

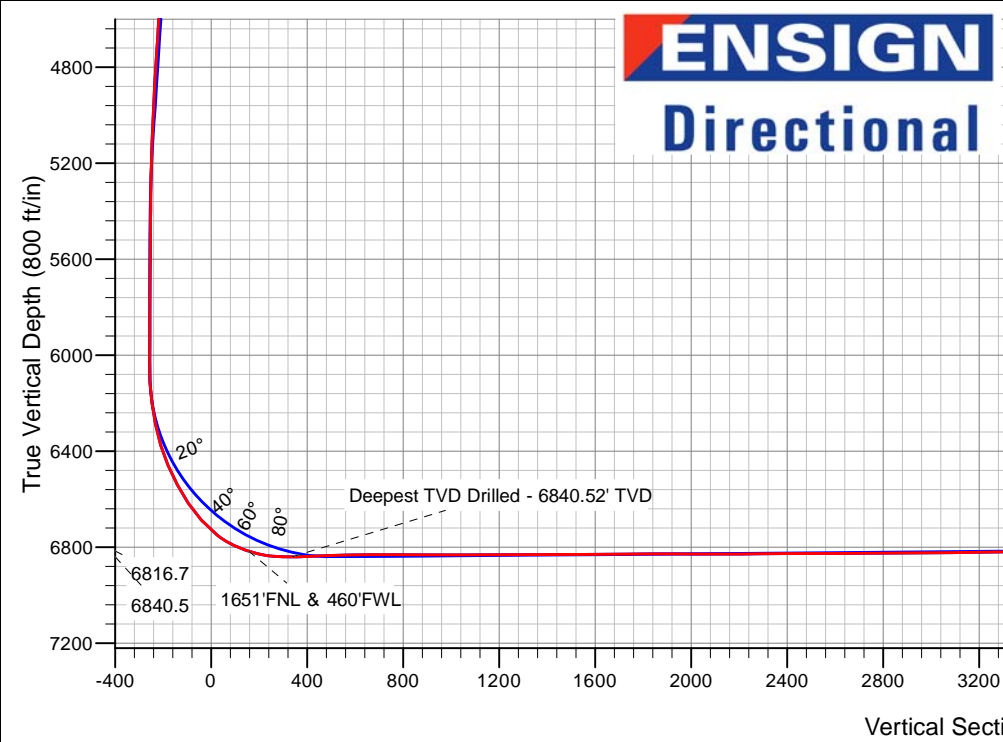
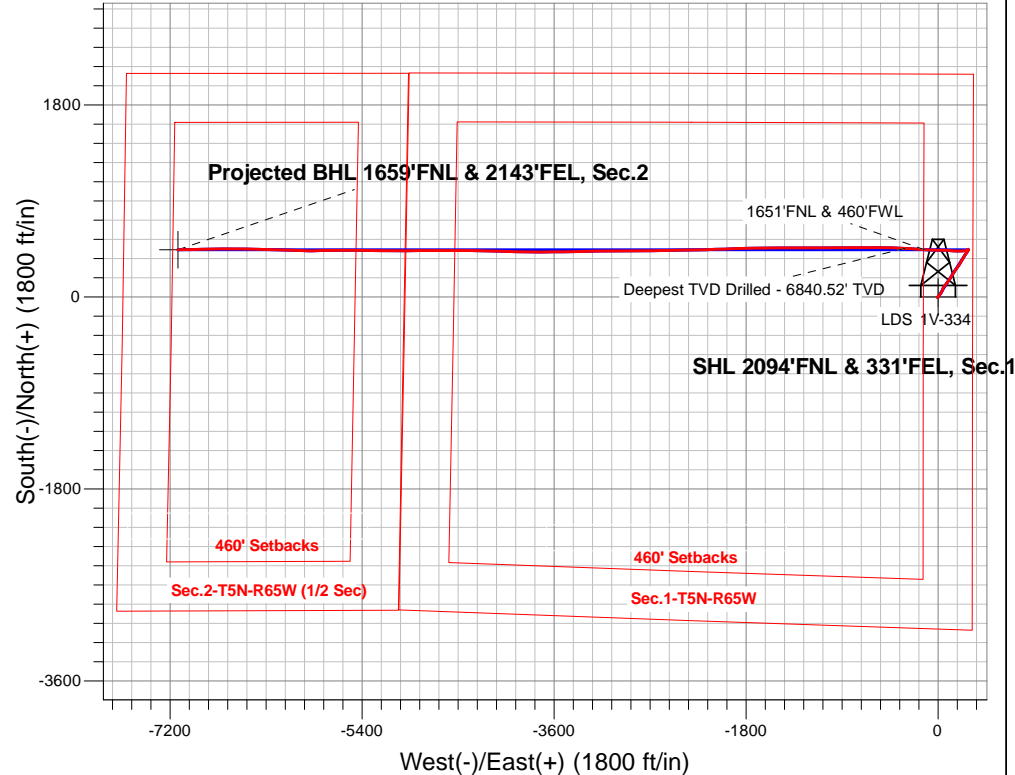
PETROLEUM DEVELOPMENT CORP DJ Basin

Well Name: **LDS 1V-334**

Surface Location: LDS 5N65W1W Pad Sec.1-T5N-R65W
 North American Datum 1983 , US State Plane 1983, Colorado Northern Zone
 Ground Elevation: 4613.0
 +N/-S+E/-W Northing Easting Longitude Slot
 0.0 0.01400522.99 3249730.79 40.429370 -104.602930
 Ensign Rig #161 - RKB - 23'WELL @ 4636.0ft (Ensign Rig #161 - RKB - 23')

FINAL SURVEY

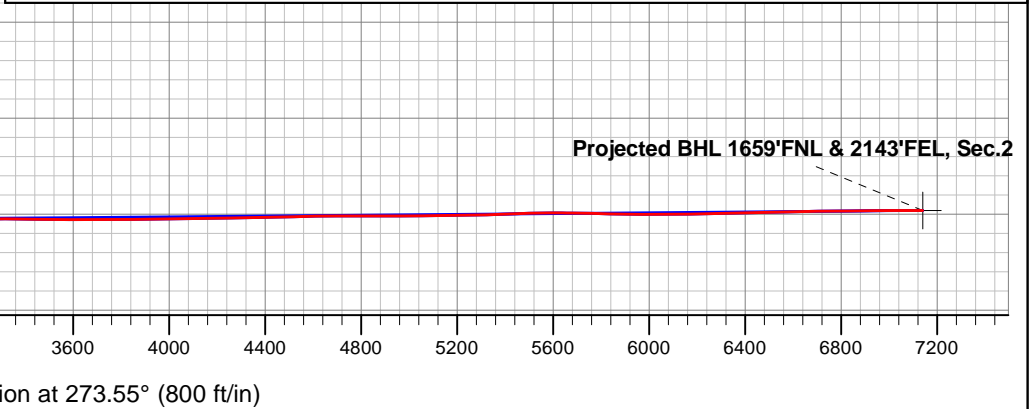
Projected Bottom Hole Location
14014'MD 6785'TVD 443'S & 7126'W of SHL
90.0 degree Incl @ 269.2 degree AZM



LDS 5N65W1W Pad Sec.1-T5N-R65W
 LDS 1V-334
 Wellbore #1
 6:44, January 11 2016

ANNOTATIONS		
TVD	MD	Annotation
6816.7	7011.8	1651'FNL & 460'FWL
6840.5	7196.0	Deepest TVD Drilled - 6840.52' TVD

LEGEND	
	LDS 1V-334, Wellbore #1, Plan #4 (12-15-15) V0
	Wellbore #1
	Survey #1





PETROLEUM DEVELOPMENT CORP DJ Basin

SEC.1-T5N-R65W

LDS 5N65W1W Pad Sec.1-T5N-R65W

LDS 1V-334

Wellbore #1

Survey: Survey #1

Standard Survey Report

11 January, 2016



Company:	PETROLEUM DEVELOPMENT CORP DJ Basin	Local Co-ordinate Reference:	Well LDS 1V-334
Project:	SEC.1-T5N-R65W	TVD Reference:	WELL @ 4636.0ft (Ensign Rig #161 - RKB - 23')
Site:	LDS 5N65W1W Pad Sec.1-T5N-R65W	MD Reference:	WELL @ 4636.0ft (Ensign Rig #161 - RKB - 23')
Well:	LDS 1V-334	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	US_EDM

Project	SEC.1-T5N-R65W, Weld County, CO		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		Using Well Reference Point
Map Zone:	Colorado Northern Zone		Using geodetic scale factor

Site	LDS 5N65W1W Pad Sec.1-T5N-R65W				
Site Position:		Northing:	1,400,464.71 usft	Latitude:	40.429210
From:	Lat/Long	Easting:	3,249,728.59 usft	Longitude:	-104.602940
Position Uncertainty:	0.0 ft	Slot Radius:	13-3/16 "	Grid Convergence:	0.58 °

Well	LDS 1V-334					
Well Position	+N/-S	0.0 ft	Northing:	1,400,522.99 usft	Latitude:	40.429370
	+E/-W	0.0 ft	Easting:	3,249,730.79 usft	Longitude:	-104.602930
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,613.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	12/18/2015	8.17	66.94	52,690

Design	Wellbore #1				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)	
	0.0	0.0	0.0	273.55	

Survey Program	Date	1/11/2016			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
69.0	14,014.0	Survey #1 (Wellbore #1)	MWD	MWD - Standard	

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00	
1.0	0.01	236.00	1.0	0.0	0.0	0.0	0.58	0.58	0.00	
SHL 2094'FNL & 331'FEL, Sec.1										
69.0	0.40	236.00	69.0	-0.1	-0.2	0.2	0.58	0.58	0.00	
158.0	0.40	231.20	158.0	-0.5	-0.7	0.7	0.04	0.00	-5.39	
247.0	0.70	197.80	247.0	-1.2	-1.1	1.0	0.48	0.34	-37.53	
336.0	0.80	197.30	336.0	-2.3	-1.5	1.3	0.11	0.11	-0.56	
426.0	0.50	197.00	426.0	-3.3	-1.8	1.6	0.33	-0.33	-0.33	
515.0	0.60	196.50	515.0	-4.1	-2.0	1.7	0.11	0.11	-0.56	
605.0	0.40	222.30	605.0	-4.8	-2.4	2.0	0.33	-0.22	28.67	
694.0	0.40	230.40	694.0	-5.2	-2.8	2.5	0.06	0.00	9.10	

Company:	PETROLEUM DEVELOPMENT CORP DJ Basin	Local Co-ordinate Reference:	Well LDS 1V-334
Project:	SEC.1-T5N-R65W	TVD Reference:	WELL @ 4636.0ft (Ensign Rig #161 - RKB - 23')
Site:	LDS 5N65W1W Pad Sec.1-T5N-R65W	MD Reference:	WELL @ 4636.0ft (Ensign Rig #161 - RKB - 23')
Well:	LDS 1V-334	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	US_EDM

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
783.0	0.70	247.10	783.0	-5.6	-3.5	3.2	0.38	0.34	18.76	
873.0	0.50	279.00	873.0	-5.8	-4.4	4.1	0.42	-0.22	35.44	
962.0	0.40	256.20	962.0	-5.8	-5.1	4.8	0.23	-0.11	-25.62	
1,051.0	1.10	16.40	1,051.0	-5.1	-5.2	4.9	1.51	0.79	135.06	
1,141.0	2.00	24.50	1,140.9	-2.8	-4.3	4.1	1.03	1.00	9.00	
1,230.0	3.40	27.00	1,229.8	1.0	-2.4	2.5	1.58	1.57	2.81	
1,319.0	4.60	37.30	1,318.6	6.2	0.9	-0.5	1.57	1.35	11.57	
1,409.0	4.60	46.30	1,408.3	11.5	5.7	-5.0	0.80	0.00	10.00	
1,499.0	3.90	48.20	1,498.1	16.0	10.6	-9.6	0.79	-0.78	2.11	
1,588.0	5.10	40.00	1,586.8	21.1	15.4	-14.1	1.53	1.35	-9.21	
1,678.0	5.80	36.60	1,676.4	27.8	20.7	-18.9	0.86	0.78	-3.78	
1,767.0	7.70	36.30	1,764.8	36.2	26.9	-24.6	2.14	2.13	-0.34	
1,857.0	7.50	25.90	1,854.0	46.4	33.0	-30.1	1.54	-0.22	-11.56	
1,946.0	8.10	22.20	1,942.2	57.4	37.9	-34.3	0.88	0.67	-4.16	
2,036.0	8.70	16.60	2,031.2	69.8	42.3	-37.9	1.13	0.67	-6.22	
2,125.0	8.50	23.30	2,119.2	82.3	46.8	-41.6	1.15	-0.22	7.53	
2,214.0	8.40	33.00	2,207.2	93.8	52.9	-47.0	1.60	-0.11	10.90	
2,304.0	8.50	42.80	2,296.3	104.2	61.0	-54.5	1.60	0.11	10.89	
2,393.0	8.40	39.80	2,384.3	114.0	69.7	-62.5	0.51	-0.11	-3.37	
2,483.0	7.80	36.80	2,473.4	123.9	77.5	-69.7	0.82	-0.67	-3.33	
2,572.0	9.10	35.20	2,561.4	134.5	85.2	-76.7	1.48	1.46	-1.80	
2,661.0	8.90	31.70	2,649.3	146.1	92.9	-83.7	0.65	-0.22	-3.93	
2,751.0	9.20	38.10	2,738.2	157.7	101.0	-91.0	1.17	0.33	7.11	
2,840.0	8.40	35.40	2,826.2	168.6	109.1	-98.5	1.01	-0.90	-3.03	
2,930.0	7.90	30.70	2,915.3	179.3	116.1	-104.8	0.93	-0.56	-5.22	
3,019.0	7.40	26.50	3,003.5	189.7	121.8	-109.8	0.84	-0.56	-4.72	
3,108.0	7.20	34.20	3,091.7	199.4	127.5	-114.9	1.12	-0.22	8.65	
3,198.0	6.50	35.10	3,181.1	208.3	133.6	-120.4	0.79	-0.78	1.00	
3,287.0	6.50	28.60	3,269.5	216.8	138.9	-125.2	0.83	0.00	-7.30	
3,377.0	7.40	33.30	3,358.9	226.1	144.5	-130.2	1.18	1.00	5.22	
3,466.0	6.80	32.60	3,447.2	235.3	150.5	-135.6	0.68	-0.67	-0.79	
3,556.0	8.50	33.80	3,536.4	245.4	157.1	-141.6	1.90	1.89	1.33	
3,645.0	9.10	37.00	3,624.3	256.5	165.0	-148.8	0.87	0.67	3.60	
3,734.0	9.40	36.50	3,712.2	267.9	173.5	-156.6	0.35	0.34	-0.56	
3,824.0	10.30	35.20	3,800.8	280.4	182.5	-164.8	1.03	1.00	-1.44	
3,913.0	10.30	35.20	3,888.4	293.4	191.7	-173.2	0.00	0.00	0.00	
4,002.0	9.10	33.80	3,976.1	305.8	200.2	-180.9	1.37	-1.35	-1.57	
4,092.0	8.40	29.60	4,065.1	317.4	207.4	-187.4	1.05	-0.78	-4.67	
4,181.0	7.70	24.90	4,153.2	328.4	213.1	-192.4	1.08	-0.79	-5.28	
4,270.0	8.00	34.50	4,241.4	339.0	219.2	-197.8	1.51	0.34	10.79	
4,360.0	7.50	33.10	4,330.6	349.0	225.9	-203.9	0.59	-0.56	-1.56	
4,449.0	6.90	30.50	4,418.9	358.5	231.8	-209.2	0.77	-0.67	-2.92	
4,538.0	6.60	27.00	4,507.2	367.7	236.8	-213.6	0.57	-0.34	-3.93	

Company:	PETROLEUM DEVELOPMENT CORP DJ Basin	Local Co-ordinate Reference:	Well LDS 1V-334
Project:	SEC.1-T5N-R65W	TVD Reference:	WELL @ 4636.0ft (Ensign Rig #161 - RKB - 23')
Site:	LDS 5N65W1W Pad Sec.1-T5N-R65W	MD Reference:	WELL @ 4636.0ft (Ensign Rig #161 - RKB - 23')
Well:	LDS 1V-334	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	US_EDM

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
4,628.0	6.80	27.20	4,596.6	377.0	241.6	-217.8	0.22	0.22	0.22	
4,717.0	7.00	37.90	4,685.0	386.0	247.4	-223.0	1.46	0.22	12.02	
4,806.0	6.00	38.40	4,773.4	393.9	253.6	-228.7	1.13	-1.12	0.56	
4,896.0	6.20	30.80	4,862.9	401.8	259.0	-233.6	0.92	0.22	-8.44	
4,985.0	7.00	31.90	4,951.3	410.5	264.3	-238.4	0.91	0.90	1.24	
5,075.0	6.30	31.40	5,040.7	419.4	269.8	-243.3	0.78	-0.78	-0.56	
5,164.0	5.00	25.90	5,129.3	427.0	274.0	-247.1	1.58	-1.46	-6.18	
5,253.0	4.00	19.90	5,218.0	433.4	276.8	-249.4	1.24	-1.12	-6.74	
5,343.0	3.60	12.90	5,307.8	439.1	278.5	-250.8	0.68	-0.44	-7.78	
5,432.0	2.50	18.70	5,396.7	443.7	279.7	-251.7	1.28	-1.24	6.52	
5,521.0	0.50	80.20	5,485.6	445.6	280.7	-252.6	2.59	-2.25	69.10	
5,611.0	0.50	119.30	5,575.6	445.5	281.5	-253.3	0.37	0.00	43.44	
5,700.0	0.40	146.20	5,664.6	445.0	282.0	-253.9	0.26	-0.11	30.22	
5,789.0	0.90	146.90	5,753.6	444.2	282.5	-254.5	0.56	0.56	0.79	
5,879.0	1.10	159.90	5,843.6	442.8	283.2	-255.3	0.33	0.22	14.44	
5,968.0	1.10	159.90	5,932.6	441.2	283.8	-255.9	0.00	0.00	0.00	
6,058.0	1.30	156.90	6,022.6	439.4	284.5	-256.7	0.23	0.22	-3.33	
6,147.0	3.80	244.90	6,111.5	437.3	282.2	-254.6	4.46	2.81	98.88	
6,236.0	7.90	259.00	6,200.0	434.8	273.5	-246.1	4.85	4.61	15.84	
6,326.0	11.40	263.40	6,288.7	432.6	258.6	-231.4	3.97	3.89	4.89	
6,415.0	17.10	266.70	6,375.0	430.9	236.8	-209.7	6.47	6.40	3.71	
6,504.0	23.00	267.60	6,458.5	429.4	206.3	-179.4	6.64	6.63	1.01	
6,594.0	27.60	273.40	6,539.9	429.9	167.9	-141.0	5.80	5.11	6.44	
6,683.0	33.70	274.80	6,616.4	433.2	122.7	-95.7	6.90	6.85	1.57	
6,772.0	41.20	272.40	6,687.0	436.5	68.7	-41.6	8.58	8.43	-2.70	
6,863.0	52.00	269.70	6,749.5	437.5	2.7	24.3	12.06	11.87	-2.97	
6,952.0	65.90	273.10	6,795.3	439.6	-73.3	100.3	15.95	15.62	3.82	
7,011.8	72.01	273.91	6,816.7	443.0	-129.0	156.1	10.30	10.22	1.36	
1651'FNL & 460'FWL										
7,042.0	75.10	274.30	6,825.3	445.1	-157.8	185.1	10.30	10.23	1.28	
7,131.0	86.80	273.60	6,839.3	451.1	-245.4	272.8	13.17	13.15	-0.79	
7,196.0	91.00	273.10	6,840.5	454.9	-310.2	337.8	6.51	6.46	-0.77	
Deepest TVD Drilled - 6840.52' TVD										
7,242.0	92.10	273.20	6,839.3	457.4	-356.2	383.8	2.40	2.39	0.22	
7,331.0	92.00	271.50	6,836.1	461.1	-445.0	472.7	1.91	-0.11	-1.91	
7,421.0	91.50	270.10	6,833.3	462.3	-535.0	562.5	1.65	-0.56	-1.56	
7,510.0	90.50	270.30	6,831.8	462.6	-623.9	651.4	1.15	-1.12	0.22	
7,600.0	89.40	270.10	6,831.9	463.0	-713.9	741.2	1.24	-1.22	-0.22	
7,689.0	89.50	269.90	6,832.7	463.0	-802.9	830.1	0.25	0.11	-0.22	
7,781.0	90.10	270.10	6,833.0	463.0	-894.9	921.9	0.69	0.65	0.22	
7,874.0	91.10	269.60	6,832.1	462.7	-987.9	1,014.7	1.20	1.08	-0.54	
7,966.0	89.90	269.40	6,831.3	461.9	-1,079.9	1,106.4	1.32	-1.30	-0.22	
8,057.0	90.00	269.20	6,831.3	460.8	-1,170.9	1,197.2	0.25	0.11	-0.22	
8,149.0	90.00	269.00	6,831.3	459.4	-1,262.9	1,288.9	0.22	0.00	-0.22	

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Site:	LDS 5N65W1W Pad Sec.1-T5N-R65W	MD Reference:	WELL @ 4636.0ft (Ensign Rig #161 - RKB - 23')
Well:	LDS 1V-334	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	US_EDM

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
8,241.0	90.70	270.80	6,830.8	459.2	-1,354.9	1,380.7	2.10	0.76	1.96	
8,334.0	89.60	269.40	6,830.5	459.4	-1,447.9	1,473.5	1.91	-1.18	-1.51	
8,427.0	90.20	269.70	6,830.7	458.6	-1,540.9	1,566.3	0.72	0.65	0.32	
8,519.0	90.40	269.90	6,830.2	458.3	-1,632.9	1,658.1	0.31	0.22	0.22	
8,611.0	90.70	269.70	6,829.3	458.0	-1,724.9	1,749.9	0.39	0.33	-0.22	
8,702.0	90.50	268.30	6,828.4	456.4	-1,815.9	1,840.6	1.55	-0.22	-1.54	
8,795.0	89.50	267.10	6,828.4	452.7	-1,908.8	1,933.1	1.68	-1.08	-1.29	
8,887.0	89.70	267.80	6,829.0	448.6	-2,000.7	2,024.6	0.79	0.22	0.76	
8,977.0	90.00	268.20	6,829.3	445.4	-2,090.6	2,114.2	0.56	0.33	0.44	
9,066.0	90.50	268.90	6,828.9	443.2	-2,179.6	2,202.9	0.97	0.56	0.79	
9,156.0	90.70	268.70	6,827.9	441.3	-2,269.6	2,292.5	0.31	0.22	-0.22	
9,245.0	91.00	268.70	6,826.6	439.3	-2,358.6	2,381.2	0.34	0.34	0.00	
9,334.0	89.50	268.30	6,826.2	436.9	-2,447.5	2,469.9	1.74	-1.69	-0.45	
9,424.0	90.10	268.90	6,826.5	434.7	-2,537.5	2,559.5	0.94	0.67	0.67	
9,513.0	90.90	269.60	6,825.8	433.6	-2,626.5	2,648.3	1.19	0.90	0.79	
9,602.0	89.30	269.20	6,825.6	432.6	-2,715.5	2,737.0	1.85	-1.80	-0.45	
9,692.0	90.00	268.90	6,826.2	431.2	-2,805.5	2,826.8	0.85	0.78	-0.33	
9,781.0	90.70	270.80	6,825.6	430.9	-2,894.4	2,915.6	2.28	0.79	2.13	
9,871.0	91.10	269.90	6,824.2	431.5	-2,984.4	3,005.4	1.09	0.44	-1.00	
9,960.0	91.40	269.20	6,822.3	430.8	-3,073.4	3,094.2	0.86	0.34	-0.79	
10,049.0	90.30	268.50	6,820.9	429.0	-3,162.4	3,182.9	1.46	-1.24	-0.79	
10,139.0	90.70	269.00	6,820.1	427.0	-3,252.4	3,272.5	0.71	0.44	0.56	
10,228.0	89.00	269.20	6,820.4	425.6	-3,341.3	3,361.3	1.92	-1.91	0.22	
10,317.0	89.40	269.00	6,821.6	424.2	-3,430.3	3,450.0	0.50	0.45	-0.22	
10,407.0	89.70	269.40	6,822.3	423.0	-3,520.3	3,539.7	0.56	0.33	0.44	
10,496.0	89.90	269.60	6,822.6	422.2	-3,609.3	3,628.5	0.32	0.22	0.22	
10,585.0	90.20	269.60	6,822.6	421.6	-3,698.3	3,717.3	0.34	0.34	0.00	
10,675.0	90.10	269.60	6,822.3	420.9	-3,788.3	3,807.1	0.11	-0.11	0.00	
10,764.0	90.20	271.00	6,822.1	421.4	-3,877.3	3,895.9	1.58	0.11	1.57	
10,853.0	90.60	271.80	6,821.5	423.6	-3,966.3	3,984.9	1.00	0.45	0.90	
10,943.0	91.50	272.50	6,819.8	427.0	-4,056.2	4,074.8	1.27	1.00	0.78	
11,032.0	91.00	271.30	6,817.9	429.9	-4,145.1	4,163.8	1.46	-0.56	-1.35	
11,121.0	91.20	270.80	6,816.2	431.5	-4,234.1	4,252.7	0.60	0.22	-0.56	
11,211.0	91.60	270.80	6,814.0	432.8	-4,324.0	4,342.5	0.44	0.44	0.00	
11,300.0	90.70	270.80	6,812.2	434.0	-4,413.0	4,431.4	1.01	-1.01	0.00	
11,389.0	91.20	270.30	6,810.7	434.9	-4,502.0	4,520.3	0.79	0.56	-0.56	
11,478.0	91.50	270.30	6,808.6	435.4	-4,591.0	4,609.1	0.34	0.34	0.00	
11,568.0	89.70	269.90	6,807.7	435.5	-4,681.0	4,698.9	2.05	-2.00	-0.44	
11,657.0	90.10	269.90	6,807.8	435.4	-4,770.0	4,787.8	0.45	0.45	0.00	
11,747.0	89.90	269.40	6,807.8	434.8	-4,860.0	4,877.6	0.60	-0.22	-0.56	
11,836.0	90.50	269.60	6,807.5	434.0	-4,949.0	4,966.3	0.71	0.67	0.22	
11,925.0	90.50	269.60	6,806.7	433.4	-5,038.0	5,055.1	0.00	0.00	0.00	
12,015.0	90.60	269.90	6,805.9	433.0	-5,127.9	5,144.9	0.35	0.11	0.33	

Company:	PETROLEUM DEVELOPMENT CORP DJ Basin	Local Co-ordinate Reference:	Well LDS 1V-334
Project:	SEC.1-T5N-R65W	TVD Reference:	WELL @ 4636.0ft (Ensign Rig #161 - RKB - 23')
Site:	LDS 5N65W1W Pad Sec.1-T5N-R65W	MD Reference:	WELL @ 4636.0ft (Ensign Rig #161 - RKB - 23')
Well:	LDS 1V-334	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	US_EDM

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
12,104.0	91.00	270.30	6,804.6	433.2	-5,216.9	5,233.7	0.64	0.45	0.45	
12,193.0	91.60	270.30	6,802.6	433.6	-5,305.9	5,322.6	0.67	0.67	0.00	
12,283.0	92.10	271.00	6,799.7	434.7	-5,395.9	5,412.4	0.96	0.56	0.78	
12,372.0	91.90	271.10	6,796.6	436.3	-5,484.8	5,501.3	0.25	-0.22	0.11	
12,462.0	90.20	271.00	6,795.0	437.9	-5,574.8	5,591.2	1.89	-1.89	-0.11	
12,551.0	88.70	267.60	6,795.8	436.9	-5,663.7	5,679.9	4.18	-1.69	-3.82	
12,640.0	89.00	268.20	6,797.6	433.6	-5,752.7	5,768.5	0.75	0.34	0.67	
12,730.0	89.50	269.60	6,798.8	431.9	-5,842.6	5,858.2	1.65	0.56	1.56	
12,819.0	89.10	271.80	6,799.9	433.0	-5,931.6	5,947.0	2.51	-0.45	2.47	
12,909.0	89.40	272.00	6,801.0	435.9	-6,021.6	6,037.0	0.40	0.33	0.22	
12,998.0	90.60	271.10	6,801.0	438.3	-6,110.5	6,125.9	1.69	1.35	-1.01	
13,087.0	90.90	272.00	6,799.9	440.7	-6,199.5	6,214.9	1.07	0.34	1.01	
13,177.0	91.90	272.90	6,797.7	444.6	-6,289.4	6,304.8	1.49	1.11	1.00	
13,265.0	91.80	271.00	6,794.8	447.6	-6,377.3	6,392.7	2.16	-0.11	-2.16	
13,355.0	91.50	271.00	6,792.2	449.2	-6,467.2	6,482.6	0.33	-0.33	0.00	
13,444.0	90.90	269.90	6,790.4	449.9	-6,556.2	6,571.5	1.41	-0.67	-1.24	
13,534.0	90.70	269.40	6,789.1	449.3	-6,646.2	6,661.2	0.60	-0.22	-0.56	
13,623.0	90.70	269.40	6,788.0	448.4	-6,735.2	6,750.0	0.00	0.00	0.00	
13,713.0	90.50	269.40	6,787.1	447.4	-6,825.2	6,839.8	0.22	-0.22	0.00	
13,802.0	90.60	269.20	6,786.2	446.3	-6,914.1	6,928.5	0.25	0.11	-0.22	
13,891.0	90.30	269.00	6,785.5	444.9	-7,003.1	7,017.2	0.41	-0.34	-0.22	
13,958.0	90.00	269.20	6,785.4	443.9	-7,070.1	7,084.0	0.54	-0.45	0.30	
14,014.0	90.00	269.20	6,785.4	443.1	-7,126.1	7,139.9	0.00	0.00	0.00	
BHL 1660'FNL & 2144'FEL, Sec.2										

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
SHL 2094'FNL & 331'FE - hit/miss target - Shape - Point	0.00	0.00	1.0	0.0	0.0	1,400,523.03	3,249,730.79	40.429370	-104.602930	
BHL 1660'FNL & 2144'F - survey misses target center by 1.5ft at 14014.0ft MD (6785.4 TVD, 443.1 N, -7126.1 E) - Point	0.00	0.00	6,785.0	441.9	-7,126.9	1,400,892.74	3,242,600.03	40.430580	-104.628530	

Survey Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment	
		+N/-S (ft)	+E/-W (ft)		
7,011.8	6,816.7	443.0	-129.0	1651'FNL & 460'FWL	
7,196.0	6,840.5	454.9	-310.2	Deepest TVD Drilled - 6840.52' TVD	

Company:	PETROLEUM DEVELOPMENT CORP DJ Basin	Local Co-ordinate Reference:	Well LDS 1V-334
Project:	SEC.1-T5N-R65W	TVD Reference:	WELL @ 4636.0ft (Ensign Rig #161 - RKB - 23')
Site:	LDS 5N65W1W Pad Sec.1-T5N-R65W	MD Reference:	WELL @ 4636.0ft (Ensign Rig #161 - RKB - 23')
Well:	LDS 1V-334	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	US_EDM

Checked By: _____ Approved By: _____ Date: _____