.00	0.00	
4800.00	37.61	35.75	4602.45	639.03	460.04	787.40	0.00	0.00	0.00	
4900.00	37.61	35.75	4681.67	688.55	495.69	848.42	0.00	0.00	0.00	
5000.00	37.61	35.75	4760.89	738.08	531.34	909.44	0.00	0.00	0.00	
5100.00	37.61	35.75	4840.11	787.60	566.99	970.46	0.00	0.00	0.00	
5200.00	37.61	35.75	4919.34	837.13	602.65	1031.49	0.00	0.00	0.00	
5300.00	37.61	35.75	4998.56	886.65	638.30	1092.51	0.00	0.00	0.00	
5400.00	37.61	35.75	5077.78	936.17	673.95	1153.53	0.00	0.00	0.00	
5500.00	37.61	35.75	5157.00	985.70	709.60	1214.55	0.00	0.00	0.00	
5600.00	37.61	35.75	5236.23	1035.22	745.26	1275.58	0.00	0.00	0.00	
5700.00	37.61	35.75	5315.45	1084.75	780.91	1336.60	0.00	0.00	0.00	
5800.00	37.61	35.75	5394.67	1134.27	816.56	1397.62	0.00	0.00	0.00	
5900.00	37.61	35.75	5473.90	1183.80	852.21	1458.64	0.00	0.00	0.00	
6000.00	37.61	35.75	5553.12	1233.32	887.87	1519.67	0.00	0.00	0.00	
6100.00	37.61	35.75	5632.34	1282.84	923.52	1580.69	0.00	0.00	0.00	
6200.00	37.61	35.75	5711.56	1332.37	959.17	1641.71	0.00	0.00	0.00	
6300.00	37.61	35.75	5790.79	1381.89	994.82	1702.73	0.00	0.00	0.00	
6400.00	37.61	35.75	5870.01	1431.42	1030.48	1763.76	0.00	0.00	0.00	
6500.00	37.61	35.75	5949.23	1480.94	1066.13	1824.78	0.00	0.00	0.00	
6600.00	37.61	35.75	6028.46	1530.47	1101.78	1885.80	0.00	0.00	0.00	
6700.00	37.61	35.75	6107.68	1579.99	1137.43	1946.82	0.00	0.00	0.00	
6800.00	37.61	35.75	6186.90	1629.51	1173.09	2007.85	0.00	0.00	0.00	
6900.00	37.61	35.75	6266.12	1679.04	1208.74	2068.87	0.00	0.00	0.00	
7000.00	37.61	35.75	6345.35	1728.56	1244.39	2129.89	0.00	0.00	0.00	
7100.00	37.61	35.75	6424.57	1778.09	1280.04	2190.91	0.00	0.00	0.00	
7195.21	37.61	35.75	6500.00	1825.24	1313.99	2249.02	0.00	0.00	0.00	PBHL

Annotation

MD ft	TVD ft	
2604.79	2604.79	KOP
4357.27	4250.00	600' FSL/4250' TVD Marker
4485.08	4352.96	Hold
7195.21	6500.00	PBHL

Casing Points

MD	TVD	Diameter	Hole Size	Name

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Proposal Plan Report

Company: Quicksilver Resources Field: Routt County, CO (NAD 83) Site: Pirtlaw Partners, LTD #34-11 Well: Pirtlaw Partners, LTD #34-11 Wellpath: 1	Date: 12/13/2013 Time: 15:04:56 Page: 3 Co-ordinate(NE) Reference: Site: Pirtlaw Partners, LTD #34-11 Vertical (TVD) Reference: SITE 8189.0 Section (VS) Reference: Well (0.00N,0.00E,35.75Azi) Survey Calculation Method: Minimum Curvature Db: Sybase
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Formations

MD	TVD	Formations	Lithology	Dip Angle	Dip Direction

Targets

Name	Description	Dir.	TVD ft	+N/-S ft	+E/-W ft	Map Northing ft	Map Easting ft	<---- Latitude ---->			<--- Longitude --->				
								Deg	Min	Sec	Deg	Min	Sec		
PBHL -Plan hit target			6500.00	1825.24	1313.99	1457022.98	2553168.42	40	34	36.455	N	107	6	31.191	W