

# Cirque Resources LP

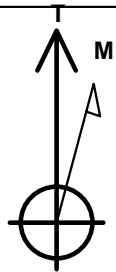
Well Name: **Matira East 30-19-15-3CH**

Surface Location: Matira East Federal Pad Sec.30-T12N-R65W  
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone  
Ground Elevation: 6002.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1597910.62	3220456.09	40.971900	-104.701700	
RKB - 25' WELL @ 6027.0ft (RKB - 25')						

## WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
Sectionline	1.0	-245.0	-441.4	Polygon
SHL 245'FSL & 1770'FEL, Sec.30	1.0	0.0	0.0	Point
BHL 114'FNL & 1940'FEL, Sec.19	8907.0	10136.2	-63.5	Point
Landing Pt. 1017'FSL & 1940'FEL, Sec.30	8907.0	773.5	-162.9	Point



Azimuths to True North  
Magnetic North: 8.45°

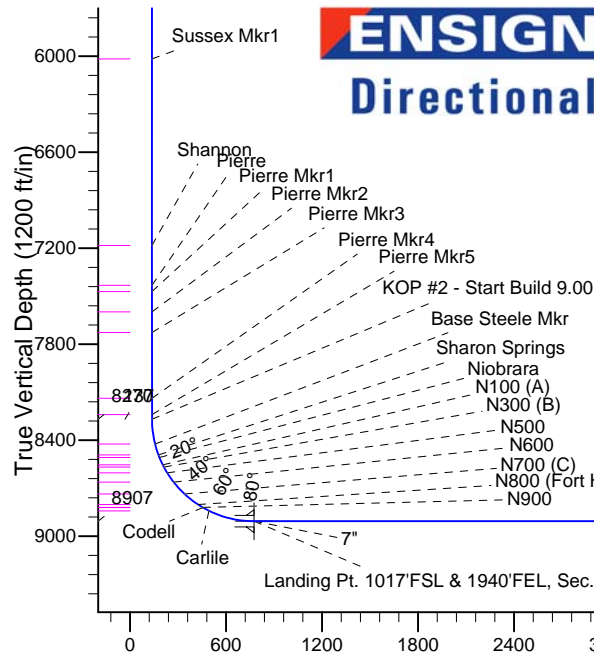
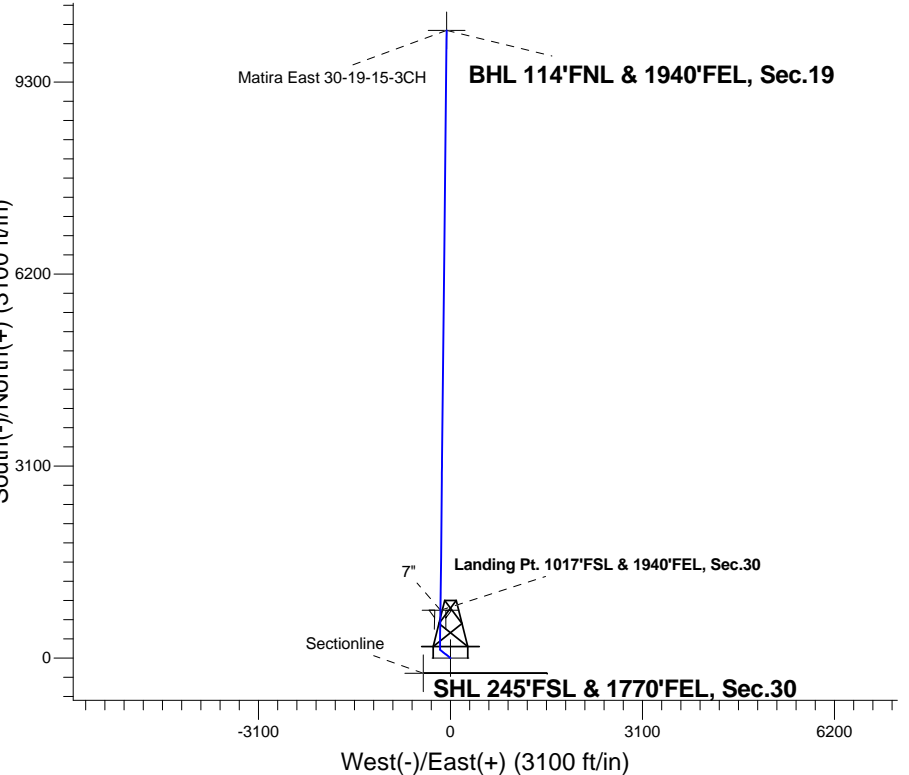
Magnetic Field  
Strength: 53088.1nT  
Dip Angle: 67.41°  
Date: 8/25/2014  
Model: IGRF2010

Matira East Federal Pad Sec.30-T12N-R65W  
Matira East 30-19-15-3CH  
Plan #1 (8-26-14)  
09:30, August 26 2014

## ANNOTATIONS

TVD	MD	Annotation
2500.0	2500.0	KOP - Start Build 2.00
4720.3	4730.1	Start Drop -2.00
8270.4	8280.6	KOP #2 - Start Build 9.00
8907.0	18644.8	TD at 18644.8

South(-)/North(+) (3100 ft/in)



**ENSIGN**  
Directional

## SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	2500.0	0.00	0.00	2500.0	0.0	0.0	0.00	0.00	0.0	
3	2780.1	5.60	308.66	2779.6	8.5	-10.7	2.00	308.66	8.6	
4	4730.1	5.60	308.66	4720.4	127.5	-159.3	0.00	0.00	128.4	
5	5010.2	0.00	0.00	5000.0	136.0	-170.0	2.00	180.00	137.1	
6	8280.6	0.00	0.00	8270.4	136.0	-170.0	0.00	0.00	137.1	
7	9280.6	90.00	0.64	8907.0	772.6	-162.9	9.00	0.64	773.6	
8	9281.5	90.00	0.64	8907.0	773.5	-162.9	0.00	0.00	774.5	Landing Pt. 1017'FSL & 1940'FEL, Sec.30
9	9284.2	90.00	0.61	8907.0	776.2	-162.9	1.00	-90.00	777.2	
10	18644.8	90.00	0.61	8907.0	10136.2	-63.5	0.00	0.00	10136.4	BHL 114'FNL & 1940'FEL, Sec.19

**BHL 114'FNL & 1940'FEL, Sec.19**

Vertical Section at 359.64° (1200 ft/in)



## **Cirque Resources LP**

**Sec.30-T12N-R65W**

**Matira East Federal Pad Sec.30-T12N-R65W**

**Matira East 30-19-15-3CH**

**Wellbore #1**

**Plan: Plan #1 (8-26-14)**

## **Standard Planning Report**

**26 August, 2014**

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	
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,780.1	5.60	308.66	2,779.6	8.5	-10.7	2.00	2.00	0.00	308.66	
4,730.1	5.60	308.66	4,720.4	127.5	-159.3	0.00	0.00	0.00	0.00	
5,010.2	0.00	0.00	5,000.0	136.0	-170.0	2.00	-2.00	0.00	180.00	
8,280.6	0.00	0.00	8,270.4	136.0	-170.0	0.00	0.00	0.00	0.00	
9,280.6	90.00	0.64	8,907.0	772.6	-162.9	9.00	9.00	0.00	0.64	
9,281.5	90.00	0.64	8,907.0	773.5	-162.9	0.00	0.00	0.00	0.00	Landing Pt. 1017'FS
9,284.2	90.00	0.61	8,907.0	776.2	-162.9	1.00	0.00	-1.00	-90.00	
18,644.8	90.00	0.61	8,907.0	10,136.2	-63.5	0.00	0.00	0.00	0.00	BHL 114'FNL & 194'FS

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Matira East 30-19-15-3CH
<b>Company:</b>	Cirque Resources LP	<b>TVD Reference:</b>	WELL @ 6027.0ft (RKB - 25')
<b>Project:</b>	Sec.30-T12N-R65W	<b>MD Reference:</b>	WELL @ 6027.0ft (RKB - 25')
<b>Site:</b>	Matira East Federal Pad Sec.30-T12N-R65W	<b>North Reference:</b>	True
<b>Well:</b>	Matira East 30-19-15-3CH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (8-26-14)		

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)	Turn Rate (°/100ft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	0.00
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00
1,828.0	0.00	0.00	1,828.0	0.0	0.0	0.0	0.00	0.00	0.00
<b>Fox Hills</b>									
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	0.00
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	0.00
2,100.0	0.00	0.00	2,100.0	0.0	0.0	0.0	0.00	0.00	0.00
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	0.00
2,300.0	0.00	0.00	2,300.0	0.0	0.0	0.0	0.00	0.00	0.00
2,400.0	0.00	0.00	2,400.0	0.0	0.0	0.0	0.00	0.00	0.00
2,498.0	0.00	0.00	2,498.0	0.0	0.0	0.0	0.00	0.00	0.00
<b>Fox Hills Mkr 1</b>									
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.0	0.00	0.00	0.00
<b>KOP - Start Build 2.00</b>									
2,600.0	2.00	308.66	2,600.0	1.1	-1.4	1.1	2.00	2.00	0.00
2,700.0	4.00	308.66	2,699.8	4.4	-5.4	4.4	2.00	2.00	0.00
2,780.1	5.60	308.66	2,779.6	8.5	-10.7	8.6	2.00	2.00	0.00
2,800.0	5.60	308.66	2,799.5	9.8	-12.2	9.8	0.00	0.00	0.00
2,900.0	5.60	308.66	2,899.0	15.9	-19.8	16.0	0.00	0.00	0.00
3,000.0	5.60	308.66	2,998.5	22.0	-27.4	22.1	0.00	0.00	0.00
3,100.0	5.60	308.66	3,098.0	28.1	-35.1	28.3	0.00	0.00	0.00
3,200.0	5.60	308.66	3,197.5	34.2	-42.7	34.4	0.00	0.00	0.00
3,300.0	5.60	308.66	3,297.1	40.2	-50.3	40.6	0.00	0.00	0.00
3,400.0	5.60	308.66	3,396.6	46.3	-57.9	46.7	0.00	0.00	0.00
3,500.0	5.60	308.66	3,496.1	52.4	-65.6	52.9	0.00	0.00	0.00
3,600.0	5.60	308.66	3,595.6	58.5	-73.2	59.0	0.00	0.00	0.00
3,700.0	5.60	308.66	3,695.2	64.6	-80.8	65.1	0.00	0.00	0.00
3,800.0	5.60	308.66	3,794.7	70.7	-88.4	71.3	0.00	0.00	0.00
3,900.0	5.60	308.66	3,894.2	76.8	-96.0	77.4	0.00	0.00	0.00
4,000.0	5.60	308.66	3,993.7	82.9	-103.7	83.6	0.00	0.00	0.00
4,100.0	5.60	308.66	4,093.3	89.0	-111.3	89.7	0.00	0.00	0.00
4,200.0	5.60	308.66	4,192.8	95.1	-118.9	95.9	0.00	0.00	0.00
4,300.0	5.60	308.66	4,292.3	101.2	-126.5	102.0	0.00	0.00	0.00
4,303.7	5.60	308.66	4,296.0	101.5	-126.8	102.2	0.00	0.00	0.00
<b>Teapot</b>									
4,400.0	5.60	308.66	4,391.8	107.3	-134.2	108.2	0.00	0.00	0.00
4,500.0	5.60	308.66	4,491.3	113.4	-141.8	114.3	0.00	0.00	0.00

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Matira East 30-19-15-3CH
<b>Company:</b>	Cirque Resources LP	<b>TVD Reference:</b>	WELL @ 6027.0ft (RKB - 25')
<b>Project:</b>	Sec.30-T12N-R65W	<b>MD Reference:</b>	WELL @ 6027.0ft (RKB - 25')
<b>Site:</b>	Matira East Federal Pad Sec.30-T12N-R65W	<b>North Reference:</b>	True
<b>Well:</b>	Matira East 30-19-15-3CH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (8-26-14)		

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)	Turn Rate (°/100ft)
4,600.0	5.60	308.66	4,590.9	119.5	-149.4	120.5	0.00	0.00	0.00
4,700.0	5.60	308.66	4,690.4	125.6	-157.0	126.6	0.00	0.00	0.00
4,730.1	5.60	308.66	4,720.3	127.5	-159.3	128.4	0.00	0.00	0.00
<b>Start Drop -2.00</b>									
4,800.0	4.20	308.66	4,790.0	131.2	-164.0	132.2	2.00	-2.00	0.00
4,900.0	2.20	308.66	4,889.8	134.7	-168.3	135.7	2.00	-2.00	0.00
5,000.0	0.20	308.66	4,989.8	136.0	-170.0	137.1	2.00	-2.00	0.00
5,010.2	0.00	0.00	5,000.0	136.0	-170.0	137.1	2.00	-2.00	0.00
5,100.0	0.00	0.00	5,089.8	136.0	-170.0	137.1	0.00	0.00	0.00
5,200.0	0.00	0.00	5,189.8	136.0	-170.0	137.1	0.00	0.00	0.00
5,242.2	0.00	0.00	5,232.0	136.0	-170.0	137.1	0.00	0.00	0.00
<b>Parkman</b>									
5,274.2	0.00	0.00	5,264.0	136.0	-170.0	137.1	0.00	0.00	0.00
<b>Sussex</b>									
5,300.0	0.00	0.00	5,289.8	136.0	-170.0	137.1	0.00	0.00	0.00
5,400.0	0.00	0.00	5,389.8	136.0	-170.0	137.1	0.00	0.00	0.00
5,500.0	0.00	0.00	5,489.8	136.0	-170.0	137.1	0.00	0.00	0.00
5,600.0	0.00	0.00	5,589.8	136.0	-170.0	137.1	0.00	0.00	0.00
5,611.2	0.00	0.00	5,601.0	136.0	-170.0	137.1	0.00	0.00	0.00
<b>Pierre Upper Mkr1</b>									
5,700.0	0.00	0.00	5,689.8	136.0	-170.0	137.1	0.00	0.00	0.00
5,800.0	0.00	0.00	5,789.8	136.0	-170.0	137.1	0.00	0.00	0.00
5,900.0	0.00	0.00	5,889.8	136.0	-170.0	137.1	0.00	0.00	0.00
6,000.0	0.00	0.00	5,989.8	136.0	-170.0	137.1	0.00	0.00	0.00
6,027.2	0.00	0.00	6,017.0	136.0	-170.0	137.1	0.00	0.00	0.00
<b>Sussex Mkr1</b>									
6,100.0	0.00	0.00	6,089.8	136.0	-170.0	137.1	0.00	0.00	0.00
6,200.0	0.00	0.00	6,189.8	136.0	-170.0	137.1	0.00	0.00	0.00
6,300.0	0.00	0.00	6,289.8	136.0	-170.0	137.1	0.00	0.00	0.00
6,400.0	0.00	0.00	6,389.8	136.0	-170.0	137.1	0.00	0.00	0.00
6,500.0	0.00	0.00	6,489.8	136.0	-170.0	137.1	0.00	0.00	0.00
6,600.0	0.00	0.00	6,589.8	136.0	-170.0	137.1	0.00	0.00	0.00
6,700.0	0.00	0.00	6,689.8	136.0	-170.0	137.1	0.00	0.00	0.00
6,800.0	0.00	0.00	6,789.8	136.0	-170.0	137.1	0.00	0.00	0.00
6,900.0	0.00	0.00	6,889.8	136.0	-170.0	137.1	0.00	0.00	0.00
7,000.0	0.00	0.00	6,989.8	136.0	-170.0	137.1	0.00	0.00	0.00
7,100.0	0.00	0.00	7,089.8	136.0	-170.0	137.1	0.00	0.00	0.00
7,194.2	0.00	0.00	7,184.0	136.0	-170.0	137.1	0.00	0.00	0.00
<b>Shannon</b>									
7,200.0	0.00	0.00	7,189.8	136.0	-170.0	137.1	0.00	0.00	0.00
7,300.0	0.00	0.00	7,289.8	136.0	-170.0	137.1	0.00	0.00	0.00
7,400.0	0.00	0.00	7,389.8	136.0	-170.0	137.1	0.00	0.00	0.00
7,442.2	0.00	0.00	7,432.0	136.0	-170.0	137.1	0.00	0.00	0.00
<b>Pierre</b>									
7,482.2	0.00	0.00	7,472.0	136.0	-170.0	137.1	0.00	0.00	0.00
<b>Pierre Mkr1</b>									
7,500.0	0.00	0.00	7,489.8	136.0	-170.0	137.1	0.00	0.00	0.00
7,600.0	0.00	0.00	7,589.8	136.0	-170.0	137.1	0.00	0.00	0.00
7,609.2	0.00	0.00	7,599.0	136.0	-170.0	137.1	0.00	0.00	0.00
<b>Pierre Mkr2</b>									
7,700.0	0.00	0.00	7,689.8	136.0	-170.0	137.1	0.00	0.00	0.00
7,737.2	0.00	0.00	7,727.0	136.0	-170.0	137.1	0.00	0.00	0.00

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Matira East 30-19-15-3CH
<b>Company:</b>	Cirque Resources LP	<b>TVD Reference:</b>	WELL @ 6027.0ft (RKB - 25')
<b>Project:</b>	Sec.30-T12N-R65W	<b>MD Reference:</b>	WELL @ 6027.0ft (RKB - 25')
<b>Site:</b>	Matira East Federal Pad Sec.30-T12N-R65W	<b>North Reference:</b>	True
<b>Well:</b>	Matira East 30-19-15-3CH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (8-26-14)		

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)	Turn Rate (°/100ft)	
Pierre Mkr3										
7,800.0	0.00	0.00	7,789.8	136.0	-170.0	137.1	0.00	0.00	0.00	
7,900.0	0.00	0.00	7,889.8	136.0	-170.0	137.1	0.00	0.00	0.00	
8,000.0	0.00	0.00	7,989.8	136.0	-170.0	137.1	0.00	0.00	0.00	
8,100.0	0.00	0.00	8,089.8	136.0	-170.0	137.1	0.00	0.00	0.00	
8,149.2	0.00	0.00	8,139.0	136.0	-170.0	137.1	0.00	0.00	0.00	
Pierre Mkr4										
8,200.0	0.00	0.00	8,189.8	136.0	-170.0	137.1	0.00	0.00	0.00	
8,251.2	0.00	0.00	8,241.0	136.0	-170.0	137.1	0.00	0.00	0.00	
Pierre Mkr5										
8,280.6	0.00	0.00	8,270.4	136.0	-170.0	137.1	0.00	0.00	0.00	
KOP #2 - Start Build 9.00										
8,300.0	1.75	0.64	8,289.8	136.3	-170.0	137.4	9.01	9.01	0.00	
8,400.0	10.75	0.64	8,389.1	147.2	-169.9	148.2	9.00	9.00	0.00	
8,436.8	14.06	0.64	8,425.0	155.1	-169.8	156.1	9.00	9.00	0.00	
Base Steele Mkr										
8,500.0	19.75	0.64	8,485.5	173.4	-169.6	174.5	9.00	9.00	0.00	
8,508.0	20.47	0.64	8,493.0	176.2	-169.6	177.2	9.00	9.00	0.00	
Sharon Springs										
8,524.1	21.92	0.64	8,508.0	182.0	-169.5	183.1	9.00	9.00	0.00	
Niobrara										
8,574.5	26.46	0.64	8,554.0	202.7	-169.3	203.7	9.00	9.00	0.00	
N100 (A)										
8,590.3	27.87	0.64	8,568.0	209.8	-169.2	210.9	9.00	9.00	0.00	
N300 (B)										
8,600.0	28.75	0.64	8,576.6	214.5	-169.1	215.5	9.00	9.00	0.00	
8,631.7	31.60	0.64	8,604.0	230.4	-169.0	231.5	9.00	9.00	0.00	
N500										
8,700.0	37.75	0.64	8,660.1	269.2	-168.5	270.3	9.00	9.00	0.00	
8,702.4	37.96	0.64	8,662.0	270.7	-168.5	271.7	9.00	9.00	0.00	
N600										
8,800.0	46.75	0.64	8,734.1	336.4	-167.8	337.4	9.00	9.00	0.00	
8,804.3	47.14	0.64	8,737.0	339.5	-167.7	340.6	9.00	9.00	0.00	
N700 (C)										
8,900.0	55.75	0.64	8,796.6	414.3	-166.9	415.3	9.00	9.00	0.00	
8,911.5	56.79	0.64	8,803.0	423.9	-166.8	424.9	9.00	9.00	0.00	
N800 (Fort Hayes)										
8,945.8	59.87	0.64	8,821.0	453.1	-166.5	454.1	9.00	9.00	0.00	
N900										
8,947.8	60.05	0.64	8,822.0	454.8	-166.5	455.8	9.00	9.00	0.00	
Codell										
8,990.4	63.88	0.64	8,842.0	492.4	-166.0	493.4	9.00	9.00	0.00	
Carlile										
9,000.0	64.75	0.64	8,846.2	501.0	-165.9	502.0	9.00	9.00	0.00	
9,100.0	73.75	0.64	8,881.6	594.4	-164.9	595.4	9.00	9.00	0.00	
9,200.0	82.75	0.64	8,901.9	692.2	-163.8	693.2	9.00	9.00	0.00	
9,280.6	90.00	0.64	8,907.0	772.6	-162.9	773.6	9.00	9.00	0.00	
9,281.5	90.00	0.64	8,907.0	773.5	-162.9	774.5	0.00	0.00	0.00	
7"										
9,284.2	90.00	0.61	8,907.0	776.2	-162.9	777.2	1.00	0.00	-1.00	
9,300.0	90.00	0.61	8,907.0	792.0	-162.7	793.0	0.00	0.00	0.00	
9,400.0	90.00	0.61	8,907.0	892.0	-161.7	893.0	0.00	0.00	0.00	

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Matira East 30-19-15-3CH
<b>Company:</b>	Cirque Resources LP	<b>TVD Reference:</b>	WELL @ 6027.0ft (RKB - 25')
<b>Project:</b>	Sec.30-T12N-R65W	<b>MD Reference:</b>	WELL @ 6027.0ft (RKB - 25')
<b>Site:</b>	Matira East Federal Pad Sec.30-T12N-R65W	<b>North Reference:</b>	True
<b>Well:</b>	Matira East 30-19-15-3CH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (8-26-14)		

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)	Turn Rate (°/100ft)
9,500.0	90.00	0.61	8,907.0	992.0	-160.6	993.0	0.00	0.00	0.00
9,600.0	90.00	0.61	8,907.0	1,092.0	-159.5	1,093.0	0.00	0.00	0.00
9,700.0	90.00	0.61	8,907.0	1,192.0	-158.5	1,192.9	0.00	0.00	0.00
9,800.0	90.00	0.61	8,907.0	1,292.0	-157.4	1,292.9	0.00	0.00	0.00
9,900.0	90.00	0.61	8,907.0	1,392.0	-156.4	1,392.9	0.00	0.00	0.00
10,000.0	90.00	0.61	8,907.0	1,492.0	-155.3	1,492.9	0.00	0.00	0.00
10,100.0	90.00	0.61	8,907.0	1,592.0	-154.2	1,592.9	0.00	0.00	0.00
10,200.0	90.00	0.61	8,907.0	1,691.9	-153.2	1,692.9	0.00	0.00	0.00
10,300.0	90.00	0.61	8,907.0	1,791.9	-152.1	1,792.9	0.00	0.00	0.00
10,400.0	90.00	0.61	8,907.0	1,891.9	-151.0	1,892.8	0.00	0.00	0.00
10,500.0	90.00	0.61	8,907.0	1,991.9	-150.0	1,992.8	0.00	0.00	0.00
10,600.0	90.00	0.61	8,907.0	2,091.9	-148.9	2,092.8	0.00	0.00	0.00
10,700.0	90.00	0.61	8,907.0	2,191.9	-147.9	2,192.8	0.00	0.00	0.00
10,800.0	90.00	0.61	8,907.0	2,291.9	-146.8	2,292.8	0.00	0.00	0.00
10,900.0	90.00	0.61	8,907.0	2,391.9	-145.7	2,392.8	0.00	0.00	0.00
11,000.0	90.00	0.61	8,907.0	2,491.9	-144.7	2,492.8	0.00	0.00	0.00
11,100.0	90.00	0.61	8,907.0	2,591.9	-143.6	2,592.7	0.00	0.00	0.00
11,200.0	90.00	0.61	8,907.0	2,691.9	-142.6	2,692.7	0.00	0.00	0.00
11,300.0	90.00	0.61	8,907.0	2,791.9	-141.5	2,792.7	0.00	0.00	0.00
11,400.0	90.00	0.61	8,907.0	2,891.9	-140.4	2,892.7	0.00	0.00	0.00
11,500.0	90.00	0.61	8,907.0	2,991.9	-139.4	2,992.7	0.00	0.00	0.00
11,600.0	90.00	0.61	8,907.0	3,091.9	-138.3	3,092.7	0.00	0.00	0.00
11,700.0	90.00	0.61	8,907.0	3,191.9	-137.2	3,192.7	0.00	0.00	0.00
11,800.0	90.00	0.61	8,907.0	3,291.9	-136.2	3,292.6	0.00	0.00	0.00
11,900.0	90.00	0.61	8,907.0	3,391.8	-135.1	3,392.6	0.00	0.00	0.00
12,000.0	90.00	0.61	8,907.0	3,491.8	-134.1	3,492.6	0.00	0.00	0.00
12,100.0	90.00	0.61	8,907.0	3,591.8	-133.0	3,592.6	0.00	0.00	0.00
12,200.0	90.00	0.61	8,907.0	3,691.8	-131.9	3,692.6	0.00	0.00	0.00
12,300.0	90.00	0.61	8,907.0	3,791.8	-130.9	3,792.6	0.00	0.00	0.00
12,400.0	90.00	0.61	8,907.0	3,891.8	-129.8	3,892.6	0.00	0.00	0.00
12,500.0	90.00	0.61	8,907.0	3,991.8	-128.7	3,992.5	0.00	0.00	0.00
12,600.0	90.00	0.61	8,907.0	4,091.8	-127.7	4,092.5	0.00	0.00	0.00
12,700.0	90.00	0.61	8,907.0	4,191.8	-126.6	4,192.5	0.00	0.00	0.00
12,800.0	90.00	0.61	8,907.0	4,291.8	-125.6	4,292.5	0.00	0.00	0.00
12,900.0	90.00	0.61	8,907.0	4,391.8	-124.5	4,392.5	0.00	0.00	0.00
13,000.0	90.00	0.61	8,907.0	4,491.8	-123.4	4,492.5	0.00	0.00	0.00
13,100.0	90.00	0.61	8,907.0	4,591.8	-122.4	4,592.5	0.00	0.00	0.00
13,200.0	90.00	0.61	8,907.0	4,691.8	-121.3	4,692.4	0.00	0.00	0.00
13,300.0	90.00	0.61	8,907.0	4,791.8	-120.2	4,792.4	0.00	0.00	0.00
13,400.0	90.00	0.61	8,907.0	4,891.8	-119.2	4,892.4	0.00	0.00	0.00
13,500.0	90.00	0.61	8,907.0	4,991.8	-118.1	4,992.4	0.00	0.00	0.00
13,600.0	90.00	0.61	8,907.0	5,091.8	-117.1	5,092.4	0.00	0.00	0.00
13,700.0	90.00	0.61	8,907.0	5,191.7	-116.0	5,192.4	0.00	0.00	0.00
13,800.0	90.00	0.61	8,907.0	5,291.7	-114.9	5,292.4	0.00	0.00	0.00
13,900.0	90.00	0.61	8,907.0	5,391.7	-113.9	5,392.3	0.00	0.00	0.00
14,000.0	90.00	0.61	8,907.0	5,491.7	-112.8	5,492.3	0.00	0.00	0.00
14,100.0	90.00	0.61	8,907.0	5,591.7	-111.8	5,592.3	0.00	0.00	0.00
14,200.0	90.00	0.61	8,907.0	5,691.7	-110.7	5,692.3	0.00	0.00	0.00
14,300.0	90.00	0.61	8,907.0	5,791.7	-109.6	5,792.3	0.00	0.00	0.00
14,400.0	90.00	0.61	8,907.0	5,891.7	-108.6	5,892.3	0.00	0.00	0.00
14,500.0	90.00	0.61	8,907.0	5,991.7	-107.5	5,992.3	0.00	0.00	0.00
14,600.0	90.00	0.61	8,907.0	6,091.7	-106.4	6,092.2	0.00	0.00	0.00
14,700.0	90.00	0.61	8,907.0	6,191.7	-105.4	6,192.2	0.00	0.00	0.00
14,800.0	90.00	0.61	8,907.0	6,291.7	-104.3	6,292.2	0.00	0.00	0.00

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Matira East 30-19-15-3CH
<b>Company:</b>	Cirque Resources LP	<b>TVD Reference:</b>	WELL @ 6027.0ft (RKB - 25')
<b>Project:</b>	Sec.30-T12N-R65W	<b>MD Reference:</b>	WELL @ 6027.0ft (RKB - 25')
<b>Site:</b>	Matira East Federal Pad Sec.30-T12N-R65W	<b>North Reference:</b>	True
<b>Well:</b>	Matira East 30-19-15-3CH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (8-26-14)		

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)	Turn Rate (°/100ft)
14,900.0	90.00	0.61	8,907.0	6,391.7	-103.3	6,392.2	0.00	0.00	0.00
15,000.0	90.00	0.61	8,907.0	6,491.7	-102.2	6,492.2	0.00	0.00	0.00
15,100.0	90.00	0.61	8,907.0	6,591.7	-101.1	6,592.2	0.00	0.00	0.00
15,200.0	90.00	0.61	8,907.0	6,691.7	-100.1	6,692.2	0.00	0.00	0.00
15,300.0	90.00	0.61	8,907.0	6,791.7	-99.0	6,792.1	0.00	0.00	0.00
15,400.0	90.00	0.61	8,907.0	6,891.7	-97.9	6,892.1	0.00	0.00	0.00
15,500.0	90.00	0.61	8,907.0	6,991.6	-96.9	6,992.1	0.00	0.00	0.00
15,600.0	90.00	0.61	8,907.0	7,091.6	-95.8	7,092.1	0.00	0.00	0.00
15,700.0	90.00	0.61	8,907.0	7,191.6	-94.8	7,192.1	0.00	0.00	0.00
15,800.0	90.00	0.61	8,907.0	7,291.6	-93.7	7,292.1	0.00	0.00	0.00
15,900.0	90.00	0.61	8,907.0	7,391.6	-92.6	7,392.1	0.00	0.00	0.00
16,000.0	90.00	0.61	8,907.0	7,491.6	-91.6	7,492.0	0.00	0.00	0.00
16,100.0	90.00	0.61	8,907.0	7,591.6	-90.5	7,592.0	0.00	0.00	0.00
16,200.0	90.00	0.61	8,907.0	7,691.6	-89.5	7,692.0	0.00	0.00	0.00
16,300.0	90.00	0.61	8,907.0	7,791.6	-88.4	7,792.0	0.00	0.00	0.00
16,400.0	90.00	0.61	8,907.0	7,891.6	-87.3	7,892.0	0.00	0.00	0.00
16,500.0	90.00	0.61	8,907.0	7,991.6	-86.3	7,992.0	0.00	0.00	0.00
16,600.0	90.00	0.61	8,907.0	8,091.6	-85.2	8,092.0	0.00	0.00	0.00
16,700.0	90.00	0.61	8,907.0	8,191.6	-84.1	8,191.9	0.00	0.00	0.00
16,800.0	90.00	0.61	8,907.0	8,291.6	-83.1	8,291.9	0.00	0.00	0.00
16,900.0	90.00	0.61	8,907.0	8,391.6	-82.0	8,391.9	0.00	0.00	0.00
17,000.0	90.00	0.61	8,907.0	8,491.6	-81.0	8,491.9	0.00	0.00	0.00
17,100.0	90.00	0.61	8,907.0	8,591.6	-79.9	8,591.9	0.00	0.00	0.00
17,200.0	90.00	0.61	8,907.0	8,691.6	-78.8	8,691.9	0.00	0.00	0.00
17,300.0	90.00	0.61	8,907.0	8,791.5	-77.8	8,791.9	0.00	0.00	0.00
17,400.0	90.00	0.61	8,907.0	8,891.5	-76.7	8,891.8	0.00	0.00	0.00
17,500.0	90.00	0.61	8,907.0	8,991.5	-75.6	8,991.8	0.00	0.00	0.00
17,600.0	90.00	0.61	8,907.0	9,091.5	-74.6	9,091.8	0.00	0.00	0.00
17,700.0	90.00	0.61	8,907.0	9,191.5	-73.5	9,191.8	0.00	0.00	0.00
17,800.0	90.00	0.61	8,907.0	9,291.5	-72.5	9,291.8	0.00	0.00	0.00
17,900.0	90.00	0.61	8,907.0	9,391.5	-71.4	9,391.8	0.00	0.00	0.00
18,000.0	90.00	0.61	8,907.0	9,491.5	-70.3	9,491.8	0.00	0.00	0.00
18,100.0	90.00	0.61	8,907.0	9,591.5	-69.3	9,591.7	0.00	0.00	0.00
18,200.0	90.00	0.61	8,907.0	9,691.5	-68.2	9,691.7	0.00	0.00	0.00
18,300.0	90.00	0.61	8,907.0	9,791.5	-67.1	9,791.7	0.00	0.00	0.00
18,400.0	90.00	0.61	8,907.0	9,891.5	-66.1	9,891.7	0.00	0.00	0.00
18,500.0	90.00	0.61	8,907.0	9,991.5	-65.0	9,991.7	0.00	0.00	0.00
18,600.0	90.00	0.61	8,907.0	10,091.5	-64.0	10,091.7	0.00	0.00	0.00
18,644.8	90.00	0.61	8,907.0	10,136.2	-63.5	10,136.4	0.00	0.00	0.00



<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Matira East 30-19-15-3CH
<b>Company:</b>	Cirque Resources LP	<b>TVD Reference:</b>	WELL @ 6027.0ft (RKB - 25')
<b>Project:</b>	Sec.30-T12N-R65W	<b>MD Reference:</b>	WELL @ 6027.0ft (RKB - 25')
<b>Site:</b>	Matira East Federal Pad Sec.30-T12N-R65W	<b>North Reference:</b>	True
<b>Well:</b>	Matira East 30-19-15-3CH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (8-26-14)		

Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)		
- Shape									
Landing Pt. 1017'FSL - plan hits target center - Point	0.00	0.00	8,907.0	773.5	-162.9	1,598,682.65	3,220,286.20	40.974023	-104.702290
BHL 114'FNL & 1940' - plan hits target center - Point	0.00	0.00	8,907.0	10,136.2	-63.5	1,608,046.22	3,220,301.34	40.999720	-104.701930
Sectionline - plan misses target center by 504.9ft at 1.0ft MD (1.0 TVD, 0.0 N, 0.0 E) - Polygon	0.00	0.00	1.0	-245.0	-441.4	1,597,661.65	3,220,016.87	40.971228	-104.703298
Point 1			1.0	0.0	0.0	1,597,661.65	3,220,016.87		
Point 2			1.0	0.0	2,000.0	1,597,679.66	3,222,016.86		
SHL 245'FSL & 1770' - plan hits target center - Point	0.00	0.00	1.0	0.0	0.0	1,597,910.63	3,220,456.09	40.971900	-104.701700

Casing Points					
Measured Depth	Vertical Depth	Name		Casing Diameter	Hole Diameter
(ft)	(ft)			(")	(")
9,281.5	8,907.0	7"		7	7-1/2

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Matira East 30-19-15-3CH
<b>Company:</b>	Cirque Resources LP	<b>TVD Reference:</b>	WELL @ 6027.0ft (RKB - 25')
<b>Project:</b>	Sec.30-T12N-R65W	<b>MD Reference:</b>	WELL @ 6027.0ft (RKB - 25')
<b>Site:</b>	Matira East Federal Pad Sec.30-T12N-R65W	<b>North Reference:</b>	True
<b>Well:</b>	Matira East 30-19-15-3CH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1 (8-26-14)		

#### Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,828.0	1,828.0	Fox Hills			
2,498.0	2,498.0	Fox Hills Mkr 1			
4,303.7	4,296.0	Teapot			
5,242.2	5,232.0	Parkman			
5,274.2	5,264.0	Sussex			
5,611.2	5,601.0	Pierre Upper Mkr1			
6,027.2	6,017.0	Sussex Mkr1			
7,194.2	7,184.0	Shannon			
7,442.2	7,432.0	Pierre			
7,482.2	7,472.0	Pierre Mkr1			
7,609.2	7,599.0	Pierre Mkr2			
7,737.2	7,727.0	Pierre Mkr3			
8,149.2	8,139.0	Pierre Mkr4			
8,251.2	8,241.0	Pierre Mkr5			
8,436.8	8,425.0	Base Steele Mkr			
8,508.0	8,493.0	Sharon Springs			
8,524.1	8,508.0	Niobrara			
8,574.5	8,554.0	N100 (A)			
8,590.3	8,568.0	N300 (B)			
8,631.7	8,604.0	N500			
8,702.4	8,662.0	N600			
8,804.3	8,737.0	N700 (C)			
8,911.5	8,803.0	N800 (Fort Hayes)			
8,945.8	8,821.0	N900			
8,947.8	8,822.0	Codell			
8,990.4	8,842.0	Carlile			

#### Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
2,500.0	2,500.0	0.0	0.0	KOP - Start Build 2.00
4,730.1	4,720.3	127.5	-159.3	Start Drop -2.00
8,280.6	8,270.4	136.0	-170.0	KOP #2 - Start Build 9.00
18,644.8	8,907.0	10,136.3	-63.5	TD at 18644.8



# **Cirque Resources LP**

**Sec.30-T12N-R65W**

**Matira East Federal Pad Sec.30-T12N-R65W**

**Matira East 30-19-15-3CH**

**Wellbore #1**

**Plan #1 (8-26-14)**

## **Anticollision Report**

**26 August, 2014**





<b>Company:</b>	Cirque Resources LP	<b>Local Co-ordinate Reference:</b>	Well Matira East 30-19-15-3CH
<b>Project:</b>	Sec.30-T12N-R65W	<b>TVD Reference:</b>	WELL @ 6027.0ft (RKB - 25')
<b>Reference Site:</b>	Matira East Federal Pad Sec.30-T12N-R65W	<b>MD Reference:</b>	WELL @ 6027.0ft (RKB - 25')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Matira East 30-19-15-3CH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (8-26-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	90.00	0.0	38.7	38.7					
100.0	100.0	100.0	100.0	0.1	0.1	90.00	0.0	38.7	38.7	38.4	0.22	172.006		
200.0	200.0	200.0	200.0	0.3	0.3	90.00	0.0	38.7	38.7	38.0	0.67	57.335		
300.0	300.0	300.0	300.0	0.6	0.6	90.00	0.0	38.7	38.7	37.5	1.12	34.401		
400.0	400.0	400.0	400.0	0.8	0.8	90.00	0.0	38.7	38.7	37.1	1.57	24.572		
500.0	500.0	500.0	500.0	1.0	1.0	90.00	0.0	38.7	38.7	36.6	2.02	19.112		
600.0	600.0	600.0	600.0	1.2	1.2	90.00	0.0	38.7	38.7	36.2	2.47	15.637		
700.0	700.0	700.0	700.0	1.5	1.5	90.00	0.0	38.7	38.7	35.7	2.92	13.231		
800.0	800.0	800.0	800.0	1.7	1.7	90.00	0.0	38.7	38.7	35.3	3.37	11.467		
900.0	900.0	900.0	900.0	1.9	1.9	90.00	0.0	38.7	38.7	34.8	3.82	10.118		
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	90.00	0.0	38.7	38.7	34.4	4.27	9.053		
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	90.00	0.0	38.7	38.7	33.9	4.72	8.191		
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	90.00	0.0	38.7	38.7	33.5	5.17	7.479 CC, ES		
1,300.0	1,300.0	1,298.6	1,298.6	2.8	2.8	90.36	-0.3	40.3	40.4	34.8	5.60	7.207 SF		
1,400.0	1,400.0	1,397.1	1,396.9	3.0	3.0	91.27	-1.0	45.4	45.5	39.5	6.02	7.551		
1,500.0	1,500.0	1,495.0	1,494.5	3.3	3.2	92.41	-2.3	53.7	54.0	47.5	6.45	8.370		
1,600.0	1,600.0	1,592.3	1,591.0	3.5	3.4	93.50	-4.0	65.2	65.9	59.0	6.89	9.563		
1,700.0	1,700.0	1,688.6	1,686.3	3.7	3.7	94.43	-6.2	79.8	81.2	73.8	7.35	11.048		
1,800.0	1,800.0	1,785.7	1,781.7	3.9	4.0	95.17	-8.8	97.2	99.2	91.4	7.82	12.684		
1,900.0	1,900.0	1,884.0	1,878.4	4.2	4.3	95.70	-11.5	115.1	117.6	109.3	8.32	14.144		
2,000.0	2,000.0	1,982.3	1,975.0	4.4	4.6	96.08	-14.2	133.0	136.0	127.2	8.82	15.421		
2,100.0	2,100.0	2,080.6	2,071.6	4.6	4.9	96.38	-16.9	150.9	154.4	145.1	9.34	16.541		
2,200.0	2,200.0	2,178.9	2,168.2	4.8	5.3	96.61	-19.5	168.8	172.9	163.0	9.86	17.530		
2,300.0	2,300.0	2,277.2	2,264.8	5.1	5.7	96.79	-22.2	186.7	191.3	180.9	10.39	18.407		
2,400.0	2,400.0	2,375.5	2,361.4	5.3	6.0	96.95	-24.9	204.6	209.7	198.8	10.93	19.189		
2,500.0	2,500.0	2,473.7	2,458.0	5.5	6.4	97.08	-27.6	222.5	228.1	216.6	11.47	19.889		
2,600.0	2,600.0	2,571.7	2,554.3	5.7	6.8	148.53	-30.3	240.3	248.0	236.7	11.32	21.913		
2,700.0	2,699.8	2,669.0	2,650.0	5.9	7.1	148.95	-33.0	258.1	270.8	259.0	11.74	23.071		
2,800.0	2,799.5	2,765.6	2,744.8	6.2	7.5	149.65	-35.6	275.7	296.5	284.3	12.15	24.399		
2,900.0	2,899.0	2,861.8	2,839.5	6.4	7.9	150.51	-38.2	293.2	323.2	310.6	12.59	25.664		
3,000.0	2,998.5	2,958.1	2,934.1	6.6	8.3	151.25	-40.9	310.7	349.9	336.9	13.04	26.840		
3,100.0	3,098.0	3,054.4	3,028.7	6.9	8.7	151.87	-43.5	328.3	376.7	363.3	13.49	27.935		
3,200.0	3,197.5	3,150.6	3,123.3	7.1	9.1	152.42	-46.1	345.8	403.6	389.7	13.94	28.956		
3,300.0	3,297.1	3,246.9	3,217.9	7.4	9.5	152.90	-48.8	363.3	430.5	416.1	14.39	29.910		
3,400.0	3,396.6	3,343.2	3,312.5	7.6	9.8	153.32	-51.4	380.9	457.4	442.5	14.85	30.802		
3,500.0	3,496.1	3,439.4	3,407.2	7.8	10.2	153.69	-54.0	398.4	484.3	469.0	15.31	31.638		
3,600.0	3,595.6	3,535.7	3,501.8	8.1	10.6	154.03	-56.7	415.9	511.2	495.4	15.77	32.422		
3,700.0	3,695.2	3,632.0	3,596.4	8.4	11.0	154.33	-59.3	433.5	538.2	521.9	16.23	33.160		
3,800.0	3,794.7	3,728.2	3,691.0	8.6	11.4	154.60	-62.0	451.0	565.1	548.4	16.69	33.854		
3,900.0	3,894.2	3,824.5	3,785.6	8.9	11.8	154.85	-64.6	468.6	592.1	574.9	17.16	34.508		
4,000.0	3,993.7	3,920.8	3,880.2	9.1	12.2	155.08	-67.2	486.1	619.1	601.4	17.62	35.126		
4,100.0	4,093.3	4,017.0	3,974.9	9.4	12.6	155.29	-69.9	503.6	646.1	628.0	18.09	35.710		
4,200.0	4,192.8	4,113.3	4,069.5	9.7	13.0	155.48	-72.5	521.2	673.1	654.5	18.56	36.263		
4,300.0	4,292.3	4,209.5	4,164.1	9.9	13.4	155.65	-75.1	538.7	700.1	681.0	19.03	36.786		
4,400.0	4,391.8	4,305.8	4,258.7	10.2	13.8	155.82	-77.8	556.2	727.1	707.6	19.50	37.283		
4,500.0	4,491.3	4,402.1	4,353.3	10.5	14.2	155.97	-80.4	573.8	754.1	734.1	19.97	37.756		
4,600.0	4,590.9	4,498.3	4,447.9	10.7	14.6	156.11	-83.0	591.3	781.1	760.6	20.44	38.205		
4,700.0	4,690.4	4,594.6	4,542.6	11.0	15.0	156.24	-85.7	608.8	808.1	787.2	20.92	38.632		
4,800.0	4,790.0	4,691.1	4,637.4	11.2	15.4	156.49	-88.3	626.4	834.4	813.0	21.43	38.937		
4,900.0	4,889.8	4,788.3	4,733.0	11.4	15.8	156.68	-91.0	644.1	857.7	835.8	21.92	39.131		
5,000.0	4,989.8	4,886.2	4,829.2	11.6	16.2	156.76	-93.6	662.0	877.9	855.5	22.39	39.213		
5,100.0	5,089.8	4,984.5	4,925.8	11.8	16.6	105.29	-96.3	679.9	896.2	873.4	22.83	39.261		

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

<b>Company:</b>	Cirque Resources LP	<b>Local Co-ordinate Reference:</b>	Well Matira East 30-19-15-3CH
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<b>Reference Site:</b>	Matira East Federal Pad Sec.30-T12N-R65W	<b>MD Reference:</b>	WELL @ 6027.0ft (RKB - 25')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Matira East 30-19-15-3CH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (8-26-14)	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b>												<b>Offset Site Error:</b>	0.0 ft
Survey Program: 0-MWD												<b>Offset Well Error:</b>	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
5,200.0	5,189.8	5,082.8	5,022.4	12.0	17.0	105.15	-99.0	697.8	914.5	891.2	23.29	39.261	
5,300.0	5,289.8	5,181.1	5,119.0	12.2	17.4	105.02	-101.7	715.7	932.8	909.0	23.76	39.261	
5,400.0	5,389.8	5,279.4	5,215.6	12.4	17.8	104.90	-104.4	733.6	951.1	926.9	24.23	39.260	
5,500.0	5,489.8	5,377.7	5,312.2	12.6	18.3	104.78	-107.1	751.5	969.4	944.7	24.69	39.259	
5,600.0	5,589.8	5,476.0	5,408.8	12.9	18.7	104.66	-109.8	769.4	987.7	962.6	25.16	39.257	

<b>Company:</b>	Cirque Resources LP	<b>Local Co-ordinate Reference:</b>	Well Matira East 30-19-15-3CH
<b>Project:</b>	Sec.30-T12N-R65W	<b>TVD Reference:</b>	WELL @ 6027.0ft (RKB - 25')
<b>Reference Site:</b>	Matira East Federal Pad Sec.30-T12N-R65W	<b>MD Reference:</b>	WELL @ 6027.0ft (RKB - 25')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Matira East 30-19-15-3CH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (8-26-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	-90.00	0.0	-41.4	41.4					
100.0	100.0	100.0	100.0	0.1	0.1	-90.00	0.0	-41.4	41.4	41.2	0.22	184.292		
200.0	200.0	200.0	200.0	0.3	0.3	-90.00	0.0	-41.4	41.4	40.7	0.67	61.431		
300.0	300.0	300.0	300.0	0.6	0.6	-90.00	0.0	-41.4	41.4	40.3	1.12	36.858		
400.0	400.0	400.0	400.0	0.8	0.8	-90.00	0.0	-41.4	41.4	39.8	1.57	26.327		
500.0	500.0	500.0	500.0	1.0	1.0	-90.00	0.0	-41.4	41.4	39.4	2.02	20.477		
600.0	600.0	600.0	600.0	1.2	1.2	-90.00	0.0	-41.4	41.4	39.0	2.47	16.754		
700.0	700.0	700.0	700.0	1.5	1.5	-90.00	0.0	-41.4	41.4	38.5	2.92	14.176		
800.0	800.0	800.0	800.0	1.7	1.7	-90.00	0.0	-41.4	41.4	38.1	3.37	12.286		
900.0	900.0	900.0	900.0	1.9	1.9	-90.00	0.0	-41.4	41.4	37.6	3.82	10.841		
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-90.00	0.0	-41.4	41.4	37.2	4.27	9.700		
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	-90.00	0.0	-41.4	41.4	36.7	4.72	8.776		
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	-90.00	0.0	-41.4	41.4	36.3	5.17	8.013		
1,300.0	1,300.0	1,300.0	1,300.0	2.8	2.8	-90.00	0.0	-41.4	41.4	35.8	5.62	7.372		
1,400.0	1,400.0	1,400.0	1,400.0	3.0	3.0	-90.00	0.0	-41.4	41.4	35.4	6.07	6.826		
1,500.0	1,500.0	1,500.0	1,500.0	3.3	3.3	-90.00	0.0	-41.4	41.4	34.9	6.52	6.355		
1,600.0	1,600.0	1,600.0	1,600.0	3.5	3.5	-90.00	0.0	-41.4	41.4	34.5	6.97	5.945		
1,700.0	1,700.0	1,700.0	1,700.0	3.7	3.7	-90.00	0.0	-41.4	41.4	34.0	7.42	5.585		
1,800.0	1,800.0	1,800.0	1,800.0	3.9	3.9	-90.00	0.0	-41.4	41.4	33.6	7.87	5.265 CC, ES		
1,900.0	1,900.0	1,898.9	1,898.9	4.2	4.1	-89.57	0.3	-42.7	42.7	34.4	8.30	5.140		
2,000.0	2,000.0	1,997.7	1,997.7	4.4	4.4	-88.43	1.3	-46.4	46.5	37.7	8.73	5.319		
2,100.0	2,100.0	2,096.3	2,096.0	4.6	4.6	-86.89	2.9	-52.5	52.8	43.6	9.17	5.758		
2,200.0	2,200.0	2,195.0	2,194.3	4.8	4.8	-85.29	5.0	-61.0	61.5	51.9	9.61	6.401		
2,300.0	2,300.0	2,294.6	2,293.4	5.1	5.0	-84.01	7.3	-70.1	70.8	60.7	10.05	7.040		
2,400.0	2,400.0	2,394.1	2,392.6	5.3	5.2	-83.03	9.7	-79.1	80.0	69.5	10.50	7.623		
2,500.0	2,500.0	2,493.7	2,491.7	5.5	5.5	-82.25	12.0	-88.2	89.4	78.4	10.95	8.157		
2,600.0	2,600.0	2,593.4	2,590.9	5.7	5.7	-30.72	14.3	-97.2	97.2	85.9	11.33	8.577		
2,700.0	2,699.8	2,693.2	2,690.3	5.9	6.0	-31.58	16.6	-106.3	102.0	90.3	11.75	8.683		
2,800.0	2,799.5	2,793.2	2,789.8	6.2	6.2	-33.40	19.0	-115.4	104.0	91.9	12.17	8.548		
2,900.0	2,899.0	2,893.1	2,889.3	6.4	6.5	-35.51	21.3	-124.4	105.2	92.6	12.61	8.343		
3,000.0	2,998.5	2,993.0	2,988.8	6.6	6.7	-37.58	23.6	-133.5	106.5	93.5	13.06	8.160		
3,100.0	3,098.0	3,092.9	3,088.3	6.9	7.0	-39.59	26.0	-142.6	108.0	94.5	13.51	7.995		
3,200.0	3,197.5	3,192.8	3,187.7	7.1	7.3	-41.54	28.3	-151.7	109.6	95.6	13.97	7.847		
3,300.0	3,297.1	3,292.7	3,287.2	7.4	7.5	-43.44	30.6	-160.8	111.3	96.9	14.43	7.714		
3,400.0	3,396.6	3,392.7	3,386.7	7.6	7.8	-45.28	32.9	-169.8	113.1	98.2	14.90	7.593		
3,500.0	3,496.1	3,492.6	3,486.2	7.8	8.1	-47.05	35.3	-178.9	115.1	99.7	15.38	7.485		
3,600.0	3,595.6	3,592.5	3,585.7	8.1	8.3	-48.77	37.6	-188.0	117.1	101.3	15.86	7.386		
3,700.0	3,695.2	3,693.7	3,686.4	8.4	8.6	-50.50	39.9	-196.9	119.1	102.7	16.34	7.286		
3,800.0	3,794.7	3,796.4	3,788.9	8.6	8.8	-52.73	41.6	-203.8	119.1	102.3	16.81	7.085		
3,900.0	3,894.2	3,899.0	3,891.4	8.9	9.0	-55.63	42.7	-207.9	117.0	99.7	17.29	6.767		
4,000.0	3,993.7	4,001.2	3,993.6	9.1	9.2	-59.41	43.1	-209.4	113.0	95.2	17.78	6.355		
4,100.0	4,093.3	4,100.9	4,093.3	9.4	9.4	-63.85	43.1	-209.4	108.4	90.1	18.30	5.922		
4,200.0	4,192.8	4,200.4	4,192.8	9.7	9.6	-68.64	43.1	-209.4	104.4	85.6	18.84	5.543		
4,300.0	4,292.3	4,299.9	4,292.3	9.9	9.8	-73.77	43.1	-209.4	101.2	81.9	19.38	5.223		
4,400.0	4,391.8	4,399.4	4,391.8	10.2	10.0	-79.18	43.1	-209.4	98.9	79.0	19.94	4.963		
4,500.0	4,491.3	4,499.0	4,491.3	10.5	10.2	-84.80	43.1	-209.4	97.6	77.1	20.48	4.764		
4,591.1	4,582.0	4,589.6	4,582.0	10.7	10.4	-90.00	43.1	-209.4	97.2	76.2	20.97	4.633		
4,600.0	4,590.9	4,598.5	4,590.9	10.7	10.4	-90.51	43.1	-209.4	97.2	76.2	21.02	4.623		
4,700.0	4,690.4	4,698.0	4,690.4	11.0	10.6	-96.21	43.1	-209.4	97.7	76.2	21.54	4.538		
4,800.0	4,790.0	4,797.6	4,790.0	11.2	10.8	-101.34	43.1	-209.4	99.1	77.1	22.02	4.502		
4,900.0	4,889.8	4,897.4	4,889.8	11.4	11.0	-104.49	43.1	-209.4	100.4	77.9	22.42	4.476		
5,000.0	4,989.8	4,997.4	4,989.8	11.6	11.2	-105.66	43.1	-209.4	100.9	78.1	22.81	4.424		

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



<b>Company:</b>	Cirque Resources LP	<b>Local Co-ordinate Reference:</b>	Well Matira East 30-19-15-3CH
<b>Project:</b>	Sec.30-T12N-R65W	<b>TVD Reference:</b>	WELL @ 6027.0ft (RKB - 25')
<b>Reference Site:</b>	Matira East Federal Pad Sec.30-T12N-R65W	<b>MD Reference:</b>	WELL @ 6027.0ft (RKB - 25')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Matira East 30-19-15-3CH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (8-26-14)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design		Matira East Federal Pad Sec.30-T12N-R65W - Matira East Federal 30-31-6-15-4CH - Wellbore #1 - Pla										Offset Site Error:		0.0 ft
Survey Program: 0-MWD												Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor		
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)			
5,100.0	5,089.8	5,097.4	5,089.8	11.8	11.5	-157.01	43.1	-209.4	100.9	77.7	23.21	4.348		
5,200.0	5,189.8	5,197.4	5,189.8	12.0	11.7	-157.01	43.1	-209.4	100.9	77.3	23.63	4.270		
5,300.0	5,289.8	5,297.4	5,289.8	12.2	11.9	-157.01	43.1	-209.4	100.9	76.9	24.06	4.195		
5,400.0	5,389.8	5,397.4	5,389.8	12.4	12.1	-157.01	43.1	-209.4	100.9	76.4	24.48	4.122		
5,500.0	5,489.8	5,497.4	5,489.8	12.6	12.3	-157.01	43.1	-209.4	100.9	76.0	24.91	4.051		
5,600.0	5,589.8	5,597.4	5,589.8	12.9	12.5	-157.01	43.1	-209.4	100.9	75.6	25.34	3.983		
5,700.0	5,689.8	5,697.4	5,689.8	13.1	12.7	-157.01	43.1	-209.4	100.9	75.2	25.77	3.917		
5,800.0	5,789.8	5,797.4	5,789.8	13.3	13.0	-157.01	43.1	-209.4	100.9	74.7	26.20	3.852		
5,900.0	5,889.8	5,897.4	5,889.8	13.5	13.2	-157.01	43.1	-209.4	100.9	74.3	26.63	3.790		
6,000.0	5,989.8	5,997.4	5,989.8	13.7	13.4	-157.01	43.1	-209.4	100.9	73.9	27.06	3.730		
6,100.0	6,089.8	6,097.4	6,089.8	13.9	13.6	-157.01	43.1	-209.4	100.9	73.4	27.49	3.672		
6,200.0	6,189.8	6,197.4	6,189.8	14.1	13.8	-157.01	43.1	-209.4	100.9	73.0	27.92	3.615		
6,300.0	6,289.8	6,297.4	6,289.8	14.3	14.0	-157.01	43.1	-209.4	100.9	72.6	28.35	3.560		
6,400.0	6,389.8	6,397.4	6,389.8	14.6	14.3	-157.01	43.1	-209.4	100.9	72.1	28.78	3.506		
6,500.0	6,489.8	6,497.4	6,489.8	14.8	14.5	-157.01	43.1	-209.4	100.9	71.7	29.22	3.454		
6,600.0	6,589.8	6,597.4	6,589.8	15.0	14.7	-157.01	43.1	-209.4	100.9	71.3	29.65	3.404		
6,700.0	6,689.8	6,697.4	6,689.8	15.2	14.9	-157.01	43.1	-209.4	100.9	70.8	30.08	3.355		
6,800.0	6,789.8	6,797.4	6,789.8	15.4	15.1	-157.01	43.1	-209.4	100.9	70.4	30.52	3.307		
6,900.0	6,889.8	6,897.4	6,889.8	15.6	15.3	-157.01	43.1	-209.4	100.9	70.0	30.95	3.260		
7,000.0	6,989.8	6,997.4	6,989.8	15.9	15.6	-157.01	43.1	-209.4	100.9	69.5	31.39	3.215		
7,100.0	7,089.8	7,097.4	7,089.8	16.1	15.8	-157.01	43.1	-209.4	100.9	69.1	31.82	3.171		
7,200.0	7,189.8	7,197.4	7,189.8	16.3	16.0	-157.01	43.1	-209.4	100.9	68.7	32.26	3.128		
7,300.0	7,289.8	7,297.4	7,289.8	16.5	16.2	-157.01	43.1	-209.4	100.9	68.2	32.70	3.087		
7,400.0	7,389.8	7,397.4	7,389.8	16.7	16.4	-157.01	43.1	-209.4	100.9	67.8	33.13	3.046		
7,500.0	7,489.8	7,497.4	7,489.8	16.9	16.7	-157.01	43.1	-209.4	100.9	67.3	33.57	3.006		
7,600.0	7,589.8	7,597.4	7,589.8	17.2	16.9	-157.01	43.1	-209.4	100.9	66.9	34.01	2.968		
7,700.0	7,689.8	7,697.4	7,689.8	17.4	17.1	-157.01	43.1	-209.4	100.9	66.5	34.45	2.930		
7,800.0	7,789.8	7,797.4	7,789.8	17.6	17.3	-157.01	43.1	-209.4	100.9	66.0	34.88	2.893		
7,900.0	7,889.8	7,897.4	7,889.8	17.8	17.5	-157.01	43.1	-209.4	100.9	65.6	35.32	2.857		
8,000.0	7,989.8	7,997.4	7,989.8	18.0	17.8	-157.01	43.1	-209.4	100.9	65.2	35.76	2.822		
8,100.0	8,089.8	8,097.4	8,089.8	18.3	18.0	-157.01	43.1	-209.4	100.9	64.7	36.20	2.788		
8,200.0	8,189.8	8,197.4	8,189.8	18.5	18.2	-157.01	43.1	-209.4	100.9	64.3	36.64	2.754		
8,259.6	8,249.4	8,257.0	8,249.4	18.6	18.3	-157.75	43.1	-209.4	101.4	64.5	36.90	2.749		
8,300.0	8,289.8	8,295.6	8,287.9	18.7	18.4	-157.71	43.0	-209.4	101.3	64.3	37.06	2.734 SF		
8,400.0	8,389.1	8,379.9	8,371.9	18.9	18.6	-160.22	35.7	-209.5	119.5	82.4	37.07	3.223		
8,500.0	8,485.5	8,450.0	8,440.5	19.2	18.7	-163.37	21.3	-209.6	163.6	127.1	36.48	4.484		
8,600.0	8,576.6	8,510.1	8,497.7	19.5	18.8	-165.46	3.0	-209.8	229.3	194.0	35.32	6.492		
8,700.0	8,660.1	8,550.0	8,534.6	19.9	18.8	-165.30	-12.1	-209.9	310.8	277.1	33.72	9.217		
8,800.0	8,734.1	8,574.6	8,556.9	20.3	18.9	-161.92	-22.5	-210.0	402.5	370.4	32.04	12.562		
8,900.0	8,796.6	8,586.8	8,567.7	20.9	18.9	-147.48	-28.0	-210.1	499.9	467.6	32.22	15.511		
9,000.0	8,846.2	8,600.0	8,579.4	21.6	18.9	-71.62	-34.2	-210.1	599.6	560.8	38.85	15.432		
9,100.0	8,881.6	8,583.3	8,564.7	22.5	18.9	-16.36	-26.4	-210.1	698.5	672.2	26.32	26.541		
9,200.0	8,901.9	8,571.6	8,554.2	23.4	18.9	-8.54	-21.2	-210.0	795.0	771.1	23.92	33.234		
9,300.0	8,907.0	8,550.0	8,534.6	24.5	18.8	-5.93	-12.1	-209.9	887.4	864.1	23.31	38.076		
9,400.0	8,907.0	8,550.0	8,534.6	25.7	18.8	-5.93	-12.1	-209.9	978.9	955.4	23.59	41.499		

<b>Company:</b>	Cirque Resources LP	<b>Local Co-ordinate Reference:</b>	Well Matira East 30-19-15-3CH
<b>Project:</b>	Sec.30-T12N-R65W	<b>TVD Reference:</b>	WELL @ 6027.0ft (RKB - 25')
<b>Reference Site:</b>	Matira East Federal Pad Sec.30-T12N-R65W	<b>MD Reference:</b>	WELL @ 6027.0ft (RKB - 25')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Matira East 30-19-15-3CH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (8-26-14)	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to WELL @ 6027.0ft (RKB - 25')  
Offset Depths are relative to Offset Datum  
Central Meridian is -105.500000 °

Coordinates are relative to: Matira East 30-19-15-3CH  
Coordinate System is US State Plane 1983, Colorado Northern Zone  
Grid Convergence at Surface is: 0.52°



<b>Company:</b>	Cirque Resources LP	<b>Local Co-ordinate Reference:</b>	Well Matira East 30-19-15-3CH
<b>Project:</b>	Sec.30-T12N-R65W	<b>TVD Reference:</b>	WELL @ 6027.0ft (RKB - 25')
<b>Reference Site:</b>	Matira East Federal Pad Sec.30-T12N-R65W	<b>MD Reference:</b>	WELL @ 6027.0ft (RKB - 25')
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Matira East 30-19-15-3CH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Plan #1 (8-26-14)	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to WELL @ 6027.0ft (RKB - 25')  
Offset Depths are relative to Offset Datum  
Central Meridian is -105.500000 °

Coordinates are relative to: Matira East 30-19-15-3CH  
Coordinate System is US State Plane 1983, Colorado Northern Zone  
Grid Convergence at Surface is: 0.52°

