

Extraction Oil & Gas

Well Name: **Kennedy 1**

Surface Location: Kennedy Pad Sec.18-T4N-R68W
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone

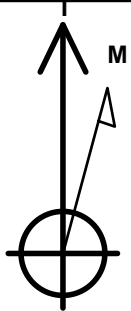
Ground Elevation: 4967.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1359150.16	3128800.53	40.318347	-105.038092	

Frontier 10 RKB - 22' WELL @ 4989.0ft (Frontier 10 RKB - 22')

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SHL 681'FNL & 342'FEL, Sec.18	1.0	0.0	0.0	Point
BHL 109'FSL & 460'FWL, Sec.7	6067.0	709.7	-4318.6	Point
Landing Pt. 0'FNL & 75'FEL, Sec.18	6067.0	686.0	264.6	Point



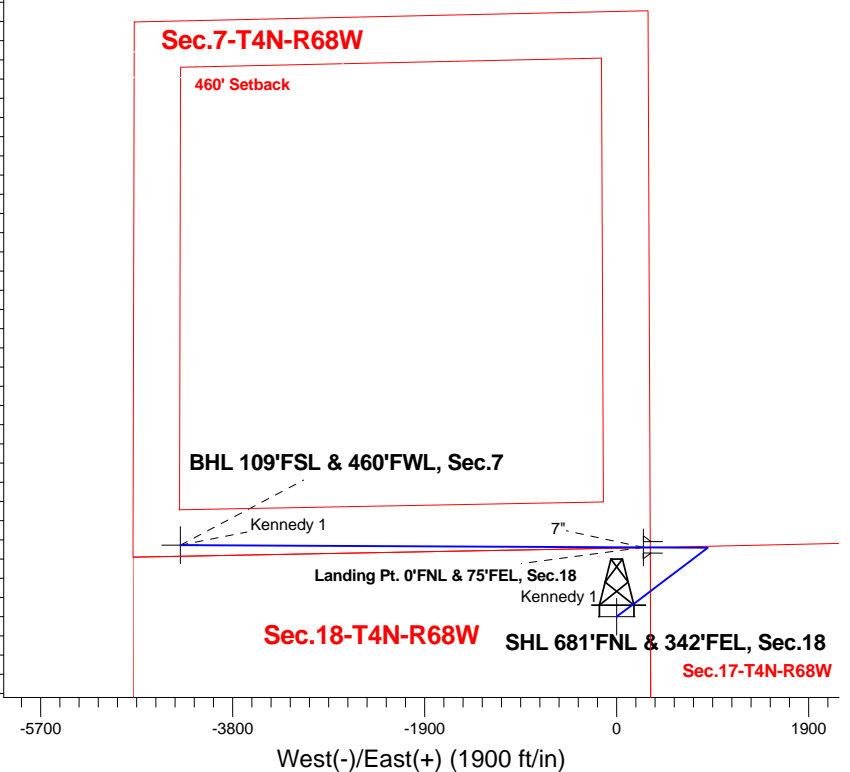
Azimuths to True North
Magnetic North: 8.59°
Magnetic Field
Strength: 52733.7srT
Dip Angle: 66.83°
Date: 7/15/2014
Model: IGRF2010

ANNOTATIONS

TVD	MD	Annotation
200.0	200.0	KOP - Start Build 2.00
5430.3	5566.6	KOP #2 - Start Build 9.00
6067.0	6567.4	Start DLS 1.00 TFO 90.00
6067.0	6570.0	Start 4580.6 hold at 6570.0 MD
6067.0	11150.6	TD at 11150.6

Kennedy Pad Sec.18-T4N-R68W
Kennedy 1
Plan #1 (7-15-14)
12:35, July 21 2014

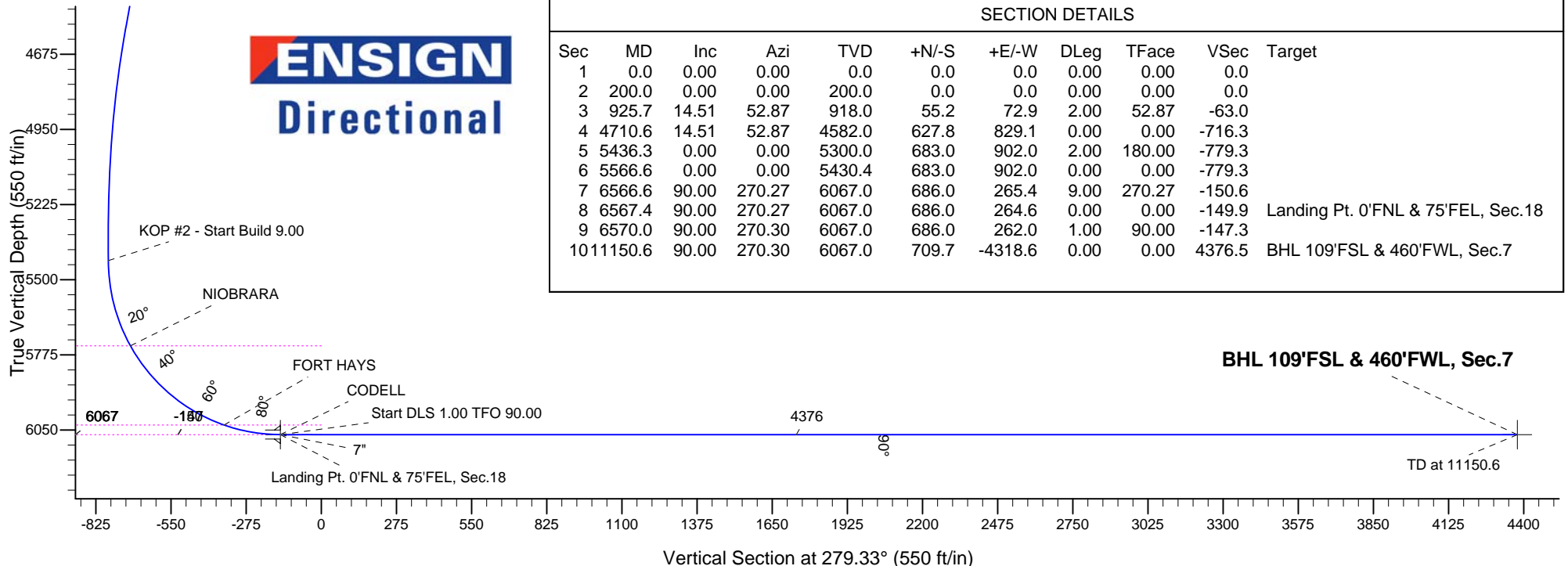
South(-)/North(+) (1900 ft/in)



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	200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.0	
3	925.7	14.51	52.87	918.0	55.2	72.9	2.00	52.87	-63.0	
4	4710.6	14.51	52.87	4582.0	627.8	829.1	0.00	0.00	-716.3	
5	5436.3	0.00	0.00	5300.0	683.0	902.0	2.00	180.00	-779.3	
6	5566.6	0.00	0.00	5430.4	683.0	902.0	0.00	0.00	-779.3	
7	6566.6	90.00	270.27	6067.0	686.0	265.4	9.00	270.27	-150.6	
8	6567.4	90.00	270.27	6067.0	686.0	264.6	0.00	0.00	-149.9	Landing Pt. 0'FNL & 75'FEL, Sec.18
9	6570.0	90.00	270.30	6067.0	686.0	262.0	1.00	90.00	-147.3	
10	11150.6	90.00	270.30	6067.0	709.7	-4318.6	0.00	0.00	4376.5	BHL 109'FSL & 460'FWL, Sec.7

ENSIGN
Directional





Extraction Oil & Gas

SEC.18-T4N-R68W

Kennedy Pad Sec.18-T4N-R68W

Kennedy 1

Wellbore #1

Plan: Plan #1 (7-15-14)

Standard Planning Report

21 July, 2014



Database:	Landmark	Local Co-ordinate Reference:	Well Kennedy 1
Company:	Extraction Oil & Gas	TVD Reference:	WELL @ 4989.0ft (Frontier 10 RKB - 22')
Project:	SEC.18-T4N-R68W	MD Reference:	WELL @ 4989.0ft (Frontier 10 RKB - 22')
Site:	Kennedy Pad Sec.18-T4N-R68W	North Reference:	True
Well:	Kennedy 1	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (7-15-14)		

Project	SEC.18-T4N-R68W, 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 Kennedy Pad Sec.18-T4N-R68W					
Site Position:		Northing:	1,359,150.18 ft	Latitude:	40.318347
From:	Lat/Long	Easting:	3,128,800.53 ft	Longitude:	-105.038092
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.30 °

Well	Kennedy 1					
Well Position	+N/-S	0.0 ft	Northing:	1,359,150.16 ft	Latitude:	40.318347
	+E/-W	0.0 ft	Easting:	3,128,800.53 ft	Longitude:	-105.038092
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,967.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	7/15/2014	8.59	66.83	52,734

Design	Plan #1 (7-15-14)				
Audit Notes:					
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.0	
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)	
	0.0	0.0	0.0	279.33	

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	
200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.00	0.00	
925.7	14.51	52.87	918.0	55.2	72.9	2.00	2.00	0.00	52.87	
4,710.6	14.51	52.87	4,582.0	627.8	829.1	0.00	0.00	0.00	0.00	
5,436.3	0.00	0.00	5,300.0	683.0	902.0	2.00	-2.00	0.00	180.00	
5,566.6	0.00	0.00	5,430.4	683.0	902.0	0.00	0.00	0.00	0.00	
6,566.6	90.00	270.27	6,067.0	686.0	265.4	9.00	9.00	0.00	270.27	
6,567.4	90.00	270.27	6,067.0	686.0	264.6	0.00	0.00	0.00	0.00	Landing Pt. 0'FNL &
6,570.0	90.00	270.30	6,067.0	686.0	262.0	1.00	0.00	1.00	90.00	
11,150.6	90.00	270.30	6,067.0	709.7	-4,318.6	0.00	0.00	0.00	0.00	BHL 109'FSL & 46C

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Company:	Extraction Oil & Gas	TVD Reference:	WELL @ 4989.0ft (Frontier 10 RKB - 22')
Project:	SEC.18-T4N-R68W	MD Reference:	WELL @ 4989.0ft (Frontier 10 RKB - 22')
Site:	Kennedy Pad Sec.18-T4N-R68W	North Reference:	True
Well:	Kennedy 1	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (7-15-14)		

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
KOP - Start Build 2.00									
300.0	2.00	52.87	300.0	1.1	1.4	-1.2	2.00	2.00	0.00
400.0	4.00	52.87	399.8	4.2	5.6	-4.8	2.00	2.00	0.00
500.0	6.00	52.87	499.5	9.5	12.5	-10.8	2.00	2.00	0.00
600.0	8.00	52.87	598.7	16.8	22.2	-19.2	2.00	2.00	0.00
700.0	10.00	52.87	697.5	26.3	34.7	-30.0	2.00	2.00	0.00
800.0	12.00	52.87	795.6	37.8	49.9	-43.1	2.00	2.00	0.00
900.0	14.00	52.87	893.1	51.4	67.8	-58.6	2.00	2.00	0.00
925.7	14.51	52.87	918.0	55.2	72.9	-63.0	2.00	2.00	0.00
1,000.0	14.51	52.87	989.9	66.4	87.7	-75.8	0.00	0.00	0.00
1,100.0	14.51	52.87	1,086.7	81.6	107.7	-93.1	0.00	0.00	0.00
1,200.0	14.51	52.87	1,183.5	96.7	127.7	-110.3	0.00	0.00	0.00
1,300.0	14.51	52.87	1,280.3	111.8	147.7	-127.6	0.00	0.00	0.00
1,400.0	14.51	52.87	1,377.1	126.9	167.7	-144.8	0.00	0.00	0.00
1,500.0	14.51	52.87	1,473.9	142.1	187.6	-162.1	0.00	0.00	0.00
1,600.0	14.51	52.87	1,570.7	157.2	207.6	-179.4	0.00	0.00	0.00
1,700.0	14.51	52.87	1,667.6	172.3	227.6	-196.6	0.00	0.00	0.00
1,800.0	14.51	52.87	1,764.4	187.5	247.6	-213.9	0.00	0.00	0.00
1,900.0	14.51	52.87	1,861.2	202.6	267.6	-231.2	0.00	0.00	0.00
2,000.0	14.51	52.87	1,958.0	217.7	287.5	-248.4	0.00	0.00	0.00
2,100.0	14.51	52.87	2,054.8	232.9	307.5	-265.7	0.00	0.00	0.00
2,200.0	14.51	52.87	2,151.6	248.0	327.5	-282.9	0.00	0.00	0.00
2,283.1	14.51	52.87	2,232.0	260.5	344.1	-297.3	0.00	0.00	0.00
PARKMAN									
2,300.0	14.51	52.87	2,248.4	263.1	347.5	-300.2	0.00	0.00	0.00
2,400.0	14.51	52.87	2,345.2	278.2	367.5	-317.5	0.00	0.00	0.00
2,500.0	14.51	52.87	2,442.0	293.4	387.4	-334.7	0.00	0.00	0.00
2,600.0	14.51	52.87	2,538.8	308.5	407.4	-352.0	0.00	0.00	0.00
2,700.0	14.51	52.87	2,635.6	323.6	427.4	-369.3	0.00	0.00	0.00
2,800.0	14.51	52.87	2,732.4	338.8	447.4	-386.5	0.00	0.00	0.00
2,900.0	14.51	52.87	2,829.3	353.9	467.4	-403.8	0.00	0.00	0.00
2,902.8	14.51	52.87	2,832.0	354.3	467.9	-404.3	0.00	0.00	0.00
SUSSEX									
3,000.0	14.51	52.87	2,926.1	369.0	487.3	-421.0	0.00	0.00	0.00
3,100.0	14.51	52.87	3,022.9	384.1	507.3	-438.3	0.00	0.00	0.00
3,200.0	14.51	52.87	3,119.7	399.3	527.3	-455.6	0.00	0.00	0.00
3,300.0	14.51	52.87	3,216.5	414.4	547.3	-472.8	0.00	0.00	0.00
3,357.3	14.51	52.87	3,272.0	423.1	558.7	-482.7	0.00	0.00	0.00
SHANNON									
3,400.0	14.51	52.87	3,313.3	429.5	567.3	-490.1	0.00	0.00	0.00
3,500.0	14.51	52.87	3,410.1	444.7	587.2	-507.4	0.00	0.00	0.00
3,600.0	14.51	52.87	3,506.9	459.8	607.2	-524.6	0.00	0.00	0.00
3,700.0	14.51	52.87	3,603.7	474.9	627.2	-541.9	0.00	0.00	0.00
3,800.0	14.51	52.87	3,700.5	490.0	647.2	-559.1	0.00	0.00	0.00
3,900.0	14.51	52.87	3,797.3	505.2	667.2	-576.4	0.00	0.00	0.00
4,000.0	14.51	52.87	3,894.1	520.3	687.1	-593.7	0.00	0.00	0.00
4,100.0	14.51	52.87	3,991.0	535.4	707.1	-610.9	0.00	0.00	0.00
4,200.0	14.51	52.87	4,087.8	550.6	727.1	-628.2	0.00	0.00	0.00
4,300.0	14.51	52.87	4,184.6	565.7	747.1	-645.5	0.00	0.00	0.00
4,400.0	14.51	52.87	4,281.4	580.8	767.1	-662.7	0.00	0.00	0.00
4,500.0	14.51	52.87	4,378.2	596.0	787.0	-680.0	0.00	0.00	0.00

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Site:	Kennedy Pad Sec.18-T4N-R68W	North Reference:	True
Well:	Kennedy 1	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (7-15-14)		

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	14.51	52.87	4,475.0	611.1	807.0	-697.2	0.00	0.00	0.00
4,700.0	14.51	52.87	4,571.8	626.2	827.0	-714.5	0.00	0.00	0.00
4,710.6	14.51	52.87	4,582.0	627.8	829.1	-716.3	0.00	0.00	0.00
4,800.0	12.73	52.87	4,669.0	640.5	845.9	-730.8	2.00	-2.00	0.00
4,900.0	10.73	52.87	4,766.9	652.8	862.1	-744.8	2.00	-2.00	0.00
5,000.0	8.73	52.87	4,865.4	663.0	875.6	-756.5	2.00	-2.00	0.00
5,100.0	6.73	52.87	4,964.5	671.1	886.3	-765.7	2.00	-2.00	0.00
5,200.0	4.73	52.87	5,064.0	677.1	894.2	-772.6	2.00	-2.00	0.00
5,300.0	2.73	52.87	5,163.8	681.0	899.4	-777.1	2.00	-2.00	0.00
5,400.0	0.73	52.87	5,263.7	682.9	901.8	-779.1	2.00	-2.00	0.00
5,436.3	0.00	0.00	5,300.0	683.0	902.0	-779.3	2.00	-2.00	0.00
5,500.0	0.00	0.00	5,363.7	683.0	902.0	-779.3	0.00	0.00	0.00
5,566.6	0.00	0.00	5,430.3	683.0	902.0	-779.3	0.00	0.00	0.00
KOP #2 - Start Build 9.00									
5,600.0	3.00	270.27	5,463.7	683.0	901.1	-778.4	8.99	8.99	0.00
5,700.0	12.00	270.27	5,562.8	683.1	888.1	-765.6	9.00	9.00	0.00
5,800.0	21.00	270.27	5,658.5	683.2	859.7	-737.5	9.00	9.00	0.00
5,892.3	29.31	270.27	5,742.0	683.4	820.5	-698.8	9.00	9.00	0.00
NIOBRARA									
5,900.0	30.00	270.27	5,748.7	683.4	816.7	-695.1	9.00	9.00	0.00
6,000.0	39.00	270.27	5,831.0	683.7	760.1	-639.2	9.00	9.00	0.00
6,100.0	48.00	270.27	5,903.5	684.0	691.3	-571.3	9.00	9.00	0.00
6,200.0	57.00	270.27	5,964.3	684.4	612.1	-493.0	9.00	9.00	0.00
6,300.0	66.00	270.27	6,012.0	684.8	524.3	-406.3	9.00	9.00	0.00
6,354.6	70.91	270.27	6,032.0	685.0	473.6	-356.2	9.00	9.00	0.00
FORT HAYS									
6,400.0	75.00	270.27	6,045.3	685.2	430.1	-313.3	9.00	9.00	0.00
6,500.0	84.00	270.27	6,063.5	685.7	331.9	-216.3	9.00	9.00	0.00
6,566.6	90.00	270.27	6,067.0	686.0	265.4	-150.6	9.00	9.00	0.00
CODELL									
6,567.4	90.00	270.27	6,067.0	686.0	264.6	-149.9	0.00	0.00	0.00
Start DLS 1.00 TFO 90.00 - 7"									
6,570.0	90.00	270.30	6,067.0	686.0	262.0	-147.3	1.00	0.00	1.00
Start 4580.6 hold at 6570.0 MD									
6,600.0	90.00	270.30	6,067.0	686.2	232.0	-117.7	0.00	0.00	0.00
6,700.0	90.00	270.30	6,067.0	686.7	132.0	-18.9	0.00	0.00	0.00
6,800.0	90.00	270.30	6,067.0	687.2	32.0	79.8	0.00	0.00	0.00
6,900.0	90.00	270.30	6,067.0	687.7	-68.0	178.6	0.00	0.00	0.00
7,000.0	90.00	270.30	6,067.0	688.2	-168.0	277.3	0.00	0.00	0.00
7,100.0	90.00	270.30	6,067.0	688.8	-268.0	376.1	0.00	0.00	0.00
7,200.0	90.00	270.30	6,067.0	689.3	-368.0	474.9	0.00	0.00	0.00
7,300.0	90.00	270.30	6,067.0	689.8	-468.0	573.6	0.00	0.00	0.00
7,400.0	90.00	270.30	6,067.0	690.3	-568.0	672.4	0.00	0.00	0.00
7,500.0	90.00	270.30	6,067.0	690.8	-668.0	771.1	0.00	0.00	0.00
7,600.0	90.00	270.30	6,067.0	691.3	-768.0	869.9	0.00	0.00	0.00
7,700.0	90.00	270.30	6,067.0	691.9	-868.0	968.7	0.00	0.00	0.00
7,800.0	90.00	270.30	6,067.0	692.4	-968.0	1,067.4	0.00	0.00	0.00
7,900.0	90.00	270.30	6,067.0	692.9	-1,068.0	1,166.2	0.00	0.00	0.00
8,000.0	90.00	270.30	6,067.0	693.4	-1,167.9	1,264.9	0.00	0.00	0.00
8,100.0	90.00	270.30	6,067.0	693.9	-1,267.9	1,363.7	0.00	0.00	0.00
8,200.0	90.00	270.30	6,067.0	694.4	-1,367.9	1,462.5	0.00	0.00	0.00
8,300.0	90.00	270.30	6,067.0	695.0	-1,467.9	1,561.2	0.00	0.00	0.00
8,400.0	90.00	270.30	6,067.0	695.5	-1,567.9	1,660.0	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well Kennedy 1
Company:	Extraction Oil & Gas	TVD Reference:	WELL @ 4989.0ft (Frontier 10 RKB - 22')
Project:	SEC.18-T4N-R68W	MD Reference:	WELL @ 4989.0ft (Frontier 10 RKB - 22')
Site:	Kennedy Pad Sec.18-T4N-R68W	North Reference:	True
Well:	Kennedy 1	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (7-15-14)		

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)	
8,500.0	90.00	270.30	6,067.0	696.0	-1,667.9	1,758.7	0.00	0.00	0.00	
8,600.0	90.00	270.30	6,067.0	696.5	-1,767.9	1,857.5	0.00	0.00	0.00	
8,700.0	90.00	270.30	6,067.0	697.0	-1,867.9	1,956.2	0.00	0.00	0.00	
8,800.0	90.00	270.30	6,067.0	697.5	-1,967.9	2,055.0	0.00	0.00	0.00	
8,900.0	90.00	270.30	6,067.0	698.1	-2,067.9	2,153.8	0.00	0.00	0.00	
9,000.0	90.00	270.30	6,067.0	698.6	-2,167.9	2,252.5	0.00	0.00	0.00	
9,100.0	90.00	270.30	6,067.0	699.1	-2,267.9	2,351.3	0.00	0.00	0.00	
9,200.0	90.00	270.30	6,067.0	699.6	-2,367.9	2,450.0	0.00	0.00	0.00	
9,300.0	90.00	270.30	6,067.0	700.1	-2,467.9	2,548.8	0.00	0.00	0.00	
9,400.0	90.00	270.30	6,067.0	700.6	-2,567.9	2,647.6	0.00	0.00	0.00	
9,500.0	90.00	270.30	6,067.0	701.2	-2,667.9	2,746.3	0.00	0.00	0.00	
9,600.0	90.00	270.30	6,067.0	701.7	-2,767.9	2,845.1	0.00	0.00	0.00	
9,700.0	90.00	270.30	6,067.0	702.2	-2,867.9	2,943.8	0.00	0.00	0.00	
9,800.0	90.00	270.30	6,067.0	702.7	-2,967.9	3,042.6	0.00	0.00	0.00	
9,900.0	90.00	270.30	6,067.0	703.2	-3,067.9	3,141.4	0.00	0.00	0.00	
10,000.0	90.00	270.30	6,067.0	703.7	-3,167.9	3,240.1	0.00	0.00	0.00	
10,100.0	90.00	270.30	6,067.0	704.3	-3,267.9	3,338.9	0.00	0.00	0.00	
10,200.0	90.00	270.30	6,067.0	704.8	-3,367.9	3,437.6	0.00	0.00	0.00	
10,300.0	90.00	270.30	6,067.0	705.3	-3,467.9	3,536.4	0.00	0.00	0.00	
10,400.0	90.00	270.30	6,067.0	705.8	-3,567.9	3,635.1	0.00	0.00	0.00	
10,500.0	90.00	270.30	6,067.0	706.3	-3,667.9	3,733.9	0.00	0.00	0.00	
10,600.0	90.00	270.30	6,067.0	706.8	-3,767.9	3,832.7	0.00	0.00	0.00	
10,700.0	90.00	270.30	6,067.0	707.4	-3,867.9	3,931.4	0.00	0.00	0.00	
10,800.0	90.00	270.30	6,067.0	707.9	-3,967.9	4,030.2	0.00	0.00	0.00	
10,900.0	90.00	270.30	6,067.0	708.4	-4,067.9	4,128.9	0.00	0.00	0.00	
11,000.0	90.00	270.30	6,067.0	708.9	-4,167.9	4,227.7	0.00	0.00	0.00	
11,100.0	90.00	270.30	6,067.0	709.4	-4,267.9	4,326.5	0.00	0.00	0.00	
11,150.6	90.00	270.30	6,067.0	709.7	-4,318.5	4,376.4	0.00	0.00	0.00	
TD at 11150.6										

Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- hit/miss target									
- Shape									
BHL 109°FSL & 460°F	0.00	0.00	6,067.0	709.7	-4,318.6	1,359,837.32	3,124,478.53	40.320294	-105.053579
- plan hits target center									
- Point									
Landing Pt. 0°FNL & 7	0.00	0.00	6,067.0	686.0	264.6	1,359,837.51	3,129,061.57	40.320230	-105.037143
- plan hits target center									
- Point									
SHL 681°FNL & 342°F	0.00	0.00	1.0	0.0	0.0	1,359,150.18	3,128,800.53	40.318347	-105.038092
- plan hits target center									
- Point									

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
6,567.4	6,067.0	7"	7	7-1/2	

Database:	Landmark	Local Co-ordinate Reference:	Well Kennedy 1
Company:	Extraction Oil & Gas	TVD Reference:	WELL @ 4989.0ft (Frontier 10 RKB - 22')
Project:	SEC.18-T4N-R68W	MD Reference:	WELL @ 4989.0ft (Frontier 10 RKB - 22')
Site:	Kennedy Pad Sec.18-T4N-R68W	North Reference:	True
Well:	Kennedy 1	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (7-15-14)		

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
2,283.1	2,232.0	PARKMAN		0.00	
2,902.8	2,832.0	SUSSEX		0.00	
3,357.3	3,272.0	SHANNON		0.00	
5,892.3	5,742.0	NIOBRARA		0.00	
6,354.6	6,032.0	FORT HAYS		0.00	
6,566.6	6,067.0	CODELL		0.00	

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
200.0	200.0	0.0	0.0	KOP - Start Build 2.00
5,566.6	5,430.3	683.0	902.0	KOP #2 - Start Build 9.00
6,567.4	6,067.0	686.0	264.6	Start DLS 1.00 TFO 90.00
6,570.0	6,067.0	686.0	262.0	Start 4580.6 hold at 6570.0 MD
11,150.6	6,067.0	709.7	-4,318.5	TD at 11150.6

Extraction Oil & Gas

SEC.18-T4N-R68W

Kennedy Pad Sec.18-T4N-R68W

Kennedy 1

Wellbore #1

Plan #1 (7-15-14)

Anticollision Report

21 July, 2014

Company:	Extraction Oil & Gas	Local Co-ordinate Reference:	Well Kennedy 1
Project:	SEC.18-T4N-R68W	TVD Reference:	WELL @ 4989.0ft (Frontier 10 RKB - 22')
Reference Site:	Kennedy Pad Sec.18-T4N-R68W	MD Reference:	WELL @ 4989.0ft (Frontier 10 RKB - 22')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Kennedy 1	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (7-15-14)	Offset TVD Reference:	Offset Datum

Reference	Plan #1 (7-15-14)		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD Interval 100.0ft	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 1,000.0ft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma		

Survey Tool Program	Date 7/21/2014			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	11,150.6	Plan #1 (7-15-14) (Wellbore #1)	MWD	MWD - Standard

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Kennedy Pad Sec.18-T4N-R68W						
Kennedy 2 - Wellbore #1 - Plan #1 (7-16-14)	200.0	200.0	28.0	27.4	41.597	CC, ES
Kennedy 2 - Wellbore #1 - Plan #1 (7-16-14)	5,892.3	6,551.2	165.6	116.4	3.368	SF
Kennedy 3 - Wellbore #1 - Plan #1 (7-18-14)	200.0	199.0	56.1	55.4	83.476	CC, ES
Kennedy 3 - Wellbore #1 - Plan #1 (7-18-14)	11,150.6	10,812.3	463.2	259.9	2.278	SF
Kennedy 4 - Wellbore #1 - Plan #1 (7-18-14)	200.0	199.0	84.2	83.5	125.218	CC, ES
Kennedy 4 - Wellbore #1 - Plan #1 (7-18-14)	6,100.0	6,723.8	524.5	478.0	11.269	SF

Offset Design Kennedy Pad Sec.18-T4N-R68W - Kennedy 2 - Wellbore #1 - Plan #1 (7-16-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference	Offset	Semi Major Axis		Distance		Minimum Separation		Separation Factor		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	-179.43	-28.0	-0.3	28.0					
100.0	100.0	100.0	100.0	0.1	0.1	-179.43	-28.0	-0.3	28.0	27.8	0.22	124.792		
200.0	200.0	200.0	200.0	0.3	0.3	-179.43	-28.0	-0.3	28.0	27.4	0.67	41.597	CC, ES	
300.0	300.0	300.0	300.0	0.6	0.6	130.40	-28.0	-0.3	29.1	28.0	1.12	25.944		
400.0	399.8	399.8	399.8	0.8	0.8	137.33	-28.0	-0.3	32.8	31.2	1.58	20.740		
500.0	499.5	500.5	500.4	1.0	1.0	147.62	-26.4	-0.9	38.3	36.3	2.04	18.749		
600.0	598.7	600.7	600.5	1.3	1.2	160.30	-21.5	-2.9	45.9	43.4	2.51	18.306		
700.0	697.5	700.3	699.7	1.7	1.5	172.87	-13.5	-6.2	57.0	54.1	2.98	19.161		
800.0	795.6	799.0	797.7	2.0	1.7	-176.33	-2.3	-10.6	72.7	69.2	3.48	20.887		
900.0	893.1	896.3	894.0	2.5	2.0	-168.72	10.3	-15.7	93.1	89.1	4.03	23.132		
1,000.0	989.9	993.1	989.9	2.9	2.3	-164.24	22.9	-20.8	116.9	112.3	4.61	25.384		
1,100.0	1,086.7	1,089.8	1,085.7	3.4	2.6	-161.30	35.5	-25.9	141.3	136.1	5.21	27.108		
1,200.0	1,183.5	1,186.6	1,181.5	4.0	2.9	-159.23	48.1	-30.9	165.9	160.1	5.84	28.431		
1,300.0	1,280.3	1,283.4	1,277.3	4.5	3.3	-157.70	60.7	-36.0	190.7	184.2	6.47	29.467		
1,400.0	1,377.1	1,380.2	1,373.1	5.0	3.6	-156.52	73.2	-41.1	215.6	208.5	7.12	30.297		
1,500.0	1,473.9	1,476.9	1,469.0	5.5	3.9	-155.58	85.8	-46.2	240.5	232.7	7.77	30.965		
1,600.0	1,570.7	1,573.7	1,564.8	6.0	4.2	-154.82	98.4	-51.2	265.5	257.1	8.42	31.520		
1,700.0	1,667.6	1,670.5	1,660.6	6.5	4.5	-154.19	111.0	-56.3	290.5	281.4	9.08	31.984		
1,800.0	1,764.4	1,767.3	1,756.4	7.1	4.9	-153.66	123.6	-61.4	315.6	305.8	9.75	32.378		
1,900.0	1,861.2	1,864.0	1,852.2	7.6	5.2	-153.21	136.1	-66.4	340.7	330.2	10.41	32.716		
2,000.0	1,958.0	1,960.8	1,948.0	8.1	5.5	-152.82	148.7	-71.5	365.7	354.7	11.08	33.008		

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

Company:	Extraction Oil & Gas	Local Co-ordinate Reference:	Well Kennedy 1
Project:	SEC.18-T4N-R68W	TVD Reference:	WELL @ 4989.0ft (Frontier 10 RKB - 22')
Reference Site:	Kennedy Pad Sec.18-T4N-R68W	MD Reference:	WELL @ 4989.0ft (Frontier 10 RKB - 22')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Kennedy 1	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (7-15-14)	Offset TVD Reference:	Offset Datum

Offset Design Kennedy Pad Sec.18-T4N-R68W - Kennedy 2 - Wellbore #1 - Plan #1 (7-16-14)													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		
2,100.0	2,054.8	2,057.6	2,043.9	8.6	5.8	-152.48	161.3	-76.6	390.8	379.1	11.75	33.263		
2,200.0	2,151.6	2,154.3	2,139.7	9.1	6.2	-152.18	173.9	-81.6	416.0	403.5	12.42	33.488		
2,300.0	2,248.4	2,251.1	2,235.5	9.7	6.5	-151.91	186.5	-86.7	441.1	428.0	13.09	33.687		
2,400.0	2,345.2	2,347.9	2,331.3	10.2	6.8	-151.68	199.0	-91.8	466.2	452.4	13.77	33.865		
2,500.0	2,442.0	2,444.7	2,427.1	10.7	7.2	-151.47	211.6	-96.8	491.4	476.9	14.44	34.024		
2,600.0	2,538.8	2,541.4	2,523.0	11.2	7.5	-151.27	224.2	-101.9	516.5	501.4	15.12	34.168		
2,700.0	2,635.6	2,638.2	2,618.8	11.8	7.8	-151.10	236.8	-107.0	541.7	525.9	15.79	34.298		
2,800.0	2,732.4	2,735.0	2,714.6	12.3	8.1	-150.94	249.4	-112.1	566.8	550.3	16.47	34.417		
2,900.0	2,829.3	2,831.8	2,810.4	12.8	8.5	-150.80	261.9	-117.1	592.0	574.8	17.15	34.525		
3,000.0	2,926.1	2,928.5	2,906.2	13.3	8.8	-150.66	274.5	-122.2	617.1	599.3	17.82	34.624		
3,100.0	3,022.9	3,025.3	3,002.0	13.9	9.1	-150.54	287.1	-127.3	642.3	623.8	18.50	34.716		
3,200.0	3,119.7	3,122.1	3,097.9	14.4	9.5	-150.43	299.7	-132.3	667.5	648.3	19.18	34.800		
3,300.0	3,216.5	3,218.9	3,193.7	14.9	9.8	-150.32	312.3	-137.4	692.6	672.8	19.86	34.878		
3,400.0	3,313.3	3,315.6	3,289.5	15.5	10.1	-150.22	324.9	-142.5	717.8	697.3	20.54	34.951		
3,500.0	3,410.1	3,412.4	3,385.3	16.0	10.4	-150.13	337.4	-147.5	743.0	721.8	21.22	35.018		
3,600.0	3,506.9	3,509.2	3,481.1	16.5	10.8	-150.05	350.0	-152.6	768.1	746.2	21.90	35.081		
3,700.0	3,603.7	3,605.9	3,577.0	17.0	11.1	-149.97	362.6	-157.7	793.3	770.7	22.58	35.140		
3,800.0	3,700.5	3,702.7	3,672.8	17.6	11.4	-149.89	375.2	-162.7	818.5	795.2	23.26	35.195		
3,900.0	3,797.3	3,799.5	3,768.6	18.1	11.8	-149.82	387.8	-167.8	843.7	819.7	23.94	35.246		
4,000.0	3,894.1	3,896.3	3,864.4	18.6	12.1	-149.76	400.3	-172.9	868.9	844.2	24.62	35.295		
4,100.0	3,991.0	3,993.0	3,960.2	19.1	12.4	-149.69	412.9	-177.9	894.0	868.7	25.30	35.340		
4,200.0	4,087.8	4,089.8	4,056.0	19.7	12.8	-149.63	425.5	-183.0	919.2	893.2	25.98	35.384		
4,300.0	4,184.6	4,186.6	4,151.9	20.2	13.1	-149.58	438.1	-188.1	944.4	917.7	26.66	35.424		
4,400.0	4,281.4	4,283.4	4,247.7	20.7	13.4	-149.53	450.7	-193.2	969.6	942.2	27.34	35.463		
4,500.0	4,378.2	4,380.1	4,343.5	21.2	13.8	-149.47	463.2	-198.2	994.8	966.7	28.02	35.499		
4,900.0	4,766.9	6,593.0	5,742.0	23.1	29.7	157.73	517.6	861.4	984.5	944.6	39.83	24.717		
5,000.0	4,865.4	6,606.4	5,742.0	23.4	30.1	152.33	517.5	874.8	888.6	846.2	42.38	20.968		
5,100.0	4,964.5	6,617.0	5,742.0	23.7	30.3	146.42	517.4	885.5	792.5	747.5	45.00	17.612		
5,200.0	5,064.0	6,625.0	5,742.0	23.9	30.5	140.27	517.4	893.4	696.6	649.1	47.47	14.674		
5,300.0	5,163.8	6,630.1	5,742.0	24.1	30.7	134.31	517.4	898.6	600.9	551.4	49.55	12.128		
5,400.0	5,263.7	6,632.5	5,742.0	24.2	30.7	129.06	517.4	901.0	506.1	455.0	51.07	9.909		
5,500.0	5,363.7	6,632.7	5,742.0	24.3	30.7	-179.70	517.3	901.1	412.9	378.7	34.21	12.072		
5,600.0	5,463.7	6,631.8	5,742.0	24.4	30.7	-95.00	517.4	900.3	323.9	271.2	52.66	6.150		
5,700.0	5,562.8	6,618.8	5,742.0	24.3	30.4	-102.65	517.4	887.2	244.1	190.7	53.34	4.575		
5,800.0	5,658.5	6,590.4	5,742.0	24.2	29.7	-100.21	517.6	858.8	185.5	133.3	52.13	3.558		
5,892.3	5,742.0	6,551.2	5,742.0	23.9	28.7	-89.97	517.8	819.6	165.6	116.4	49.17	3.368 SF		
5,900.0	5,748.7	6,547.4	5,742.0	23.9	28.6	-88.81	517.8	815.8	165.7	116.9	48.80	3.397		
6,000.0	5,831.0	6,490.8	5,742.0	23.6	27.3	-71.28	518.1	759.3	188.0	146.0	42.01	4.476		
6,100.0	5,903.5	6,422.0	5,742.0	23.3	25.7	-54.05	518.4	690.5	231.3	197.8	33.48	6.908		
6,200.0	5,964.3	6,342.8	5,742.0	23.0	23.8	-41.59	518.9	611.2	277.2	250.6	26.51	10.455		
6,300.0	6,012.0	6,255.0	5,742.0	22.8	21.9	-33.85	519.3	523.4	316.6	294.8	21.86	14.482		
6,400.0	6,045.3	6,160.8	5,742.0	22.7	20.0	-29.45	519.8	429.3	345.5	326.3	19.21	17.983		
6,500.0	6,063.5	6,090.7	5,739.6	22.9	18.7	-27.39	520.2	359.2	364.8	346.1	18.66	19.549		
6,600.0	6,067.0	6,026.1	5,730.8	23.3	17.6	-26.19	520.5	295.3	380.1	361.2	18.95	20.064		
6,700.0	6,067.0	5,963.6	5,716.1	24.2	16.7	-25.24	520.8	234.5	401.5	382.6	18.84	21.308		
6,800.0	6,067.0	5,900.0	5,695.1	25.5	16.1	-23.98	521.0	174.5	431.5	412.7	18.80	22.949		
6,900.0	6,067.0	5,850.0	5,674.5	27.1	15.9	-22.85	521.3	129.0	469.7	450.6	19.04	24.673		
7,000.0	6,067.0	5,800.0	5,650.3	28.9	15.8	-21.66	521.5	85.2	515.3	496.0	19.34	26.649		
7,100.0	6,067.0	5,750.0	5,622.8	30.9	15.8	-20.43	521.7	43.5	567.6	547.9	19.69	28.823		
7,200.0	6,067.0	5,700.0	5,592.1	33.1	15.8	-19.21	521.9	4.0	626.0	605.9	20.10	31.151		
7,300.0	6,067.0	5,673.0	5,574.3	35.3	15.8	-18.57	522.0	-16.3	689.2	668.4	20.77	33.186		
7,400.0	6,067.0	5,650.0	5,558.4	37.7	15.8	-18.03	522.0	-32.9	757.1	735.6	21.48	35.240		

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

Company:	Extraction Oil & Gas	Local Co-ordinate Reference:	Well Kennedy 1
Project:	SEC.18-T4N-R68W	TVD Reference:	WELL @ 4989.0ft (Frontier 10 RKB - 22')
Reference Site:	Kennedy Pad Sec.18-T4N-R68W	MD Reference:	WELL @ 4989.0ft (Frontier 10 RKB - 22')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Kennedy 1	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (7-15-14)	Offset TVD Reference:	Offset Datum

Offset Design Kennedy Pad Sec.18-T4N-R68W - Kennedy 2 - Wellbore #1 - Plan #1 (7-16-14)												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Reference	Offset	Semi Major Axis		Distance									
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
7,500.0	6,067.0	5,600.0	5,522.0	40.1	15.8	-16.89	522.2	-67.1	828.6	806.7	21.94	37.774	
7,600.0	6,067.0	5,580.4	5,506.9	42.5	15.8	-16.46	522.3	-79.7	903.3	880.6	22.69	39.807	
7,700.0	6,067.0	5,550.0	5,482.9	45.0	15.8	-15.82	522.4	-98.3	981.0	957.6	23.34	42.029	

Company:	Extraction Oil & Gas	Local Co-ordinate Reference:	Well Kennedy 1
Project:	SEC.18-T4N-R68W	TVD Reference:	WELL @ 4989.0ft (Frontier 10 RKB - 22')
Reference Site:	Kennedy Pad Sec.18-T4N-R68W	MD Reference:	WELL @ 4989.0ft (Frontier 10 RKB - 22')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Kennedy 1	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (7-15-14)	Offset TVD Reference:	Offset Datum

Offset Design Kennedy Pad Sec.18-T4N-R68W - Kennedy 3 - Wellbore #1 - Plan #1 (7-18-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Semi Major Axis Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
0.0	0.0	0.0	0.0	0.0	0.0	-179.72	-56.1	-0.3	56.1					
100.0	100.0	99.0	99.0	0.1	0.1	-179.72	-56.1	-0.3	56.1	55.9	0.22	250.844		
200.0	200.0	199.0	199.0	0.3	0.3	-179.72	-56.1	-0.3	56.1	55.4	0.67	83.476 CC, ES		
300.0	300.0	299.0	299.0	0.6	0.6	128.79	-56.1	-0.3	57.2	56.1	1.12	51.001		
400.0	399.8	398.8	398.8	0.8	0.8	132.60	-56.1	-0.3	60.6	59.0	1.58	38.409		
500.0	499.5	498.5	498.5	1.0	1.0	138.01	-56.1	-0.3	66.8	64.8	2.05	32.637		
600.0	598.7	597.7	597.7	1.3	1.2	144.02	-56.1	-0.3	76.3	73.8	2.53	30.211		
700.0	697.5	698.7	698.7	1.7	1.5	149.14	-55.4	1.3	88.3	85.3	3.00	29.392		
800.0	795.6	800.2	800.0	2.0	1.7	152.63	-53.2	6.1	101.1	97.7	3.48	29.059		
900.0	893.1	902.2	901.6	2.5	1.9	154.96	-49.5	14.2	114.7	110.7	3.98	28.818		
1,000.0	989.9	1,004.8	1,003.4	2.9	2.2	156.37	-44.3	25.7	127.8	123.2	4.51	28.338		
1,100.0	1,086.7	1,108.1	1,105.5	3.4	2.5	156.67	-37.6	40.7	138.1	133.0	5.08	27.193		
1,200.0	1,183.5	1,212.0	1,207.3	4.0	2.8	156.07	-29.2	59.0	145.6	139.8	5.70	25.531		
1,300.0	1,280.3	1,316.1	1,308.7	4.5	3.3	154.66	-19.4	80.8	150.1	143.7	6.39	23.492		
1,400.0	1,377.1	1,417.9	1,407.0	5.0	3.7	152.63	-8.5	104.9	152.4	145.2	7.15	21.302		
1,500.0	1,473.9	1,517.7	1,503.3	5.5	4.2	150.60	2.4	128.8	154.6	146.6	7.96	19.411		
1,600.0	1,570.7	1,617.6	1,599.6	6.0	4.7	148.63	13.2	152.8	156.9	148.1	8.81	17.809		
1,700.0	1,667.6	1,717.4	1,695.9	6.5	5.2	146.73	24.1	176.7	159.5	149.8	9.70	16.436		
1,800.0	1,764.4	1,817.2	1,792.2	7.1	5.7	144.88	34.9	200.6	162.2	151.6	10.63	15.261		
1,900.0	1,861.2	1,917.0	1,888.5	7.6	6.3	143.10	45.8	224.6	165.1	153.5	11.58	14.250		
2,000.0	1,958.0	2,016.9	1,984.8	8.1	6.8	141.38	56.6	248.5	168.1	155.5	12.57	13.377		
2,100.0	2,054.8	2,116.7	2,081.1	8.6	7.3	139.72	67.5	272.4	171.3	157.7	13.57	12.618		
2,200.0	2,151.6	2,216.5	2,177.4	9.1	7.9	138.12	78.3	296.4	174.6	160.0	14.60	11.957		
2,300.0	2,248.4	2,316.4	2,273.7	9.7	8.4	136.59	89.1	320.3	178.0	162.4	15.65	11.377		
2,400.0	2,345.2	2,416.2	2,370.1	10.2	9.0	135.11	100.0	344.2	181.6	164.9	16.71	10.867		
2,500.0	2,442.0	2,516.0	2,466.4	10.7	9.5	133.69	110.8	368.2	185.3	167.5	17.79	10.417		
2,600.0	2,538.8	2,615.8	2,562.7	11.2	10.0	132.33	121.7	392.1	189.1	170.2	18.88	10.018		
2,700.0	2,635.6	2,715.7	2,659.0	11.8	10.6	131.02	132.5	416.0	193.0	173.0	19.97	9.662		
2,800.0	2,732.4	2,815.5	2,755.3	12.3	11.1	129.76	143.4	440.0	197.0	175.9	21.08	9.345		
2,900.0	2,829.3	2,915.3	2,851.6	12.8	11.7	128.56	154.2	463.9	201.1	178.9	22.19	9.060		
3,000.0	2,926.1	3,015.2	2,947.9	13.3	12.2	127.40	165.1	487.8	205.2	181.9	23.31	8.804		
3,100.0	3,022.9	3,115.0	3,044.2	13.9	12.8	126.29	175.9	511.8	209.5	185.1	24.43	8.574		
3,200.0	3,119.7	3,214.8	3,140.5	14.4	13.3	125.22	186.7	535.7	213.8	188.3	25.56	8.365		
3,300.0	3,216.5	3,314.6	3,236.8	14.9	13.9	124.20	197.6	559.6	218.2	191.5	26.69	8.176		
3,400.0	3,313.3	3,414.5	3,333.1	15.5	14.4	123.21	208.4	583.6	222.7	194.9	27.82	8.003		
3,500.0	3,410.1	3,514.3	3,429.4	16.0	15.0	122.27	219.3	607.5	227.2	198.3	28.96	7.846		
3,600.0	3,506.9	3,614.1	3,525.8	16.5	15.5	121.36	230.1	631.4	231.8	201.7	30.09	7.703		
3,700.0	3,603.7	3,714.0	3,622.1	17.0	16.1	120.49	241.0	655.4	236.4	205.2	31.23	7.572		
3,800.0	3,700.5	3,813.8	3,718.4	17.6	16.6	119.65	251.8	679.3	241.1	208.8	32.36	7.451		
3,900.0	3,797.3	3,913.6	3,814.7	18.1	17.2	118.85	262.7	703.2	245.9	212.4	33.50	7.340		
4,000.0	3,894.1	4,013.4	3,911.0	18.6	17.7	118.07	273.5	727.2	250.7	216.0	34.63	7.238		
4,100.0	3,991.0	4,113.3	4,007.3	19.1	18.3	117.32	284.3	751.1	255.5	219.7	35.77	7.143		
4,200.0	4,087.8	4,213.1	4,103.6	19.7	18.8	116.61	295.2	775.0	260.4	223.5	36.90	7.056		
4,300.0	4,184.6	4,312.9	4,199.9	20.2	19.4	115.91	306.0	799.0	265.3	227.3	38.04	6.975		
4,400.0	4,281.4	4,411.7	4,295.3	20.7	19.9	115.35	316.6	822.2	270.4	231.3	39.10	6.915		
4,500.0	4,378.2	4,509.4	4,390.4	21.2	20.3	115.41	325.8	842.7	276.1	236.2	39.95	6.911		
4,600.0	4,475.0	4,606.9	4,486.1	21.8	20.6	116.13	333.7	860.1	282.6	242.0	40.67	6.950		
4,700.0	4,571.8	4,704.0	4,581.8	22.3	20.9	117.44	340.2	874.5	290.1	248.9	41.23	7.036		
4,800.0	4,669.0	4,800.0	4,677.0	22.8	21.2	119.17	345.4	885.8	298.0	256.4	41.60	7.164		
4,900.0	4,766.9	4,896.9	4,773.5	23.1	21.4	120.87	349.2	894.3	305.4	263.6	41.80	7.306		
5,000.0	4,865.4	4,992.9	4,869.3	23.4	21.5	122.51	351.7	899.7	312.3	270.4	41.90	7.453		
5,100.0	4,964.5	5,088.6	4,964.9	23.7	21.6	124.11	352.8	902.2	318.7	276.8	41.91	7.605		

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

Company:	Extraction Oil & Gas	Local Co-ordinate Reference:	Well Kennedy 1
Project:	SEC.18-T4N-R68W	TVD Reference:	WELL @ 4989.0ft (Frontier 10 RKB - 22')
Reference Site:	Kennedy Pad Sec.18-T4N-R68W	MD Reference:	WELL @ 4989.0ft (Frontier 10 RKB - 22')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Kennedy 1	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (7-15-14)	Offset TVD Reference:	Offset Datum

Offset Design Kennedy Pad Sec.18-T4N-R68W - Kennedy 3 - Wellbore #1 - Plan #1 (7-18-14)												Offset Site Error:	0.0ft
Survey Program: 0-MWD												Offset Well Error:	0.0ft
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	5,064.0	5,186.7	5,063.0	23.9	21.7	125.59	352.9	902.4	324.3	282.5	41.85	7.749	
5,300.0	5,163.8	5,286.7	5,163.0	24.1	21.8	127.05	352.9	899.7	328.1	286.4	41.72	7.866	
5,400.0	5,263.7	5,383.8	5,258.6	24.2	21.7	130.31	353.0	883.5	330.4	289.5	40.89	8.080	
5,500.0	5,363.7	5,474.2	5,344.4	24.3	21.6	-171.96	353.1	855.4	333.6	298.1	35.59	9.375	
5,600.0	5,463.7	5,555.7	5,417.7	24.4	21.3	-76.07	353.3	820.0	342.5	305.0	37.48	9.140	
5,700.0	5,562.8	5,632.3	5,482.0	24.3	21.1	-69.65	353.5	778.3	356.4	321.3	35.12	10.147	
5,800.0	5,658.5	5,706.3	5,538.9	24.2	20.9	-63.98	353.7	731.1	373.1	340.2	32.86	11.354	
5,900.0	5,748.7	5,778.1	5,588.5	23.9	20.7	-59.13	354.0	679.2	390.9	360.1	30.79	12.696	
6,000.0	5,831.0	5,850.0	5,632.0	23.6	20.6	-55.05	354.2	622.0	408.4	379.5	28.95	14.106	
6,100.0	5,903.5	5,917.2	5,666.6	23.3	20.6	-51.86	354.5	564.5	424.6	397.1	27.56	15.407	
6,200.0	5,964.3	5,985.1	5,695.2	23.0	20.6	-49.34	354.8	502.9	438.6	411.9	26.71	16.424	
6,300.0	6,012.0	6,050.0	5,716.3	22.8	20.8	-47.52	355.1	441.6	449.9	423.3	26.62	16.899	
6,400.0	6,045.3	6,118.9	5,731.7	22.7	21.2	-46.25	355.4	374.4	457.8	430.4	27.45	16.676	
6,500.0	6,063.5	6,185.3	5,739.6	22.9	21.7	-45.58	355.7	308.6	462.3	433.1	29.17	15.846	
6,600.0	6,067.0	6,263.5	5,741.0	23.3	22.5	-45.44	356.1	230.3	463.2	431.9	31.34	14.781	
6,700.0	6,067.0	6,363.5	5,741.0	24.2	23.7	-45.44	356.6	130.3	463.2	429.8	33.36	13.885	
6,800.0	6,067.0	6,463.5	5,741.0	25.5	25.3	-45.44	357.2	30.3	463.2	427.5	35.73	12.963	
6,900.0	6,067.0	6,563.5	5,741.0	27.1	27.0	-45.44	357.7	-69.7	463.2	424.8	38.40	12.061	
7,000.0	6,067.0	6,663.5	5,741.0	28.9	29.0	-45.44	358.2	-169.7	463.2	421.9	41.32	11.211	
7,100.0	6,067.0	6,763.5	5,741.0	30.9	31.1	-45.44	358.7	-269.7	463.2	418.8	44.42	10.428	
7,200.0	6,067.0	6,863.5	5,741.0	33.1	33.3	-45.44	359.2	-369.7	463.2	415.5	47.68	9.715	
7,300.0	6,067.0	6,963.5	5,741.0	35.3	35.6	-45.44	359.7	-469.7	463.2	412.1	51.06	9.071	
7,400.0	6,067.0	7,063.5	5,741.0	37.7	37.9	-45.44	360.3	-569.7	463.2	408.7	54.55	8.492	
7,500.0	6,067.0	7,163.5	5,741.0	40.1	40.3	-45.44	360.8	-669.7	463.2	405.1	58.12	7.970	
7,600.0	6,067.0	7,263.5	5,741.0	42.5	42.8	-45.44	361.3	-769.7	463.2	401.4	61.76	7.500	
7,700.0	6,067.0	7,363.5	5,741.0	45.0	45.3	-45.44	361.8	-869.7	463.2	397.8	65.45	7.077	
7,800.0	6,067.0	7,463.5	5,741.0	47.6	47.9	-45.44	362.3	-969.7	463.2	394.0	69.20	6.694	
7,900.0	6,067.0	7,563.5	5,741.0	50.1	50.4	-45.44	362.8	-1,069.7	463.2	390.2	72.99	6.347	
8,000.0	6,067.0	7,663.5	5,741.0	52.7	53.0	-45.44	363.4	-1,169.7	463.2	386.4	76.81	6.031	
8,100.0	6,067.0	7,763.5	5,741.0	55.3	55.6	-45.44	363.9	-1,269.7	463.2	382.5	80.66	5.743	
8,200.0	6,067.0	7,863.5	5,741.0	57.9	58.3	-45.44	364.4	-1,369.7	463.2	378.7	84.53	5.480	
8,300.0	6,067.0	7,963.5	5,741.0	60.6	60.9	-45.44	364.9	-1,469.7	463.2	374.8	88.43	5.238	
8,400.0	6,067.0	8,063.5	5,741.0	63.2	63.6	-45.44	365.4	-1,569.7	463.2	370.9	92.35	5.016	
8,500.0	6,067.0	8,163.5	5,741.0	65.9	66.3	-45.44	365.9	-1,669.6	463.2	366.9	96.29	4.811	
8,600.0	6,067.0	8,263.5	5,741.0	68.6	68.9	-45.44	366.5	-1,769.6	463.2	363.0	100.24	4.621	
8,700.0	6,067.0	8,363.5	5,741.0	71.3	71.6	-45.44	367.0	-1,869.6	463.2	359.0	104.20	4.445	
8,800.0	6,067.0	8,463.5	5,741.0	73.9	74.3	-45.44	367.5	-1,969.6	463.2	355.0	108.18	4.282	
8,900.0	6,067.0	8,563.5	5,741.0	76.7	77.1	-45.44	368.0	-2,069.6	463.2	351.0	112.17	4.130	
9,000.0	6,067.0	8,663.5	5,741.0	79.4	79.8	-45.44	368.5	-2,169.6	463.2	347.0	116.16	3.988	
9,100.0	6,067.0	8,763.5	5,741.0	82.1	82.5	-45.44	369.0	-2,269.6	463.2	343.0	120.17	3.855	
9,200.0	6,067.0	8,863.5	5,741.0	84.8	85.2	-45.44	369.6	-2,369.6	463.2	339.0	124.18	3.730	
9,300.0	6,067.0	8,963.5	5,741.0	87.5	88.0	-45.44	370.1	-2,469.6	463.2	335.0	128.20	3.613	
9,400.0	6,067.0	9,063.5	5,741.0	90.3	90.7	-45.44	370.6	-2,569.6	463.2	331.0	132.23	3.503	
9,500.0	6,067.0	9,163.5	5,741.0	93.0	93.4	-45.44	371.1	-2,669.6	463.2	326.9	136.26	3.399	
9,600.0	6,067.0	9,263.5	5,741.0	95.7	96.2	-45.44	371.6	-2,769.6	463.2	322.9	140.30	3.302	
9,700.0	6,067.0	9,363.5	5,741.0	98.5	98.9	-45.44	372.1	-2,869.6	463.2	318.9	144.34	3.209	
9,800.0	6,067.0	9,463.5	5,741.0	101.2	101.7	-45.44	372.7	-2,969.6	463.2	314.8	148.39	3.122	
9,900.0	6,067.0	9,563.5	5,741.0	104.0	104.4	-45.44	373.2	-3,069.6	463.2	310.8	152.44	3.039	
10,000.0	6,067.0	9,663.5	5,741.0	106.7	107.2	-45.44	373.7	-3,169.6	463.2	306.7	156.49	2.960	
10,100.0	6,067.0	9,763.5	5,741.0	109.5	110.0	-45.44	374.2	-3,269.6	463.2	302.7	160.55	2.885	
10,200.0	6,067.0	9,863.5	5,741.0	112.3	112.7	-45.44	374.7	-3,369.6	463.2	298.6	164.61	2.814	
10,300.0	6,067.0	9,963.5	5,741.0	115.0	115.5	-45.44	375.2	-3,469.6	463.2	294.5	168.68	2.746	

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

Company:	Extraction Oil & Gas	Local Co-ordinate Reference:	Well Kennedy 1
Project:	SEC.18-T4N-R68W	TVD Reference:	WELL @ 4989.0ft (Frontier 10 RKB - 22')
Reference Site:	Kennedy Pad Sec.18-T4N-R68W	MD Reference:	WELL @ 4989.0ft (Frontier 10 RKB - 22')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Kennedy 1	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (7-15-14)	Offset TVD Reference:	Offset Datum

Offset Design Kennedy Pad Sec.18-T4N-R68W - Kennedy 3 - Wellbore #1 - Plan #1 (7-18-14)												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	
10,400.0	6,067.0	10,063.5	5,741.0	117.8	118.2	-45.44	375.8	-3,569.6	463.2	290.5	172.75	2.681	
10,500.0	6,067.0	10,163.5	5,741.0	120.5	121.0	-45.44	376.3	-3,669.6	463.2	286.4	176.82	2.620	
10,600.0	6,067.0	10,263.5	5,741.0	123.3	123.8	-45.44	376.8	-3,769.6	463.2	282.3	180.89	2.561	
10,700.0	6,067.0	10,363.5	5,741.0	126.1	126.6	-45.44	377.3	-3,869.6	463.2	278.2	184.96	2.504	
10,800.0	6,067.0	10,463.5	5,741.0	128.9	129.3	-45.44	377.8	-3,969.6	463.2	274.2	189.04	2.450	
10,900.0	6,067.0	10,563.5	5,741.0	131.6	132.1	-45.44	378.3	-4,069.6	463.2	270.1	193.12	2.399	
11,000.0	6,067.0	10,663.5	5,741.0	134.4	134.9	-45.44	378.9	-4,169.6	463.2	266.0	197.20	2.349	
11,100.0	6,067.0	10,763.5	5,741.0	137.2	137.7	-45.44	379.4	-4,269.6	463.2	261.9	201.28	2.301	
11,127.5	6,067.0	10,791.1	5,741.0	137.9	138.4	-45.44	379.5	-4,297.2	463.2	260.8	202.41	2.288	
11,150.6	6,067.0	10,812.3	5,741.0	138.6	139.0	-45.44	379.6	-4,318.3	463.2	259.9	203.31	2.278 SF	

Company:	Extraction Oil & Gas	Local Co-ordinate Reference:	Well Kennedy 1
Project:	SEC.18-T4N-R68W	TVD Reference:	WELL @ 4989.0ft (Frontier 10 RKB - 22')
Reference Site:	Kennedy Pad Sec.18-T4N-R68W	MD Reference:	WELL @ 4989.0ft (Frontier 10 RKB - 22')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Kennedy 1	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (7-15-14)	Offset TVD Reference:	Offset Datum

Offset Design Kennedy Pad Sec.18-T4N-R68W - Kennedy 4 - Wellbore #1 - Plan #1 (7-18-14)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
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	Warning	
0.0	0.0	0.0	0.0	0.0	0.0	-179.62	-84.2	-0.6	84.2					
100.0	100.0	99.0	99.0	0.1	0.1	-179.62	-84.2	-0.6	84.2	83.9	0.22	376.279		
200.0	200.0	199.0	199.0	0.3	0.3	-179.62	-84.2	-0.6	84.2	83.5	0.67	125.218 CC, ES		
300.0	300.0	299.0	299.0	0.6	0.6	128.43	-84.2	-0.6	85.2	84.1	1.12	76.024		
400.0	399.8	398.8	398.8	0.8	0.8	131.03	-84.2	-0.6	88.6	87.0	1.58	56.157		
500.0	499.5	498.5	498.5	1.0	1.0	134.92	-84.2	-0.6	94.5	92.5	2.05	46.173		
600.0	598.7	597.7	597.7	1.3	1.2	139.57	-84.2	-0.6	103.5	101.0	2.53	40.907		
700.0	697.5	696.5	696.5	1.7	1.5	144.43	-84.2	-0.6	115.9	112.9	3.02	38.351		
800.0	795.6	794.6	794.6	2.0	1.7	149.06	-84.2	-0.6	132.0	128.5	3.52	37.520		
900.0	893.1	894.1	894.1	2.5	1.9	153.85	-82.9	-1.5	151.2	147.2	4.01	37.747		
1,000.0	989.9	992.8	992.6	2.9	2.1	159.03	-79.1	-4.6	172.4	167.9	4.48	38.523		
1,100.0	1,086.7	1,090.9	1,090.4	3.4	2.3	164.06	-72.7	-9.8	194.0	189.0	4.94	39.261		
1,200.0	1,183.5	1,187.9	1,186.8	4.0	2.6	168.83	-63.9	-16.9	216.1	210.7	5.41	39.935		
1,300.0	1,280.3	1,283.9	1,282.0	4.5	2.8	172.84	-54.7	-24.3	239.4	233.5	5.90	40.553		
1,400.0	1,377.1	1,379.9	1,377.3	5.0	3.1	176.13	-45.6	-31.6	263.6	257.2	6.41	41.109		
1,500.0	1,473.9	1,475.9	1,472.5	5.5	3.4	178.88	-36.4	-39.0	288.5	281.6	6.94	41.589		
1,600.0	1,570.7	1,571.9	1,567.8	6.0	3.6	-178.81	-27.2	-46.4	313.9	306.4	7.48	41.995		
1,700.0	1,667.6	1,667.8	1,663.1	6.5	3.9	-176.84	-18.1	-53.8	339.8	331.7	8.02	42.343		
1,800.0	1,764.4	1,763.8	1,758.3	7.1	4.2	-175.15	-8.9	-61.2	365.9	357.3	8.59	42.620		
1,900.0	1,861.2	1,859.8	1,853.6	7.6	4.5	-173.69	0.3	-68.6	392.4	383.2	9.15	42.861		
2,000.0	1,958.0	1,955.8	1,948.8	8.1	4.8	-172.41	9.4	-75.9	419.0	409.3	9.73	43.064		
2,100.0	2,054.8	2,051.8	2,044.1	8.6	5.1	-171.28	18.6	-83.3	445.8	435.5	10.31	43.236		
2,200.0	2,151.6	2,147.8	2,139.4	9.1	5.4	-170.27	27.8	-90.7	472.8	461.9	10.90	43.383		
2,300.0	2,248.4	2,243.8	2,234.6	9.7	5.7	-169.38	36.9	-98.1	499.8	488.4	11.49	43.511		
2,400.0	2,345.2	2,339.7	2,329.9	10.2	6.0	-168.58	46.1	-105.5	527.0	514.9	12.08	43.621		
2,500.0	2,442.0	2,435.7	2,425.2	10.7	6.3	-167.85	55.3	-112.9	554.3	541.6	12.68	43.717		
2,600.0	2,538.8	2,531.7	2,520.4	11.2	6.6	-167.20	64.4	-120.2	581.6	568.4	13.28	43.802		
2,700.0	2,635.6	2,627.7	2,615.7	11.8	6.9	-166.60	73.6	-127.6	609.0	595.2	13.88	43.876		
2,800.0	2,732.4	2,723.7	2,710.9	12.3	7.2	-166.05	82.8	-135.0	636.5	622.0	14.48	43.943		
2,900.0	2,829.3	2,819.7	2,806.2	12.8	7.5	-165.55	91.9	-142.4	664.0	648.9	15.09	44.002		
3,000.0	2,926.1	2,915.7	2,901.5	13.3	7.8	-165.09	101.1	-149.8	691.6	675.9	15.70	44.055		
3,100.0	3,022.9	3,011.6	2,996.7	13.9	8.1	-164.67	110.3	-157.2	719.1	702.8	16.31	44.103		
3,200.0	3,119.7	3,107.6	3,092.0	14.4	8.4	-164.27	119.4	-164.5	746.8	729.9	16.92	44.146		
3,300.0	3,216.5	3,203.6	3,187.2	14.9	8.7	-163.90	128.6	-171.9	774.4	756.9	17.53	44.186		
3,400.0	3,313.3	3,299.6	3,282.5	15.5	9.0	-163.56	137.8	-179.3	802.1	784.0	18.14	44.222		
3,500.0	3,410.1	3,395.6	3,377.8	16.0	9.3	-163.24	146.9	-186.7	829.8	811.1	18.75	44.254		
3,600.0	3,506.9	3,491.6	3,473.0	16.5	9.6	-162.95	156.1	-194.1	857.5	838.2	19.36	44.285		
3,700.0	3,603.7	3,587.6	3,568.3	17.0	9.9	-162.67	165.3	-201.5	885.3	865.3	19.98	44.312		
3,800.0	3,700.5	3,685.3	3,665.3	17.6	10.2	-162.40	174.6	-208.9	913.0	892.5	20.59	44.339		
3,900.0	3,797.3	3,792.7	3,772.2	18.1	10.4	-162.29	182.8	-215.6	940.1	918.9	21.15	44.445		
4,000.0	3,894.1	3,900.9	3,880.2	18.6	10.6	-162.41	187.9	-219.7	965.9	944.3	21.66	44.595		
4,100.0	3,991.0	4,009.5	3,988.7	19.1	10.8	-162.76	189.8	-221.2	990.6	968.5	22.12	44.785		
5,400.0	5,263.7	6,934.3	6,066.0	24.2	30.6	128.31	184.7	899.5	945.2	893.8	51.42	18.382		
5,500.0	5,363.7	6,934.5	6,066.0	24.3	30.6	-179.74	184.7	899.7	861.9	829.7	32.19	26.776		
5,600.0	5,463.7	6,933.6	6,066.0	24.4	30.6	-93.63	184.7	898.8	782.5	730.1	52.40	14.933		
5,700.0	5,562.8	6,920.6	6,066.0	24.3	30.2	-101.89	184.7	885.8	708.9	656.0	52.91	13.399		
5,800.0	5,658.5	6,892.2	6,066.0	24.2	29.5	-106.38	184.9	857.4	644.3	592.3	52.08	12.372		
5,900.0	5,748.7	6,849.2	6,066.0	23.9	28.5	-107.72	185.1	814.4	591.3	540.8	50.56	11.696		
6,000.0	5,831.0	6,792.6	6,066.0	23.6	27.1	-106.60	185.3	757.8	551.4	502.7	48.65	11.333		
6,100.0	5,903.5	6,723.8	6,066.0	23.3	25.5	-103.71	185.6	689.0	524.5	478.0	46.54	11.269 SF		
6,200.0	5,964.3	6,644.6	6,066.0	23.0	23.7	-99.81	186.0	609.8	508.8	464.5	44.35	11.472		
6,300.0	6,012.0	6,556.8	6,066.0	22.8	21.7	-95.76	186.4	522.0	501.4	459.1	42.27	11.862		

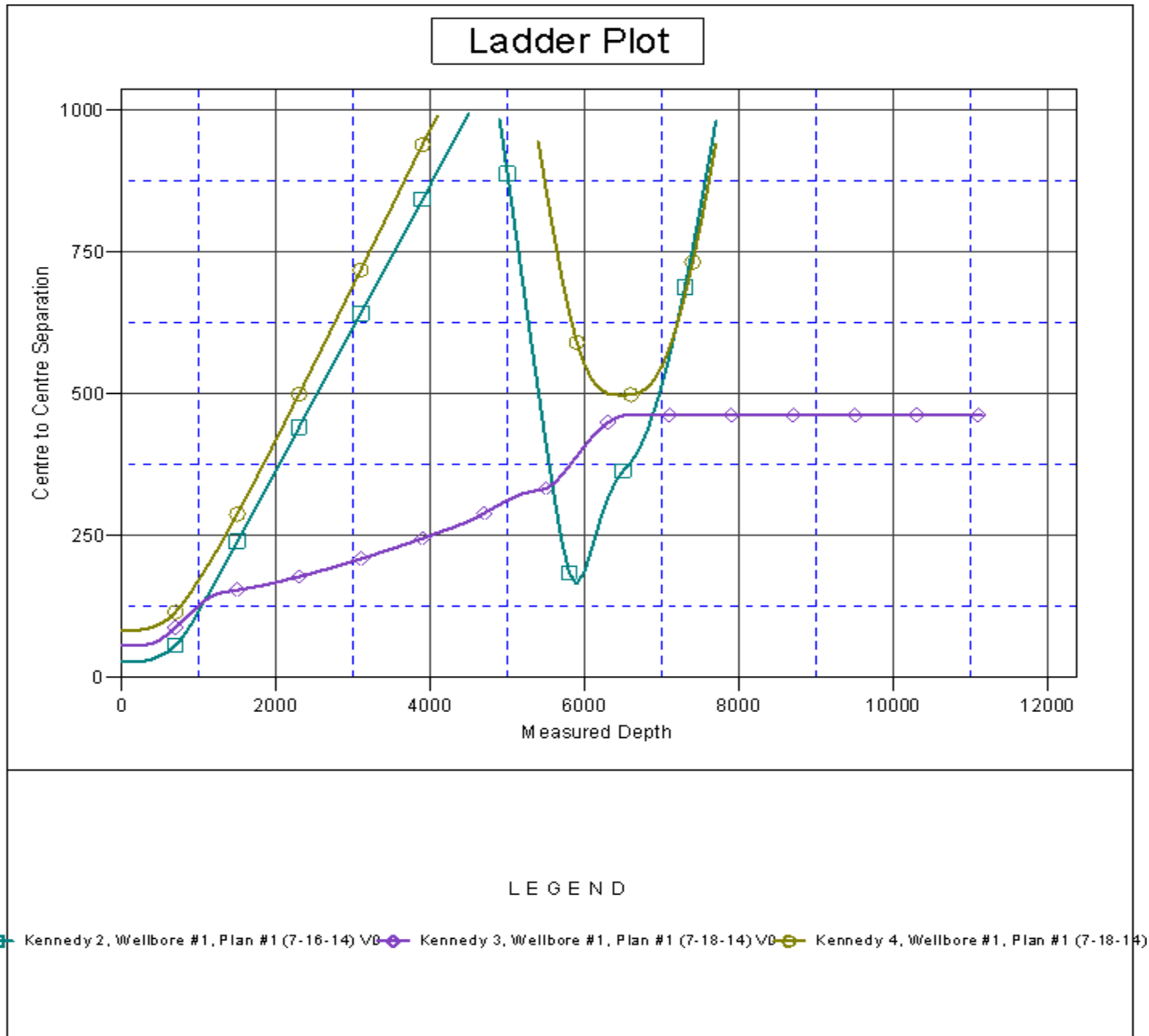
CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Company:	Extraction Oil & Gas	Local Co-ordinate Reference:	Well Kennedy 1
Project:	SEC.18-T4N-R68W	TVD Reference:	WELL @ 4989.0ft (Frontier 10 RKB - 22')
Reference Site:	Kennedy Pad Sec.18-T4N-R68W	MD Reference:	WELL @ 4989.0ft (Frontier 10 RKB - 22')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Kennedy 1	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (7-15-14)	Offset TVD Reference:	Offset Datum

Offset Design Kennedy Pad Sec.18-T4N-R68W - Kennedy 4 - Wellbore #1 - Plan #1 (7-18-14)												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						
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	Warning
6,400.0	6,045.3	6,462.6	6,066.0	22.7	19.8	-92.41	186.8	427.8	498.9	458.4	40.49	12.320	
6,489.5	6,062.3	6,374.6	6,061.5	22.9	18.1	-90.02	187.3	340.0	498.4	459.1	39.33	12.671	
6,500.0	6,063.5	6,364.4	6,060.2	22.9	17.9	-89.74	187.3	329.9	498.4	459.2	39.21	12.711	
6,600.0	6,067.0	6,269.5	6,040.5	23.3	16.4	-87.08	187.7	237.1	499.1	460.6	38.50	12.965	
6,700.0	6,067.0	6,181.7	6,010.2	24.2	15.2	-83.61	188.1	154.8	502.2	463.9	38.28	13.118	
6,800.0	6,067.0	6,100.0	5,972.1	25.5	14.3	-79.33	188.4	82.6	510.0	471.6	38.40	13.283	
6,900.0	6,067.0	6,035.3	5,935.5	27.1	13.9	-75.34	188.7	29.2	524.9	485.9	38.94	13.481	
7,000.0	6,067.0	5,976.7	5,897.9	28.9	13.8	-71.37	188.9	-15.6	548.4	508.8	39.61	13.848	
7,100.0	6,067.0	5,926.6	5,862.6	30.9	13.8	-67.80	189.1	-51.2	581.5	541.0	40.42	14.385	
7,200.0	6,067.0	5,883.7	5,830.2	33.1	13.8	-64.69	189.2	-79.3	623.7	582.4	41.35	15.083	
7,300.0	6,067.0	5,850.0	5,803.5	35.3	13.8	-62.23	189.3	-99.8	674.5	632.1	42.48	15.880	
7,400.0	6,067.0	5,815.2	5,774.8	37.7	13.8	-59.71	189.4	-119.4	732.8	689.2	43.52	16.838	
7,500.0	6,067.0	5,800.0	5,761.9	40.1	13.8	-58.62	189.4	-127.5	797.5	752.3	45.13	17.672	
7,600.0	6,067.0	5,763.9	5,730.5	42.5	13.8	-56.07	189.5	-145.5	867.1	821.1	46.00	18.848	
7,700.0	6,067.0	5,750.0	5,718.3	45.0	13.7	-55.11	189.5	-151.9	941.2	893.6	47.60	19.773	

Company:	Extraction Oil & Gas	Local Co-ordinate Reference:	Well Kennedy 1
Project:	SEC.18-T4N-R68W	TVD Reference:	WELL @ 4989.0ft (Frontier 10 RKB - 22')
Reference Site:	Kennedy Pad Sec.18-T4N-R68W	MD Reference:	WELL @ 4989.0ft (Frontier 10 RKB - 22')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Kennedy 1	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (7-15-14)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4989.0ft (Frontier 10 RKB - Coordinates are relative to: Kennedy 1
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000 °
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.30°



Company:	Extraction Oil & Gas	Local Co-ordinate Reference:	Well Kennedy 1
Project:	SEC.18-T4N-R68W	TVD Reference:	WELL @ 4989.0ft (Frontier 10 RKB - 22')
Reference Site:	Kennedy Pad Sec.18-T4N-R68W	MD Reference:	WELL @ 4989.0ft (Frontier 10 RKB - 22')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Kennedy 1	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Plan #1 (7-15-14)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4989.0ft (Frontier 10 RKB - Coordinates are relative to: Kennedy 1
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000 °
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.30°

