

Extraction Oil & Gas

Well Name: **Diamond Valley East #13**

Surface Location: Diamond Valley East Pad Sec.23-T6N-R67W
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone

Ground Elevation: 4769.0

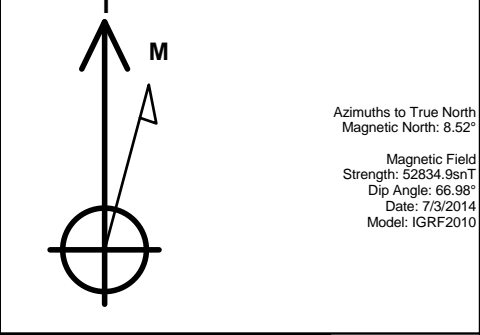
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1413930.31	3175339.88	40.467930	-104.869800	

Frontier 10 RKB -22' WELL @ 4791.0ft (Frontier 10 RKB -22')

WELLBORE TARGET DETAILS	
Wellbore ID	WBT-001
Target Name	Target A
Target Type	Oil
Target Depth (m)	1500
Target Pressure (bar)	20
Target Temperature (°C)	50
Target Flow Rate (m³/d)	100
Target Production (m³/d)	100
Target Injection (m³/d)	0
Target Completion Date	2023-12-31
Target Status	Active
Target Owner	Company X
Target Location	Field Y
Target Coordinates	45.123, 12.345
Target Notes	Target A is a high-pressure oil well with a production rate of 100 m³/d. It is located in Field Y and is owned by Company X. The target is active and has a completion date of 2023-12-31.

Name	TVD	+N/-S	+E/-W	Shape
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Age Group	Percentage of Respondents
18-29	85%
30-49	80%
50-69	75%
70+	70%

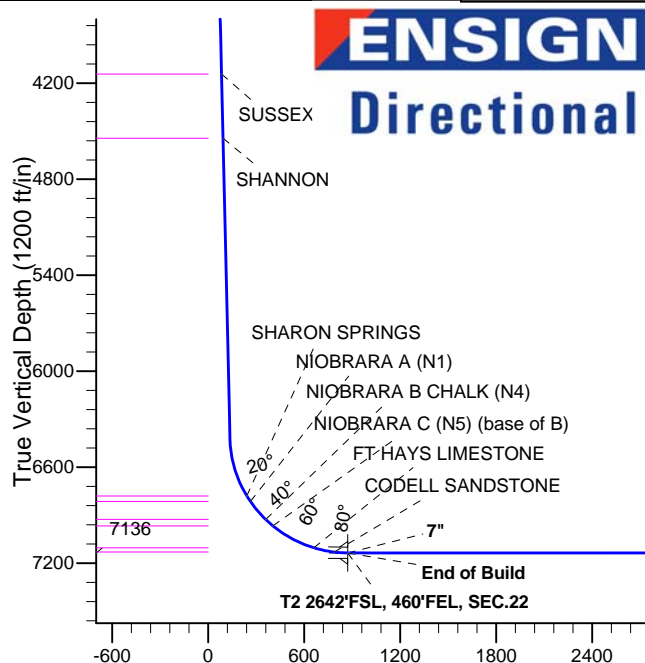
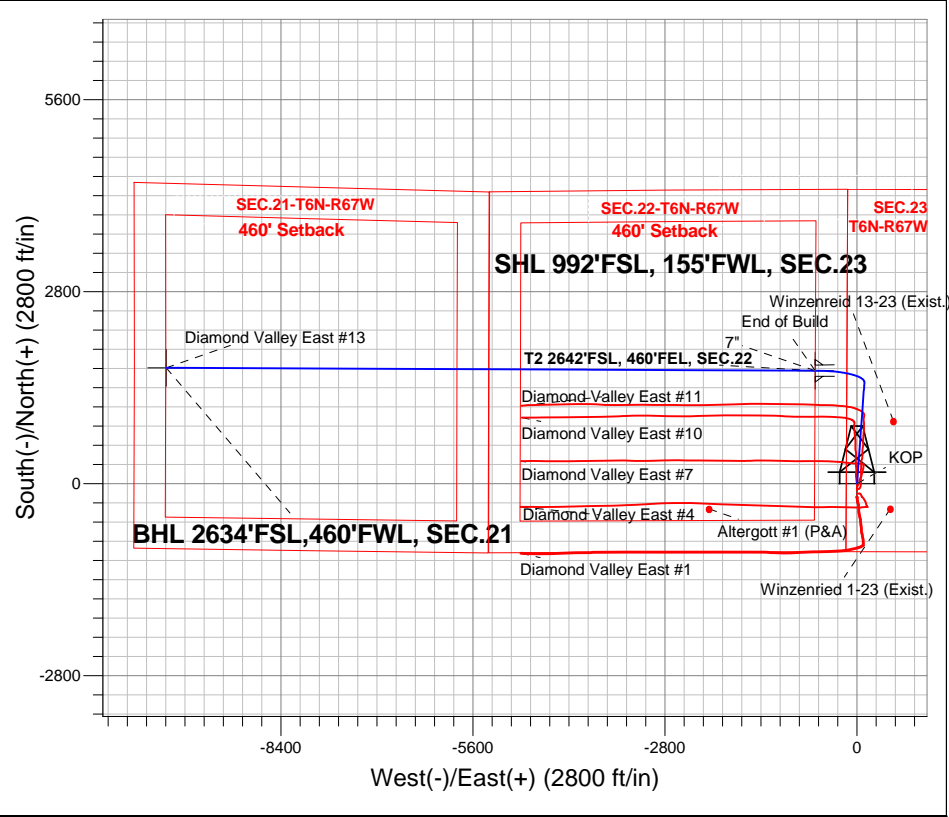


Diamond Valley East Pad Sec.23-T6N-R67W
Diamond Valley East #13
Plan #1 (10-03-13)
11:45, July 03 2014

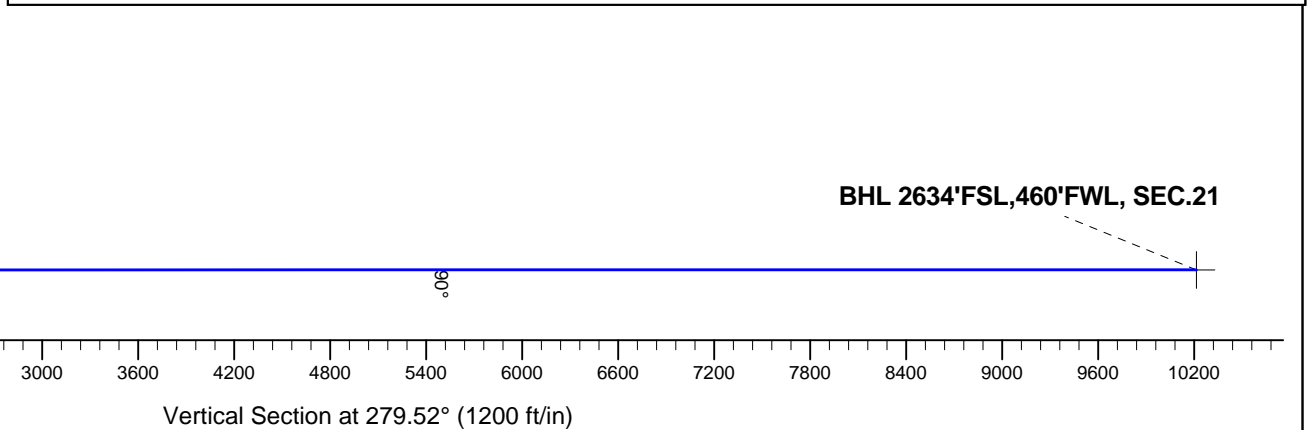
ANNOTATIONS

TVD	MD	Annotation
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200.0	200.0	KOP
7136.0	7745.9	End of Build



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	905.6	14.11	4.18	898.5	86.2	6.3	2.00	4.18	8.0	
4	6607.3	14.11	4.18	6428.1	1472.8	107.6	0.00	0.00	137.4	
5	7745.9	90.00	269.72	7136.0	1646.7	-609.3	8.00	-94.33	873.2	T2 2642'FSL, 460'FEL, SEC.22
6	7799.6	90.00	270.26	7136.0	1646.7	-663.0	1.00	90.00	926.1	
7	17211.1	90.00	270.26	7136.0	1688.9	-10074.4	0.00	0.00	10215.0	BHL 2634'FSL,460'FWL, SEC.21





Extraction Oil & Gas

SEC.23-T6N-R67W

Diamond Valley East Pad Sec.23-T6N-R67W

Diamond Valley East #13

Wellbore #1

Plan: Plan #1 (10-03-13)

Standard Planning Report

03 July, 2014



Database:	landmark	Local Co-ordinate Reference:	Well Diamond Valley East #13
Company:	Extraction Oil & Gas	TVD Reference:	WELL @ 4791.0ft (Frontier 10 RKB -22')
Project:	SEC.23-T6N-R67W	MD Reference:	WELL @ 4791.0ft (Frontier 10 RKB -22')
Site:	Diamond Valley East Pad Sec.23-T6N-R67W	North Reference:	True
Well:	Diamond Valley East #13	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (10-03-13)		

Project	SEC.23-T6N-R67W, Weld County, Colorado		
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		Diamond Valley East Pad Sec.23-T6N-R67W			
Site Position:		Northing:	1,413,770.02 ft	Latitude:	40.467490
From:	Lat/Long	Easting:	3,175,338.24 ft	Longitude:	-104.869810
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.41 °

Well	Diamond Valley East #13					
Well Position	+N/-S	160.3 ft	Northing:	1,413,930.31 ft	Latitude:	40.467930
	+E/-W	2.8 ft	Easting:	3,175,339.88 ft	Longitude:	-104.869800
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,769.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	7/3/2014	8.52	66.98	52,835

Design	Plan #1 (10-03-13)			
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	279.52

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	
905.6	14.11	4.18	898.5	86.2	6.3	2.00	2.00	0.00	4.18	
6,607.3	14.11	4.18	6,428.1	1,472.8	107.6	0.00	0.00	0.00	0.00	
7,745.9	90.00	269.72	7,136.0	1,646.7	-609.3	8.00	6.67	-8.30	-94.33	T2 2642'FSL, 460'F
7,799.6	90.00	270.26	7,136.0	1,646.7	-663.0	1.00	0.00	1.00	90.00	
17,211.1	90.00	270.26	7,136.0	1,688.9	-10,074.4	0.00	0.00	0.00	0.00	BHL 2634'FSL,460'

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Site:	Diamond Valley East Pad Sec.23-T6N-R67W	North Reference:	True
Well:	Diamond Valley East #13	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (10-03-13)		

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									
300.0	2.00	4.18	300.0	1.7	0.1	0.2	2.00	2.00	0.00
400.0	4.00	4.18	399.8	7.0	0.5	0.6	2.00	2.00	0.00
500.0	6.00	4.18	499.5	15.7	1.1	1.5	2.00	2.00	0.00
600.0	8.00	4.18	598.7	27.8	2.0	2.6	2.00	2.00	0.00
700.0	10.00	4.18	697.5	43.4	3.2	4.0	2.00	2.00	0.00
800.0	12.00	4.18	795.6	62.4	4.6	5.8	2.00	2.00	0.00
900.0	14.00	4.18	893.1	84.9	6.2	7.9	2.00	2.00	0.00
905.6	14.11	4.18	898.5	86.2	6.3	8.0	2.00	2.00	0.00
1,000.0	14.11	4.18	990.0	109.2	8.0	10.2	0.00	0.00	0.00
1,100.0	14.11	4.18	1,087.0	133.5	9.8	12.5	0.00	0.00	0.00
1,200.0	14.11	4.18	1,184.0	157.8	11.5	14.7	0.00	0.00	0.00
1,300.0	14.11	4.18	1,281.0	182.1	13.3	17.0	0.00	0.00	0.00
1,400.0	14.11	4.18	1,378.0	206.5	15.1	19.3	0.00	0.00	0.00
1,500.0	14.11	4.18	1,474.9	230.8	16.9	21.5	0.00	0.00	0.00
1,600.0	14.11	4.18	1,571.9	255.1	18.6	23.8	0.00	0.00	0.00
1,700.0	14.11	4.18	1,668.9	279.4	20.4	26.1	0.00	0.00	0.00
1,800.0	14.11	4.18	1,765.9	303.7	22.2	28.3	0.00	0.00	0.00
1,900.0	14.11	4.18	1,862.9	328.0	24.0	30.6	0.00	0.00	0.00
2,000.0	14.11	4.18	1,959.9	352.4	25.7	32.9	0.00	0.00	0.00
2,100.0	14.11	4.18	2,056.8	376.7	27.5	35.1	0.00	0.00	0.00
2,200.0	14.11	4.18	2,153.8	401.0	29.3	37.4	0.00	0.00	0.00
2,300.0	14.11	4.18	2,250.8	425.3	31.1	39.7	0.00	0.00	0.00
2,400.0	14.11	4.18	2,347.8	449.6	32.9	41.9	0.00	0.00	0.00
2,500.0	14.11	4.18	2,444.8	474.0	34.6	44.2	0.00	0.00	0.00
2,600.0	14.11	4.18	2,541.7	498.3	36.4	46.5	0.00	0.00	0.00
2,700.0	14.11	4.18	2,638.7	522.6	38.2	48.7	0.00	0.00	0.00
2,800.0	14.11	4.18	2,735.7	546.9	40.0	51.0	0.00	0.00	0.00
2,900.0	14.11	4.18	2,832.7	571.2	41.7	53.3	0.00	0.00	0.00
3,000.0	14.11	4.18	2,929.7	595.6	43.5	55.5	0.00	0.00	0.00
3,100.0	14.11	4.18	3,026.7	619.9	45.3	57.8	0.00	0.00	0.00
3,200.0	14.11	4.18	3,123.6	644.2	47.1	60.1	0.00	0.00	0.00
3,300.0	14.11	4.18	3,220.6	668.5	48.8	62.3	0.00	0.00	0.00
3,400.0	14.11	4.18	3,317.6	692.8	50.6	64.6	0.00	0.00	0.00
3,500.0	14.11	4.18	3,414.6	717.1	52.4	66.9	0.00	0.00	0.00
3,559.2	14.11	4.18	3,472.0	731.5	53.5	68.2	0.00	0.00	0.00
PARKMAN									
3,600.0	14.11	4.18	3,511.6	741.5	54.2	69.2	0.00	0.00	0.00
3,700.0	14.11	4.18	3,608.5	765.8	56.0	71.4	0.00	0.00	0.00
3,800.0	14.11	4.18	3,705.5	790.1	57.7	73.7	0.00	0.00	0.00
3,900.0	14.11	4.18	3,802.5	814.4	59.5	76.0	0.00	0.00	0.00
4,000.0	14.11	4.18	3,899.5	838.7	61.3	78.2	0.00	0.00	0.00
4,100.0	14.11	4.18	3,996.5	863.1	63.1	80.5	0.00	0.00	0.00
4,200.0	14.11	4.18	4,093.5	887.4	64.8	82.8	0.00	0.00	0.00
4,252.1	14.11	4.18	4,144.0	900.0	65.8	83.9	0.00	0.00	0.00
SUSSEX									
4,300.0	14.11	4.18	4,190.4	911.7	66.6	85.0	0.00	0.00	0.00
4,400.0	14.11	4.18	4,287.4	936.0	68.4	87.3	0.00	0.00	0.00
4,500.0	14.11	4.18	4,384.4	960.3	70.2	89.6	0.00	0.00	0.00
4,600.0	14.11	4.18	4,481.4	984.6	71.9	91.8	0.00	0.00	0.00

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Site:	Diamond Valley East Pad Sec.23-T6N-R67W	North Reference:	True
Well:	Diamond Valley East #13	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (10-03-13)		

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)	
4,664.6	14.11	4.18	4,544.0	1,000.3	73.1	93.3	0.00	0.00	0.00	
SHANNON										
4,700.0	14.11	4.18	4,578.4	1,009.0	73.7	94.1	0.00	0.00	0.00	
4,800.0	14.11	4.18	4,675.3	1,033.3	75.5	96.4	0.00	0.00	0.00	
4,900.0	14.11	4.18	4,772.3	1,057.6	77.3	98.6	0.00	0.00	0.00	
5,000.0	14.11	4.18	4,869.3	1,081.9	79.1	100.9	0.00	0.00	0.00	
5,100.0	14.11	4.18	4,966.3	1,106.2	80.8	103.2	0.00	0.00	0.00	
5,200.0	14.11	4.18	5,063.3	1,130.6	82.6	105.4	0.00	0.00	0.00	
5,300.0	14.11	4.18	5,160.3	1,154.9	84.4	107.7	0.00	0.00	0.00	
5,400.0	14.11	4.18	5,257.2	1,179.2	86.2	110.0	0.00	0.00	0.00	
5,500.0	14.11	4.18	5,354.2	1,203.5	87.9	112.2	0.00	0.00	0.00	
5,600.0	14.11	4.18	5,451.2	1,227.8	89.7	114.5	0.00	0.00	0.00	
5,700.0	14.11	4.18	5,548.2	1,252.1	91.5	116.8	0.00	0.00	0.00	
5,800.0	14.11	4.18	5,645.2	1,276.5	93.3	119.0	0.00	0.00	0.00	
5,900.0	14.11	4.18	5,742.1	1,300.8	95.1	121.3	0.00	0.00	0.00	
6,000.0	14.11	4.18	5,839.1	1,325.1	96.8	123.6	0.00	0.00	0.00	
6,100.0	14.11	4.18	5,936.1	1,349.4	98.6	125.9	0.00	0.00	0.00	
6,200.0	14.11	4.18	6,033.1	1,373.7	100.4	128.1	0.00	0.00	0.00	
6,300.0	14.11	4.18	6,130.1	1,398.1	102.2	130.4	0.00	0.00	0.00	
6,400.0	14.11	4.18	6,227.1	1,422.4	103.9	132.7	0.00	0.00	0.00	
6,500.0	14.11	4.18	6,324.0	1,446.7	105.7	134.9	0.00	0.00	0.00	
6,600.0	14.11	4.18	6,421.0	1,471.0	107.5	137.2	0.00	0.00	0.00	
6,607.3	14.11	4.18	6,428.1	1,472.8	107.6	137.4	0.00	0.00	0.00	
6,700.0	15.40	335.20	6,517.9	1,495.3	103.3	145.4	8.00	1.39	-31.27	
6,800.0	19.98	313.31	6,613.2	1,519.1	85.2	167.1	8.00	4.58	-21.89	
6,900.0	26.20	300.35	6,705.2	1,542.0	53.7	202.0	8.00	6.22	-12.96	
6,985.7	32.12	293.25	6,780.0	1,560.6	16.4	241.8	8.00	6.92	-8.29	
SHARON SPRINGS										
7,000.0	33.15	292.29	6,792.1	1,563.5	9.3	249.3	8.00	7.14	-6.69	
7,027.7	35.15	290.58	6,815.0	1,569.2	-5.2	264.5	8.00	7.21	-6.18	
NIORARA A (N1)										
7,100.0	40.45	286.82	6,872.1	1,583.3	-47.1	308.3	8.00	7.34	-5.20	
7,175.4	46.09	283.68	6,927.0	1,596.8	-97.0	359.7	8.00	7.48	-4.16	
NIORARA B CHALK (N4)										
7,200.0	47.95	282.79	6,943.8	1,601.0	-114.5	377.6	8.00	7.55	-3.64	
7,235.6	50.65	281.58	6,967.0	1,606.7	-140.9	404.6	8.00	7.58	-3.39	
NIORARA C (N5) (base of B)										
7,300.0	55.55	279.62	7,005.6	1,616.1	-191.5	456.1	8.00	7.62	-3.05	
7,400.0	63.23	276.99	7,056.5	1,628.4	-276.6	542.0	8.00	7.67	-2.63	
7,500.0	70.94	274.69	7,095.5	1,637.7	-368.2	633.9	8.00	7.72	-2.30	
7,527.7	73.08	274.09	7,104.0	1,639.8	-394.4	660.1	8.00	7.73	-2.15	
FT HAYS LIMESTONE										
7,600.0	78.68	272.60	7,121.6	1,643.8	-464.4	729.8	8.00	7.74	-2.07	
7,659.9	83.33	271.40	7,131.0	1,645.9	-523.5	788.4	8.00	7.75	-2.00	
CODELL SANDSTONE										
7,700.0	86.44	270.61	7,134.6	1,646.6	-563.4	827.9	8.00	7.76	-1.96	
7,745.9	90.00	269.72	7,136.0	1,646.7	-609.3	873.2	8.00	7.76	-1.95	
End of Build - 7"										
7,799.6	90.00	270.26	7,136.0	1,646.7	-663.0	926.1	1.00	0.00	1.00	
7,800.0	90.00	270.26	7,136.0	1,646.7	-663.4	926.5	0.00	0.00	0.00	
7,900.0	90.00	270.26	7,136.0	1,647.2	-763.4	1,025.2	0.00	0.00	0.00	
8,000.0	90.00	270.26	7,136.0	1,647.6	-863.4	1,123.9	0.00	0.00	0.00	
8,100.0	90.00	270.26	7,136.0	1,648.1	-963.4	1,222.6	0.00	0.00	0.00	

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8,200.0	90.00	270.26	7,136.0	1,648.5	-1,063.4	1,321.3	0.00	0.00	0.00
8,300.0	90.00	270.26	7,136.0	1,649.0	-1,163.4	1,420.0	0.00	0.00	0.00
8,400.0	90.00	270.26	7,136.0	1,649.4	-1,263.4	1,518.7	0.00	0.00	0.00
8,500.0	90.00	270.26	7,136.0	1,649.9	-1,363.4	1,617.4	0.00	0.00	0.00
8,600.0	90.00	270.26	7,136.0	1,650.3	-1,463.4	1,716.1	0.00	0.00	0.00
8,700.0	90.00	270.26	7,136.0	1,650.8	-1,563.4	1,814.8	0.00	0.00	0.00
8,800.0	90.00	270.26	7,136.0	1,651.2	-1,663.4	1,913.5	0.00	0.00	0.00
8,900.0	90.00	270.26	7,136.0	1,651.6	-1,763.4	2,012.2	0.00	0.00	0.00
9,000.0	90.00	270.26	7,136.0	1,652.1	-1,863.4	2,110.9	0.00	0.00	0.00
9,100.0	90.00	270.26	7,136.0	1,652.5	-1,963.4	2,209.6	0.00	0.00	0.00
9,200.0	90.00	270.26	7,136.0	1,653.0	-2,063.4	2,308.3	0.00	0.00	0.00
9,300.0	90.00	270.26	7,136.0	1,653.4	-2,163.4	2,407.0	0.00	0.00	0.00
9,400.0	90.00	270.26	7,136.0	1,653.9	-2,263.4	2,505.7	0.00	0.00	0.00
9,500.0	90.00	270.26	7,136.0	1,654.3	-2,363.4	2,604.4	0.00	0.00	0.00
9,600.0	90.00	270.26	7,136.0	1,654.8	-2,463.4	2,703.1	0.00	0.00	0.00
9,700.0	90.00	270.26	7,136.0	1,655.2	-2,563.4	2,801.8	0.00	0.00	0.00
9,800.0	90.00	270.26	7,136.0	1,655.7	-2,663.4	2,900.5	0.00	0.00	0.00
9,900.0	90.00	270.26	7,136.0	1,656.1	-2,763.4	2,999.2	0.00	0.00	0.00
10,000.0	90.00	270.26	7,136.0	1,656.6	-2,863.4	3,097.9	0.00	0.00	0.00
10,100.0	90.00	270.26	7,136.0	1,657.0	-2,963.4	3,196.6	0.00	0.00	0.00
10,200.0	90.00	270.26	7,136.0	1,657.5	-3,063.4	3,295.2	0.00	0.00	0.00
10,300.0	90.00	270.26	7,136.0	1,657.9	-3,163.4	3,393.9	0.00	0.00	0.00
10,400.0	90.00	270.26	7,136.0	1,658.4	-3,263.4	3,492.6	0.00	0.00	0.00
10,500.0	90.00	270.26	7,136.0	1,658.8	-3,363.4	3,591.3	0.00	0.00	0.00
10,600.0	90.00	270.26	7,136.0	1,659.3	-3,463.4	3,690.0	0.00	0.00	0.00
10,700.0	90.00	270.26	7,136.0	1,659.7	-3,563.4	3,788.7	0.00	0.00	0.00
10,800.0	90.00	270.26	7,136.0	1,660.2	-3,663.4	3,887.4	0.00	0.00	0.00
10,900.0	90.00	270.26	7,136.0	1,660.6	-3,763.4	3,986.1	0.00	0.00	0.00
11,000.0	90.00	270.26	7,136.0	1,661.0	-3,863.4	4,084.8	0.00	0.00	0.00
11,100.0	90.00	270.26	7,136.0	1,661.5	-3,963.4	4,183.5	0.00	0.00	0.00
11,200.0	90.00	270.26	7,136.0	1,661.9	-4,063.4	4,282.2	0.00	0.00	0.00
11,300.0	90.00	270.26	7,136.0	1,662.4	-4,163.4	4,380.9	0.00	0.00	0.00
11,400.0	90.00	270.26	7,136.0	1,662.8	-4,263.4	4,479.6	0.00	0.00	0.00
11,500.0	90.00	270.26	7,136.0	1,663.3	-4,363.4	4,578.3	0.00	0.00	0.00
11,600.0	90.00	270.26	7,136.0	1,663.7	-4,463.4	4,677.0	0.00	0.00	0.00
11,700.0	90.00	270.26	7,136.0	1,664.2	-4,563.4	4,775.7	0.00	0.00	0.00
11,800.0	90.00	270.26	7,136.0	1,664.6	-4,663.4	4,874.4	0.00	0.00	0.00
11,900.0	90.00	270.26	7,136.0	1,665.1	-4,763.4	4,973.1	0.00	0.00	0.00
12,000.0	90.00	270.26	7,136.0	1,665.5	-4,863.4	5,071.8	0.00	0.00	0.00
12,100.0	90.00	270.26	7,136.0	1,666.0	-4,963.4	5,170.5	0.00	0.00	0.00
12,200.0	90.00	270.26	7,136.0	1,666.4	-5,063.4	5,269.2	0.00	0.00	0.00
12,300.0	90.00	270.26	7,136.0	1,666.9	-5,163.4	5,367.9	0.00	0.00	0.00
12,400.0	90.00	270.26	7,136.0	1,667.3	-5,263.4	5,466.6	0.00	0.00	0.00
12,500.0	90.00	270.26	7,136.0	1,667.8	-5,363.4	5,565.3	0.00	0.00	0.00
12,600.0	90.00	270.26	7,136.0	1,668.2	-5,463.4	5,664.0	0.00	0.00	0.00
12,700.0	90.00	270.26	7,136.0	1,668.7	-5,563.4	5,762.7	0.00	0.00	0.00
12,800.0	90.00	270.26	7,136.0	1,669.1	-5,663.3	5,861.4	0.00	0.00	0.00
12,900.0	90.00	270.26	7,136.0	1,669.6	-5,763.3	5,960.1	0.00	0.00	0.00
13,000.0	90.00	270.26	7,136.0	1,670.0	-5,863.3	6,058.8	0.00	0.00	0.00
13,100.0	90.00	270.26	7,136.0	1,670.5	-5,963.3	6,157.5	0.00	0.00	0.00
13,200.0	90.00	270.26	7,136.0	1,670.9	-6,063.3	6,256.2	0.00	0.00	0.00
13,300.0	90.00	270.26	7,136.0	1,671.3	-6,163.3	6,354.9	0.00	0.00	0.00
13,400.0	90.00	270.26	7,136.0	1,671.8	-6,263.3	6,453.5	0.00	0.00	0.00
13,500.0	90.00	270.26	7,136.0	1,672.2	-6,363.3	6,552.2	0.00	0.00	0.00

Database:	landmark	Local Co-ordinate Reference:	Well Diamond Valley East #13
Company:	Extraction Oil & Gas	TVD Reference:	WELL @ 4791.0ft (Frontier 10 RKB -22')
Project:	SEC.23-T6N-R67W	MD Reference:	WELL @ 4791.0ft (Frontier 10 RKB -22')
Site:	Diamond Valley East Pad Sec.23-T6N-R67W	North Reference:	True
Well:	Diamond Valley East #13	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (10-03-13)		

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)
13,600.0	90.00	270.26	7,136.0	1,672.7	-6,463.3	6,650.9	0.00	0.00	0.00
13,700.0	90.00	270.26	7,136.0	1,673.1	-6,563.3	6,749.6	0.00	0.00	0.00
13,800.0	90.00	270.26	7,136.0	1,673.6	-6,663.3	6,848.3	0.00	0.00	0.00
13,900.0	90.00	270.26	7,136.0	1,674.0	-6,763.3	6,947.0	0.00	0.00	0.00
14,000.0	90.00	270.26	7,136.0	1,674.5	-6,863.3	7,045.7	0.00	0.00	0.00
14,100.0	90.00	270.26	7,136.0	1,674.9	-6,963.3	7,144.4	0.00	0.00	0.00
14,200.0	90.00	270.26	7,136.0	1,675.4	-7,063.3	7,243.1	0.00	0.00	0.00
14,300.0	90.00	270.26	7,136.0	1,675.8	-7,163.3	7,341.8	0.00	0.00	0.00
14,400.0	90.00	270.26	7,136.0	1,676.3	-7,263.3	7,440.5	0.00	0.00	0.00
14,500.0	90.00	270.26	7,136.0	1,676.7	-7,363.3	7,539.2	0.00	0.00	0.00
14,600.0	90.00	270.26	7,136.0	1,677.2	-7,463.3	7,637.9	0.00	0.00	0.00
14,700.0	90.00	270.26	7,136.0	1,677.6	-7,563.3	7,736.6	0.00	0.00	0.00
14,800.0	90.00	270.26	7,136.0	1,678.1	-7,663.3	7,835.3	0.00	0.00	0.00
14,900.0	90.00	270.26	7,136.0	1,678.5	-7,763.3	7,934.0	0.00	0.00	0.00
15,000.0	90.00	270.26	7,136.0	1,679.0	-7,863.3	8,032.7	0.00	0.00	0.00
15,100.0	90.00	270.26	7,136.0	1,679.4	-7,963.3	8,131.4	0.00	0.00	0.00
15,200.0	90.00	270.26	7,136.0	1,679.9	-8,063.3	8,230.1	0.00	0.00	0.00
15,300.0	90.00	270.26	7,136.0	1,680.3	-8,163.3	8,328.8	0.00	0.00	0.00
15,400.0	90.00	270.26	7,136.0	1,680.7	-8,263.3	8,427.5	0.00	0.00	0.00
15,500.0	90.00	270.26	7,136.0	1,681.2	-8,363.3	8,526.2	0.00	0.00	0.00
15,600.0	90.00	270.26	7,136.0	1,681.6	-8,463.3	8,624.9	0.00	0.00	0.00
15,700.0	90.00	270.26	7,136.0	1,682.1	-8,563.3	8,723.6	0.00	0.00	0.00
15,800.0	90.00	270.26	7,136.0	1,682.5	-8,663.3	8,822.3	0.00	0.00	0.00
15,900.0	90.00	270.26	7,136.0	1,683.0	-8,763.3	8,921.0	0.00	0.00	0.00
16,000.0	90.00	270.26	7,136.0	1,683.4	-8,863.3	9,019.7	0.00	0.00	0.00
16,100.0	90.00	270.26	7,136.0	1,683.9	-8,963.3	9,118.4	0.00	0.00	0.00
16,200.0	90.00	270.26	7,136.0	1,684.3	-9,063.3	9,217.1	0.00	0.00	0.00
16,300.0	90.00	270.26	7,136.0	1,684.8	-9,163.3	9,315.8	0.00	0.00	0.00
16,400.0	90.00	270.26	7,136.0	1,685.2	-9,263.3	9,414.5	0.00	0.00	0.00
16,500.0	90.00	270.26	7,136.0	1,685.7	-9,363.3	9,513.1	0.00	0.00	0.00
16,600.0	90.00	270.26	7,136.0	1,686.1	-9,463.3	9,611.8	0.00	0.00	0.00
16,700.0	90.00	270.26	7,136.0	1,686.6	-9,563.3	9,710.5	0.00	0.00	0.00
16,800.0	90.00	270.26	7,136.0	1,687.0	-9,663.3	9,809.2	0.00	0.00	0.00
16,900.0	90.00	270.26	7,136.0	1,687.5	-9,763.3	9,907.9	0.00	0.00	0.00
17,000.0	90.00	270.26	7,136.0	1,687.9	-9,863.3	10,006.6	0.00	0.00	0.00
17,100.0	90.00	270.26	7,136.0	1,688.4	-9,963.3	10,105.3	0.00	0.00	0.00
17,200.0	90.00	270.26	7,136.0	1,688.8	-10,063.3	10,204.0	0.00	0.00	0.00
17,211.1	90.00	270.26	7,136.0	1,688.9	-10,074.4	10,215.0	0.00	0.00	0.00

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
7,745.9	7,136.0	7"	7	7-1/2	

Database:	landmark	Local Co-ordinate Reference:	Well Diamond Valley East #13
Company:	Extraction Oil & Gas	TVD Reference:	WELL @ 4791.0ft (Frontier 10 RKB -22')
Project:	SEC.23-T6N-R67W	MD Reference:	WELL @ 4791.0ft (Frontier 10 RKB -22')
Site:	Diamond Valley East Pad Sec.23-T6N-R67W	North Reference:	True
Well:	Diamond Valley East #13	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (10-03-13)		

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,559.2	3,472.0	PARKMAN			
4,252.1	4,144.0	SUSSEX			
4,664.6	4,544.0	SHANNON			
6,985.7	6,780.0	SHARON SPRINGS			
7,027.7	6,815.0	NIOBRARA A (N1)			
7,175.4	6,927.0	NIOBRARA B CHALK (N4)			
7,235.6	6,967.0	NIOBRARA C (N5) (base of B)			
7,527.7	7,104.0	FT HAYS LIMESTONE			
7,659.9	7,131.0	CODELL SANDSTONE			

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
7,745.9	7,136.0	1,472.8	107.6	End of Build



Extraction Oil & Gas

SEC.23-T6N-R67W

Diamond Valley East Pad Sec.23-T6N-R67W

Diamond Valley East #13

Wellbore #1

Plan #1 (10-03-13)

Anticollision Report

03 July, 2014



Company:	Extraction Oil & Gas	Local Co-ordinate Reference:	Well Diamond Valley East #13
Project:	SEC.23-T6N-R67W	TVD Reference:	WELL @ 4791.0ft (Frontier 10 RKB -22')
Reference Site:	Diamond Valley East Pad Sec.23-T6N-R67W	MD Reference:	WELL @ 4791.0ft (Frontier 10 RKB -22')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Diamond Valley East #13	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 (10-03-13)	Offset TVD Reference:	Offset Datum

Reference	Plan #1 (10-03-13)		
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 7/3/2014			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	17,211.1	Plan #1 (10-03-13) (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						
Diamond Valley East Pad Sec.23-T6N-R67W						
Altergott #1 (P&A) - Wellbore #1 - Wellbore #1						Out of range
Diamond Valley East #1 - Wellbore #1 - Wellbore #1	203.1	203.8	192.9	192.3	314.657	CC, ES
Diamond Valley East #1 - Wellbore #1 - Wellbore #1	1,400.0	1,346.7	427.7	421.7	70.946	SF
Diamond Valley East #10 - Wellbore #1 - Wellbore #1	0.0	0.5	32.8	32.8	10,000.000	CC
Diamond Valley East #10 - Wellbore #1 - Wellbore #1	200.0	200.4	33.2	32.6	56.474	ES
Diamond Valley East #10 - Wellbore #1 - Wellbore #1	12,100.0	11,843.0	707.1	430.8	2.560	SF
Diamond Valley East #11 - Wellbore #1 - Wellbore #1	233.5	235.5	79.7	78.9	100.401	CC, ES
Diamond Valley East #11 - Wellbore #1 - Wellbore #1	12,100.0	11,788.0	556.4	290.8	2.095	SF
Diamond Valley East #12 - Wellbore #1 - Plan #1 (6-23-1)	200.0	200.0	18.2	17.5	27.021	CC
Diamond Valley East #12 - Wellbore #1 - Plan #1 (6-23-1)	17,211.1	17,030.6	223.0	-193.1	0.536	Level 1, ES, SF
Diamond Valley East #2 - Wellbore #1 - Plan #1 (6-23-14)	200.0	200.0	178.5	177.9	264.786	CC, ES
Diamond Valley East #2 - Wellbore #1 - Plan #1 (6-23-14)	1,300.0	1,272.1	362.0	356.2	62.641	SF
Diamond Valley East #3 - Wellbore #1 - Plan #2 (6-23-14)	200.0	200.0	160.3	159.6	237.763	CC, ES
Diamond Valley East #3 - Wellbore #1 - Plan #2 (6-23-14)	1,600.0	1,563.4	416.7	409.4	57.576	SF
Diamond Valley East #4 - Wellbore #1 - Wellbore #1	0.0	0.5	145.7			
Diamond Valley East #4 - Wellbore #1 - Wellbore #1	200.0	200.4	145.8	145.2	233.599	ES
Diamond Valley East #4 - Wellbore #1 - Wellbore #1	1,000.0	981.0	258.6	254.2	58.647	SF
Diamond Valley East #5 - Wellbore #1 - Plan #2 (6-23-14)	200.0	200.0	127.5	126.9	189.152	CC, ES
Diamond Valley East #5 - Wellbore #1 - Plan #2 (6-23-14)	4,100.0	3,996.5	992.8	973.2	50.651	SF
Diamond Valley East #6 - Wellbore #1 - Plan #1 (6-23-14)	200.0	200.5	113.0	112.3	167.401	CC, ES
Diamond Valley East #6 - Wellbore #1 - Plan #1 (6-23-14)	4,800.0	4,737.3	998.8	975.4	42.691	SF
Diamond Valley East #7 - Wellbore #1 - Wellbore #1	215.3	216.9	97.9	97.2	158.831	CC, ES
Diamond Valley East #7 - Wellbore #1 - Wellbore #1	5,400.0	5,344.0	993.4	967.6	38.536	SF
Diamond Valley East #8 - Wellbore #1 - Plan #1 (6-23-14)	200.0	200.5	65.6	65.0	97.259	CC, ES
Diamond Valley East #8 - Wellbore #1 - Plan #1 (6-23-14)	6,400.0	6,350.9	997.7	965.7	31.138	SF
Diamond Valley East #9 - Wellbore #1 - Plan #1 (6-23-14)	200.0	200.0	51.0	50.3	75.635	CC, ES
Diamond Valley East #9 - Wellbore #1 - Plan #1 (6-23-14)	17,211.1	16,912.6	835.4	280.1	1.504	SF
Winzenreid 13-23 (Exist.) - Wellbore #1 - Wellbore #1	4,439.7	4,301.9	463.6	357.4	4.368	CC
Winzenreid 13-23 (Exist.) - Wellbore #1 - Wellbore #1	4,600.0	4,457.4	465.2	355.2	4.230	ES
Winzenreid 13-23 (Exist.) - Wellbore #1 - Wellbore #1	5,100.0	4,942.3	490.7	369.6	4.051	SF
Winzenried 1-23 (Exist.) - Wellbore #1 - Wellbore #1	200.0	176.0	610.8	606.9	158.339	CC
Winzenried 1-23 (Exist.) - Wellbore #1 - Wellbore #1	300.0	276.0	611.7	605.6	100.591	ES
Winzenried 1-23 (Exist.) - Wellbore #1 - Wellbore #1	2,700.0	2,614.7	996.9	937.3	16.734	SF

Company:	Extraction Oil & Gas	Local Co-ordinate Reference:	Well Diamond Valley East #13
Project:	SEC.23-T6N-R67W	TVD Reference:	WELL @ 4791.0ft (Frontier 10 RKB -22')
Reference Site:	Diamond Valley East Pad Sec.23-T6N-R67W	MD Reference:	WELL @ 4791.0ft (Frontier 10 RKB -22')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Diamond Valley East #13	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 (10-03-13)	Offset TVD Reference:	Offset Datum

Offset Design Diamond Valley East Pad Sec.23-T6N-R67W - Diamond Valley East #1 - Wellbore #1 - Wellbore #1													Offset Site Error:	0.0 ft
Survey Program: 162-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor	Warning	
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)			
0.0	0.0	0.5	0.5	0.0	0.0	-179.17	-193.1	-2.8	193.1					
100.0	100.0	100.7	100.7	0.1	0.1	-179.20	-193.0	-2.7	193.0	192.8	0.23	855.298		
200.0	200.0	200.7	200.7	0.3	0.3	-179.27	-192.9	-2.5	192.9	192.3	0.60	321.733		
203.1	203.1	203.8	203.8	0.3	0.3	176.55	-192.9	-2.5	192.9	192.3	0.61	314.657 CC, ES		
300.0	300.0	300.6	300.6	0.6	0.5	176.59	-192.8	-2.5	194.6	193.5	1.04	187.673		
400.0	399.8	400.0	400.0	0.8	0.7	176.83	-192.8	-3.0	199.8	198.3	1.48	135.024		
500.0	499.5	499.0	499.0	1.0	0.9	177.18	-193.1	-3.9	208.8	206.9	1.93	108.278		
600.0	598.7	596.3	596.3	1.3	1.1	177.46	-193.9	-4.4	221.8	219.4	2.38	93.197		
700.0	697.5	693.7	693.7	1.6	1.3	177.77	-195.5	-5.1	239.1	236.3	2.83	84.381		
800.0	795.6	794.4	794.4	2.0	1.5	177.97	-197.0	-5.4	259.6	256.3	3.29	79.011		
900.0	893.1	893.3	893.2	2.4	1.7	177.71	-197.2	-3.5	282.2	278.5	3.73	75.580		
1,000.0	990.0	983.2	983.1	2.9	1.9	177.43	-198.1	-1.2	307.5	303.3	4.18	73.543		
1,100.0	1,087.0	1,069.7	1,069.5	3.4	2.1	177.18	-201.6	1.1	335.7	331.0	4.64	72.310		
1,200.0	1,184.0	1,159.7	1,159.3	3.9	2.3	177.27	-207.4	1.5	366.2	361.1	5.11	71.683		
1,300.0	1,281.0	1,256.4	1,255.8	4.4	2.5	177.41	-214.0	1.5	397.1	391.5	5.58	71.223		
1,400.0	1,378.0	1,346.7	1,345.9	4.8	2.7	177.50	-219.8	1.7	427.7	421.7	6.03	70.946 SF		
1,500.0	1,474.9	1,427.6	1,426.5	5.3	2.9	177.48	-227.3	2.5	460.9	454.4	6.48	71.144		
1,600.0	1,571.9	1,513.3	1,511.5	5.8	3.1	177.40	-237.5	3.7	496.5	489.6	6.94	71.512		
1,700.0	1,668.9	1,607.4	1,604.9	6.3	3.4	177.27	-248.7	5.5	532.3	524.9	7.41	71.789		
1,800.0	1,765.9	1,692.4	1,689.2	6.8	3.6	177.16	-259.7	7.3	568.9	561.0	7.87	72.287		
1,900.0	1,862.9	1,783.0	1,778.8	7.3	3.9	177.00	-272.6	9.6	606.7	598.4	8.34	72.726		
2,000.0	1,959.9	1,884.2	1,879.1	7.8	4.2	176.71	-285.4	13.6	643.1	634.2	8.83	72.794		
2,100.0	2,056.8	1,964.4	1,958.4	8.3	4.4	176.38	-296.5	18.2	680.5	671.2	9.29	73.283		
2,200.0	2,153.8	2,051.6	2,044.6	8.8	4.7	176.12	-309.6	22.3	719.1	709.3	9.76	73.664		
2,300.0	2,250.8	2,149.8	2,141.6	9.3	5.0	176.14	-324.3	23.6	757.6	747.4	10.24	73.958		
2,400.0	2,347.8	2,253.9	2,244.7	9.8	5.3	176.26	-338.7	23.6	795.1	784.4	10.73	74.113		
2,500.0	2,444.8	2,361.0	2,351.1	10.3	5.6	176.34	-351.7	24.0	831.1	819.9	11.22	74.076		
2,600.0	2,541.7	2,447.2	2,436.7	10.8	5.8	176.40	-361.3	24.5	866.1	854.4	11.68	74.178		
2,700.0	2,638.7	2,516.7	2,505.6	11.3	6.0	176.48	-370.8	24.3	903.5	891.4	12.11	74.624		
2,800.0	2,735.7	2,608.4	2,596.2	11.8	6.3	176.58	-384.5	24.0	942.0	929.4	12.59	74.819		
2,900.0	2,832.7	2,710.7	2,697.4	12.3	6.6	176.67	-399.0	23.7	979.8	966.8	13.08	74.890		

Company:	Extraction Oil & Gas	Local Co-ordinate Reference:	Well Diamond Valley East #13
Project:	SEC.23-T6N-R67W	TVD Reference:	WELL @ 4791.0ft (Frontier 10 RKB -22')
Reference Site:	Diamond Valley East Pad Sec.23-T6N-R67W	MD Reference:	WELL @ 4791.0ft (Frontier 10 RKB -22')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Diamond Valley East #13	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 (10-03-13)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 173-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	0.5	0.5	0.0	0.0	180.00	-32.8	0.0	32.8	32.8	0.00	N/A	CC	
100.0	100.0	100.4	100.4	0.1	0.1	179.59	-32.9	0.2	32.9	32.7	0.23	145.777		
200.0	200.0	200.4	200.4	0.3	0.3	178.45	-33.2	0.9	33.2	32.6	0.59	56.474	ES	
300.0	300.0	300.4	300.4	0.6	0.5	173.85	-33.4	1.3	35.1	34.1	1.03	34.235		
400.0	399.8	400.2	400.2	0.8	0.7	173.91	-33.7	1.9	40.7	39.2	1.47	27.601		
500.0	499.5	499.9	499.9	1.0	0.9	174.69	-34.0	2.1	49.7	47.8	1.92	25.879		
600.0	598.7	600.0	600.0	1.3	1.1	176.22	-33.6	1.6	61.4	59.1	2.37	25.955		
700.0	697.5	700.6	700.6	1.6	1.3	177.36	-31.2	1.1	74.7	71.9	2.81	26.586		
800.0	795.6	801.6	801.5	2.0	1.5	178.20	-26.4	0.8	89.1	85.9	3.26	27.353		
900.0	893.1	902.8	902.3	2.4	1.7	179.26	-19.2	-0.1	104.6	100.9	3.71	28.180		
1,000.0	990.0	1,004.7	1,003.8	2.9	2.0	-179.48	-9.1	-1.7	119.4	115.2	4.19	28.506		
1,100.0	1,087.0	1,108.8	1,106.9	3.4	2.3	-178.35	4.5	-3.4	131.1	126.4	4.68	27.983		
1,200.0	1,184.0	1,211.3	1,208.0	3.9	2.6	-177.41	21.2	-4.8	139.6	134.4	5.19	26.887		
1,300.0	1,281.0	1,308.8	1,304.2	4.4	2.9	-176.40	37.1	-6.6	148.1	142.5	5.69	26.027		
1,400.0	1,378.0	1,409.9	1,404.0	4.8	3.2	-175.24	53.5	-9.1	156.9	150.7	6.22	25.244		
1,500.0	1,474.9	1,511.7	1,504.1	5.3	3.6	-173.95	71.6	-12.1	164.3	157.5	6.76	24.294		
1,600.0	1,571.9	1,611.3	1,602.0	5.8	3.9	-172.92	89.7	-14.6	171.3	164.0	7.30	23.472		
1,700.0	1,668.9	1,709.3	1,698.5	6.3	4.2	-172.62	106.9	-15.1	178.6	170.8	7.81	22.858		
1,800.0	1,765.9	1,807.5	1,795.4	6.8	4.5	-172.89	122.2	-14.2	187.5	179.1	8.32	22.534		
1,900.0	1,862.9	1,907.9	1,894.6	7.3	4.9	-173.15	138.2	-13.3	195.9	187.1	8.83	22.177		
2,000.0	1,959.9	2,006.8	1,992.2	7.8	5.2	-173.11	154.2	-13.2	204.5	195.2	9.36	21.859		
2,100.0	2,056.8	2,107.6	2,091.7	8.3	5.6	-173.05	170.2	-13.3	213.2	203.4	9.88	21.583		
2,200.0	2,153.8	2,208.9	2,191.6	8.8	5.9	-173.30	187.1	-12.1	221.1	210.7	10.40	21.257		
2,300.0	2,250.8	2,311.6	2,292.6	9.3	6.3	-173.23	205.2	-11.9	228.0	217.1	10.94	20.838		
2,400.0	2,347.8	2,409.9	2,389.2	9.8	6.7	-172.83	223.4	-13.0	234.5	223.0	11.49	20.403		
2,500.0	2,444.8	2,511.1	2,488.8	10.3	7.0	-172.47	241.9	-14.0	241.1	229.0	12.04	20.020		
2,600.0	2,541.7	2,608.2	2,584.3	10.8	7.4	-172.33	259.3	-14.1	247.9	235.3	12.57	19.716		
2,700.0	2,638.7	2,703.2	2,677.9	11.3	7.7	-171.99	275.1	-15.5	256.2	243.1	13.11	19.549		
2,800.0	2,735.7	2,807.5	2,780.8	11.8	8.1	-171.74	292.5	-16.6	264.4	250.7	13.66	19.350		
2,900.0	2,832.7	2,904.8	2,876.7	12.3	8.4	-171.80	308.9	-16.2	272.1	257.9	14.18	19.187		
3,000.0	2,929.7	2,998.2	2,969.0	12.8	8.7	-171.73	323.2	-16.8	281.6	266.9	14.70	19.159		
3,100.0	3,026.7	3,093.3	3,063.2	13.3	9.0	-171.65	336.0	-17.8	293.0	277.8	15.21	19.258		
3,200.0	3,123.6	3,193.4	3,162.5	13.8	9.3	-171.77	348.7	-18.0	305.0	289.3	15.73	19.396		
3,300.0	3,220.6	3,293.5	3,261.7	14.3	9.6	-172.06	361.9	-17.1	316.3	300.0	16.23	19.491		
3,400.0	3,317.6	3,390.3	3,357.8	14.8	9.9	-172.20	373.8	-17.0	328.5	311.8	16.73	19.640		
3,500.0	3,414.6	3,489.5	3,456.1	15.3	10.2	-172.22	386.6	-17.6	340.3	323.1	17.25	19.734		
3,600.0	3,511.6	3,590.4	3,556.4	15.9	10.5	-172.53	398.2	-16.7	353.2	335.5	17.74	19.909		
3,700.0	3,608.5	3,700.8	3,665.6	16.4	10.9	-172.86	414.1	-14.8	363.2	344.9	18.27	19.882		
3,800.0	3,705.5	3,808.2	3,771.5	16.9	11.3	-173.06	431.9	-13.3	371.0	352.2	18.80	19.731		
3,900.0	3,802.5	3,905.1	3,866.8	17.4	11.6	-172.93	449.3	-13.6	377.8	358.5	19.34	19.534		
4,000.0	3,899.5	3,997.1	3,957.4	17.9	12.0	-172.39	464.9	-17.1	386.2	366.3	19.90	19.404		
4,100.0	3,996.5	4,099.6	4,058.4	18.4	12.3	-171.67	481.6	-22.1	395.6	375.1	20.51	19.286		
4,200.0	4,093.5	4,200.7	4,158.1	18.9	12.7	-171.28	498.5	-24.8	404.2	383.1	21.09	19.162		
4,300.0	4,190.4	4,304.9	4,260.7	19.4	13.1	-171.15	516.2	-25.7	412.1	390.4	21.65	19.030		
4,400.0	4,287.4	4,409.7	4,363.8	19.9	13.5	-171.11	535.4	-25.6	418.4	396.2	22.21	18.836		
4,500.0	4,384.4	4,500.7	4,453.3	20.4	13.8	-171.00	551.4	-26.2	425.7	402.9	22.74	18.717		
4,600.0	4,481.4	4,600.3	4,551.6	20.9	14.1	-171.00	567.6	-26.4	434.1	410.8	23.28	18.648		
4,700.0	4,578.4	4,707.2	4,656.8	21.4	14.5	-171.12	586.2	-25.3	441.2	417.4	23.82	18.523		
4,800.0	4,675.3	4,808.1	4,756.1	21.9	14.9	-171.25	604.2	-24.0	447.7	423.4	24.35	18.389		
4,900.0	4,772.3	4,903.6	4,850.0	22.4	15.3	-171.21	621.7	-23.9	454.1	429.2	24.88	18.250		
5,000.0	4,869.3	4,991.1	4,936.4	22.9	15.6	-171.09	636.1	-25.0	462.7	437.3	25.40	18.214		
5,100.0	4,966.3	5,080.9	5,025.2	23.4	15.9	-171.01	648.5	-26.3	473.7	447.8	25.92	18.279		

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 Diamond Valley East #13
Project:	SEC.23-T6N-R67W	TVD Reference:	WELL @ 4791.0ft (Frontier 10 RKB -22')
Reference Site:	Diamond Valley East Pad Sec.23-T6N-R67W	MD Reference:	WELL @ 4791.0ft (Frontier 10 RKB -22')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Diamond Valley East #13	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 (10-03-13)	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.0 ft
Survey Program: 173-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	
5,200.0	5,063.3	5,179.7	5,123.3	23.9	16.2	-170.96	661.0	-27.8	486.0	459.6	26.45	18.378	
5,300.0	5,160.3	5,287.9	5,230.4	24.4	16.5	-170.89	675.9	-29.1	497.1	470.1	27.01	18.408	
5,400.0	5,257.2	5,394.0	5,335.2	24.9	16.9	-170.83	692.1	-30.1	506.7	479.1	27.57	18.380	
5,500.0	5,354.2	5,501.6	5,441.3	25.4	17.3	-170.57	710.4	-32.4	514.9	486.7	28.17	18.279	
5,600.0	5,451.2	5,594.9	5,533.1	25.9	17.6	-170.36	726.7	-34.3	522.6	493.9	28.73	18.191	
5,700.0	5,548.2	5,691.3	5,628.3	26.4	17.9	-170.22	742.1	-36.0	531.8	502.5	29.28	18.158	
5,800.0	5,645.2	5,790.8	5,726.5	26.9	18.3	-170.11	757.7	-37.4	541.0	511.2	29.84	18.129	
5,900.0	5,742.1	5,895.4	5,829.7	27.4	18.7	-169.94	774.7	-39.4	549.9	519.5	30.42	18.073	
6,000.0	5,839.1	5,993.0	5,926.0	27.9	19.0	-169.85	790.9	-40.5	558.3	527.3	30.98	18.022	
6,100.0	5,936.1	6,088.8	6,020.5	28.4	19.3	-169.76	806.2	-41.7	567.2	535.7	31.52	17.996	
6,200.0	6,033.1	6,194.5	6,124.8	28.9	19.7	-169.63	823.3	-43.5	576.2	544.1	32.10	17.947	
6,300.0	6,130.1	6,300.4	6,229.1	29.4	20.1	-169.63	841.6	-43.6	583.6	550.9	32.66	17.866	
6,400.0	6,227.1	6,391.5	6,319.0	29.9	20.4	-169.78	856.5	-42.3	591.6	558.4	33.15	17.845	
6,500.0	6,324.0	6,486.8	6,413.2	30.5	20.7	-170.07	870.4	-39.8	600.9	567.3	33.62	17.877	
6,600.0	6,421.0	6,588.7	6,513.9	31.0	21.1	-170.33	885.9	-37.6	609.9	575.8	34.11	17.882	
6,700.0	6,517.9	6,677.4	6,601.5	31.4	21.4	-141.94	899.7	-40.1	618.2	583.5	34.69	17.818	
6,800.0	6,613.2	6,763.4	6,685.9	31.8	21.7	-121.18	912.6	-50.0	625.5	590.3	35.20	17.770	
6,900.0	6,705.2	6,854.6	6,773.4	32.2	22.0	-109.66	927.3	-71.0	630.9	595.2	35.71	17.668	
7,000.0	6,792.1	6,929.0	6,841.7	32.6	22.3	-102.95	939.1	-97.8	635.4	599.2	36.23	17.538	
7,100.0	6,872.1	7,011.3	6,912.0	33.0	22.6	-98.83	951.0	-138.7	640.2	603.2	36.91	17.343	
7,200.0	6,943.8	7,084.1	6,967.7	33.4	23.0	-95.94	959.5	-184.7	645.7	607.9	37.74	17.110	
7,300.0	7,005.6	7,155.3	7,015.0	33.8	23.3	-93.80	965.6	-237.5	652.2	613.4	38.78	16.819	
7,400.0	7,056.5	7,237.7	7,063.0	34.2	23.7	-92.53	969.5	-304.3	659.5	619.3	40.17	16.418	
7,500.0	7,095.5	7,337.0	7,109.7	34.7	24.3	-91.99	973.4	-391.7	664.9	622.8	42.12	15.787	
7,600.0	7,121.6	7,421.3	7,135.8	35.3	25.1	-91.54	976.1	-471.6	667.9	623.7	44.28	15.084	
7,700.0	7,134.6	7,501.7	7,148.2	36.0	25.9	-91.22	975.9	-551.0	671.0	624.3	46.67	14.378	
7,800.0	7,136.0	7,607.2	7,153.6	36.9	27.2	-91.46	974.2	-656.3	672.8	622.5	50.35	13.363	
7,900.0	7,136.0	7,720.5	7,156.7	38.0	29.0	-91.71	974.1	-769.5	673.4	618.7	54.64	12.324	
8,000.0	7,136.0	7,823.1	7,158.0	39.2	30.9	-91.83	975.4	-872.2	672.6	613.6	58.98	11.403	
8,100.0	7,136.0	7,940.2	7,158.9	40.7	33.2	-91.92	977.9	-989.3	671.1	607.2	63.86	10.508	
8,200.0	7,136.0	8,059.4	7,159.6	42.3	35.8	-91.99	984.4	-1,108.2	666.0	597.0	68.99	9.654	
8,300.0	7,136.0	8,154.0	7,161.5	44.1	38.0	-92.18	990.4	-1,202.6	660.2	586.5	73.67	8.961	
8,400.0	7,136.0	8,230.4	7,163.2	46.0	39.8	-92.33	993.6	-1,278.9	656.5	578.5	78.00	8.417	
8,500.0	7,136.0	8,320.5	7,164.6	48.0	41.9	-92.45	994.9	-1,369.0	655.6	572.9	82.74	7.924	
8,538.6	7,136.0	8,356.5	7,164.6	48.8	42.8	-92.46	995.1	-1,405.0	655.5	570.9	84.62	7.747	
8,600.0	7,136.0	8,412.8	7,164.3	50.2	44.1	-92.43	995.1	-1,461.3	655.8	568.2	87.59	7.487	
8,700.0	7,136.0	8,528.2	7,161.8	52.4	46.9	-92.21	995.6	-1,576.7	655.8	562.7	93.09	7.045	
8,800.0	7,136.0	8,619.2	7,159.3	54.7	49.2	-91.99	996.7	-1,667.6	654.9	556.9	98.02	6.681	
8,827.3	7,136.0	8,645.2	7,158.9	55.3	49.9	-91.96	996.9	-1,693.6	654.9	555.5	99.40	6.588	
8,900.0	7,136.0	8,715.6	7,158.3	57.0	51.7	-91.90	997.0	-1,764.0	655.0	551.9	103.13	6.351	
9,000.0	7,136.0	8,807.8	7,158.4	59.4	54.0	-91.92	996.6	-1,856.2	655.9	547.7	108.18	6.063	
9,100.0	7,136.0	8,907.0	7,159.0	61.8	56.5	-91.97	995.4	-1,955.4	657.5	544.1	113.45	5.796	
9,200.0	7,136.0	9,001.0	7,159.8	64.3	59.0	-92.03	993.7	-2,049.4	659.8	541.2	118.61	5.563	
9,300.0	7,136.0	9,091.8	7,160.8	66.8	61.3	-92.10	991.0	-2,140.1	663.3	539.6	123.69	5.363	
9,400.0	7,136.0	9,190.0	7,162.2	69.3	63.9	-92.21	987.4	-2,238.3	667.4	538.4	129.00	5.174	
9,500.0	7,136.0	9,300.2	7,163.2	71.9	66.8	-92.28	984.2	-2,348.4	670.8	536.2	134.66	4.982	
9,600.0	7,136.0	9,405.7	7,163.5	74.4	69.6	-92.30	982.3	-2,453.9	673.1	532.9	140.21	4.801	
9,700.0	7,136.0	9,513.5	7,162.7	77.0	72.4	-92.23	981.3	-2,561.7	674.5	528.6	145.84	4.625	
9,800.0	7,136.0	9,626.7	7,161.8	79.6	75.5	-92.15	982.0	-2,674.9	674.3	522.6	151.64	4.447	
9,900.0	7,136.0	9,734.1	7,161.9	82.2	78.4	-92.17	984.6	-2,782.3	672.3	515.0	157.30	4.274	
10,000.0	7,136.0	9,835.5	7,163.6	84.9	81.2	-92.32	987.7	-2,883.6	669.8	507.0	162.80	4.114	
10,100.0	7,136.0	9,927.5	7,166.4	87.5	83.7	-92.57	990.1	-2,975.5	667.7	499.7	168.05	3.973	

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 Diamond Valley East #13
Project:	SEC.23-T6N-R67W	TVD Reference:	WELL @ 4791.0ft (Frontier 10 RKB -22')
Reference Site:	Diamond Valley East Pad Sec.23-T6N-R67W	MD Reference:	WELL @ 4791.0ft (Frontier 10 RKB -22')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Diamond Valley East #13	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 (10-03-13)	Offset TVD Reference:	Offset Datum

Offset Design Diamond Valley East Pad Sec.23-T6N-R67W - Diamond Valley East #10 - Wellbore #1 - Wellbore #1												Offset Site Error:	0.0 ft
Survey Program: 173-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	
10,200.0	7,136.0	10,026.9	7,170.3	90.2	86.4	-92.91	991.9	-3,074.8	666.5	493.0	173.51	3.841	
10,246.7	7,136.0	10,065.1	7,171.9	91.4	87.4	-93.04	992.5	-3,113.0	666.1	490.3	175.83	3.789	
10,300.0	7,136.0	10,105.7	7,173.4	92.8	88.5	-93.17	992.4	-3,153.6	666.7	488.3	178.39	3.737	
10,400.0	7,136.0	10,192.7	7,175.8	95.5	90.9	-93.37	990.1	-3,240.5	669.8	486.3	183.50	3.650	
10,500.0	7,136.0	10,298.8	7,176.1	98.2	93.7	-93.37	986.6	-3,346.5	673.6	484.4	189.15	3.561	
10,600.0	7,136.0	10,389.6	7,174.2	100.9	96.2	-93.20	983.9	-3,437.3	676.9	482.5	194.40	3.482	
10,700.0	7,136.0	10,490.3	7,172.7	103.6	98.9	-93.05	979.7	-3,537.8	681.5	481.5	199.93	3.409	
10,800.0	7,136.0	10,594.9	7,170.8	106.3	101.8	-92.87	976.1	-3,642.4	685.3	479.7	205.57	3.334	
10,900.0	7,136.0	10,702.5	7,168.2	109.0	104.7	-92.64	973.3	-3,750.0	688.2	476.9	211.30	3.257	
11,000.0	7,136.0	10,802.4	7,166.9	111.7	107.5	-92.52	971.2	-3,849.8	690.7	473.8	216.83	3.185	
11,100.0	7,136.0	10,907.0	7,167.0	114.4	110.3	-92.52	969.6	-3,954.4	692.6	470.2	222.48	3.113	
11,200.0	7,136.0	11,009.2	7,168.5	117.2	113.1	-92.64	968.3	-4,056.5	694.4	466.3	228.06	3.045	
11,300.0	7,136.0	11,115.7	7,169.7	119.9	116.1	-92.74	967.9	-4,163.0	695.3	461.5	233.77	2.974	
11,400.0	7,136.0	11,217.7	7,169.8	122.6	118.9	-92.75	968.1	-4,265.1	695.5	456.2	239.37	2.906	
11,500.0	7,136.0	11,314.7	7,168.0	125.4	121.6	-92.60	968.1	-4,362.0	695.9	451.0	244.84	2.842	
11,600.0	7,136.0	11,409.5	7,165.6	128.1	124.2	-92.39	967.5	-4,456.8	696.9	446.6	250.26	2.785	
11,700.0	7,136.0	11,505.3	7,163.2	130.8	126.8	-92.19	966.2	-4,552.6	698.6	442.9	255.70	2.732	
11,800.0	7,136.0	11,607.6	7,160.1	133.6	129.7	-91.93	964.5	-4,654.8	700.6	439.2	261.32	2.681	
11,900.0	7,136.0	11,709.6	7,157.0	136.3	132.5	-91.67	963.4	-4,756.7	702.0	435.1	266.93	2.630	
12,000.0	7,136.0	11,816.1	7,154.1	139.1	135.4	-91.44	963.0	-4,863.2	702.8	430.1	272.68	2.577	
12,100.0	7,136.0	11,843.0	7,153.4	141.8	136.2	-91.38	962.9	-4,890.1	707.1	430.8	276.21	2.560 SF	
12,200.0	7,136.0	11,843.0	7,153.4	144.6	136.2	-91.38	962.9	-4,890.1	724.7	445.7	278.99	2.598	
12,300.0	7,136.0	11,843.0	7,153.4	147.3	136.2	-91.38	962.9	-4,890.1	755.3	473.5	281.77	2.681	
12,400.0	7,136.0	11,843.0	7,153.4	150.1	136.2	-91.38	962.9	-4,890.1	797.4	512.8	284.55	2.802	
12,500.0	7,136.0	11,843.0	7,153.4	152.9	136.2	-91.38	962.9	-4,890.1	849.1	561.8	287.34	2.955	
12,600.0	7,136.0	11,843.0	7,153.4	155.6	136.2	-91.38	962.9	-4,890.1	909.0	618.9	290.12	3.133	
12,700.0	7,136.0	11,843.0	7,153.4	158.4	136.2	-91.38	962.9	-4,890.1	975.5	682.6	292.91	3.330	

Company:	Extraction Oil & Gas	Local Co-ordinate Reference:	Well Diamond Valley East #13
Project:	SEC.23-T6N-R67W	TVD Reference:	WELL @ 4791.0ft (Frontier 10 RKB -22')
Reference Site:	Diamond Valley East Pad Sec.23-T6N-R67W	MD Reference:	WELL @ 4791.0ft (Frontier 10 RKB -22')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Diamond Valley East #13	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 (10-03-13)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 133-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	1.0	1.0	0.0	0.0	-178.01	-80.1	-2.8	80.2	80.2	0.00	N/A		
100.0	100.0	101.0	101.0	0.1	0.1	-178.11	-80.1	-2.6	80.2	80.0	0.23	354.889		
200.0	200.0	201.8	201.8	0.3	0.3	-178.67	-79.8	-1.9	79.9	79.2	0.64	124.682		
233.5	233.5	235.5	235.5	0.4	0.4	176.67	-79.4	-1.2	79.7	78.9	0.79	100.401 CC, ES		
300.0	300.0	301.3	301.3	0.6	0.5	174.90	-78.9	1.4	80.7	79.6	1.10	73.467		
400.0	399.8	400.3	400.0	0.8	0.8	170.80	-78.9	8.0	86.2	84.6	1.58	54.485		
500.0	499.5	499.5	498.8	1.0	1.0	166.59	-78.8	16.3	95.6	93.6	2.07	46.285		
600.0	598.7	600.1	599.1	1.3	1.3	163.36	-78.4	25.2	108.7	106.2	2.54	42.739		
700.0	697.5	705.8	704.2	1.6	1.5	160.81	-74.1	34.5	121.8	118.7	3.05	39.951		
800.0	795.6	809.7	807.4	2.0	1.8	159.54	-64.8	41.6	133.0	129.4	3.56	37.374		
900.0	893.1	912.9	909.9	2.4	2.1	159.32	-53.1	47.0	144.7	140.6	4.09	35.419		
1,000.0	990.0	1,017.9	1,013.6	2.9	2.4	159.41	-37.8	51.7	155.0	150.4	4.65	33.366		
1,100.0	1,087.0	1,121.0	1,115.2	3.4	2.7	159.74	-20.1	54.8	162.3	157.1	5.21	31.187		
1,200.0	1,184.0	1,223.0	1,215.4	3.9	3.0	160.36	-1.0	56.4	167.9	162.1	5.76	29.162		
1,300.0	1,281.0	1,321.7	1,312.3	4.4	3.4	161.16	17.4	57.3	173.2	166.9	6.28	27.586		
1,400.0	1,378.0	1,420.5	1,409.5	4.8	3.7	162.17	35.0	57.5	179.2	172.4	6.78	26.425		
1,500.0	1,474.9	1,520.9	1,508.4	5.3	4.0	163.22	52.5	57.5	185.7	178.4	7.28	25.519		
1,600.0	1,571.9	1,620.0	1,605.8	5.8	4.3	164.52	70.5	56.2	191.2	183.5	7.76	24.641		
1,700.0	1,668.9	1,716.4	1,700.9	6.3	4.7	165.56	86.1	55.9	198.9	190.7	8.25	24.127		
1,800.0	1,765.9	1,817.3	1,800.5	6.8	5.0	166.00	102.6	57.6	207.0	198.2	8.77	23.606		
1,900.0	1,862.9	1,920.2	1,901.8	7.3	5.4	166.58	120.4	58.5	213.9	204.6	9.30	23.014		
2,000.0	1,959.9	2,021.4	2,001.3	7.8	5.7	167.30	139.0	58.5	219.6	209.8	9.81	22.394		
2,100.0	2,056.8	2,123.7	2,101.8	8.3	6.1	168.28	158.4	57.3	224.6	214.3	10.30	21.800		
2,200.0	2,153.8	2,223.8	2,199.9	8.8	6.5	169.07	178.1	56.5	229.1	218.3	10.80	21.202		
2,300.0	2,250.8	2,327.7	2,301.5	9.3	6.9	169.43	199.7	57.3	232.5	221.2	11.34	20.499		
2,400.0	2,347.8	2,428.2	2,399.6	9.8	7.4	169.77	221.5	58.0	235.0	223.2	11.88	19.788		
2,500.0	2,444.8	2,527.5	2,496.5	10.3	7.8	170.06	243.1	58.9	237.7	225.2	12.41	19.155		
2,600.0	2,541.7	2,625.8	2,592.5	10.8	8.2	170.25	264.1	60.1	240.6	227.6	12.93	18.600		
2,700.0	2,638.7	2,722.3	2,687.1	11.3	8.5	170.57	283.4	60.9	244.9	231.5	13.44	18.216		
2,800.0	2,735.7	2,822.7	2,785.6	11.8	8.9	171.03	303.0	61.1	249.6	235.7	13.96	17.884		
2,900.0	2,832.7	2,922.1	2,883.0	12.3	9.3	171.21	322.7	62.5	254.2	239.7	14.49	17.545		
3,000.0	2,929.7	3,022.4	2,981.2	12.8	9.7	170.81	342.3	66.5	259.3	244.2	15.07	17.207		
3,100.0	3,026.7	3,125.8	3,082.2	13.3	10.2	169.98	363.8	72.5	263.2	247.5	15.70	16.763		
3,200.0	3,123.6	3,232.1	3,185.7	13.8	10.6	169.30	387.4	77.8	265.7	249.4	16.35	16.254		
3,300.0	3,220.6	3,332.0	3,282.7	14.3	11.1	169.27	411.3	79.8	266.2	249.3	16.92	15.736		
3,400.0	3,317.6	3,426.8	3,375.1	14.8	11.5	169.71	432.3	79.6	268.2	250.7	17.41	15.398		
3,500.0	3,414.6	3,525.8	3,472.0	15.3	11.9	170.38	452.7	78.6	271.6	253.7	17.90	15.176		
3,600.0	3,511.6	3,628.8	3,572.6	15.9	12.3	170.72	474.8	79.1	274.5	256.1	18.43	14.896		
3,700.0	3,608.5	3,731.2	3,672.3	16.4	12.8	170.62	498.0	81.5	276.3	257.3	19.00	14.536		
3,800.0	3,705.5	3,834.6	3,772.7	16.9	13.3	170.36	522.4	84.7	277.1	257.5	19.61	14.128		
3,900.0	3,802.5	3,932.0	3,867.3	17.4	13.7	170.10	545.5	87.8	277.8	257.7	20.20	13.757		
4,000.0	3,899.5	4,018.7	3,952.1	17.9	14.1	170.30	563.4	88.6	281.5	260.8	20.69	13.608		
4,100.0	3,996.5	4,111.3	4,043.4	18.4	14.4	171.05	579.1	87.2	288.7	267.6	21.12	13.669		
4,200.0	4,093.5	4,211.0	4,141.8	18.9	14.7	171.75	594.8	86.1	297.2	275.6	21.57	13.774		
4,300.0	4,190.4	4,318.9	4,248.1	19.4	15.1	172.19	613.5	86.2	304.2	282.1	22.09	13.772		
4,400.0	4,287.4	4,416.8	4,344.3	19.9	15.5	172.40	631.6	87.2	310.1	287.5	22.60	13.719		
4,500.0	4,384.4	4,509.2	4,435.3	20.4	15.8	172.58	647.2	88.2	317.6	294.5	23.09	13.752		
4,600.0	4,481.4	4,610.5	4,535.3	20.9	16.2	172.75	663.4	89.6	326.1	302.5	23.61	13.809		
4,700.0	4,578.4	4,716.3	4,639.5	21.4	16.6	172.81	681.9	91.5	333.0	308.8	24.16	13.784		
4,800.0	4,675.3	4,814.4	4,736.0	21.9	17.0	172.88	699.5	93.2	339.5	314.8	24.68	13.756		
4,900.0	4,772.3	4,911.3	4,831.4	22.4	17.3	172.99	716.4	94.6	346.6	321.4	25.19	13.757		
5,000.0	4,869.3	5,008.1	4,926.9	22.9	17.6	173.17	731.9	95.6	354.9	329.2	25.69	13.813		

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 Diamond Valley East #13
Project:	SEC.23-T6N-R67W	TVD Reference:	WELL @ 4791.0ft (Frontier 10 RKB -22')
Reference Site:	Diamond Valley East Pad Sec.23-T6N-R67W	MD Reference:	WELL @ 4791.0ft (Frontier 10 RKB -22')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Diamond Valley East #13	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 (10-03-13)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 133-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		
5,100.0	4,966.3	5,113.4	5,030.7	23.4	18.0	173.30	749.6	97.1	362.6	336.4	26.23	13.824		
5,200.0	5,063.3	5,218.8	5,134.3	23.9	18.4	173.28	769.0	99.4	368.6	341.9	26.78	13.763		
5,300.0	5,160.3	5,323.5	5,237.0	24.4	18.9	173.47	789.6	100.2	373.4	346.0	27.32	13.666		
5,400.0	5,257.2	5,424.5	5,335.7	24.9	19.3	173.76	810.4	100.3	377.1	349.2	27.83	13.547		
5,500.0	5,354.2	5,524.9	5,434.0	25.4	19.7	174.16	831.1	99.5	380.9	352.5	28.34	13.440		
5,600.0	5,451.2	5,631.8	5,538.4	25.9	20.2	174.45	854.0	99.6	383.8	354.9	28.88	13.292		
5,700.0	5,548.2	5,735.0	5,638.9	26.4	20.6	174.60	877.7	100.4	385.1	355.7	29.42	13.090		
5,800.0	5,645.2	5,821.5	5,723.3	26.9	21.0	174.93	896.5	99.9	387.8	357.9	29.90	12.969		
5,900.0	5,742.1	5,916.5	5,816.5	27.4	21.4	175.31	914.6	99.0	393.1	362.8	30.39	12.938		
6,000.0	5,839.1	6,009.5	5,908.0	27.9	21.7	175.59	931.2	98.8	399.7	368.8	30.88	12.945		
6,100.0	5,936.1	6,106.6	6,003.8	28.4	22.0	175.92	947.3	98.2	407.6	376.2	31.37	12.995		
6,200.0	6,033.1	6,208.2	6,104.0	28.9	22.4	176.00	964.1	99.4	415.5	383.7	31.89	13.031		
6,300.0	6,130.1	6,325.4	6,219.0	29.4	22.9	175.71	986.3	103.6	421.0	388.5	32.50	12.955		
6,400.0	6,227.1	6,435.3	6,326.2	29.9	23.3	176.05	1,010.1	103.1	423.8	390.8	33.04	12.828		
6,500.0	6,324.0	6,545.3	6,431.6	30.5	23.8	178.39	1,037.2	87.7	423.5	390.1	33.48	12.650		
6,517.5	6,341.0	6,559.9	6,445.3	30.5	23.9	178.88	1,040.8	84.3	423.5	389.9	33.56	12.619		
6,600.0	6,421.0	6,619.7	6,500.6	31.0	24.2	-178.52	1,054.6	66.0	425.8	391.8	33.97	12.533		
6,700.0	6,517.9	6,708.2	6,580.2	31.4	24.5	-145.88	1,071.7	31.7	433.9	399.0	34.91	12.430		
6,800.0	6,613.2	6,799.9	6,660.0	31.8	24.9	-121.07	1,090.2	-9.6	441.6	405.4	36.18	12.205		
6,900.0	6,705.2	6,883.0	6,725.1	32.2	25.2	-105.39	1,106.9	-58.2	449.7	412.0	37.66	11.940		
7,000.0	6,792.1	6,940.6	6,764.7	32.6	25.5	-95.36	1,116.3	-98.9	461.0	422.2	38.85	11.867		
7,100.0	6,872.1	7,005.2	6,804.2	33.0	25.7	-87.80	1,123.4	-149.5	476.2	436.2	39.98	11.909		
7,200.0	6,943.8	7,091.4	6,851.3	33.4	26.1	-81.79	1,131.2	-221.3	490.7	449.6	41.10	11.941		
7,300.0	7,005.6	7,169.0	6,890.8	33.8	26.5	-77.98	1,137.3	-287.7	501.9	460.2	41.71	12.033		
7,400.0	7,056.5	7,241.0	6,919.8	34.2	27.0	-75.14	1,141.7	-353.4	511.6	469.5	42.17	12.133		
7,500.0	7,095.5	7,318.1	6,944.7	34.7	27.6	-73.28	1,144.2	-426.3	519.6	476.9	42.72	12.163		
7,600.0	7,121.6	7,395.5	6,964.5	35.3	28.3	-72.47	1,145.4	-501.1	524.2	480.6	43.55	12.035		
7,700.0	7,134.6	7,490.5	6,975.5	36.0	29.4	-72.06	1,148.3	-595.3	524.3	479.3	45.00	11.652		
7,800.0	7,136.0	7,574.7	6,976.5	36.9	30.7	-72.02	1,152.1	-679.4	520.2	472.5	47.72	10.902		
7,900.0	7,136.0	7,668.4	6,975.6	38.0	32.2	-71.86	1,154.6	-773.1	518.4	467.0	51.44	10.077		
8,000.0	7,136.0	7,769.0	6,976.5	39.2	34.0	-71.92	1,156.3	-873.6	517.0	461.3	55.63	9.294		
8,100.0	7,136.0	7,865.4	6,977.7	40.7	35.8	-72.01	1,157.6	-970.0	515.7	455.8	59.92	8.607		
8,200.0	7,136.0	7,966.0	6,978.1	42.3	37.9	-72.02	1,159.0	-1,070.6	514.7	450.2	64.43	7.988		
8,300.0	7,136.0	8,062.8	6,977.6	44.1	40.0	-71.93	1,160.5	-1,167.4	513.8	444.9	68.93	7.454		
8,400.0	7,136.0	8,163.3	6,976.3	46.0	42.3	-71.76	1,161.8	-1,267.9	513.4	439.9	73.57	6.979		
8,500.0	7,136.0	8,263.4	6,973.2	48.0	44.7	-71.38	1,163.9	-1,367.9	512.8	434.7	78.17	6.561		
8,525.8	7,136.0	8,286.9	6,972.5	48.6	45.2	-71.29	1,164.3	-1,391.4	512.8	433.5	79.31	6.465		
8,600.0	7,136.0	8,355.1	6,970.9	50.2	46.8	-71.11	1,164.7	-1,459.6	513.3	430.6	82.66	6.209		
8,700.0	7,136.0	8,451.4	6,970.4	52.4	49.2	-71.12	1,163.7	-1,555.9	514.8	427.4	87.47	5.886		
8,800.0	7,136.0	8,549.9	6,970.7	54.7	51.6	-71.23	1,162.0	-1,654.4	516.7	424.3	92.43	5.590		
8,900.0	7,136.0	8,643.2	6,971.2	57.0	53.9	-71.39	1,159.4	-1,747.6	519.6	422.3	97.35	5.338		
9,000.0	7,136.0	8,738.9	6,972.0	59.4	56.2	-71.61	1,155.7	-1,843.2	523.5	421.1	102.40	5.112		
9,100.0	7,136.0	8,835.2	6,970.8	61.8	58.7	-71.64	1,151.8	-1,939.5	528.2	420.8	107.37	4.919		
9,200.0	7,136.0	8,937.7	6,968.3	64.3	61.3	-71.53	1,147.8	-2,041.9	533.0	420.6	112.43	4.741		
9,300.0	7,136.0	9,049.2	6,966.3	66.8	64.1	-71.44	1,144.8	-2,153.2	536.6	418.8	117.76	4.557		
9,400.0	7,136.0	9,160.8	6,965.5	69.3	67.1	-71.40	1,144.3	-2,264.8	537.6	414.5	123.15	4.366		
9,472.8	7,136.0	9,234.2	6,966.4	71.2	69.0	-71.49	1,144.4	-2,338.2	537.6	410.6	126.98	4.233		
9,500.0	7,136.0	9,260.3	6,966.9	71.9	69.7	-71.55	1,144.3	-2,364.4	537.6	409.2	128.40	4.187		
9,600.0	7,136.0	9,360.5	6,968.5	74.4	72.3	-71.75	1,143.9	-2,464.5	537.9	404.2	133.73	4.023		
9,700.0	7,136.0	9,467.8	6,968.8	77.0	75.2	-71.76	1,144.7	-2,571.8	537.6	398.5	139.12	3.864		
9,800.0	7,136.0	9,574.7	6,969.8	79.6	78.1	-71.80	1,147.0	-2,678.7	535.7	391.2	144.54	3.706		
9,900.0	7,136.0	9,668.3	6,972.5	82.2	80.6	-72.05	1,148.4	-2,772.3	533.8	384.0	149.80	3.564		

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 Diamond Valley East #13
Project:	SEC.23-T6N-R67W	TVD Reference:	WELL @ 4791.0ft (Frontier 10 RKB -22')
Reference Site:	Diamond Valley East Pad Sec.23-T6N-R67W	MD Reference:	WELL @ 4791.0ft (Frontier 10 RKB -22')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Diamond Valley East #13	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 (10-03-13)	Offset TVD Reference:	Offset Datum

Offset Design Diamond Valley East Pad Sec.23-T6N-R67W - Diamond Valley East #11 - Wellbore #1 - Wellbore #1												Offset Site Error:	0.0 ft
Survey Program: 133-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
9,958.8	7,136.0	9,720.5	6,974.0	83.8	82.0	-72.21	1,148.5	-2,824.4	533.4	380.6	152.84	3.490	
10,000.0	7,136.0	9,757.3	6,974.6	84.9	83.0	-72.29	1,148.3	-2,861.3	533.6	378.7	154.95	3.444	
10,100.0	7,136.0	9,864.8	6,976.9	87.5	85.9	-72.54	1,148.0	-2,968.7	533.7	373.1	160.62	3.323	
10,200.0	7,136.0	9,967.2	6,978.6	90.2	88.7	-72.70	1,148.7	-3,071.1	532.9	366.8	166.09	3.208	
10,300.0	7,136.0	10,065.9	6,979.2	92.8	91.3	-72.74	1,150.2	-3,169.7	531.8	360.4	171.36	3.103	
10,342.6	7,136.0	10,104.3	6,979.7	94.0	92.4	-72.79	1,150.3	-3,208.2	531.6	358.0	173.55	3.063	
10,400.0	7,136.0	10,158.3	6,980.8	95.5	93.9	-72.92	1,150.0	-3,262.2	531.8	355.2	176.61	3.011	
10,500.0	7,136.0	10,255.5	6,982.4	98.2	96.5	-73.12	1,149.1	-3,359.4	532.7	350.7	182.02	2.927	
10,600.0	7,136.0	10,350.8	6,982.8	100.9	99.1	-73.22	1,147.8	-3,454.6	534.3	347.0	187.29	2.853	
10,700.0	7,136.0	10,455.7	6,983.0	103.6	101.9	-73.32	1,145.8	-3,559.5	536.5	343.7	192.81	2.783	
10,800.0	7,136.0	10,587.0	6,979.4	106.3	105.5	-72.84	1,149.6	-3,690.6	535.0	336.6	198.45	2.696	
10,900.0	7,136.0	10,684.5	6,977.4	109.0	108.2	-72.46	1,155.6	-3,788.0	530.2	327.0	203.26	2.609	
11,000.0	7,136.0	10,773.5	6,976.1	111.7	110.7	-72.22	1,159.4	-3,876.9	527.0	319.0	207.99	2.534	
11,076.5	7,136.0	10,838.7	6,976.0	113.8	112.5	-72.18	1,160.5	-3,942.1	526.1	314.4	211.68	2.485	
11,100.0	7,136.0	10,858.6	6,976.3	114.4	113.0	-72.22	1,160.4	-3,961.9	526.2	313.3	212.87	2.472	
11,200.0	7,136.0	10,950.8	6,978.1	117.2	115.6	-72.48	1,158.7	-4,054.1	527.9	309.6	218.27	2.418	
11,300.0	7,136.0	11,054.4	6,978.1	119.9	118.4	-72.55	1,156.9	-4,157.7	529.9	306.1	223.76	2.368	
11,400.0	7,136.0	11,153.2	6,977.6	122.6	121.1	-72.54	1,155.9	-4,256.5	531.4	302.4	229.03	2.320	
11,500.0	7,136.0	11,251.9	6,977.2	125.4	123.8	-72.56	1,154.6	-4,355.2	533.3	298.9	234.33	2.276	
11,600.0	7,136.0	11,350.0	6,977.6	128.1	126.5	-72.67	1,152.8	-4,453.3	535.3	295.5	239.74	2.233	
11,700.0	7,136.0	11,448.0	6,977.9	130.8	129.2	-72.78	1,150.8	-4,551.3	537.6	292.5	245.14	2.193	
11,800.0	7,136.0	11,539.0	6,977.7	133.6	131.7	-72.86	1,148.0	-4,642.2	541.1	290.8	250.33	2.162	
11,900.0	7,136.0	11,636.9	6,978.0	136.3	134.4	-73.04	1,143.7	-4,740.0	545.6	289.8	255.83	2.133	
12,000.0	7,136.0	11,740.3	6,978.6	139.1	137.2	-73.24	1,139.4	-4,843.3	549.8	288.3	261.53	2.102	
12,100.0	7,136.0	11,788.0	6,978.9	141.8	138.5	-73.33	1,137.5	-4,891.0	556.4	290.8	265.59	2.095 SF	
12,200.0	7,136.0	11,788.0	6,978.9	144.6	138.5	-73.33	1,137.5	-4,891.0	578.4	310.1	268.27	2.156	
12,300.0	7,136.0	11,788.0	6,978.9	147.3	138.5	-73.33	1,137.5	-4,891.0	616.0	345.1	270.94	2.274	
12,400.0	7,136.0	11,788.0	6,978.9	150.1	138.5	-73.33	1,137.5	-4,891.0	666.6	393.0	273.62	2.436	
12,500.0	7,136.0	11,788.0	6,978.9	152.9	138.5	-73.33	1,137.5	-4,891.0	727.6	451.3	276.30	2.633	
12,600.0	7,136.0	11,788.0	6,978.9	155.6	138.5	-73.33	1,137.5	-4,891.0	796.4	517.5	278.97	2.855	
12,700.0	7,136.0	11,788.0	6,978.9	158.4	138.5	-73.33	1,137.5	-4,891.0	871.4	589.7	281.65	3.094	
12,800.0	7,136.0	11,788.0	6,978.9	161.1	138.5	-73.33	1,137.5	-4,891.0	950.9	666.6	284.33	3.344	

Company:	Extraction Oil & Gas	Local Co-ordinate Reference:	Well Diamond Valley East #13
Project:	SEC.23-T6N-R67W	TVD Reference:	WELL @ 4791.0ft (Frontier 10 RKB -22')
Reference Site:	Diamond Valley East Pad Sec.23-T6N-R67W	MD Reference:	WELL @ 4791.0ft (Frontier 10 RKB -22')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Diamond Valley East #13	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 (10-03-13)	Offset TVD Reference:	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	-180.00	-18.2	0.0	18.2	18.2	0.00	N/A		
100.0	100.0	100.0	100.0	0.1	0.1	-180.00	-18.2	0.0	18.2	18.0	0.22	81.062		
200.0	200.0	200.0	200.0	0.3	0.3	-180.00	-18.2	0.0	18.2	17.5	0.67	27.021 CC		
300.0	300.0	300.0	300.0	0.6	0.6	176.18	-18.2	0.0	20.0	18.8	1.13	17.637		
400.0	399.8	399.8	399.8	0.8	0.8	176.97	-18.2	0.0	25.2	23.6	1.59	15.805		
500.0	499.5	500.6	500.6	1.0	1.0	177.60	-16.5	0.1	32.1	30.1	2.05	15.681		
600.0	598.7	601.6	601.4	1.3	1.2	177.97	-11.2	0.6	39.1	36.6	2.50	15.610		
700.0	697.5	702.9	702.3	1.6	1.5	178.19	-2.3	1.3	46.0	43.0	2.96	15.517		
800.0	795.6	804.4	803.1	2.0	1.8	178.32	10.2	2.3	52.8	49.4	3.43	15.394		
900.0	893.1	906.2	903.5	2.4	2.1	178.39	26.2	3.6	59.6	55.7	3.91	15.238		
1,000.0	990.0	1,008.2	1,003.7	2.9	2.4	178.39	45.9	5.2	64.8	60.4	4.42	14.659		
1,100.0	1,087.0	1,109.8	1,102.6	3.4	2.8	178.29	68.8	7.0	66.6	61.7	4.95	13.467		
1,200.0	1,184.0	1,209.8	1,199.8	3.9	3.3	178.16	92.2	8.9	67.6	62.1	5.48	12.338		
1,300.0	1,281.0	1,309.8	1,297.0	4.4	3.7	178.04	115.5	10.8	68.6	62.5	6.02	11.393		
1,400.0	1,378.0	1,409.8	1,394.2	4.8	4.2	177.92	138.9	12.7	69.5	63.0	6.56	10.606		
1,500.0	1,474.9	1,509.8	1,491.5	5.3	4.6	177.80	162.3	14.6	70.5	63.4	7.10	9.927		
1,600.0	1,571.9	1,609.8	1,588.7	5.8	5.1	177.69	185.6	16.5	71.5	63.8	7.65	9.342		
1,700.0	1,668.9	1,709.8	1,685.9	6.3	5.6	177.58	209.0	18.3	72.5	64.3	8.21	8.834		
1,800.0	1,765.9	1,809.8	1,783.1	6.8	6.0	177.47	232.3	20.2	73.5	64.7	8.76	8.387		
1,900.0	1,862.9	1,909.8	1,880.3	7.3	6.5	177.37	255.7	22.1	74.4	65.1	9.31	7.993		
2,000.0	1,959.9	2,009.8	1,977.5	7.8	7.0	177.27	279.1	24.0	75.4	65.6	9.87	7.641		
2,100.0	2,056.8	2,109.8	2,074.7	8.3	7.5	177.17	302.4	25.9	76.4	66.0	10.43	7.327		
2,200.0	2,153.8	2,209.8	2,171.9	8.8	8.0	177.07	325.8	27.8	77.4	66.4	10.99	7.043		
2,300.0	2,250.8	2,309.8	2,269.1	9.3	8.4	176.98	349.1	29.7	78.4	66.8	11.55	6.787		
2,400.0	2,347.8	2,409.8	2,366.3	9.8	8.9	176.89	372.5	31.5	79.4	67.2	12.11	6.554		
2,500.0	2,444.8	2,509.7	2,463.6	10.3	9.4	176.80	395.9	33.4	80.3	67.7	12.67	6.341		
2,600.0	2,541.7	2,609.7	2,560.8	10.8	9.9	176.71	419.2	35.3	81.3	68.1	13.23	6.146		
2,700.0	2,638.7	2,709.7	2,658.0	11.3	10.4	176.63	442.6	37.2	82.3	68.5	13.80	5.966		
2,800.0	2,735.7	2,809.7	2,755.2	11.8	10.8	176.54	465.9	39.1	83.3	68.9	14.36	5.801		
2,900.0	2,832.7	2,909.7	2,852.4	12.3	11.3	176.46	489.3	41.0	84.3	69.4	14.92	5.647		
3,000.0	2,929.7	3,009.7	2,949.6	12.8	11.8	176.38	512.7	42.9	85.3	69.8	15.49	5.505		
3,100.0	3,026.7	3,109.7	3,046.8	13.3	12.3	176.31	536.0	44.7	86.2	70.2	16.05	5.373		
3,200.0	3,123.6	3,209.7	3,144.0	13.8	12.8	176.23	559.4	46.6	87.2	70.6	16.62	5.249		
3,300.0	3,220.6	3,309.7	3,241.2	14.3	13.3	176.16	582.7	48.5	88.2	71.0	17.18	5.133		
3,400.0	3,317.6	3,409.7	3,338.4	14.8	13.8	176.08	606.1	50.4	89.2	71.4	17.75	5.025		
3,500.0	3,414.6	3,509.7	3,435.7	15.3	14.2	176.01	629.5	52.3	90.2	71.9	18.32	4.923		
3,600.0	3,511.6	3,609.7	3,532.9	15.9	14.7	175.94	652.8	54.2	91.2	72.3	18.88	4.828		
3,700.0	3,608.5	3,709.7	3,630.1	16.4	15.2	175.88	676.2	56.1	92.1	72.7	19.45	4.738		
3,800.0	3,705.5	3,809.7	3,727.3	16.9	15.7	175.81	699.5	57.9	93.1	73.1	20.02	4.653		
3,900.0	3,802.5	3,909.7	3,824.5	17.4	16.2	175.75	722.9	59.8	94.1	73.5	20.59	4.572		
4,000.0	3,899.5	4,009.7	3,921.7	17.9	16.7	175.68	746.3	61.7	95.1	74.0	21.15	4.496		
4,100.0	3,996.5	4,109.7	4,018.9	18.4	17.2	175.62	769.6	63.6	96.1	74.4	21.72	4.424		
4,200.0	4,093.5	4,209.7	4,116.1	18.9	17.6	175.56	793.0	65.5	97.1	74.8	22.29	4.355		
4,300.0	4,190.4	4,309.7	4,213.3	19.4	18.1	175.50	816.3	67.4	98.1	75.2	22.86	4.290		
4,400.0	4,287.4	4,409.7	4,310.5	19.9	18.6	175.44	839.7	69.3	99.0	75.6	23.43	4.227		
4,500.0	4,384.4	4,509.6	4,407.8	20.4	19.1	175.38	863.1	71.1	100.0	76.0	24.00	4.168		
4,600.0	4,481.4	4,609.6	4,505.0	20.9	19.6	175.33	886.4	73.0	101.0	76.4	24.57	4.112		
4,700.0	4,578.4	4,709.6	4,602.2	21.4	20.1	175.27	909.8	74.9	102.0	76.9	25.14	4.058		
4,800.0	4,675.3	4,809.6	4,699.4	21.9	20.6	175.22	933.1	76.8	103.0	77.3	25.71	4.006		
4,900.0	4,772.3	4,909.6	4,796.6	22.4	21.1	175.16	956.5	78.7	104.0	77.7	26.28	3.957		
5,000.0	4,869.3	5,009.6	4,893.8	22.9	21.5	175.11	979.9	80.6	105.0	78.1	26.85	3.909		
5,100.0	4,966.3	5,109.6	4,991.0	23.4	22.0	175.06	1,003.2	82.5	105.9	78.5	27.42	3.864		

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 Diamond Valley East #13
Project:	SEC.23-T6N-R67W	TVD Reference:	WELL @ 4791.0ft (Frontier 10 RKB -22')
Reference Site:	Diamond Valley East Pad Sec.23-T6N-R67W	MD Reference:	WELL @ 4791.0ft (Frontier 10 RKB -22')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Diamond Valley East #13	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 (10-03-13)	Offset TVD Reference:	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	
5,200.0	5,063.3	5,209.6	5,088.2	23.9	22.5	175.01	1,026.6	84.3	106.9	78.9	27.99	3.820	
5,300.0	5,160.3	5,309.6	5,185.4	24.4	23.0	174.96	1,049.9	86.2	107.9	79.4	28.56	3.778	
5,400.0	5,257.2	5,409.6	5,282.6	24.9	23.5	174.91	1,073.3	88.1	108.9	79.8	29.13	3.738	
5,500.0	5,354.2	5,509.6	5,379.9	25.4	24.0	174.87	1,096.7	90.0	109.9	80.2	29.71	3.699	
5,600.0	5,451.2	5,609.6	5,477.1	25.9	24.5	174.82	1,120.0	91.9	110.9	80.6	30.28	3.662	
5,700.0	5,548.2	5,709.6	5,574.3	26.4	24.9	174.77	1,143.4	93.8	111.9	81.0	30.85	3.626	
5,800.0	5,645.2	5,809.6	5,671.5	26.9	25.4	174.73	1,166.8	95.7	112.9	81.4	31.42	3.592	
5,900.0	5,742.1	5,909.6	5,768.7	27.4	25.9	174.68	1,190.1	97.5	113.8	81.8	31.99	3.558	
6,000.0	5,839.1	6,009.6	5,865.9	27.9	26.4	174.64	1,213.5	99.4	114.8	82.3	32.57	3.526	
6,100.0	5,936.1	6,109.6	5,963.1	28.4	26.9	174.60	1,236.8	101.3	115.8	82.7	33.14	3.495	
6,200.0	6,033.1	6,209.6	6,060.3	28.9	27.4	174.56	1,260.2	103.2	116.8	83.1	33.71	3.465	
6,300.0	6,130.1	6,309.6	6,157.5	29.4	27.9	174.51	1,283.6	105.1	117.8	83.5	34.28	3.436	
6,400.0	6,227.1	6,409.6	6,254.7	29.9	28.4	174.47	1,306.9	107.0	118.8	83.9	34.86	3.408	
6,500.0	6,324.0	6,509.6	6,351.8	30.5	28.8	176.75	1,330.2	104.0	119.7	84.5	35.20	3.402	
6,600.0	6,421.0	6,606.4	6,444.7	31.0	29.2	-174.98	1,352.5	88.1	122.4	86.5	35.91	3.409	
6,700.0	6,517.9	6,700.0	6,531.6	31.4	29.6	-136.04	1,373.3	60.6	129.9	91.2	38.78	3.351	
6,800.0	6,613.2	6,788.7	6,610.2	31.8	29.9	-106.19	1,392.0	24.1	141.0	98.7	42.35	3.330	
6,900.0	6,705.2	6,876.2	6,682.8	32.2	30.2	-86.99	1,409.3	-21.5	154.1	109.0	45.13	3.415	
7,000.0	6,792.1	6,961.8	6,748.0	32.6	30.5	-74.30	1,424.9	-74.6	167.9	121.3	46.69	3.597	
7,100.0	6,872.1	7,045.7	6,805.6	33.0	30.9	-65.54	1,438.5	-134.0	181.5	134.7	46.79	3.879	
7,200.0	6,943.8	7,128.2	6,855.3	33.4	31.2	-59.29	1,450.2	-198.8	194.0	148.3	45.69	4.247	
7,300.0	7,005.6	7,209.6	6,896.9	33.8	31.6	-54.79	1,460.0	-268.0	205.1	161.4	43.70	4.693	
7,400.0	7,056.5	7,290.2	6,930.3	34.2	32.0	-51.58	1,467.8	-340.9	214.2	173.1	41.16	5.204	
7,500.0	7,095.5	7,370.0	6,955.3	34.7	32.5	-49.36	1,473.6	-416.5	221.2	182.7	38.46	5.751	
7,600.0	7,121.6	7,450.0	6,972.0	35.3	33.1	-47.97	1,477.3	-494.5	225.9	189.8	36.04	6.267	
7,700.0	7,134.6	7,528.6	6,980.1	36.0	33.7	-47.31	1,479.0	-572.6	228.1	193.8	34.32	6.646	
7,800.0	7,136.0	7,620.3	6,981.0	36.9	34.6	-47.20	1,479.3	-664.3	228.1	192.5	35.59	6.410	
7,900.0	7,136.0	7,720.3	6,981.0	38.0	35.8	-47.19	1,479.9	-764.3	228.1	189.5	38.61	5.907	
8,000.0	7,136.0	7,820.3	6,981.0	39.2	37.2	-47.18	1,480.4	-864.3	228.0	186.2	41.84	5.450	
8,100.0	7,136.0	7,920.3	6,981.0	40.7	38.8	-47.16	1,480.9	-964.3	228.0	182.7	45.23	5.040	
8,200.0	7,136.0	8,020.3	6,981.0	42.3	40.6	-47.15	1,481.4	-1,064.3	227.9	179.2	48.75	4.675	
8,300.0	7,136.0	8,120.3	6,981.0	44.1	42.5	-47.14	1,481.9	-1,164.3	227.9	175.5	52.37	4.351	
8,400.0	7,136.0	8,220.3	6,981.0	46.0	44.5	-47.12	1,482.5	-1,264.3	227.8	171.7	56.08	4.062	
8,500.0	7,136.0	8,320.3	6,981.0	48.0	46.7	-47.11	1,483.0	-1,364.3	227.7	167.9	59.85	3.805	
8,600.0	7,136.0	8,420.3	6,981.0	50.2	48.9	-47.10	1,483.5	-1,464.3	227.7	164.0	63.68	3.576	
8,700.0	7,136.0	8,520.3	6,981.0	52.4	51.2	-47.09	1,484.0	-1,564.3	227.6	160.1	67.55	3.370	
8,800.0	7,136.0	8,620.3	6,981.0	54.7	53.6	-47.07	1,484.6	-1,664.3	227.6	156.1	71.46	3.185	
8,900.0	7,136.0	8,720.3	6,981.0	57.0	56.0	-47.06	1,485.1	-1,764.3	227.5	152.1	75.40	3.018	
9,000.0	7,136.0	8,820.3	6,981.0	59.4	58.4	-47.05	1,485.6	-1,864.3	227.5	148.1	79.37	2.866	
9,100.0	7,136.0	8,920.3	6,981.0	61.8	60.9	-47.03	1,486.1	-1,964.3	227.4	144.1	83.36	2.728	
9,200.0	7,136.0	9,020.3	6,981.0	64.3	63.4	-47.02	1,486.7	-2,064.3	227.4	140.0	87.37	2.602	
9,300.0	7,136.0	9,120.3	6,981.0	66.8	66.0	-47.01	1,487.2	-2,164.3	227.3	135.9	91.39	2.487	
9,400.0	7,136.0	9,220.3	6,981.0	69.3	68.5	-46.99	1,487.7	-2,264.3	227.3	131.8	95.43	2.381	
9,500.0	7,136.0	9,320.3	6,981.0	71.9	71.1	-46.98	1,488.2	-2,364.3	227.2	127.7	99.48	2.284	
9,600.0	7,136.0	9,420.3	6,981.0	74.4	73.7	-46.97	1,488.7	-2,464.2	227.1	123.6	103.55	2.194	
9,700.0	7,136.0	9,520.3	6,981.0	77.0	76.3	-46.96	1,489.3	-2,564.2	227.1	119.5	107.62	2.110	
9,800.0	7,136.0	9,620.3	6,981.0	79.6	79.0	-46.94	1,489.8	-2,664.2	227.0	115.3	111.70	2.033	
9,900.0	7,136.0	9,720.3	6,981.0	82.2	81.6	-46.93	1,490.3	-2,764.2	227.0	111.2	115.78	1.960	
10,000.0	7,136.0	9,820.3	6,981.0	84.9	84.3	-46.92	1,490.8	-2,864.2	226.9	107.0	119.88	1.893	
10,100.0	7,136.0	9,920.3	6,981.0	87.5	86.9	-46.90	1,491.4	-2,964.2	226.9	102.9	123.98	1.830	
10,200.0	7,136.0	10,020.3	6,981.0	90.2	89.6	-46.89	1,491.9	-3,064.2	226.8	98.7	128.08	1.771	
10,300.0	7,136.0	10,120.3	6,981.0	92.8	92.3	-46.88	1,492.4	-3,164.2	226.8	94.6	132.18	1.715	

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 Diamond Valley East #13
Project:	SEC.23-T6N-R67W	TVD Reference:	WELL @ 4791.0ft (Frontier 10 RKB -22')
Reference Site:	Diamond Valley East Pad Sec.23-T6N-R67W	MD Reference:	WELL @ 4791.0ft (Frontier 10 RKB -22')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Diamond Valley East #13	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 (10-03-13)	Offset TVD Reference:	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		
10,400.0	7,136.0	10,220.3	6,981.0	95.5	95.0	-46.86	1,492.9	-3,264.2	226.7	90.4	136.29	1.663		
10,500.0	7,136.0	10,320.3	6,981.0	98.2	97.7	-46.85	1,493.5	-3,364.2	226.6	86.2	140.41	1.614		
10,600.0	7,136.0	10,420.3	6,981.0	100.9	100.4	-46.84	1,494.0	-3,464.2	226.6	82.1	144.52	1.568		
10,700.0	7,136.0	10,520.3	6,981.0	103.6	103.1	-46.83	1,494.5	-3,564.2	226.5	77.9	148.64	1.524		
10,800.0	7,136.0	10,620.3	6,981.0	106.3	105.8	-46.81	1,495.0	-3,664.2	226.5	73.7	152.76	1.483 Level 3		
10,900.0	7,136.0	10,720.3	6,981.0	109.0	108.5	-46.80	1,495.5	-3,764.2	226.4	69.5	156.88	1.443 Level 3		
11,000.0	7,136.0	10,820.3	6,981.0	111.7	111.3	-46.79	1,496.1	-3,864.2	226.4	65.4	161.01	1.406 Level 3		
11,100.0	7,136.0	10,920.3	6,981.0	114.4	114.0	-46.77	1,496.6	-3,964.2	226.3	61.2	165.13	1.371 Level 3		
11,200.0	7,136.0	11,020.3	6,981.0	117.2	116.7	-46.76	1,497.1	-4,064.2	226.3	57.0	169.26	1.337 Level 3		
11,300.0	7,136.0	11,120.3	6,981.0	119.9	119.5	-46.75	1,497.6	-4,164.2	226.2	52.8	173.39	1.305 Level 3		
11,400.0	7,136.0	11,220.3	6,981.0	122.6	122.2	-46.73	1,498.2	-4,264.2	226.2	48.6	177.51	1.274 Level 3		
11,500.0	7,136.0	11,320.3	6,981.0	125.4	125.0	-46.72	1,498.7	-4,364.2	226.1	44.5	181.64	1.245 Level 2		
11,600.0	7,136.0	11,420.3	6,981.0	128.1	127.7	-46.71	1,499.2	-4,464.2	226.0	40.3	185.77	1.217 Level 2		
11,700.0	7,136.0	11,520.3	6,981.0	130.8	130.5	-46.69	1,499.7	-4,564.2	226.0	36.1	189.90	1.190 Level 2		
11,800.0	7,136.0	11,620.3	6,981.0	133.6	133.2	-46.68	1,500.3	-4,664.2	225.9	31.9	194.02	1.164 Level 2		
11,900.0	7,136.0	11,720.3	6,981.0	136.3	136.0	-46.67	1,500.8	-4,764.2	225.9	27.7	198.15	1.140 Level 2		
12,000.0	7,136.0	11,820.3	6,981.0	139.1	138.7	-46.66	1,501.3	-4,864.2	225.8	23.5	202.28	1.116 Level 2		
12,100.0	7,136.0	11,920.3	6,981.0	141.8	141.5	-46.64	1,501.8	-4,964.2	225.8	19.4	206.41	1.094 Level 2		
12,200.0	7,136.0	12,020.3	6,981.0	144.6	144.3	-46.63	1,502.3	-5,064.2	225.7	15.2	210.54	1.072 Level 2		
12,300.0	7,136.0	12,120.3	6,981.0	147.3	147.0	-46.62	1,502.9	-5,164.2	225.7	11.0	214.66	1.051 Level 2		
12,400.0	7,136.0	12,220.3	6,981.0	150.1	149.8	-46.60	1,503.4	-5,264.2	225.6	6.8	218.79	1.031 Level 2		
12,500.0	7,136.0	12,320.3	6,981.0	152.9	152.5	-46.59	1,503.9	-5,364.2	225.5	2.6	222.92	1.012 Level 2		
12,600.0	7,136.0	12,420.3	6,981.0	155.6	155.3	-46.58	1,504.4	-5,464.2	225.5	-1.6	227.04	0.993 Level 1		
12,700.0	7,136.0	12,520.3	6,981.0	158.4	158.1	-46.56	1,505.0	-5,564.2	225.4	-5.7	231.17	0.975 Level 1		
12,800.0	7,136.0	12,620.3	6,981.0	161.1	160.9	-46.55	1,505.5	-5,664.2	225.4	-9.9	235.29	0.958 Level 1		
12,900.0	7,136.0	12,720.3	6,981.0	163.9	163.6	-46.54	1,506.0	-5,764.2	225.3	-14.1	239.42	0.941 Level 1		
13,000.0	7,136.0	12,820.3	6,981.0	166.7	166.4	-46.52	1,506.5	-5,864.2	225.3	-18.3	243.54	0.925 Level 1		
13,100.0	7,136.0	12,920.3	6,981.0	169.5	169.2	-46.51	1,507.1	-5,964.2	225.2	-22.4	247.66	0.909 Level 1		
13,200.0	7,136.0	13,020.3	6,981.0	172.2	172.0	-46.50	1,507.6	-6,064.2	225.2	-26.6	251.78	0.894 Level 1		
13,300.0	7,136.0	13,120.3	6,981.0	175.0	174.7	-46.48	1,508.1	-6,164.2	225.1	-30.8	255.90	0.880 Level 1		
13,400.0	7,136.0	13,220.3	6,981.0	177.8	177.5	-46.47	1,508.6	-6,264.2	225.1	-35.0	260.02	0.866 Level 1		
13,500.0	7,136.0	13,320.3	6,981.0	180.5	180.3	-46.46	1,509.1	-6,364.2	225.0	-39.1	264.14	0.852 Level 1		
13,600.0	7,136.0	13,420.2	6,981.0	183.3	183.1	-46.44	1,509.7	-6,464.2	224.9	-43.3	268.26	0.839 Level 1		
13,700.0	7,136.0	13,520.2	6,981.0	186.1	185.9	-46.43	1,510.2	-6,564.2	224.9	-47.5	272.37	0.826 Level 1		
13,800.0	7,136.0	13,620.2	6,981.0	188.9	188.6	-46.42	1,510.7	-6,664.2	224.8	-51.7	276.49	0.813 Level 1		
13,900.0	7,136.0	13,720.2	6,981.0	191.7	191.4	-46.40	1,511.2	-6,764.2	224.8	-55.8	280.60	0.801 Level 1		
14,000.0	7,136.0	13,820.2	6,981.0	194.4	194.2	-46.39	1,511.8	-6,864.2	224.7	-60.0	284.72	0.789 Level 1		
14,100.0	7,136.0	13,920.2	6,981.0	197.2	197.0	-46.38	1,512.3	-6,964.2	224.7	-64.2	288.83	0.778 Level 1		
14,200.0	7,136.0	14,020.2	6,981.0	200.0	199.8	-46.37	1,512.8	-7,064.2	224.6	-68.3	292.94	0.767 Level 1		
14,300.0	7,136.0	14,120.2	6,981.0	202.8	202.6	-46.35	1,513.3	-7,164.2	224.6	-72.5	297.05	0.756 Level 1		
14,400.0	7,136.0	14,220.2	6,981.0	205.6	205.3	-46.34	1,513.9	-7,264.2	224.5	-76.6	301.16	0.745 Level 1		
14,500.0	7,136.0	14,320.2	6,981.0	208.3	208.1	-46.33	1,514.4	-7,364.2	224.5	-80.8	305.26	0.735 Level 1		
14,600.0	7,136.0	14,420.2	6,981.0	211.1	210.9	-46.31	1,514.9	-7,464.2	224.4	-85.0	309.37	0.725 Level 1		
14,700.0	7,136.0	14,520.2	6,981.0	213.9	213.7	-46.30	1,515.4	-7,564.2	224.3	-89.1	313.47	0.716 Level 1		
14,800.0	7,136.0	14,620.2	6,981.0	216.7	216.5	-46.29	1,516.0	-7,664.2	224.3	-93.3	317.58	0.706 Level 1		
14,900.0	7,136.0	14,720.2	6,981.0	219.5	219.3	-46.27	1,516.5	-7,764.2	224.2	-97.4	321.68	0.697 Level 1		
15,000.0	7,136.0	14,820.2	6,981.0	222.3	222.1	-46.26	1,517.0	-7,864.2	224.2	-101.6	325.78	0.688 Level 1		
15,100.0	7,136.0	14,920.2	6,981.0	225.1	224.9	-46.25	1,517.5	-7,964.2	224.1	-105.8	329.88	0.679 Level 1		
15,200.0	7,136.0	15,020.2	6,981.0	227.8	227.7	-46.23	1,518.0	-8,064.2	224.1	-109.9	333.98	0.671 Level 1		
15,300.0	7,136.0	15,120.2	6,981.0	230.6	230.4	-46.22	1,518.6	-8,164.2	224.0	-114.1	338.07	0.663 Level 1		
15,400.0	7,136.0	15,220.2	6,981.0	233.4	233.2	-46.21	1,519.1	-8,264.2	224.0	-118.2	342.17	0.655 Level 1		
15,500.0	7,136.0	15,320.2	6,981.0	236.2	236.0	-46.19	1,519.6	-8,364.2	223.9	-122.4	346.26	0.647 Level 1		

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 Diamond Valley East #13
Project:	SEC.23-T6N-R67W	TVD Reference:	WELL @ 4791.0ft (Frontier 10 RKB -22')
Reference Site:	Diamond Valley East Pad Sec.23-T6N-R67W	MD Reference:	WELL @ 4791.0ft (Frontier 10 RKB -22')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Diamond Valley East #13	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 (10-03-13)	Offset TVD Reference:	Offset Datum

Offset Design Diamond Valley East Pad Sec.23-T6N-R67W - Diamond Valley East #12 - Wellbore #1 - Plan #1 (6-23-													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor	Warning	
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)			
15,600.0	7,136.0	15,420.2	6,981.0	239.0	238.8	-46.18	1,520.1	-8,464.2	223.9	-126.5	350.35	0.639	Level 1	
15,700.0	7,136.0	15,520.2	6,981.0	241.8	241.6	-46.17	1,520.7	-8,564.2	223.8	-130.6	354.44	0.631	Level 1	
15,800.0	7,136.0	15,620.2	6,981.0	244.6	244.4	-46.15	1,521.2	-8,664.2	223.7	-134.8	358.53	0.624	Level 1	
15,900.0	7,136.0	15,720.2	6,981.0	247.4	247.2	-46.14	1,521.7	-8,764.2	223.7	-138.9	362.62	0.617	Level 1	
16,000.0	7,136.0	15,820.2	6,981.0	250.2	250.0	-46.13	1,522.2	-8,864.2	223.6	-143.1	366.71	0.610	Level 1	
16,100.0	7,136.0	15,920.2	6,981.0	253.0	252.8	-46.11	1,522.8	-8,964.2	223.6	-147.2	370.79	0.603	Level 1	
16,200.0	7,136.0	16,020.2	6,981.0	255.8	255.6	-46.10	1,523.3	-9,064.2	223.5	-151.3	374.88	0.596	Level 1	
16,300.0	7,136.0	16,120.2	6,981.0	258.5	258.4	-46.08	1,523.8	-9,164.2	223.5	-155.5	378.96	0.590	Level 1	
16,400.0	7,136.0	16,220.2	6,981.0	261.3	261.2	-46.07	1,524.3	-9,264.2	223.4	-159.6	383.04	0.583	Level 1	
16,500.0	7,136.0	16,320.2	6,981.0	264.1	264.0	-46.06	1,524.8	-9,364.2	223.4	-163.8	387.12	0.577	Level 1	
16,600.0	7,136.0	16,420.2	6,981.0	266.9	266.8	-46.04	1,525.4	-9,464.2	223.3	-167.9	391.20	0.571	Level 1	
16,700.0	7,136.0	16,520.2	6,981.0	269.7	269.6	-46.03	1,525.9	-9,564.2	223.3	-172.0	395.27	0.565	Level 1	
16,800.0	7,136.0	16,620.2	6,981.0	272.5	272.4	-46.02	1,526.4	-9,664.1	223.2	-176.1	399.35	0.559	Level 1	
16,900.0	7,136.0	16,720.2	6,981.0	275.3	275.2	-46.00	1,526.9	-9,764.1	223.1	-180.3	403.42	0.553	Level 1	
17,000.0	7,136.0	16,820.2	6,981.0	278.1	278.0	-45.99	1,527.5	-9,864.1	223.1	-184.4	407.49	0.547	Level 1	
17,100.0	7,136.0	16,920.2	6,981.0	280.9	280.8	-45.98	1,528.0	-9,964.1	223.0	-188.5	411.56	0.542	Level 1	
17,200.0	7,136.0	17,020.2	6,981.0	283.7	283.6	-45.96	1,528.5	-10,064.1	223.0	-192.6	415.63	0.537	Level 1	
17,210.5	7,136.0	17,030.6	6,981.0	284.0	283.8	-45.96	1,528.6	-10,074.5	223.0	-193.1	416.05	0.536	Level 1	
17,211.1	7,136.0	17,030.6	6,981.0	284.0	283.8	-45.96	1,528.6	-10,074.5	223.0	-193.1	416.07	0.536	Level 1, ES, SF	

Company:	Extraction Oil & Gas	Local Co-ordinate Reference:	Well Diamond Valley East #13
Project:	SEC.23-T6N-R67W	TVD Reference:	WELL @ 4791.0ft (Frontier 10 RKB -22')
Reference Site:	Diamond Valley East Pad Sec.23-T6N-R67W	MD Reference:	WELL @ 4791.0ft (Frontier 10 RKB -22')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Diamond Valley East #13	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 (10-03-13)	Offset TVD Reference:	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						
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	-179.11	-178.5	-2.8	178.5				
100.0	100.0	100.0	100.0	0.1	0.1	-179.11	-178.5	-2.8	178.5	178.3	0.22	794.359	
200.0	200.0	200.0	200.0	0.3	0.3	-179.11	-178.5	-2.8	178.5	177.9	0.67	264.786 CC, ES	
300.0	300.0	300.0	300.0	0.6	0.6	176.74	-178.5	-2.8	180.3	179.2	1.13	159.296	
400.0	399.8	399.8	399.8	0.8	0.8	176.83	-178.5	-2.8	185.5	183.9	1.59	116.418	
500.0	499.5	499.5	499.5	1.0	1.0	176.96	-178.5	-2.8	194.2	192.2	2.05	94.510	
600.0	598.7	598.7	598.7	1.3	1.2	177.13	-178.5	-2.8	206.4	203.9	2.52	82.007	
700.0	697.5	697.5	697.5	1.6	1.5	177.32	-178.5	-2.8	222.0	219.0	2.98	74.520	
800.0	795.6	795.6	795.6	2.0	1.7	177.51	-178.5	-2.8	241.1	237.6	3.44	70.016	
900.0	893.1	893.1	893.1	2.4	1.9	177.71	-178.5	-2.8	263.5	259.6	3.91	67.418	
1,000.0	990.0	990.0	990.0	2.9	2.1	177.90	-178.5	-2.8	287.9	283.5	4.38	65.760	
1,100.0	1,087.0	1,087.0	1,087.0	3.4	2.3	178.06	-178.5	-2.8	312.3	307.4	4.85	64.347	
1,200.0	1,184.0	1,184.0	1,184.0	3.9	2.5	178.20	-178.5	-2.8	336.6	331.3	5.33	63.140	
1,300.0	1,281.0	1,272.1	1,272.1	4.4	2.7	178.28	-179.4	-2.6	362.0	356.2	5.78	62.641 SF	
1,400.0	1,378.0	1,357.1	1,357.1	4.8	2.9	178.27	-182.8	-2.0	390.2	383.9	6.21	62.790	
1,500.0	1,474.9	1,440.7	1,440.4	5.3	3.0	178.18	-188.5	-1.1	421.1	414.4	6.65	63.363	
1,600.0	1,571.9	1,522.6	1,522.0	5.8	3.2	178.03	-196.4	0.3	454.6	447.5	7.08	64.200	
1,700.0	1,668.9	1,614.2	1,612.9	6.3	3.4	177.85	-206.9	2.1	489.9	482.4	7.53	65.071	
1,800.0	1,765.9	1,707.8	1,705.8	6.8	3.6	177.68	-217.7	4.0	525.2	517.2	7.98	65.838	
1,900.0	1,862.9	1,801.3	1,798.7	7.3	3.8	177.54	-228.5	5.9	560.5	552.1	8.43	66.481	
2,000.0	1,959.9	1,894.9	1,891.6	7.8	4.0	177.41	-239.2	7.7	595.8	586.9	8.89	67.024	
2,100.0	2,056.8	1,988.4	1,984.6	8.3	4.3	177.30	-250.0	9.6	631.1	621.7	9.35	67.486	
2,200.0	2,153.8	2,082.0	2,077.5	8.8	4.5	177.20	-260.8	11.5	666.4	656.6	9.82	67.867	
2,300.0	2,250.8	2,175.5	2,170.4	9.3	4.8	177.11	-271.5	13.3	701.7	691.4	10.29	68.213	
2,400.0	2,347.8	2,269.1	2,263.3	9.8	5.1	177.03	-282.3	15.2	737.0	726.3	10.76	68.506	
2,500.0	2,444.8	2,362.6	2,356.2	10.3	5.3	176.95	-293.1	17.1	772.3	761.1	11.23	68.759	
2,600.0	2,541.7	2,456.2	2,449.1	10.8	5.6	176.89	-303.8	18.9	807.6	795.9	11.71	68.979	
2,700.0	2,638.7	2,549.7	2,542.0	11.3	5.9	176.82	-314.6	20.8	843.0	830.8	12.19	69.172	
2,800.0	2,735.7	2,643.3	2,634.9	11.8	6.1	176.77	-325.4	22.7	878.3	865.6	12.67	69.341	
2,900.0	2,832.7	2,736.9	2,727.9	12.3	6.4	176.72	-336.2	24.5	913.6	900.4	13.15	69.490	
3,000.0	2,929.7	2,830.4	2,820.8	12.8	6.7	176.67	-346.9	26.4	948.9	935.3	13.63	69.621	
3,100.0	3,026.7	2,924.0	2,913.7	13.3	7.0	176.62	-357.7	28.3	984.2	970.1	14.11	69.738	

Company:	Extraction Oil & Gas	Local Co-ordinate Reference:	Well Diamond Valley East #13
Project:	SEC.23-T6N-R67W	TVD Reference:	WELL @ 4791.0ft (Frontier 10 RKB -22')
Reference Site:	Diamond Valley East Pad Sec.23-T6N-R67W	MD Reference:	WELL @ 4791.0ft (Frontier 10 RKB -22')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Diamond Valley East #13	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 (10-03-13)	Offset TVD Reference:	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						
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	-179.01	-160.3	-2.8	160.3				
100.0	100.0	100.0	100.0	0.1	0.1	-179.01	-160.3	-2.8	160.3	160.1	0.22	713.290	
200.0	200.0	200.0	200.0	0.3	0.3	-179.01	-160.3	-2.8	160.3	159.6	0.67	237.763 CC, ES	
300.0	300.0	300.0	300.0	0.6	0.6	176.85	-160.3	-2.8	162.1	160.9	1.13	143.196	
400.0	399.8	399.8	399.8	0.8	0.8	176.94	-160.3	-2.8	167.3	165.7	1.59	104.983	
500.0	499.5	499.5	499.5	1.0	1.0	177.08	-160.3	-2.8	176.0	173.9	2.05	85.644	
600.0	598.7	598.7	598.7	1.3	1.2	177.26	-160.3	-2.8	188.2	185.6	2.52	74.768	
700.0	697.5	697.5	697.5	1.6	1.5	177.46	-160.3	-2.8	203.8	200.8	2.98	68.406	
800.0	795.6	795.6	795.6	2.0	1.7	177.66	-160.3	-2.8	222.9	219.4	3.44	64.727	
900.0	893.1	893.1	893.1	2.4	1.9	177.86	-160.3	-2.8	245.3	241.4	3.91	62.761	
1,000.0	990.0	990.0	990.0	2.9	2.1	178.05	-160.3	-2.8	269.7	265.3	4.38	61.602	
1,100.0	1,087.0	1,087.0	1,087.0	3.4	2.3	178.21	-160.3	-2.8	294.1	289.2	4.85	60.597	
1,200.0	1,184.0	1,184.0	1,184.0	3.9	2.5	178.35	-160.3	-2.8	318.4	313.1	5.33	59.728	
1,300.0	1,281.0	1,281.0	1,281.0	4.4	2.8	178.46	-160.3	-2.8	342.8	337.0	5.81	58.972	
1,400.0	1,378.0	1,378.0	1,378.0	4.8	3.0	178.57	-160.3	-2.8	367.2	360.9	6.30	58.311	
1,500.0	1,474.9	1,474.9	1,474.9	5.3	3.2	178.66	-160.3	-2.8	391.6	384.8	6.78	57.730	
1,600.0	1,571.9	1,563.4	1,563.4	5.8	3.4	178.69	-161.0	-2.6	416.7	409.4	7.24	57.576 SF	
1,700.0	1,668.9	1,647.7	1,647.7	6.3	3.5	178.60	-163.9	-1.5	444.4	436.7	7.67	57.907	
1,800.0	1,765.9	1,737.0	1,736.8	6.8	3.7	178.40	-169.2	0.3	474.3	466.2	8.12	58.444	
1,900.0	1,862.9	1,832.3	1,831.9	7.3	3.9	178.20	-175.1	2.4	504.6	496.0	8.56	58.946	
2,000.0	1,959.9	1,927.6	1,927.0	7.8	4.1	178.02	-181.1	4.4	534.9	525.9	9.01	59.365	
2,100.0	2,056.8	2,022.9	2,022.0	8.3	4.3	177.86	-187.0	6.5	565.2	555.7	9.46	59.716	
2,200.0	2,153.8	2,118.2	2,117.1	8.8	4.4	177.72	-193.0	8.6	595.5	585.5	9.92	60.012	
2,300.0	2,250.8	2,213.5	2,212.2	9.3	4.6	177.59	-198.9	10.6	625.8	615.4	10.38	60.261	
2,400.0	2,347.8	2,308.8	2,307.3	9.8	4.9	177.47	-204.9	12.7	656.1	645.2	10.85	60.470	
2,500.0	2,444.8	2,404.1	2,402.4	10.3	5.1	177.36	-210.8	14.8	686.4	675.1	11.32	60.649	
2,600.0	2,541.7	2,499.4	2,497.4	10.8	5.3	177.27	-216.8	16.8	716.7	704.9	11.79	60.801	
2,700.0	2,638.7	2,594.6	2,592.5	11.3	5.5	177.18	-222.7	18.9	747.0	734.7	12.26	60.930	
2,800.0	2,735.7	2,689.9	2,687.6	11.8	5.7	177.09	-228.7	21.0	777.3	764.6	12.73	61.040	
2,900.0	2,832.7	2,785.2	2,782.7	12.3	5.9	177.02	-234.6	23.0	807.6	794.4	13.21	61.135	
3,000.0	2,929.7	2,880.5	2,877.8	12.8	6.2	176.95	-240.6	25.1	837.9	824.2	13.69	61.215	
3,100.0	3,026.7	2,975.8	2,972.9	13.3	6.4	176.88	-246.5	27.2	868.2	854.1	14.17	61.284	
3,200.0	3,123.6	3,071.1	3,067.9	13.8	6.6	176.82	-252.4	29.2	898.5	883.9	14.65	61.343	
3,300.0	3,220.6	3,166.4	3,163.0	14.3	6.8	176.76	-258.4	31.3	928.9	913.7	15.13	61.394	
3,400.0	3,317.6	3,261.7	3,258.1	14.8	7.1	176.71	-264.3	33.3	959.2	943.6	15.61	61.437	
3,500.0	3,414.6	3,357.0	3,353.2	15.3	7.3	176.66	-270.3	35.4	989.5	973.4	16.10	61.473	

Company:	Extraction Oil & Gas	Local Co-ordinate Reference:	Well Diamond Valley East #13
Project:	SEC.23-T6N-R67W	TVD Reference:	WELL @ 4791.0ft (Frontier 10 RKB -22')
Reference Site:	Diamond Valley East Pad Sec.23-T6N-R67W	MD Reference:	WELL @ 4791.0ft (Frontier 10 RKB -22')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Diamond Valley East #13	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 (10-03-13)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 133-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	0.5	0.5	0.0	0.0	-178.91	-145.7	-2.8	145.7					
100.0	100.0	100.5	100.5	0.1	0.1	-178.88	-145.7	-2.8	145.8	145.5	0.23	646.716		
200.0	200.0	200.4	200.4	0.3	0.3	-179.09	-145.8	-2.3	145.8	145.2	0.62	233.599 ES		
300.0	300.0	300.3	300.3	0.6	0.5	175.38	-145.9	1.3	147.6	146.5	1.07	138.137		
400.0	399.8	400.3	400.0	0.8	0.7	173.27	-145.9	7.3	153.0	151.4	1.54	99.397		
500.0	499.5	499.7	499.3	1.0	1.0	171.45	-145.8	13.3	161.9	159.9	2.01	80.747		
600.0	598.7	600.7	600.1	1.3	1.2	170.02	-145.2	19.3	173.9	171.4	2.48	70.242		
700.0	697.5	700.4	699.6	1.6	1.4	168.83	-143.7	25.6	188.5	185.5	2.95	63.837		
800.0	795.6	794.8	793.7	2.0	1.7	167.96	-142.7	31.9	207.0	203.5	3.44	60.240		
900.0	893.1	887.8	886.5	2.4	1.9	167.41	-144.0	38.2	231.2	227.3	3.92	58.994		
1,000.0	990.0	981.0	979.4	2.9	2.1	167.21	-146.6	44.4	258.6	254.2	4.41	58.647 SF		
1,100.0	1,087.0	1,076.0	1,074.3	3.4	2.3	167.38	-150.3	49.3	286.9	282.0	4.89	58.699		
1,200.0	1,184.0	1,174.0	1,172.1	3.9	2.5	168.00	-154.3	51.8	314.9	309.6	5.36	58.793		
1,300.0	1,281.0	1,271.7	1,269.7	4.4	2.7	168.58	-157.6	53.9	342.3	336.5	5.82	58.803		
1,400.0	1,378.0	1,368.7	1,366.7	4.8	2.9	169.11	-160.6	55.7	369.5	363.2	6.29	58.741		
1,500.0	1,474.9	1,460.5	1,458.4	5.3	3.1	169.51	-163.6	57.6	396.9	390.1	6.76	58.745		
1,600.0	1,571.9	1,549.8	1,547.6	5.8	3.3	169.73	-167.9	60.4	425.8	418.6	7.22	58.932		
1,700.0	1,668.9	1,646.8	1,644.4	6.3	3.5	170.10	-173.5	62.4	455.5	447.8	7.70	59.143		
1,800.0	1,765.9	1,746.6	1,744.1	6.8	3.8	170.44	-178.4	64.3	484.4	476.3	8.18	59.224		
1,900.0	1,862.9	1,842.9	1,840.3	7.3	4.0	170.70	-182.5	66.3	512.9	504.2	8.66	59.251		
2,000.0	1,959.9	1,932.7	1,930.0	7.8	4.2	170.80	-186.8	69.4	541.8	532.7	9.13	59.352		
2,100.0	2,056.8	2,029.7	2,026.7	8.3	4.4	170.87	-191.9	72.9	571.2	561.6	9.62	59.398		
2,200.0	2,153.8	2,126.6	2,123.4	8.8	4.6	170.96	-196.8	76.2	600.4	590.3	10.10	59.424		
2,300.0	2,250.8	2,229.9	2,226.5	9.3	4.9	170.93	-201.0	80.8	628.8	618.2	10.61	59.252		
2,400.0	2,347.8	2,317.7	2,314.2	9.8	5.1	170.89	-204.7	84.9	657.3	646.2	11.09	59.270		
2,500.0	2,444.8	2,419.0	2,415.3	10.3	5.3	170.86	-209.1	89.5	685.9	674.3	11.60	59.148		
2,600.0	2,541.7	2,506.0	2,502.1	10.8	5.5	170.90	-213.5	92.8	715.2	703.1	12.07	59.260		
2,700.0	2,638.7	2,598.9	2,594.8	11.3	5.7	171.00	-219.1	95.5	745.3	732.7	12.55	59.393		
2,800.0	2,735.7	2,709.8	2,705.6	11.8	6.0	171.17	-224.4	98.1	774.1	761.0	13.06	59.282		
2,900.0	2,832.7	2,805.0	2,800.7	12.3	6.2	171.29	-227.9	100.2	802.0	788.4	13.54	59.245		
3,000.0	2,929.7	2,891.2	2,886.8	12.8	6.4	171.38	-231.8	102.5	830.6	816.6	14.00	59.322		
3,100.0	3,026.7	2,981.0	2,976.4	13.3	6.6	171.45	-236.6	105.0	860.1	845.6	14.47	59.423		
3,200.0	3,123.6	3,093.4	3,088.6	13.8	6.8	171.51	-241.8	108.6	888.9	873.9	14.99	59.282		
3,300.0	3,220.6	3,186.7	3,181.7	14.3	7.1	171.54	-245.4	111.7	916.9	901.4	15.48	59.245		
3,400.0	3,317.6	3,266.0	3,260.9	14.8	7.2	171.55	-249.1	114.8	945.9	929.9	15.93	59.363		
3,500.0	3,414.6	3,355.3	3,350.0	15.3	7.5	171.53	-254.4	118.6	976.0	959.5	16.42	59.448		

Company:	Extraction Oil & Gas	Local Co-ordinate Reference:	Well Diamond Valley East #13
Project:	SEC.23-T6N-R67W	TVD Reference:	WELL @ 4791.0ft (Frontier 10 RKB -22')
Reference Site:	Diamond Valley East Pad Sec.23-T6N-R67W	MD Reference:	WELL @ 4791.0ft (Frontier 10 RKB -22')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Diamond Valley East #13	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 (10-03-13)	Offset TVD Reference:	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	-178.75	-127.5	-2.8	127.5					
100.0	100.0	100.0	100.0	0.1	0.1	-178.75	-127.5	-2.8	127.5	127.3	0.22	567.457		
200.0	200.0	200.0	200.0	0.3	0.3	-178.75	-127.5	-2.8	127.5	126.9	0.67	189.152 CC, ES		
300.0	300.0	300.0	300.0	0.6	0.6	177.11	-127.5	-2.8	129.3	128.2	1.13	114.234		
400.0	399.8	399.8	399.8	0.8	0.8	177.22	-127.5	-2.8	134.5	132.9	1.59	84.414		
500.0	499.5	499.5	499.5	1.0	1.0	177.38	-127.5	-2.8	143.2	141.2	2.05	69.695		
600.0	598.7	598.7	598.7	1.3	1.2	177.57	-127.5	-2.8	155.4	152.9	2.52	61.747		
700.0	697.5	697.5	697.5	1.6	1.5	177.78	-127.5	-2.8	171.0	168.0	2.98	57.408		
800.0	795.6	795.6	795.6	2.0	1.7	177.99	-127.5	-2.8	190.1	186.6	3.44	55.213		
900.0	893.1	893.1	893.1	2.4	1.9	178.19	-127.5	-2.8	212.6	208.7	3.91	54.383		
1,000.0	990.0	990.0	990.0	2.9	2.1	178.37	-127.5	-2.8	236.9	232.6	4.38	54.124		
1,100.0	1,087.0	1,087.0	1,087.0	3.4	2.3	178.53	-127.5	-2.8	261.3	256.5	4.85	53.851		
1,200.0	1,184.0	1,184.0	1,184.0	3.9	2.5	178.65	-127.5	-2.8	285.7	280.4	5.33	53.589		
1,300.0	1,281.0	1,281.0	1,281.0	4.4	2.8	178.76	-127.5	-2.8	310.1	304.3	5.81	53.342		
1,400.0	1,378.0	1,378.0	1,378.0	4.8	3.0	178.85	-127.5	-2.8	334.4	328.2	6.30	53.115		
1,500.0	1,474.9	1,474.9	1,474.9	5.3	3.2	178.93	-127.5	-2.8	358.8	352.0	6.78	52.906		
1,600.0	1,571.9	1,571.9	1,571.9	5.8	3.4	179.00	-127.5	-2.8	383.2	375.9	7.27	52.715		
1,700.0	1,668.9	1,668.9	1,668.9	6.3	3.6	179.06	-127.5	-2.8	407.6	399.8	7.76	52.541		
1,800.0	1,765.9	1,765.9	1,765.9	6.8	3.9	179.11	-127.5	-2.8	432.0	423.7	8.25	52.381		
1,900.0	1,862.9	1,862.9	1,862.9	7.3	4.1	179.16	-127.5	-2.8	456.3	447.6	8.74	52.234		
2,000.0	1,959.9	1,959.9	1,959.9	7.8	4.3	179.20	-127.5	-2.8	480.7	471.5	9.23	52.099		
2,100.0	2,056.8	2,056.8	2,056.8	8.3	4.5	179.24	-127.5	-2.8	505.1	495.4	9.72	51.975		
2,200.0	2,153.8	2,153.8	2,153.8	8.8	4.7	179.27	-127.5	-2.8	529.5	519.3	10.21	51.860		
2,300.0	2,250.8	2,250.8	2,250.8	9.3	4.9	179.30	-127.5	-2.8	553.9	543.2	10.70	51.754		
2,400.0	2,347.8	2,347.8	2,347.8	9.8	5.2	179.33	-127.5	-2.8	578.3	567.1	11.19	51.655		
2,500.0	2,444.8	2,444.8	2,444.8	10.3	5.4	179.36	-127.5	-2.8	602.6	590.9	11.69	51.564		
2,600.0	2,541.7	2,541.7	2,541.7	10.8	5.6	179.39	-127.5	-2.8	627.0	614.8	12.18	51.478		
2,700.0	2,638.7	2,638.7	2,638.7	11.3	5.8	179.41	-127.5	-2.8	651.4	638.7	12.67	51.398		
2,800.0	2,735.7	2,735.7	2,735.7	11.8	6.0	179.43	-127.5	-2.8	675.8	662.6	13.17	51.323		
2,900.0	2,832.7	2,832.7	2,832.7	12.3	6.3	179.45	-127.5	-2.8	700.2	686.5	13.66	51.252		
3,000.0	2,929.7	2,929.7	2,929.7	12.8	6.5	179.47	-127.5	-2.8	724.5	710.4	14.16	51.186		
3,100.0	3,026.7	3,026.7	3,026.7	13.3	6.7	179.49	-127.5	-2.8	748.9	734.3	14.65	51.124		
3,200.0	3,123.6	3,123.6	3,123.6	13.8	6.9	179.50	-127.5	-2.8	773.3	758.2	15.14	51.065		
3,300.0	3,220.6	3,220.6	3,220.6	14.3	7.1	179.52	-127.5	-2.8	797.7	782.1	15.64	51.009		
3,400.0	3,317.6	3,317.6	3,317.6	14.8	7.3	179.53	-127.5	-2.8	822.1	805.9	16.13	50.956		
3,500.0	3,414.6	3,414.6	3,414.6	15.3	7.6	179.55	-127.5	-2.8	846.5	829.8	16.63	50.906		
3,600.0	3,511.6	3,511.6	3,511.6	15.9	7.8	179.56	-127.5	-2.8	870.8	853.7	17.12	50.858		
3,700.0	3,608.5	3,608.5	3,608.5	16.4	8.0	179.57	-127.5	-2.8	895.2	877.6	17.62	50.813		
3,800.0	3,705.5	3,705.5	3,705.5	16.9	8.2	179.58	-127.5	-2.8	919.6	901.5	18.11	50.770		
3,900.0	3,802.5	3,802.5	3,802.5	17.4	8.4	179.59	-127.5	-2.8	944.0	925.4	18.61	50.729		
4,000.0	3,899.5	3,899.5	3,899.5	17.9	8.7	179.60	-127.5	-2.8	968.4	949.3	19.10	50.689		
4,100.0	3,996.5	3,996.5	3,996.5	18.4	8.9	179.61	-127.5	-2.8	992.8	973.2	19.60	50.651 SF		

Company:	Extraction Oil & Gas	Local Co-ordinate Reference:	Well Diamond Valley East #13
Project:	SEC.23-T6N-R67W	TVD Reference:	WELL @ 4791.0ft (Frontier 10 RKB -22')
Reference Site:	Diamond Valley East Pad Sec.23-T6N-R67W	MD Reference:	WELL @ 4791.0ft (Frontier 10 RKB -22')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Diamond Valley East #13	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 (10-03-13)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 1-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	0.5	0.5	0.0	0.0	-178.59	-112.9	-2.8	113.0					
100.0	100.0	100.5	100.5	0.1	0.1	-178.59	-112.9	-2.8	113.0	112.7	0.23	501.369		
200.0	200.0	200.5	200.5	0.3	0.3	-178.59	-112.9	-2.8	113.0	112.3	0.67	167.401 CC, ES		
300.0	300.0	300.5	300.5	0.6	0.6	177.27	-112.9	-2.8	114.7	113.6	1.13	101.309		
400.0	399.8	400.3	400.3	0.8	0.8	177.39	-112.9	-2.8	119.9	118.3	1.59	75.243		
500.0	499.5	500.0	500.0	1.0	1.0	177.56	-112.9	-2.8	128.6	126.6	2.06	62.588		
600.0	598.7	599.2	599.2	1.3	1.2	177.76	-112.9	-2.8	140.8	138.3	2.52	55.946		
700.0	697.5	698.0	698.0	1.6	1.5	177.97	-112.9	-2.8	156.5	153.5	2.98	52.509		
800.0	795.6	796.1	796.1	2.0	1.7	178.18	-112.9	-2.8	175.5	172.1	3.44	50.975		
900.0	893.1	893.6	893.6	2.4	1.9	178.37	-112.9	-2.8	198.0	194.1	3.91	50.652		
1,000.0	990.0	990.5	990.5	2.9	2.1	178.55	-112.9	-2.8	222.4	218.0	4.38	50.793		
1,100.0	1,087.0	1,087.5	1,087.5	3.4	2.3	178.69	-112.9	-2.8	246.8	241.9	4.85	50.847		
1,200.0	1,184.0	1,184.5	1,184.5	3.9	2.5	178.81	-112.9	-2.8	271.1	265.8	5.33	50.854		
1,300.0	1,281.0	1,281.5	1,281.5	4.4	2.8	178.91	-112.9	-2.8	295.5	289.7	5.81	50.835		
1,400.0	1,378.0	1,378.5	1,378.5	4.8	3.0	178.99	-112.9	-2.8	319.9	313.6	6.30	50.800		
1,500.0	1,474.9	1,475.4	1,475.4	5.3	3.2	179.06	-112.9	-2.8	344.3	337.5	6.78	50.757		
1,600.0	1,571.9	1,572.4	1,572.4	5.8	3.4	179.13	-112.9	-2.8	368.7	361.4	7.27	50.711		
1,700.0	1,668.9	1,669.4	1,669.4	6.3	3.6	179.18	-112.9	-2.8	393.0	385.3	7.76	50.662		
1,800.0	1,765.9	1,766.4	1,766.4	6.8	3.9	179.23	-112.9	-2.8	417.4	409.2	8.25	50.614		
1,900.0	1,862.9	1,863.4	1,863.4	7.3	4.1	179.27	-112.9	-2.8	441.8	433.1	8.74	50.566		
2,000.0	1,959.9	1,960.4	1,960.4	7.8	4.3	179.31	-112.9	-2.8	466.2	457.0	9.23	50.520		
2,100.0	2,056.8	2,068.3	2,068.3	8.3	4.5	179.31	-112.2	-2.5	489.9	480.2	9.74	50.299		
2,200.0	2,153.8	2,183.9	2,183.7	8.8	4.8	179.15	-107.6	-0.4	510.3	500.0	10.26	49.717		
2,300.0	2,250.8	2,282.1	2,281.8	9.3	5.0	178.95	-102.0	2.1	529.0	518.3	10.76	49.170		
2,400.0	2,347.8	2,380.3	2,379.8	9.8	5.2	178.77	-96.5	4.5	547.8	536.5	11.26	48.659		
2,500.0	2,444.8	2,478.5	2,477.8	10.3	5.5	178.60	-91.0	7.0	566.5	554.8	11.76	48.187		
2,600.0	2,541.7	2,576.7	2,575.8	10.8	5.7	178.44	-85.4	9.4	585.3	573.1	12.26	47.754		
2,700.0	2,638.7	2,674.9	2,673.9	11.3	5.9	178.29	-79.9	11.9	604.1	591.3	12.76	47.348		
2,800.0	2,735.7	2,773.1	2,771.9	11.8	6.1	178.15	-74.4	14.3	622.9	609.6	13.26	46.971		
2,900.0	2,832.7	2,871.3	2,869.9	12.3	6.4	178.02	-68.9	16.8	641.6	627.9	13.76	46.619		
3,000.0	2,929.7	2,969.5	2,967.9	12.8	6.6	177.90	-63.3	19.2	660.4	646.2	14.27	46.291		
3,100.0	3,026.7	3,067.8	3,066.0	13.3	6.8	177.78	-57.8	21.7	679.2	664.4	14.77	45.984		
3,200.0	3,123.6	3,166.0	3,164.0	13.8	7.1	177.67	-52.3	24.1	698.0	682.7	15.28	45.695		
3,300.0	3,220.6	3,264.2	3,262.0	14.3	7.3	177.56	-46.8	26.6	716.8	701.0	15.78	45.423		
3,400.0	3,317.6	3,362.4	3,360.0	14.8	7.5	177.46	-41.2	29.0	735.6	719.3	16.29	45.167		
3,500.0	3,414.6	3,460.6	3,458.1	15.3	7.8	177.37	-35.7	31.5	754.4	737.6	16.79	44.926		
3,600.0	3,511.6	3,558.8	3,556.1	15.9	8.0	177.28	-30.2	34.0	773.2	755.9	17.30	44.698		
3,700.0	3,608.5	3,657.0	3,654.1	16.4	8.2	177.19	-24.6	36.4	792.0	774.2	17.80	44.481		
3,800.0	3,705.5	3,755.2	3,752.1	16.9	8.5	177.11	-19.1	38.9	810.8	792.4	18.31	44.277		
3,900.0	3,802.5	3,853.4	3,850.2	17.4	8.7	177.03	-13.6	41.3	829.6	810.7	18.82	44.082		
4,000.0	3,899.5	3,951.7	3,948.2	17.9	8.9	176.96	-8.1	43.8	848.4	829.0	19.33	43.897		
4,100.0	3,996.5	4,049.9	4,046.2	18.4	9.2	176.88	-2.5	46.2	867.2	847.3	19.83	43.721		
4,200.0	4,093.5	4,148.1	4,144.2	18.9	9.4	176.82	3.0	48.7	886.0	865.6	20.34	43.553		
4,300.0	4,190.4	4,246.3	4,242.2	19.4	9.7	176.75	8.5	51.1	904.8	883.9	20.85	43.393		
4,400.0	4,287.4	4,344.5	4,340.3	19.9	9.9	176.69	14.0	53.6	923.6	902.2	21.36	43.240		
4,500.0	4,384.4	4,442.7	4,438.3	20.4	10.1	176.63	19.6	56.0	942.4	920.5	21.87	43.094		
4,600.0	4,481.4	4,540.9	4,536.3	20.9	10.4	176.57	25.1	58.5	961.2	938.8	22.38	42.954		
4,700.0	4,578.4	4,639.1	4,634.3	21.4	10.6	176.51	30.6	60.9	980.0	957.1	22.89	42.820		
4,800.0	4,675.3	4,737.3	4,732.4	21.9	10.8	176.46	36.1	63.4	998.8	975.4	23.40	42.691 SF		

Company:	Extraction Oil & Gas	Local Co-ordinate Reference:	Well Diamond Valley East #13
Project:	SEC.23-T6N-R67W	TVD Reference:	WELL @ 4791.0ft (Frontier 10 RKB -22')
Reference Site:	Diamond Valley East Pad Sec.23-T6N-R67W	MD Reference:	WELL @ 4791.0ft (Frontier 10 RKB -22')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Diamond Valley East #13	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 (10-03-13)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 223-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	1.0	1.0	0.0	0.0	-178.38	-98.4	-2.8	98.4	98.4	0.00	N/A		
100.0	100.0	101.2	101.2	0.1	0.1	-178.44	-98.2	-2.7	98.3	98.1	0.23	434.132		
200.0	200.0	201.5	201.5	0.3	0.2	-178.61	-97.9	-2.4	97.9	97.3	0.56	173.646		
215.3	215.3	216.9	216.9	0.4	0.2	177.18	-97.8	-2.3	97.9	97.2	0.62	158.831 CC, ES		
300.0	300.0	301.6	301.5	0.6	0.4	176.89	-97.3	-1.7	99.1	98.1	0.99	99.645		
400.0	399.8	401.7	401.7	0.8	0.6	176.63	-96.7	-1.0	103.6	102.2	1.44	72.034		
500.0	499.5	500.8	500.8	1.0	0.8	176.77	-96.1	-0.7	111.8	109.9	1.87	59.657		
600.0	598.7	599.9	599.9	1.3	1.0	176.79	-96.1	-0.1	123.9	121.6	2.33	53.238		
700.0	697.5	699.1	699.1	1.6	1.2	176.99	-95.6	0.2	139.0	136.3	2.77	50.117		
800.0	795.6	798.6	798.6	2.0	1.4	177.43	-94.9	0.0	157.5	154.2	3.22	48.851		
900.0	893.1	895.7	895.6	2.4	1.6	178.08	-93.6	-1.0	178.6	174.9	3.67	48.614		
1,000.0	990.0	992.8	992.8	2.9	1.9	178.40	-92.9	-1.3	202.3	198.2	4.13	48.996		
1,100.0	1,087.0	1,089.9	1,089.9	3.4	2.1	178.21	-92.1	0.1	225.8	221.2	4.59	49.196		
1,200.0	1,184.0	1,187.1	1,187.1	3.9	2.3	178.13	-91.4	1.2	249.4	244.4	5.05	49.345		
1,300.0	1,281.0	1,284.2	1,284.2	4.4	2.5	178.15	-90.6	2.0	273.0	267.4	5.52	49.422		
1,400.0	1,378.0	1,382.5	1,382.4	4.8	2.7	178.25	-89.7	2.3	296.4	290.4	6.00	49.425		
1,500.0	1,474.9	1,480.4	1,480.3	5.3	2.9	178.36	-88.4	2.5	319.6	313.1	6.47	49.380		
1,600.0	1,571.9	1,585.8	1,585.7	5.8	3.1	178.51	-85.7	2.4	341.5	334.5	6.96	49.062		
1,700.0	1,668.9	1,688.2	1,687.9	6.3	3.3	178.69	-81.2	2.2	361.5	354.1	7.45	48.551		
1,800.0	1,765.9	1,787.6	1,787.2	6.8	3.5	178.77	-76.0	2.5	380.8	372.8	7.93	48.016		
1,900.0	1,862.9	1,887.3	1,886.8	7.3	3.8	179.01	-70.6	1.7	400.0	391.5	8.42	47.524		
2,000.0	1,959.9	1,993.3	1,992.6	7.8	4.0	179.19	-63.6	1.2	417.9	409.0	8.92	46.866		
2,100.0	2,056.8	2,090.3	2,089.3	8.3	4.2	179.23	-56.0	1.7	434.6	425.2	9.40	46.231		
2,200.0	2,153.8	2,195.1	2,193.8	8.8	4.5	179.12	-48.3	3.4	451.8	441.9	9.90	45.645		
2,300.0	2,250.8	2,297.4	2,295.6	9.3	4.7	178.91	-39.0	6.0	467.0	456.6	10.40	44.922		
2,400.0	2,347.8	2,394.5	2,392.3	9.8	5.0	178.66	-30.2	9.0	482.4	471.5	10.89	44.312		
2,500.0	2,444.8	2,492.5	2,489.7	10.3	5.2	178.25	-21.6	13.4	498.0	486.6	11.38	43.767		
2,600.0	2,541.7	2,589.7	2,586.6	10.8	5.4	177.87	-13.4	17.9	513.9	502.0	11.87	43.286		
2,700.0	2,638.7	2,688.8	2,685.3	11.3	5.7	177.68	-5.0	20.9	529.9	517.5	12.37	42.848		
2,800.0	2,735.7	2,782.5	2,778.6	11.8	5.9	177.56	2.6	23.1	546.2	533.4	12.85	42.509		
2,900.0	2,832.7	2,880.6	2,876.4	12.3	6.1	177.38	9.9	26.2	563.1	549.8	13.34	42.203		
3,000.0	2,929.7	2,975.2	2,970.7	12.8	6.4	177.29	16.7	28.3	580.4	566.6	13.83	41.970		
3,100.0	3,026.7	3,062.1	3,057.4	13.3	6.6	177.22	21.9	30.2	598.9	584.6	14.30	41.892		
3,200.0	3,123.6	3,160.8	3,156.0	13.8	6.8	177.09	26.6	32.8	618.5	603.7	14.79	41.819		
3,300.0	3,220.6	3,255.9	3,250.9	14.3	7.0	177.10	31.2	34.0	638.1	622.9	15.27	41.778		
3,400.0	3,317.6	3,369.4	3,364.2	14.8	7.3	177.21	37.6	34.3	657.0	641.2	15.79	41.596		
3,500.0	3,414.6	3,481.3	3,475.8	15.3	7.5	177.23	46.5	35.7	673.6	657.3	16.32	41.281		
3,600.0	3,511.6	3,591.7	3,585.6	15.9	7.8	177.09	57.4	38.9	688.1	671.3	16.84	40.852		
3,700.0	3,608.5	3,688.7	3,682.0	16.4	8.1	176.91	67.7	42.5	702.0	684.6	17.35	40.465		
3,800.0	3,705.5	3,785.0	3,777.7	16.9	8.3	176.68	77.1	46.8	716.6	698.8	17.85	40.149		
3,900.0	3,802.5	3,879.0	3,871.1	17.4	8.6	176.43	86.5	51.4	731.1	712.8	18.35	39.846		
4,000.0	3,899.5	3,965.9	3,957.7	17.9	8.8	176.22	93.5	55.5	747.4	728.6	18.83	39.691		
4,100.0	3,996.5	4,061.3	4,052.8	18.4	9.0	176.08	100.7	58.9	764.4	745.1	19.33	39.552		
4,200.0	4,093.5	4,155.5	4,146.7	18.9	9.3	176.02	107.1	61.4	782.0	762.2	19.82	39.465		
4,300.0	4,190.4	4,252.5	4,243.5	19.4	9.5	175.97	113.5	63.7	799.9	779.6	20.31	39.389		
4,400.0	4,287.4	4,349.5	4,340.2	19.9	9.7	175.93	119.7	65.9	817.9	797.1	20.80	39.324		
4,500.0	4,384.4	4,446.9	4,437.4	20.4	10.0	175.93	125.8	67.7	836.1	814.9	21.29	39.269		
4,600.0	4,481.4	4,553.8	4,544.1	20.9	10.2	176.00	132.7	68.6	854.2	832.4	21.80	39.176		
4,700.0	4,578.4	4,664.8	4,654.7	21.4	10.5	176.00	141.7	70.5	870.6	848.2	22.33	38.990		
4,800.0	4,675.3	4,762.1	4,751.6	21.9	10.8	175.89	150.2	73.9	886.3	863.5	22.83	38.825		
4,900.0	4,772.3	4,849.6	4,838.8	22.4	11.0	175.80	157.1	76.7	902.8	879.5	23.31	38.735		
5,000.0	4,869.3	4,939.6	4,928.5	22.9	11.2	175.78	163.1	78.7	920.6	896.9	23.79	38.701		

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 Diamond Valley East #13
Project:	SEC.23-T6N-R67W	TVD Reference:	WELL @ 4791.0ft (Frontier 10 RKB -22')
Reference Site:	Diamond Valley East Pad Sec.23-T6N-R67W	MD Reference:	WELL @ 4791.0ft (Frontier 10 RKB -22')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Diamond Valley East #13	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 (10-03-13)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Diamond Valley East Pad Sec.23-T6N-R67W - Diamond Valley East #7 - Wellbore #1 - Wellbore #1													Offset Well Error:	0.0 ft
Survey Program: 223-MWD														
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	
5,100.0	4,966.3	5,030.5	5,019.2	23.4	11.4	175.80	168.6	80.0	939.1	914.8	24.27	38.700		
5,200.0	5,063.3	5,133.1	5,121.7	23.9	11.6	175.87	174.1	80.7	958.2	933.4	24.77	38.689		
5,300.0	5,160.3	5,239.7	5,228.1	24.4	11.9	175.94	181.1	81.4	976.0	950.8	25.27	38.620		
5,400.0	5,257.2	5,344.0	5,332.1	24.9	12.1	175.98	188.5	82.6	993.4	967.6	25.78	38.536 SF		

Company:	Extraction Oil & Gas	Local Co-ordinate Reference:	Well Diamond Valley East #13
Project:	SEC.23-T6N-R67W	TVD Reference:	WELL @ 4791.0ft (Frontier 10 RKB -22')
Reference Site:	Diamond Valley East Pad Sec.23-T6N-R67W	MD Reference:	WELL @ 4791.0ft (Frontier 10 RKB -22')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Diamond Valley East #13	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 (10-03-13)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 1-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	0.5	0.5	0.0	0.0	-177.57	-65.6	-2.8	65.6					
100.0	100.0	100.5	100.5	0.1	0.1	-177.57	-65.6	-2.8	65.6	65.4	0.23	291.291		
200.0	200.0	200.5	200.5	0.3	0.3	-177.57	-65.6	-2.8	65.6	65.0	0.67	97.259 CC, ES		
300.0	300.0	300.5	300.5	0.6	0.6	178.29	-65.6	-2.8	67.4	66.2	1.13	59.505		
400.0	399.8	400.3	400.3	0.8	0.8	178.41	-65.6	-2.8	72.6	71.0	1.59	45.550		
500.0	499.5	500.0	500.0	1.0	1.0	178.58	-65.6	-2.8	81.3	79.3	2.06	39.563		
600.0	598.7	599.2	599.2	1.3	1.2	178.76	-65.6	-2.8	93.5	91.0	2.52	37.148		
700.0	697.5	698.0	698.0	1.6	1.5	178.93	-65.6	-2.8	109.1	106.2	2.98	36.632		
800.0	795.6	796.1	796.1	2.0	1.7	179.08	-65.6	-2.8	128.2	124.8	3.44	37.239		
900.0	893.1	893.6	893.6	2.4	1.9	179.21	-65.6	-2.8	150.7	146.8	3.91	38.555		
1,000.0	990.0	990.5	990.5	2.9	2.1	179.32	-65.6	-2.8	175.1	170.7	4.38	39.994		
1,100.0	1,087.0	1,087.5	1,087.5	3.4	2.3	179.41	-65.6	-2.8	199.5	194.6	4.85	41.106		
1,200.0	1,184.0	1,184.5	1,184.5	3.9	2.5	179.47	-65.6	-2.8	223.9	218.5	5.33	41.989		
1,300.0	1,281.0	1,289.1	1,289.1	4.4	2.8	179.48	-64.2	-2.5	247.0	241.2	5.82	42.410		
1,400.0	1,378.0	1,396.7	1,396.6	4.8	3.0	179.36	-59.0	-1.4	266.6	260.2	6.32	42.173		
1,500.0	1,474.9	1,504.3	1,503.7	5.3	3.3	179.14	-49.8	0.6	282.5	275.7	6.82	41.406		
1,600.0	1,571.9	1,603.2	1,602.1	5.8	3.5	178.91	-40.0	2.7	297.1	289.7	7.32	40.570		
1,700.0	1,668.9	1,702.1	1,700.5	6.3	3.7	178.71	-30.3	4.8	311.6	303.8	7.82	39.829		
1,800.0	1,765.9	1,801.0	1,798.9	6.8	4.0	178.52	-20.5	6.9	326.2	317.9	8.33	39.168		
1,900.0	1,862.9	1,900.0	1,897.4	7.3	4.2	178.35	-10.7	8.9	340.8	331.9	8.83	38.576		
2,000.0	1,959.9	1,998.9	1,995.8	7.8	4.5	178.19	-0.9	11.0	355.3	346.0	9.34	38.043		
2,100.0	2,056.8	2,097.8	2,094.2	8.3	4.8	178.05	8.9	13.1	369.9	360.1	9.85	37.559		
2,200.0	2,153.8	2,196.7	2,192.6	8.8	5.0	177.92	18.7	15.2	384.5	374.2	10.36	37.120		
2,300.0	2,250.8	2,295.7	2,291.0	9.3	5.3	177.80	28.4	17.3	399.1	388.2	10.87	36.719		
2,400.0	2,347.8	2,394.6	2,389.5	9.8	5.6	177.68	38.2	19.4	413.7	402.3	11.38	36.351		
2,500.0	2,444.8	2,493.5	2,487.9	10.3	5.8	177.57	48.0	21.5	428.3	416.4	11.89	36.013		
2,600.0	2,541.7	2,592.5	2,586.3	10.8	6.1	177.47	57.8	23.6	442.9	430.5	12.40	35.701		
2,700.0	2,638.7	2,691.4	2,684.7	11.3	6.4	177.38	67.6	25.7	457.5	444.5	12.92	35.412		
2,800.0	2,735.7	2,790.3	2,783.1	11.8	6.6	177.29	77.4	27.8	472.0	458.6	13.43	35.144		
2,900.0	2,832.7	2,889.2	2,881.6	12.3	6.9	177.21	87.2	29.9	486.6	472.7	13.95	34.894		
3,000.0	2,929.7	2,988.2	2,980.0	12.8	7.2	177.13	96.9	31.9	501.2	486.8	14.46	34.662		
3,100.0	3,026.7	3,087.1	3,078.4	13.3	7.5	177.06	106.7	34.0	515.8	500.8	14.98	34.444		
3,200.0	3,123.6	3,186.0	3,176.8	13.8	7.7	176.99	116.5	36.1	530.4	514.9	15.49	34.240		
3,300.0	3,220.6	3,284.9	3,275.2	14.3	8.0	176.93	126.3	38.2	545.0	529.0	16.01	34.049		
3,400.0	3,317.6	3,383.9	3,373.7	14.8	8.3	176.86	136.1	40.3	559.6	543.1	16.52	33.869		
3,500.0	3,414.6	3,482.8	3,472.1	15.3	8.6	176.81	145.9	42.4	574.2	557.2	17.04	33.699		
3,600.0	3,511.6	3,581.7	3,570.5	15.9	8.9	176.75	155.6	44.5	588.8	571.2	17.56	33.539		
3,700.0	3,608.5	3,680.7	3,668.9	16.4	9.1	176.70	165.4	46.6	603.4	585.3	18.07	33.388		
3,800.0	3,705.5	3,779.6	3,767.3	16.9	9.4	176.65	175.2	48.7	618.0	599.4	18.59	33.244		
3,900.0	3,802.5	3,878.5	3,865.8	17.4	9.7	176.60	185.0	50.8	632.6	613.5	19.11	33.108		
4,000.0	3,899.5	3,977.4	3,964.2	17.9	10.0	176.55	194.8	52.9	647.2	627.6	19.62	32.979		
4,100.0	3,996.5	4,076.4	4,062.6	18.4	10.3	176.51	204.6	54.9	661.8	641.7	20.14	32.857		
4,200.0	4,093.5	4,175.3	4,161.0	18.9	10.5	176.46	214.3	57.0	676.4	655.7	20.66	32.740		
4,300.0	4,190.4	4,274.2	4,259.4	19.4	10.8	176.42	224.1	59.1	691.0	669.8	21.18	32.628		
4,400.0	4,287.4	4,373.1	4,357.9	19.9	11.1	176.39	233.9	61.2	705.6	683.9	21.70	32.522		
4,500.0	4,384.4	4,472.1	4,456.3	20.4	11.4	176.35	243.7	63.3	720.2	698.0	22.21	32.420		
4,600.0	4,481.4	4,571.0	4,554.7	20.9	11.7	176.31	253.5	65.4	734.8	712.1	22.73	32.323		
4,700.0	4,578.4	4,669.9	4,653.1	21.4	11.9	176.28	263.3	67.5	749.4	726.2	23.25	32.230		
4,800.0	4,675.3	4,768.9	4,751.5	21.9	12.2	176.25	273.1	69.6	764.0	740.2	23.77	32.141		
4,900.0	4,772.3	4,867.8	4,850.0	22.4	12.5	176.21	282.8	71.7	778.6	754.3	24.29	32.056		
5,000.0	4,869.3	4,966.7	4,948.4	22.9	12.8	176.18	292.6	73.8	793.2	768.4	24.81	31.974		
5,100.0	4,966.3	5,065.6	5,046.8	23.4	13.1	176.15	302.4	75.8	807.8	782.5	25.33	31.895		

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 Diamond Valley East #13
Project:	SEC.23-T6N-R67W	TVD Reference:	WELL @ 4791.0ft (Frontier 10 RKB -22')
Reference Site:	Diamond Valley East Pad Sec.23-T6N-R67W	MD Reference:	WELL @ 4791.0ft (Frontier 10 RKB -22')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Diamond Valley East #13	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 (10-03-13)	Offset TVD Reference:	Offset Datum

Offset Design Diamond Valley East Pad Sec.23-T6N-R67W - Diamond Valley East #8 - Wellbore #1 - Plan #1 (6-23-1)												Offset Site Error:	0.0 ft
Survey Program: 1-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
5,200.0	5,063.3	5,164.6	5,145.2	23.9	13.4	176.13	312.2	77.9	822.4	796.6	25.85	31.820	
5,300.0	5,160.3	5,263.5	5,243.6	24.4	13.6	176.10	322.0	80.0	837.0	810.7	26.37	31.747	
5,400.0	5,257.2	5,362.4	5,342.1	24.9	13.9	176.07	331.8	82.1	851.6	824.7	26.89	31.677	
5,500.0	5,354.2	5,461.3	5,440.5	25.4	14.2	176.05	341.5	84.2	866.2	838.8	27.40	31.609	
5,600.0	5,451.2	5,560.3	5,538.9	25.9	14.5	176.02	351.3	86.3	880.8	852.9	27.92	31.544	
5,700.0	5,548.2	5,659.2	5,637.3	26.4	14.8	176.00	361.1	88.4	895.4	867.0	28.44	31.481	
5,800.0	5,645.2	5,758.1	5,735.7	26.9	15.1	175.97	370.9	90.5	910.0	881.1	28.96	31.420	
5,900.0	5,742.1	5,857.1	5,834.2	27.4	15.3	175.95	380.7	92.6	924.6	895.2	29.48	31.361	
6,000.0	5,839.1	5,956.0	5,932.6	27.9	15.6	175.93	390.5	94.7	939.3	909.2	30.00	31.305	
6,100.0	5,936.1	6,054.9	6,031.0	28.4	15.9	175.91	400.3	96.8	953.9	923.3	30.52	31.250	
6,200.0	6,033.1	6,153.8	6,129.4	28.9	16.2	175.89	410.0	98.8	968.5	937.4	31.04	31.197	
6,300.0	6,130.1	6,252.8	6,227.8	29.4	16.5	175.87	419.8	100.9	983.1	951.5	31.56	31.145	
6,400.0	6,227.1	6,350.9	6,325.4	29.9	16.7	176.10	429.5	98.7	997.7	965.7	32.04	31.138 SF	

Company:	Extraction Oil & Gas	Local Co-ordinate Reference:	Well Diamond Valley East #13
Project:	SEC.23-T6N-R67W	TVD Reference:	WELL @ 4791.0ft (Frontier 10 RKB -22')
Reference Site:	Diamond Valley East Pad Sec.23-T6N-R67W	MD Reference:	WELL @ 4791.0ft (Frontier 10 RKB -22')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Diamond Valley East #13	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 (10-03-13)	Offset TVD Reference:	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	-180.00	-51.0	0.0	51.0					
100.0	100.0	100.0	100.0	0.1	0.1	-180.00	-51.0	0.0	51.0	50.8	0.22	226.904		
200.0	200.0	200.0	200.0	0.3	0.3	-180.00	-51.0	0.0	51.0	50.3	0.67	75.635 CC, ES		
300.0	300.0	300.0	300.0	0.6	0.6	175.96	-51.0	0.0	52.7	51.6	1.13	46.601		
400.0	399.8	399.8	399.8	0.8	0.8	176.31	-51.0	0.0	58.0	56.4	1.59	36.374		
500.0	499.5	499.5	499.5	1.0	1.0	176.79	-51.0	0.0	66.7	64.6	2.05	32.440		
600.0	598.7	598.7	598.7	1.3	1.2	177.27	-51.0	0.0	78.8	76.3	2.52	31.324		
700.0	697.5	697.5	697.5	1.6	1.5	177.71	-51.0	0.0	94.5	91.5	2.98	31.707		
800.0	795.6	795.6	795.6	2.0	1.7	178.08	-51.0	0.0	113.5	110.1	3.44	32.975		
900.0	893.1	893.1	893.1	2.4	1.9	178.39	-51.0	0.0	136.0	132.1	3.91	34.797		
1,000.0	990.0	990.0	990.0	2.9	2.1	178.63	-51.0	0.0	160.4	156.0	4.38	36.637		
1,100.0	1,087.0	1,093.0	1,092.9	3.4	2.3	178.78	-49.5	0.2	183.4	178.5	4.86	37.742		
1,200.0	1,184.0	1,198.1	1,198.0	3.9	2.6	178.81	-44.2	0.9	202.8	197.5	5.34	37.955		
1,300.0	1,281.0	1,304.7	1,304.1	4.4	2.8	178.75	-35.0	2.2	218.6	212.8	5.84	37.427		
1,400.0	1,378.0	1,412.4	1,410.9	4.8	3.1	178.61	-21.6	4.0	230.7	224.4	6.35	36.334		
1,500.0	1,474.9	1,513.7	1,511.2	5.3	3.4	178.44	-6.5	6.1	240.3	233.4	6.86	35.041		
1,600.0	1,571.9	1,613.3	1,609.6	5.8	3.6	178.28	8.4	8.1	249.8	242.4	7.37	33.902		
1,700.0	1,668.9	1,712.8	1,708.0	6.3	3.9	178.13	23.3	10.1	259.3	251.4	7.88	32.895		
1,800.0	1,765.9	1,812.4	1,806.4	6.8	4.2	177.99	38.2	12.2	268.8	260.4	8.40	32.009		
1,900.0	1,862.9	1,911.9	1,904.8	7.3	4.6	177.87	53.1	14.2	278.2	269.3	8.91	31.212		
2,000.0	1,959.9	2,011.5	2,003.2	7.8	4.9	177.75	68.1	16.3	287.7	278.3	9.43	30.498		
2,100.0	2,056.8	2,111.0	2,101.6	8.3	5.2	177.64	83.0	18.3	297.2	287.3	9.96	29.853		
2,200.0	2,153.8	2,210.6	2,200.0	8.8	5.5	177.53	97.9	20.3	306.7	296.2	10.48	29.270		
2,300.0	2,250.8	2,310.1	2,298.4	9.3	5.8	177.43	112.8	22.4	316.2	305.2	11.00	28.738		
2,400.0	2,347.8	2,409.7	2,396.8	9.8	6.2	177.34	127.8	24.4	325.7	314.2	11.53	28.253		
2,500.0	2,444.8	2,509.2	2,495.2	10.3	6.5	177.25	142.7	26.5	335.2	323.1	12.05	27.808		
2,600.0	2,541.7	2,608.8	2,593.6	10.8	6.9	177.17	157.6	28.5	344.7	332.1	12.58	27.398		
2,700.0	2,638.7	2,708.3	2,692.0	11.3	7.2	177.09	172.5	30.5	354.2	341.1	13.11	27.020		
2,800.0	2,735.7	2,807.8	2,790.4	11.8	7.5	177.02	187.4	32.6	363.7	350.0	13.64	26.670		
2,900.0	2,832.7	2,907.4	2,888.8	12.3	7.9	176.95	202.4	34.6	373.2	359.0	14.16	26.345		
3,000.0	2,929.7	3,006.9	2,987.2	12.8	8.2	176.88	217.3	36.6	382.7	368.0	14.69	26.042		
3,100.0	3,026.7	3,106.5	3,085.6	13.3	8.6	176.82	232.2	38.7	392.2	376.9	15.22	25.760		
3,200.0	3,123.6	3,206.0	3,184.0	13.8	8.9	176.76	247.1	40.7	401.7	385.9	15.75	25.496		
3,300.0	3,220.6	3,305.6	3,282.4	14.3	9.2	176.70	262.1	42.8	411.2	394.9	16.28	25.249		
3,400.0	3,317.6	3,405.1	3,380.8	14.8	9.6	176.65	277.0	44.8	420.7	403.8	16.82	25.016		
3,500.0	3,414.6	3,504.7	3,479.2	15.3	9.9	176.59	291.9	46.8	430.2	412.8	17.35	24.798		
3,600.0	3,511.6	3,604.2	3,577.6	15.9	10.3	176.54	306.8	48.9	439.7	421.8	17.88	24.592		
3,700.0	3,608.5	3,703.8	3,676.0	16.4	10.6	176.50	321.7	50.9	449.2	430.7	18.41	24.397		
3,800.0	3,705.5	3,803.3	3,774.4	16.9	11.0	176.45	336.7	53.0	458.7	439.7	18.94	24.213		
3,900.0	3,802.5	3,902.9	3,872.8	17.4	11.3	176.41	351.6	55.0	468.2	448.7	19.47	24.039		
4,000.0	3,899.5	4,002.4	3,971.2	17.9	11.7	176.36	366.5	57.0	477.7	457.6	20.01	23.874		
4,100.0	3,996.5	4,102.0	4,069.6	18.4	12.0	176.32	381.4	59.1	487.2	466.6	20.54	23.717		
4,200.0	4,093.5	4,201.5	4,168.0	18.9	12.4	176.28	396.4	61.1	496.7	475.6	21.07	23.568		
4,300.0	4,190.4	4,301.1	4,266.4	19.4	12.7	176.24	411.3	63.1	506.2	484.5	21.61	23.426		
4,400.0	4,287.4	4,400.6	4,364.8	19.9	13.1	176.21	426.2	65.2	515.7	493.5	22.14	23.291		
4,500.0	4,384.4	4,500.1	4,463.2	20.4	13.4	176.17	441.1	67.2	525.2	502.5	22.67	23.162		
4,600.0	4,481.4	4,599.7	4,561.6	20.9	13.8	176.14	456.0	69.3	534.7	511.5	23.21	23.039		
4,700.0	4,578.4	4,699.2	4,660.0	21.4	14.1	176.11	471.0	71.3	544.2	520.4	23.74	22.921		
4,800.0	4,675.3	4,798.8	4,758.4	21.9	14.5	176.07	485.9	73.3	553.7	529.4	24.27	22.808		
4,900.0	4,772.3	4,898.3	4,856.8	22.4	14.8	176.04	500.8	75.4	563.2	538.4	24.81	22.700		
5,000.0	4,869.3	4,997.9	4,955.2	22.9	15.2	176.01	515.7	77.4	572.7	547.3	25.34	22.596		
5,100.0	4,966.3	5,097.4	5,053.6	23.4	15.5	175.99	530.7	79.4	582.2	556.3	25.88	22.497		

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 Diamond Valley East #13
Project:	SEC.23-T6N-R67W	TVD Reference:	WELL @ 4791.0ft (Frontier 10 RKB -22')
Reference Site:	Diamond Valley East Pad Sec.23-T6N-R67W	MD Reference:	WELL @ 4791.0ft (Frontier 10 RKB -22')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Diamond Valley East #13	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 (10-03-13)	Offset TVD Reference:	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	
5,200.0	5,063.3	5,197.0	5,152.0	23.9	15.9	175.96	545.6	81.5	591.7	565.3	26.41	22.401	
5,300.0	5,160.3	5,296.5	5,250.4	24.4	16.2	175.93	560.5	83.5	601.2	574.2	26.95	22.310	
5,400.0	5,257.2	5,396.1	5,348.8	24.9	16.6	175.91	575.4	85.6	610.7	583.2	27.48	22.221	
5,500.0	5,354.2	5,495.6	5,447.2	25.4	16.9	175.88	590.3	87.6	620.2	592.2	28.02	22.136	
5,600.0	5,451.2	5,595.2	5,545.6	25.9	17.3	175.86	605.3	89.6	629.7	601.1	28.55	22.054	
5,700.0	5,548.2	5,694.7	5,644.0	26.4	17.6	175.83	620.2	91.7	639.2	610.1	29.09	21.975	
5,800.0	5,645.2	5,794.3	5,742.4	26.9	18.0	175.81	635.1	93.7	648.7	619.1	29.62	21.899	
5,900.0	5,742.1	5,893.8	5,840.8	27.4	18.3	175.79	650.0	95.8	658.2	628.0	30.16	21.826	
6,000.0	5,839.1	5,993.4	5,939.2	27.9	18.7	175.77	665.0	97.8	667.7	637.0	30.69	21.755	
6,100.0	5,936.1	6,092.9	6,037.6	28.4	19.0	175.75	679.9	99.8	677.2	646.0	31.23	21.686	
6,200.0	6,033.1	6,192.4	6,136.0	28.9	19.4	175.72	694.8	101.9	686.7	654.9	31.76	21.620	
6,300.0	6,130.1	6,292.0	6,234.4	29.4	19.8	175.70	709.7	103.9	696.2	663.9	32.30	21.555	
6,400.0	6,227.1	6,391.2	6,332.4	29.9	20.1	176.06	724.6	101.3	705.7	672.9	32.78	21.527	
6,500.0	6,324.0	6,487.4	6,426.2	30.5	20.3	177.43	738.7	86.0	715.6	682.4	33.19	21.560	
6,600.0	6,421.0	6,577.5	6,511.6	31.0	20.6	179.58	751.6	60.2	726.6	693.0	33.62	21.615	
6,700.0	6,517.9	6,662.0	6,588.0	31.4	20.8	-149.05	763.1	26.4	739.6	705.3	34.21	21.615	
6,800.0	6,613.2	6,743.6	6,657.7	31.8	21.0	-124.97	773.5	-14.7	753.6	718.5	35.06	21.494	
6,900.0	6,705.2	6,822.8	6,720.5	32.2	21.2	-110.11	782.9	-62.1	768.0	731.9	36.11	21.268	
7,000.0	6,792.1	6,900.0	6,776.4	32.6	21.5	-100.46	791.2	-114.6	782.4	745.1	37.26	20.997	
7,100.0	6,872.1	6,976.0	6,825.6	33.0	21.8	-93.75	798.5	-172.0	796.1	757.6	38.45	20.705	
7,200.0	6,943.8	7,050.0	6,867.5	33.4	22.1	-88.88	804.6	-232.7	808.7	769.1	39.60	20.419	
7,300.0	7,005.6	7,124.2	6,903.1	33.8	22.6	-85.25	809.8	-297.6	819.7	778.9	40.79	20.096	
7,400.0	7,056.5	7,200.0	6,932.3	34.2	23.2	-82.57	814.0	-367.3	828.8	786.8	42.03	19.717	
7,500.0	7,095.5	7,269.4	6,952.6	34.7	23.9	-80.73	816.9	-433.6	835.7	792.4	43.32	19.291	
7,600.0	7,121.6	7,341.4	6,966.9	35.3	24.8	-79.56	818.8	-504.0	840.3	795.5	44.82	18.748	
7,700.0	7,134.6	7,413.1	6,974.1	36.0	25.8	-79.02	819.7	-575.4	842.4	795.9	46.55	18.099	
7,800.0	7,136.0	7,505.5	6,975.0	36.9	27.4	-78.98	819.8	-667.7	842.4	792.7	49.75	16.934	
7,900.0	7,136.0	7,605.5	6,975.0	38.0	29.2	-78.98	820.3	-767.7	842.4	788.6	53.77	15.667	
8,000.0	7,136.0	7,705.5	6,975.0	39.2	31.2	-78.98	820.9	-867.7	842.3	784.3	58.03	14.515	
8,100.0	7,136.0	7,805.5	6,975.0	40.7	33.4	-78.98	821.4	-967.7	842.2	779.7	62.49	13.478	
8,200.0	7,136.0	7,905.5	6,975.0	42.3	35.6	-78.98	821.9	-1,067.7	842.1	775.0	67.10	12.550	
8,300.0	7,136.0	8,005.5	6,975.0	44.1	38.0	-78.98	822.4	-1,167.7	842.1	770.2	71.85	11.720	
8,400.0	7,136.0	8,105.5	6,975.0	46.0	40.4	-78.98	823.0	-1,267.7	842.0	765.3	76.69	10.979	
8,500.0	7,136.0	8,205.5	6,975.0	48.0	42.8	-78.98	823.5	-1,367.7	841.9	760.3	81.63	10.314	
8,600.0	7,136.0	8,305.5	6,975.0	50.2	45.3	-78.97	824.0	-1,467.7	841.8	755.2	86.63	9.718	
8,700.0	7,136.0	8,405.5	6,975.0	52.4	47.8	-78.97	824.5	-1,567.7	841.8	750.1	91.69	9.180	
8,800.0	7,136.0	8,505.5	6,975.0	54.7	50.4	-78.97	825.1	-1,667.7	841.7	744.9	96.81	8.694	
8,900.0	7,136.0	8,605.5	6,975.0	57.0	53.0	-78.97	825.6	-1,767.7	841.6	739.6	101.96	8.254	
9,000.0	7,136.0	8,705.5	6,975.0	59.4	55.6	-78.97	826.1	-1,867.7	841.5	734.4	107.15	7.854	
9,100.0	7,136.0	8,805.5	6,975.0	61.8	58.2	-78.97	826.6	-1,967.7	841.5	729.1	112.38	7.488	
9,200.0	7,136.0	8,905.5	6,975.0	64.3	60.9	-78.97	827.2	-2,067.7	841.4	723.8	117.63	7.153	
9,300.0	7,136.0	9,005.5	6,975.0	66.8	63.5	-78.97	827.7	-2,167.7	841.3	718.4	122.90	6.845	
9,400.0	7,136.0	9,105.5	6,975.0	69.3	66.2	-78.97	828.2	-2,267.7	841.2	713.0	128.20	6.562	
9,500.0	7,136.0	9,205.5	6,975.0	71.9	68.9	-78.97	828.7	-2,367.7	841.2	707.7	133.51	6.300	
9,600.0	7,136.0	9,305.5	6,975.0	74.4	71.6	-78.96	829.3	-2,467.7	841.1	702.2	138.84	6.058	
9,700.0	7,136.0	9,405.5	6,975.0	77.0	74.3	-78.96	829.8	-2,567.7	841.0	696.8	144.18	5.833	
9,800.0	7,136.0	9,505.5	6,975.0	79.6	77.0	-78.96	830.3	-2,667.7	840.9	691.4	149.54	5.624	
9,900.0	7,136.0	9,605.5	6,975.0	82.2	79.7	-78.96	830.8	-2,767.7	840.9	686.0	154.90	5.428	
10,000.0	7,136.0	9,705.5	6,975.0	84.9	82.4	-78.96	831.4	-2,867.7	840.8	680.5	160.28	5.246	
10,100.0	7,136.0	9,805.5	6,975.0	87.5	85.1	-78.96	831.9	-2,967.7	840.7	675.0	165.67	5.075	
10,200.0	7,136.0	9,905.5	6,975.0	90.2	87.9	-78.96	832.4	-3,067.7	840.6	669.6	171.06	4.914	
10,300.0	7,136.0	10,005.5	6,975.0	92.8	90.6	-78.96	832.9	-3,167.7	840.6	664.1	176.47	4.763	

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 Diamond Valley East #13
Project:	SEC.23-T6N-R67W	TVD Reference:	WELL @ 4791.0ft (Frontier 10 RKB -22')
Reference Site:	Diamond Valley East Pad Sec.23-T6N-R67W	MD Reference:	WELL @ 4791.0ft (Frontier 10 RKB -22')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Diamond Valley East #13	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 (10-03-13)	Offset TVD Reference:	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		
10,400.0	7,136.0	10,105.5	6,975.0	95.5	93.4	-78.96	833.5	-3,267.7	840.5	658.6	181.88	4.621		
10,500.0	7,136.0	10,205.5	6,975.0	98.2	96.1	-78.96	834.0	-3,367.7	840.4	653.1	187.29	4.487		
10,600.0	7,136.0	10,305.5	6,975.0	100.9	98.9	-78.95	834.5	-3,467.7	840.3	647.6	192.72	4.360		
10,700.0	7,136.0	10,405.5	6,975.0	103.6	101.6	-78.95	835.0	-3,567.7	840.3	642.1	198.14	4.241		
10,800.0	7,136.0	10,505.5	6,975.0	106.3	104.4	-78.95	835.6	-3,667.7	840.2	636.6	203.58	4.127		
10,900.0	7,136.0	10,605.5	6,975.0	109.0	107.1	-78.95	836.1	-3,767.7	840.1	631.1	209.01	4.019		
11,000.0	7,136.0	10,705.5	6,975.0	111.7	109.9	-78.95	836.6	-3,867.7	840.0	625.6	214.46	3.917		
11,100.0	7,136.0	10,805.5	6,975.0	114.4	112.7	-78.95	837.1	-3,967.7	840.0	620.1	219.90	3.820		
11,200.0	7,136.0	10,905.5	6,975.0	117.2	115.4	-78.95	837.6	-4,067.7	839.9	614.5	225.35	3.727		
11,300.0	7,136.0	11,005.5	6,975.0	119.9	118.2	-78.95	838.2	-4,167.7	839.8	609.0	230.80	3.639		
11,400.0	7,136.0	11,105.5	6,975.0	122.6	121.0	-78.95	838.7	-4,267.7	839.7	603.5	236.26	3.554		
11,500.0	7,136.0	11,205.5	6,975.0	125.4	123.7	-78.95	839.2	-4,367.7	839.7	597.9	241.72	3.474		
11,600.0	7,136.0	11,305.5	6,975.0	128.1	126.5	-78.94	839.7	-4,467.7	839.6	592.4	247.18	3.397		
11,700.0	7,136.0	11,405.5	6,975.0	130.8	129.3	-78.94	840.3	-4,567.7	839.5	586.9	252.64	3.323		
11,800.0	7,136.0	11,505.5	6,975.0	133.6	132.1	-78.94	840.8	-4,667.7	839.4	581.3	258.11	3.252		
11,900.0	7,136.0	11,605.5	6,975.0	136.3	134.8	-78.94	841.3	-4,767.7	839.4	575.8	263.57	3.185		
12,000.0	7,136.0	11,705.5	6,975.0	139.1	137.6	-78.94	841.8	-4,867.7	839.3	570.2	269.04	3.119		
12,100.0	7,136.0	11,805.5	6,975.0	141.8	140.4	-78.94	842.4	-4,967.7	839.2	564.7	274.52	3.057		
12,200.0	7,136.0	11,905.5	6,975.0	144.6	143.2	-78.94	842.9	-5,067.7	839.1	559.1	279.99	2.997		
12,300.0	7,136.0	12,005.5	6,975.0	147.3	146.0	-78.94	843.4	-5,167.7	839.1	553.6	285.46	2.939		
12,400.0	7,136.0	12,105.5	6,975.0	150.1	148.7	-78.94	843.9	-5,267.7	839.0	548.0	290.94	2.884		
12,500.0	7,136.0	12,205.5	6,975.0	152.9	151.5	-78.94	844.5	-5,367.7	838.9	542.5	296.42	2.830		
12,600.0	7,136.0	12,305.5	6,975.0	155.6	154.3	-78.93	845.0	-5,467.7	838.8	536.9	301.90	2.778		
12,700.0	7,136.0	12,405.5	6,975.0	158.4	157.1	-78.93	845.5	-5,567.7	838.8	531.4	307.38	2.729		
12,800.0	7,136.0	12,505.5	6,975.0	161.1	159.9	-78.93	846.0	-5,667.7	838.7	525.8	312.86	2.681		
12,900.0	7,136.0	12,605.5	6,975.0	163.9	162.7	-78.93	846.6	-5,767.7	838.6	520.3	318.35	2.634		
13,000.0	7,136.0	12,705.5	6,975.0	166.7	165.5	-78.93	847.1	-5,867.7	838.5	514.7	323.83	2.589		
13,100.0	7,136.0	12,805.5	6,975.0	169.5	168.3	-78.93	847.6	-5,967.7	838.5	509.1	329.32	2.546		
13,200.0	7,136.0	12,905.5	6,975.0	172.2	171.0	-78.93	848.1	-6,067.7	838.4	503.6	334.81	2.504		
13,300.0	7,136.0	13,005.5	6,975.0	175.0	173.8	-78.93	848.7	-6,167.7	838.3	498.0	340.30	2.463		
13,400.0	7,136.0	13,105.5	6,975.0	177.8	176.6	-78.93	849.2	-6,267.7	838.2	492.4	345.78	2.424		
13,500.0	7,136.0	13,205.5	6,975.0	180.5	179.4	-78.93	849.7	-6,367.7	838.2	486.9	351.27	2.386		
13,600.0	7,136.0	13,305.5	6,975.0	183.3	182.2	-78.92	850.2	-6,467.7	838.1	481.3	356.77	2.349		
13,700.0	7,136.0	13,405.5	6,975.0	186.1	185.0	-78.92	850.8	-6,567.7	838.0	475.7	362.26	2.313		
13,800.0	7,136.0	13,505.5	6,975.0	188.9	187.8	-78.92	851.3	-6,667.7	837.9	470.2	367.75	2.279		
13,900.0	7,136.0	13,605.5	6,975.0	191.7	190.6	-78.92	851.8	-6,767.6	837.9	464.6	373.24	2.245		
14,000.0	7,136.0	13,705.5	6,975.0	194.4	193.4	-78.92	852.3	-6,867.6	837.8	459.0	378.74	2.212		
14,100.0	7,136.0	13,805.5	6,975.0	197.2	196.2	-78.92	852.9	-6,967.6	837.7	453.5	384.23	2.180		
14,200.0	7,136.0	13,905.5	6,975.0	200.0	199.0	-78.92	853.4	-7,067.6	837.6	447.9	389.73	2.149		
14,300.0	7,136.0	14,005.5	6,975.0	202.8	201.8	-78.92	853.9	-7,167.6	837.6	442.3	395.22	2.119		
14,400.0	7,136.0	14,105.5	6,975.0	205.6	204.6	-78.92	854.4	-7,267.6	837.5	436.8	400.72	2.090		
14,500.0	7,136.0	14,205.5	6,975.0	208.3	207.4	-78.92	855.0	-7,367.6	837.4	431.2	406.22	2.061		
14,600.0	7,136.0	14,305.5	6,975.0	211.1	210.2	-78.91	855.5	-7,467.6	837.3	425.6	411.71	2.034		
14,700.0	7,136.0	14,405.5	6,975.0	213.9	213.0	-78.91	856.0	-7,567.6	837.3	420.0	417.21	2.007		
14,800.0	7,136.0	14,505.5	6,975.0	216.7	215.8	-78.91	856.5	-7,667.6	837.2	414.5	422.71	1.980		
14,900.0	7,136.0	14,605.5	6,975.0	219.5	218.6	-78.91	857.0	-7,767.6	837.1	408.9	428.21	1.955		
15,000.0	7,136.0	14,705.5	6,975.0	222.3	221.4	-78.91	857.6	-7,867.6	837.0	403.3	433.71	1.930		
15,100.0	7,136.0	14,805.5	6,975.0	225.1	224.2	-78.91	858.1	-7,967.6	837.0	397.7	439.21	1.906		
15,200.0	7,136.0	14,905.5	6,975.0	227.8	227.0	-78.91	858.6	-8,067.6	836.9	392.2	444.71	1.882		
15,300.0	7,136.0	15,005.5	6,975.0	230.6	229.7	-78.91	859.1	-8,167.6	836.8	386.6	450.21	1.859		
15,400.0	7,136.0	15,105.5	6,975.0	233.4	232.5	-78.91	859.7	-8,267.6	836.7	381.0	455.71	1.836		
15,500.0	7,136.0	15,205.5	6,975.0	236.2	235.3	-78.91	860.2	-8,367.6	836.7	375.4	461.21	1.814		

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 Diamond Valley East #13
Project:	SEC.23-T6N-R67W	TVD Reference:	WELL @ 4791.0ft (Frontier 10 RKB -22')
Reference Site:	Diamond Valley East Pad Sec.23-T6N-R67W	MD Reference:	WELL @ 4791.0ft (Frontier 10 RKB -22')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Diamond Valley East #13	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 (10-03-13)	Offset TVD Reference:	Offset Datum

Offset Design Diamond Valley East Pad Sec.23-T6N-R67W - Diamond Valley East #9 - Wellbore #1 - Plan #1 (6-23-1												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
15,600.0	7,136.0	15,305.5	6,975.0	239.0	238.1	-78.90	860.7	-8,467.6	836.6	369.9	466.71	1.792	
15,700.0	7,136.0	15,405.5	6,975.0	241.8	240.9	-78.90	861.2	-8,567.6	836.5	364.3	472.22	1.771	
15,800.0	7,136.0	15,505.5	6,975.0	244.6	243.7	-78.90	861.8	-8,667.6	836.4	358.7	477.72	1.751	
15,900.0	7,136.0	15,605.5	6,975.0	247.4	246.5	-78.90	862.3	-8,767.6	836.3	353.1	483.22	1.731	
16,000.0	7,136.0	15,705.5	6,975.0	250.2	249.3	-78.90	862.8	-8,867.6	836.3	347.6	488.72	1.711	
16,100.0	7,136.0	15,805.5	6,975.0	253.0	252.2	-78.90	863.3	-8,967.6	836.2	342.0	494.23	1.692	
16,200.0	7,136.0	15,905.5	6,975.0	255.8	255.0	-78.90	863.9	-9,067.6	836.1	336.4	499.73	1.673	
16,300.0	7,136.0	16,005.5	6,975.0	258.5	257.8	-78.90	864.4	-9,167.6	836.0	330.8	505.24	1.655	
16,400.0	7,136.0	16,105.5	6,975.0	261.3	260.6	-78.90	864.9	-9,267.6	836.0	325.2	510.74	1.637	
16,500.0	7,136.0	16,205.5	6,975.0	264.1	263.4	-78.90	865.4	-9,367.6	835.9	319.7	516.24	1.619	
16,600.0	7,136.0	16,305.5	6,975.0	266.9	266.2	-78.89	866.0	-9,467.6	835.8	314.1	521.75	1.602	
16,700.0	7,136.0	16,405.5	6,975.0	269.7	269.0	-78.89	866.5	-9,567.6	835.7	308.5	527.25	1.585	
16,800.0	7,136.0	16,505.5	6,975.0	272.5	271.8	-78.89	867.0	-9,667.6	835.7	302.9	532.76	1.569	
16,900.0	7,136.0	16,605.5	6,975.0	275.3	274.6	-78.89	867.5	-9,767.6	835.6	297.3	538.26	1.552	
17,000.0	7,136.0	16,705.5	6,975.0	278.1	277.4	-78.89	868.1	-9,867.6	835.5	291.8	543.77	1.537	
17,100.0	7,136.0	16,805.5	6,975.0	280.9	280.2	-78.89	868.6	-9,967.6	835.4	286.2	549.28	1.521	
17,200.0	7,136.0	16,905.5	6,975.0	283.7	283.0	-78.89	869.1	-10,067.6	835.4	280.6	554.78	1.506	
17,207.8	7,136.0	16,912.6	6,975.0	283.9	283.2	-78.89	869.1	-10,074.8	835.4	280.2	555.19	1.505	
17,211.1	7,136.0	16,912.6	6,975.0	284.0	283.2	-78.89	869.1	-10,074.8	835.4	280.1	555.29	1.504 SF	

Company:	Extraction Oil & Gas	Local Co-ordinate Reference:	Well Diamond Valley East #13
Project:	SEC.23-T6N-R67W	TVD Reference:	WELL @ 4791.0ft (Frontier 10 RKB -22')
Reference Site:	Diamond Valley East Pad Sec.23-T6N-R67W	MD Reference:	WELL @ 4791.0ft (Frontier 10 RKB -22')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Diamond Valley East #13	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 (10-03-13)	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.0 ft
Survey Program: 7315-UNKNOWN												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	
800.0	795.6	771.6	771.6	2.0	15.4	28.15	911.9	531.4	999.6	982.6	16.97	58.893	
900.0	893.1	869.1	869.1	2.4	17.4	28.97	911.9	531.4	979.7	960.6	19.09	51.318	
1,000.0	990.0	966.0	966.0	2.9	19.3	29.68	911.9	531.4	958.3	937.0	21.31	44.966	
1,100.0	1,087.0	1,063.0	1,063.0	3.4	21.3	30.41	911.9	531.4	937.0	913.5	23.55	39.782	
1,200.0	1,184.0	1,160.0	1,160.0	3.9	23.2	31.18	911.9	531.4	915.9	890.1	25.81	35.489	
1,300.0	1,281.0	1,257.0	1,257.0	4.4	25.1	31.98	911.9	531.4	895.0	866.9	28.07	31.878	
1,400.0	1,378.0	1,354.0	1,354.0	4.8	27.1	32.82	911.9	531.4	874.2	843.8	30.35	28.801	
1,500.0	1,474.9	1,450.9	1,450.9	5.3	29.0	33.70	911.9	531.4	853.6	821.0	32.64	26.150	
1,600.0	1,571.9	1,547.9	1,547.9	5.8	31.0	34.62	911.9	531.4	833.3	798.3	34.95	23.845	
1,700.0	1,668.9	1,644.9	1,644.9	6.3	32.9	35.58	911.9	531.4	813.1	775.8	37.26	21.822	
1,800.0	1,765.9	1,741.9	1,741.9	6.8	34.8	36.60	911.9	531.4	793.2	753.6	39.59	20.036	
1,900.0	1,862.9	1,838.9	1,838.9	7.3	36.8	37.66	911.9	531.4	773.5	731.6	41.93	18.448	
2,000.0	1,959.9	1,935.9	1,935.9	7.8	38.7	38.78	911.9	531.4	754.2	709.9	44.29	17.029	
2,100.0	2,056.8	2,032.8	2,032.8	8.3	40.7	39.96	911.9	531.4	735.1	688.4	46.66	15.754	
2,200.0	2,153.8	2,129.8	2,129.8	8.8	42.6	41.19	911.9	531.4	716.3	667.3	49.05	14.604	
2,300.0	2,250.8	2,226.8	2,226.8	9.3	44.5	42.49	911.9	531.4	697.9	646.5	51.46	13.563	
2,400.0	2,347.8	2,323.8	2,323.8	9.8	46.5	43.86	911.9	531.4	679.9	626.0	53.88	12.618	
2,500.0	2,444.8	2,420.8	2,420.8	10.3	48.4	45.30	911.9	531.4	662.3	605.9	56.33	11.757	
2,600.0	2,541.7	2,517.7	2,517.7	10.8	50.4	46.82	911.9	531.4	645.1	586.3	58.79	10.972	
2,700.0	2,638.7	2,614.7	2,614.7	11.3	52.3	48.41	911.9	531.4	628.4	567.1	61.27	10.255	
2,800.0	2,735.7	2,711.7	2,711.7	11.8	54.2	50.09	911.9	531.4	612.2	548.4	63.78	9.598	
2,900.0	2,832.7	2,808.7	2,808.7	12.3	56.2	51.85	911.9	531.4	596.5	530.2	66.31	8.996	
3,000.0	2,929.7	2,905.7	2,905.7	12.8	58.1	53.71	911.9	531.4	581.5	512.6	68.85	8.445	
3,100.0	3,026.7	3,002.7	3,002.7	13.3	60.1	55.65	911.9	531.4	567.1	495.7	71.42	7.940	
3,200.0	3,123.6	3,099.6	3,099.6	13.8	62.0	57.69	911.9	531.4	553.4	479.4	74.00	7.478	
3,300.0	3,220.6	3,196.6	3,196.6	14.3	63.9	59.83	911.9	531.4	540.5	463.9	76.61	7.055	
3,400.0	3,317.6	3,293.6	3,293.6	14.8	65.9	62.06	911.9	531.4	528.3	449.1	79.22	6.669	
3,500.0	3,414.6	3,390.6	3,390.6	15.3	67.8	64.39	911.9	531.4	517.1	435.2	81.85	6.318	
3,600.0	3,511.6	3,487.6	3,487.6	15.9	69.8	66.81	911.9	531.4	506.8	422.3	84.48	5.998	
3,700.0	3,608.5	3,584.5	3,584.5	16.4	71.7	69.33	911.9	531.4	497.4	410.3	87.12	5.709	
3,800.0	3,705.5	3,681.5	3,681.5	16.9	73.6	71.93	911.9	531.4	489.1	399.3	89.76	5.449	
3,900.0	3,802.5	3,778.5	3,778.5	17.4	75.6	74.61	911.9	531.4	481.9	389.5	92.38	5.216	
4,000.0	3,899.5	3,875.5	3,875.5	17.9	77.5	77.36	911.9	531.4	475.8	380.8	94.99	5.009	
4,100.0	3,996.5	3,972.5	3,972.5	18.4	79.4	80.17	911.9	531.4	470.9	373.3	97.58	4.826	
4,200.0	4,093.5	4,069.5	4,069.5	18.9	81.4	83.03	911.9	531.4	467.2	367.1	100.14	4.666	
4,300.0	4,190.4	4,166.4	4,166.4	19.4	83.3	85.92	911.9	531.4	464.8	362.1	102.66	4.528	
4,400.0	4,287.4	4,263.4	4,263.4	19.9	85.3	88.84	911.9	531.4	463.7	358.5	105.14	4.410	
4,439.7	4,325.9	4,301.9	4,301.9	20.1	86.0	90.00	911.9	531.4	463.6	357.4	106.11	4.368 CC	
4,500.0	4,384.4	4,360.4	4,360.4	20.4	87.2	91.76	911.9	531.4	463.8	356.2	107.58	4.311	
4,600.0	4,481.4	4,457.4	4,457.4	20.9	89.1	94.67	911.9	531.4	465.2	355.2	109.97	4.230 ES	
4,700.0	4,578.4	4,554.4	4,554.4	21.4	91.1	97.56	911.9	531.4	467.9	355.6	112.30	4.166	
4,800.0	4,675.3	4,651.3	4,651.3	21.9	93.0	100.41	911.9	531.4	471.8	357.2	114.59	4.117	
4,900.0	4,772.3	4,748.3	4,748.3	22.4	95.0	103.21	911.9	531.4	476.9	360.1	116.82	4.083	
5,000.0	4,869.3	4,845.3	4,845.3	22.9	96.9	105.95	911.9	531.4	483.3	364.3	119.01	4.061	
5,100.0	4,966.3	4,942.3	4,942.3	23.4	98.8	108.62	911.9	531.4	490.7	369.6	121.14	4.051 SF	
5,200.0	5,063.3	5,039.3	5,039.3	23.9	100.8	111.20	911.9	531.4	499.2	376.0	123.24	4.051	
5,300.0	5,160.3	5,136.3	5,136.3	24.4	102.7	113.69	911.9	531.4	508.8	383.5	125.30	4.061	
5,400.0	5,257.2	5,233.2	5,233.2	24.9	104.7	116.10	911.9	531.4	519.3	392.0	127.33	4.079	
5,500.0	5,354.2	5,330.2	5,330.2	25.4	106.6	118.41	911.9	531.4	530.8	401.5	129.32	4.104	
5,600.0	5,451.2	5,427.2	5,427.2	25.9	108.5	120.62	911.9	531.4	543.1	411.8	131.30	4.136	
5,700.0	5,548.2	5,524.2	5,524.2	26.4	110.5	122.74	911.9	531.4	556.2	422.9	133.25	4.174	
5,800.0	5,645.2	5,621.2	5,621.2	26.9	112.4	124.76	911.9	531.4	570.0	434.8	135.19	4.216	

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 Diamond Valley East #13
Project:	SEC.23-T6N-R67W	TVD Reference:	WELL @ 4791.0ft (Frontier 10 RKB -22')
Reference Site:	Diamond Valley East Pad Sec.23-T6N-R67W	MD Reference:	WELL @ 4791.0ft (Frontier 10 RKB -22')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Diamond Valley East #13	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 (10-03-13)	Offset TVD Reference:	Offset Datum

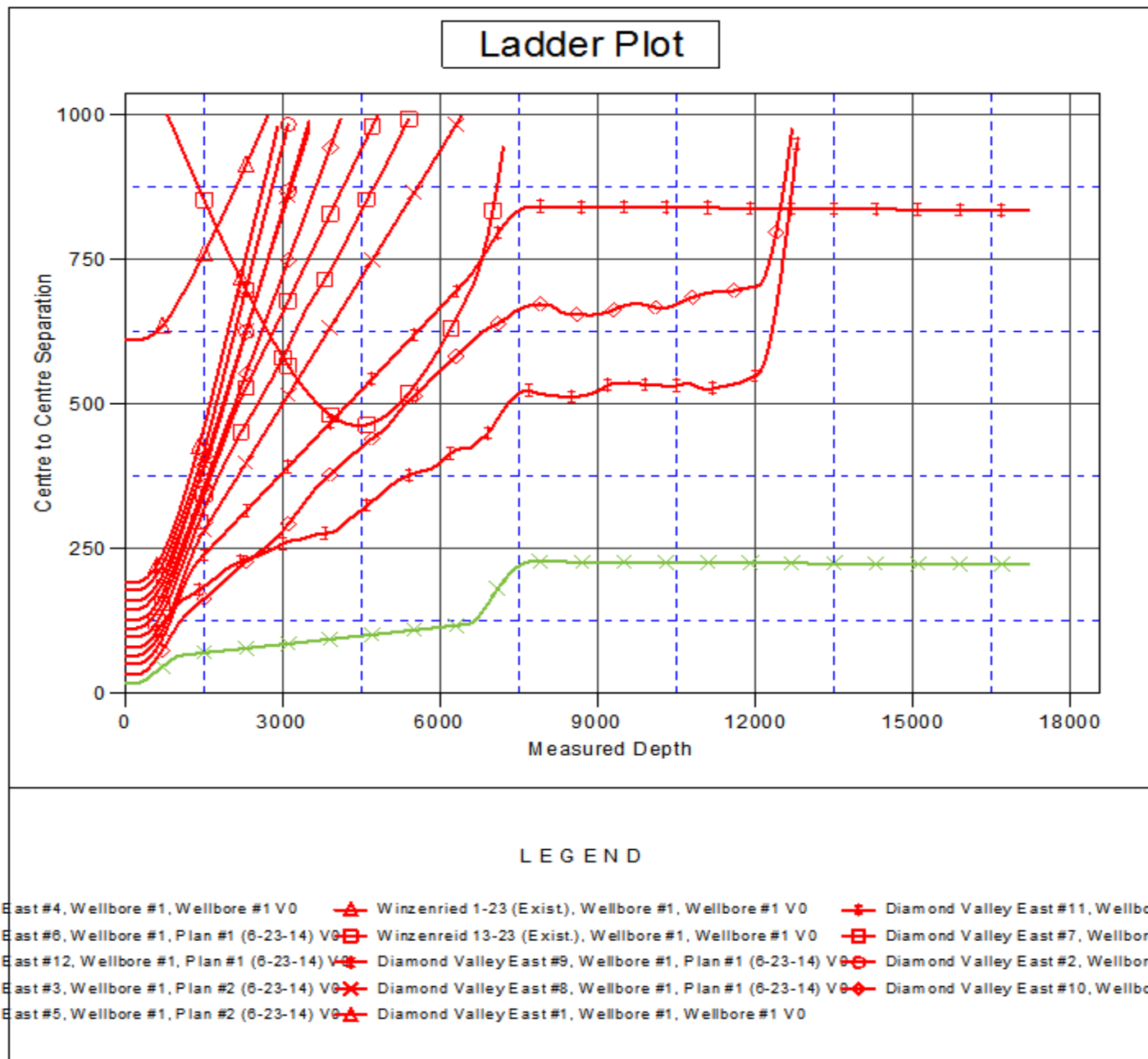
Offset Design Diamond Valley East Pad Sec.23-T6N-R67W - Winzenreid 13-23 (Exist.) - Wellbore #1 - Wellbore #1												Offset Site Error:	0.0 ft
Survey Program: 7315-UNKNOWN												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						
Measured Depth (ft)	Vertical Depth (ft)	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
5,900.0	5,742.1	5,718.1	5,718.1	27.4	114.4	126.68	911.9	531.4	584.5	447.4	137.12	4.263	
6,000.0	5,839.1	5,815.1	5,815.1	27.9	116.3	128.52	911.9	531.4	599.7	460.6	139.04	4.313	
6,100.0	5,936.1	5,912.1	5,912.1	28.4	118.2	130.26	911.9	531.4	615.4	474.5	140.95	4.366	
6,200.0	6,033.1	6,009.1	6,009.1	28.9	120.2	131.92	911.9	531.4	631.8	488.9	142.87	4.422	
6,300.0	6,130.1	6,106.1	6,106.1	29.4	122.1	133.50	911.9	531.4	648.6	503.8	144.78	4.480	
6,400.0	6,227.1	6,203.1	6,203.1	29.9	124.1	135.00	911.9	531.4	665.8	519.2	146.69	4.539	
6,500.0	6,324.0	6,300.0	6,300.0	30.5	126.0	136.42	911.9	531.4	683.6	534.9	148.61	4.600	
6,600.0	6,421.0	6,397.0	6,397.0	31.0	127.9	137.78	911.9	531.4	701.7	551.1	150.53	4.661	
6,700.0	6,517.9	6,493.9	6,493.9	31.4	129.9	168.11	911.9	531.4	723.6	573.8	149.79	4.831	
6,800.0	6,613.2	6,589.2	6,589.2	31.8	131.8	-168.97	911.9	531.4	753.5	605.6	147.90	5.095	
6,900.0	6,705.2	6,681.2	6,681.2	32.2	133.6	-155.23	911.9	531.4	790.7	645.4	145.33	5.441	
7,000.0	6,792.1	6,768.1	6,768.1	32.6	135.4	-146.48	911.9	531.4	835.0	692.6	142.42	5.863	
7,100.0	6,872.1	6,848.1	6,848.1	33.0	137.0	-140.14	911.9	531.4	886.3	746.6	139.73	6.343	
7,200.0	6,943.8	6,919.8	6,919.8	33.4	138.4	-134.73	911.9	531.4	944.5	806.3	138.16	6.836	

Company:	Extraction Oil & Gas	Local Co-ordinate Reference:	Well Diamond Valley East #13
Project:	SEC.23-T6N-R67W	TVD Reference:	WELL @ 4791.0ft (Frontier 10 RKB -22')
Reference Site:	Diamond Valley East Pad Sec.23-T6N-R67W	MD Reference:	WELL @ 4791.0ft (Frontier 10 RKB -22')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Diamond Valley East #13	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 (10-03-13)	Offset TVD Reference:	Offset Datum

Offset Design Diamond Valley East Pad Sec.23-T6N-R67W - Winzenried 1-23 (Exist.) - Wellbore #1 - Wellbore #1												Offset Site Error:	0.0 ft
Survey Program: 7232-UNKNOWN												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
0.0	0.0	0.0	0.0	0.0	0.0	126.92	-366.9	488.3	611.2				
100.0	100.0	76.0	76.0	0.1	1.5	126.92	-366.9	488.3	610.8	609.1	1.63	374.113	
200.0	200.0	176.0	176.0	0.3	3.5	126.92	-366.9	488.3	610.8	606.9	3.86	158.339 CC	
300.0	300.0	276.0	276.0	0.6	5.5	122.86	-366.9	488.3	611.7	605.6	6.08	100.591 ES	
400.0	399.8	375.8	375.8	0.8	7.5	123.22	-366.9	488.3	614.6	606.3	8.30	74.010	
500.0	499.5	475.5	475.5	1.0	9.5	123.81	-366.9	488.3	619.4	608.9	10.53	58.828	
600.0	598.7	574.7	574.7	1.3	11.5	124.62	-366.9	488.3	626.3	613.5	12.76	49.085	
700.0	697.5	673.5	673.5	1.6	13.5	125.62	-366.9	488.3	635.4	620.4	14.99	42.372	
800.0	795.6	771.6	771.6	2.0	15.4	126.80	-366.9	488.3	646.8	629.5	17.23	37.533	
900.0	893.1	869.1	869.1	2.4	17.4	128.11	-366.9	488.3	660.7	641.2	19.47	33.941	
1,000.0	990.0	966.0	966.0	2.9	19.3	129.70	-366.9	488.3	676.3	654.5	21.74	31.105	
1,100.0	1,087.0	1,063.0	1,063.0	3.4	21.3	131.22	-366.9	488.3	692.4	668.4	24.02	28.825	
1,200.0	1,184.0	1,160.0	1,160.0	3.9	23.2	132.68	-366.9	488.3	709.0	682.7	26.29	26.964	
1,300.0	1,281.0	1,257.0	1,257.0	4.4	25.1	134.08	-366.9	488.3	726.0	697.4	28.56	25.421	
1,400.0	1,378.0	1,354.0	1,354.0	4.8	27.1	135.41	-366.9	488.3	743.4	712.6	30.82	24.124	
1,500.0	1,474.9	1,450.9	1,450.9	5.3	29.0	136.68	-366.9	488.3	761.2	728.1	33.07	23.021	
1,600.0	1,571.9	1,547.9	1,547.9	5.8	31.0	137.89	-366.9	488.3	779.4	744.1	35.31	22.074	
1,700.0	1,668.9	1,644.9	1,644.9	6.3	32.9	139.05	-366.9	488.3	797.9	760.3	37.54	21.253	
1,800.0	1,765.9	1,741.9	1,741.9	6.8	34.8	140.16	-366.9	488.3	816.7	776.9	39.77	20.535	
1,900.0	1,862.9	1,838.9	1,838.9	7.3	36.8	141.21	-366.9	488.3	835.8	793.8	41.99	19.904	
2,000.0	1,959.9	1,935.9	1,935.9	7.8	38.7	142.23	-366.9	488.3	855.1	810.9	44.21	19.344	
2,100.0	2,056.8	2,032.8	2,032.8	8.3	40.7	143.19	-366.9	488.3	874.7	828.3	46.41	18.846	
2,200.0	2,153.8	2,129.8	2,129.8	8.8	42.6	144.12	-366.9	488.3	894.6	846.0	48.62	18.400	
2,300.0	2,250.8	2,226.8	2,226.8	9.3	44.5	145.01	-366.9	488.3	914.7	863.8	50.82	17.999	
2,400.0	2,347.8	2,323.8	2,323.8	9.8	46.5	145.86	-366.9	488.3	934.9	881.9	53.01	17.636	
2,500.0	2,444.8	2,420.8	2,420.8	10.3	48.4	146.67	-366.9	488.3	955.4	900.2	55.20	17.307	
2,600.0	2,541.7	2,517.7	2,517.7	10.8	50.4	147.45	-366.9	488.3	976.1	918.7	57.39	17.007	
2,700.0	2,638.7	2,614.7	2,614.7	11.3	52.3	148.20	-366.9	488.3	996.9	937.3	59.57	16.734 SF	

Company:	Extraction Oil & Gas	Local Co-ordinate Reference:	Well Diamond Valley East #13
Project:	SEC.23-T6N-R67W	TVD Reference:	WELL @ 4791.0ft (Frontier 10 RKB -22')
Reference Site:	Diamond Valley East Pad Sec.23-T6N-R67W	MD Reference:	WELL @ 4791.0ft (Frontier 10 RKB -22')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Diamond Valley East #13	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 (10-03-13)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4791.0ft (Frontier 10 RKB -2Coordinates are relative to: Diamond Valley East #13
Offset Depths are relative to Offset Datum
Coordinate System is US State Plane 1983, Colorado Northern Zone
Central Meridian is -105.500000 °
Grid Convergence at Surface is: 0.41°



Company:	Extraction Oil & Gas	Local Co-ordinate Reference:	Well Diamond Valley East #13
Project:	SEC.23-T6N-R67W	TVD Reference:	WELL @ 4791.0ft (Frontier 10 RKB -22')
Reference Site:	Diamond Valley East Pad Sec.23-T6N-R67W	MD Reference:	WELL @ 4791.0ft (Frontier 10 RKB -22')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Diamond Valley East #13	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 (10-03-13)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4791.0ft (Frontier 10 RKB -2Coordinates are relative to: Diamond Valley East #13
Offset Depths are relative to Offset Datum
Coordinate System is US State Plane 1983, Colorado Northern Zone
Central Meridian is -105.500000 °
Grid Convergence at Surface is: 0.41°

