PETROLEUM DEVELOPMENT CORP Weld County CO

Well Name: **LDS 1V-434**

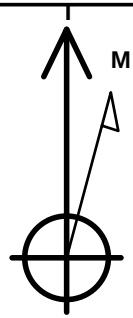
Surface Location: LDS 5N65W1W Pad Sec.1-T5N-R65W
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone
Ground Elevation: 4613.0

+N/-S	+E/-W	Northing	Easting	Latittude	Longitude	Slot
0.0	0.0	1400523.02	3249730.79	40.429370	-104.602930	

Original Well Elev WELL @ 4628.0ft (Original Well Elev)

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SHL 2094'FNL & 331'FEL, Sec.1	1.0	0.0	0.0	Point
BHL 1628'FNL & 2144'FEL, Sec.2	6875.0	474.6	-7126.9	Point



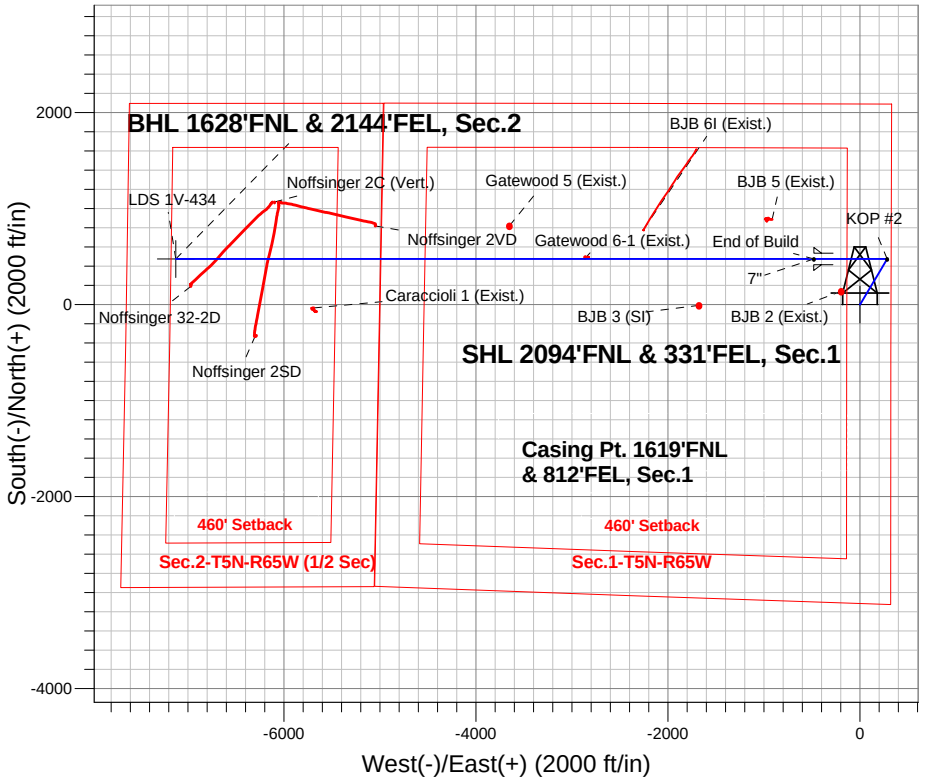
Azimuths to True North
Magnetic North: 8.34°

Magnetic Field
Strength: 52825.7snT
Dip Angle: 66.99°
Date: 9/4/2014
Model: IGRF2010

LDS 5N65W1W Pad Sec.1-T5N-R65W
LDS 1V-434
Plan #1 (9-4-14)

ANNOTATIONS

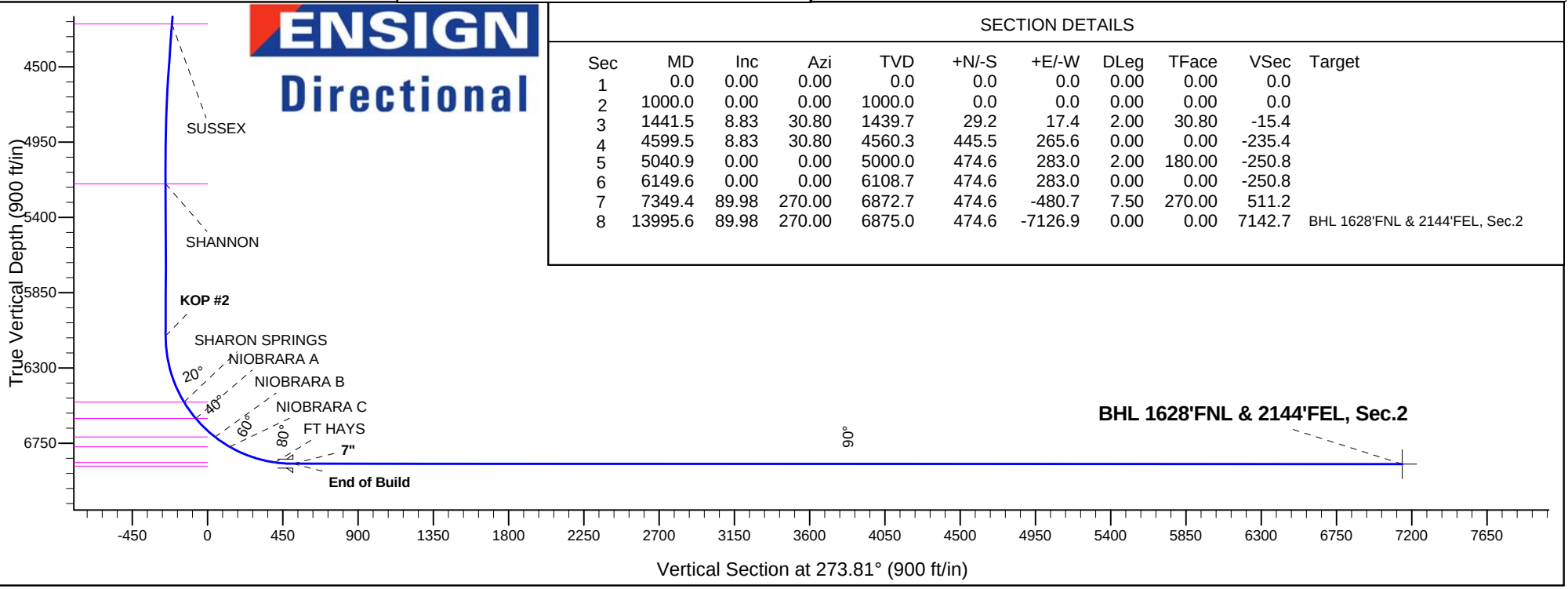
TVD	MD	Annotation
1000.0	1000.0	KOP #1
6108.7	6149.6	KOP #2
6872.7	7349.4	End of Build



ENSIGN Directional

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	1000.0	0.00	0.00	1000.0	0.0	0.0	0.00	0.00	0.0	
3	1441.5	8.83	30.80	1439.7	29.2	17.4	2.00	30.80	-15.4	
4	4599.5	8.83	30.80	4560.3	445.5	265.6	0.00	0.00	-235.4	
5	5040.9	0.00	0.00	5000.0	474.6	283.0	2.00	180.00	-250.8	
6	6149.6	0.00	0.00	6108.7	474.6	283.0	0.00	0.00	-250.8	
7	7349.4	89.98	270.00	6872.7	474.6	-480.7	7.50	270.00	511.2	
8	13995.6	89.98	270.00	6875.0	474.6	-7126.9	0.00	0.00	7142.7	BHL 1628'FNL & 2144'FEL, Sec.2



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.1-T5N-R65W
LDS 5N65W1W Pad Sec.1-T5N-R65W
LDS 1V-434

Wellbore #1

Plan: Plan #1 (9-4-14)

Standard Planning Report

16 September, 2014

Database:	landmark	**Local Co-ordinate Reference:**	Well LDS 1V-434
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**TVD Reference:**	WELL @ 4628.0ft (Original Well Elev)
Project:	SEC.1-T5N-R65W	**MD Reference:**	WELL @ 4628.0ft (Original Well Elev)
Site:	LDS 5N65W1W Pad Sec.1-T5N-R65W	**North Reference:**	True
Well:	LDS 1V-434	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (9-4-14)		

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 ft	**Latitude:**	40.429210
From:	Lat/Long	**Easting:**	3,249,728.59 ft	**Longitude:**	-104.602940
Position Uncertainty:	0.0 ft	**Slot Radius:**	"	**Grid Convergence:**	0.58 °

Well LDS 1V-434

Well Position	**+N/-S**	58.3 ft	**Northing:**	1,400,523.02 ft	**Latitude:**	40.429370
	+E/-W	2.8 ft	**Easting:**	3,249,730.79 ft	**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	9/4/2014	8.35	66.99	52,826

Design Plan #1 (9-4-14)

Audit Notes:

Version:		**Phase:**	PROTOTYPE	**Tie On Depth:**	0.0

Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	273.81

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	
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,441.5	8.83	30.80	1,439.7	29.2	17.4	2.00	2.00	0.00	30.80	
4,599.5	8.83	30.80	4,560.3	445.5	265.6	0.00	0.00	0.00	0.00	
5,040.9	0.00	0.00	5,000.0	474.6	283.0	2.00	-2.00	0.00	180.00	
6,149.6	0.00	0.00	6,108.7	474.6	283.0	0.00	0.00	0.00	0.00	
7,349.4	89.98	270.00	6,872.7	474.6	-480.7	7.50	7.50	0.00	270.00	
13,995.6	89.98	270.00	6,875.0	474.6	-7,126.9	0.00	0.00	0.00	0.00	BHL 1628'FNL & 21

Database:	landmark	**Local Co-ordinate Reference:**	Well LDS 1V-434
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**TVD Reference:**	WELL @ 4628.0ft (Original Well Elev)
Project:	SEC.1-T5N-R65W	**MD Reference:**	WELL @ 4628.0ft (Original Well Elev)
Site:	LDS 5N65W1W Pad Sec.1-T5N-R65W	**North Reference:**	True
Well:	LDS 1V-434	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (9-4-14)		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
KOP #1									
1,100.0	2.00	30.80	1,100.0	1.5	0.9	-0.8	2.00	2.00	0.00
1,200.0	4.00	30.80	1,199.8	6.0	3.6	-3.2	2.00	2.00	0.00
1,300.0	6.00	30.80	1,299.5	13.5	8.0	-7.1	2.00	2.00	0.00
1,400.0	8.00	30.80	1,398.7	23.9	14.3	-12.7	2.00	2.00	0.00
1,441.5	8.83	30.80	1,439.7	29.2	17.4	-15.4	2.00	2.00	0.00
1,500.0	8.83	30.80	1,497.6	36.9	22.0	-19.5	0.00	0.00	0.00
1,600.0	8.83	30.80	1,596.4	50.1	29.8	-26.5	0.00	0.00	0.00
1,700.0	8.83	30.80	1,695.2	63.2	37.7	-33.4	0.00	0.00	0.00
1,800.0	8.83	30.80	1,794.0	76.4	45.6	-40.4	0.00	0.00	0.00
1,900.0	8.83	30.80	1,892.8	89.6	53.4	-47.4	0.00	0.00	0.00
2,000.0	8.83	30.80	1,991.6	102.8	61.3	-54.3	0.00	0.00	0.00
2,100.0	8.83	30.80	2,090.5	116.0	69.1	-61.3	0.00	0.00	0.00
2,200.0	8.83	30.80	2,189.3	129.2	77.0	-68.3	0.00	0.00	0.00
2,300.0	8.83	30.80	2,288.1	142.3	84.9	-75.2	0.00	0.00	0.00
2,400.0	8.83	30.80	2,386.9	155.5	92.7	-82.2	0.00	0.00	0.00
2,500.0	8.83	30.80	2,485.7	168.7	100.6	-89.2	0.00	0.00	0.00
2,600.0	8.83	30.80	2,584.5	181.9	108.5	-96.1	0.00	0.00	0.00
2,700.0	8.83	30.80	2,683.3	195.1	116.3	-103.1	0.00	0.00	0.00
2,800.0	8.83	30.80	2,782.2	208.3	124.2	-110.1	0.00	0.00	0.00
2,900.0	8.83	30.80	2,881.0	221.4	132.0	-117.0	0.00	0.00	0.00
3,000.0	8.83	30.80	2,979.8	234.6	139.9	-124.0	0.00	0.00	0.00
3,100.0	8.83	30.80	3,078.6	247.8	147.8	-131.0	0.00	0.00	0.00
3,200.0	8.83	30.80	3,177.4	261.0	155.6	-137.9	0.00	0.00	0.00
3,300.0	8.83	30.80	3,276.2	274.2	163.5	-144.9	0.00	0.00	0.00
3,400.0	8.83	30.80	3,375.0	287.4	171.3	-151.9	0.00	0.00	0.00
3,500.0	8.83	30.80	3,473.9	300.5	179.2	-158.8	0.00	0.00	0.00
3,512.3	8.83	30.80	3,486.0	302.2	180.2	-159.7	0.00	0.00	0.00
PARKMAN									
3,600.0	8.83	30.80	3,572.7	313.7	187.1	-165.8	0.00	0.00	0.00
3,700.0	8.83	30.80	3,671.5	326.9	194.9	-172.8	0.00	0.00	0.00
3,800.0	8.83	30.80	3,770.3	340.1	202.8	-179.7	0.00	0.00	0.00
3,900.0	8.83	30.80	3,869.1	353.3	210.6	-186.7	0.00	0.00	0.00
4,000.0	8.83	30.80	3,967.9	366.5	218.5	-193.7	0.00	0.00	0.00
4,100.0	8.83	30.80	4,066.8	379.6	226.4	-200.6	0.00	0.00	0.00
4,200.0	8.83	30.80	4,165.6	392.8	234.2	-207.6	0.00	0.00	0.00
4,279.4	8.83	30.80	4,244.0	403.3	240.5	-213.1	0.00	0.00	0.00
SUSSEX									
4,300.0	8.83	30.80	4,264.4	406.0	242.1	-214.6	0.00	0.00	0.00
4,400.0	8.83	30.80	4,363.2	419.2	249.9	-221.5	0.00	0.00	0.00
4,500.0	8.83	30.80	4,462.0	432.4	257.8	-228.5	0.00	0.00	0.00
4,599.5	8.83	30.80	4,560.3	445.5	265.6	-235.4	0.00	0.00	0.00

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Site:	LDS 5N65W1W Pad Sec.1-T5N-R65W	**North Reference:**	True
Well:	LDS 1V-434	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (9-4-14)		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
4,600.0	8.82	30.80	4,560.8	445.6	265.7	-235.5	2.00	-2.00	0.00
4,700.0	6.82	30.80	4,659.9	457.2	272.6	-241.6	2.00	-2.00	0.00
4,800.0	4.82	30.80	4,759.4	465.9	277.8	-246.2	2.00	-2.00	0.00
4,900.0	2.82	30.80	4,859.1	471.7	281.2	-249.3	2.00	-2.00	0.00
5,000.0	0.82	30.80	4,959.1	474.4	282.9	-250.7	2.00	-2.00	0.00
5,040.9	0.00	0.00	5,000.0	474.6	283.0	-250.8	2.00	-2.00	0.00
5,100.0	0.00	0.00	5,059.1	474.6	283.0	-250.8	0.00	0.00	0.00
5,200.0	0.00	0.00	5,159.1	474.6	283.0	-250.8	0.00	0.00	0.00
5,240.9	0.00	0.00	5,200.0	474.6	283.0	-250.8	0.00	0.00	0.00
SHANNON									
5,300.0	0.00	0.00	5,259.1	474.6	283.0	-250.8	0.00	0.00	0.00
5,400.0	0.00	0.00	5,359.1	474.6	283.0	-250.8	0.00	0.00	0.00
5,500.0	0.00	0.00	5,459.1	474.6	283.0	-250.8	0.00	0.00	0.00
5,600.0	0.00	0.00	5,559.1	474.6	283.0	-250.8	0.00	0.00	0.00
5,700.0	0.00	0.00	5,659.1	474.6	283.0	-250.8	0.00	0.00	0.00
5,800.0	0.00	0.00	5,759.1	474.6	283.0	-250.8	0.00	0.00	0.00
5,900.0	0.00	0.00	5,859.1	474.6	283.0	-250.8	0.00	0.00	0.00
6,000.0	0.00	0.00	5,959.1	474.6	283.0	-250.8	0.00	0.00	0.00
6,100.0	0.00	0.00	6,059.1	474.6	283.0	-250.8	0.00	0.00	0.00
6,149.6	0.00	0.00	6,108.7	474.6	283.0	-250.8	0.00	0.00	0.00
KOP #2									
6,200.0	3.78	270.00	6,159.1	474.6	281.3	-249.2	7.49	7.49	0.00
6,300.0	11.28	270.00	6,258.1	474.6	268.3	-236.1	7.50	7.50	0.00
6,400.0	18.78	270.00	6,354.6	474.6	242.3	-210.3	7.50	7.50	0.00
6,500.0	26.28	270.00	6,446.9	474.6	204.1	-172.1	7.50	7.50	0.00
6,565.1	31.16	270.00	6,504.0	474.6	172.8	-140.9	7.50	7.50	0.00
SHARON SPRINGS									
6,600.0	33.78	270.00	6,533.5	474.6	154.1	-122.2	7.50	7.50	0.00
6,685.9	40.22	270.00	6,602.0	474.6	102.4	-70.6	7.50	7.50	0.00
NIOBRARA A									
6,700.0	41.28	270.00	6,612.7	474.6	93.2	-61.4	7.50	7.50	0.00
6,800.0	48.78	270.00	6,683.3	474.6	22.5	9.1	7.50	7.50	0.00
6,846.7	52.28	270.00	6,713.0	474.6	-13.5	45.0	7.50	7.50	0.00
NIOBRARA B									
6,900.0	56.28	270.00	6,744.1	474.6	-56.8	88.2	7.50	7.50	0.00
6,953.0	60.25	270.00	6,772.0	474.6	-101.9	133.2	7.50	7.50	0.00
NIOBRARA C									
7,000.0	63.78	270.00	6,794.1	474.6	-143.4	174.6	7.50	7.50	0.00
7,100.0	71.28	270.00	6,832.3	474.6	-235.7	266.7	7.50	7.50	0.00
7,200.0	78.78	270.00	6,858.1	474.6	-332.3	363.1	7.50	7.50	0.00
7,241.2	81.87	270.00	6,865.0	474.6	-372.9	403.6	7.50	7.50	0.00
FT HAYS									
7,300.0	86.28	270.00	6,871.1	474.6	-431.3	461.9	7.50	7.50	0.00
7,349.4	89.98	270.00	6,872.7	474.6	-480.7	511.2	7.50	7.50	0.00
End of Build - 7"									
7,400.0	89.98	270.00	6,872.7	474.6	-531.3	561.7	0.00	0.00	0.00
7,500.0	89.98	270.00	6,872.7	474.6	-631.3	661.4	0.00	0.00	0.00
7,600.0	89.98	270.00	6,872.8	474.6	-731.3	761.2	0.00	0.00	0.00
7,700.0	89.98	270.00	6,872.8	474.6	-831.3	861.0	0.00	0.00	0.00
7,800.0	89.98	270.00	6,872.8	474.6	-931.3	960.8	0.00	0.00	0.00
7,900.0	89.98	270.00	6,872.9	474.6	-1,031.3	1,060.6	0.00	0.00	0.00
8,000.0	89.98	270.00	6,872.9	474.6	-1,131.3	1,160.3	0.00	0.00	0.00

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Site:	LDS 5N65W1W Pad Sec.1-T5N-R65W	**North Reference:**	True
Well:	LDS 1V-434	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (9-4-14)		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
8,100.0	89.98	270.00	6,872.9	474.6	-1,231.3	1,260.1	0.00	0.00	0.00
8,200.0	89.98	270.00	6,873.0	474.6	-1,331.3	1,359.9	0.00	0.00	0.00
8,300.0	89.98	270.00	6,873.0	474.6	-1,431.3	1,459.7	0.00	0.00	0.00
8,400.0	89.98	270.00	6,873.0	474.6	-1,531.3	1,559.5	0.00	0.00	0.00
8,500.0	89.98	270.00	6,873.1	474.6	-1,631.3	1,659.2	0.00	0.00	0.00
8,600.0	89.98	270.00	6,873.1	474.6	-1,731.3	1,759.0	0.00	0.00	0.00
8,700.0	89.98	270.00	6,873.2	474.6	-1,831.3	1,858.8	0.00	0.00	0.00
8,800.0	89.98	270.00	6,873.2	474.6	-1,931.3	1,958.6	0.00	0.00	0.00
8,900.0	89.98	270.00	6,873.2	474.6	-2,031.3	2,058.3	0.00	0.00	0.00
9,000.0	89.98	270.00	6,873.3	474.6	-2,131.3	2,158.1	0.00	0.00	0.00
9,100.0	89.98	270.00	6,873.3	474.6	-2,231.3	2,257.9	0.00	0.00	0.00
9,200.0	89.98	270.00	6,873.3	474.6	-2,331.3	2,357.7	0.00	0.00	0.00
9,300.0	89.98	270.00	6,873.4	474.6	-2,431.3	2,457.5	0.00	0.00	0.00
9,400.0	89.98	270.00	6,873.4	474.6	-2,531.3	2,557.2	0.00	0.00	0.00
9,500.0	89.98	270.00	6,873.4	474.6	-2,631.3	2,657.0	0.00	0.00	0.00
9,600.0	89.98	270.00	6,873.5	474.6	-2,731.3	2,756.8	0.00	0.00	0.00
9,700.0	89.98	270.00	6,873.5	474.6	-2,831.3	2,856.6	0.00	0.00	0.00
9,800.0	89.98	270.00	6,873.5	474.6	-2,931.3	2,956.4	0.00	0.00	0.00
9,900.0	89.98	270.00	6,873.6	474.6	-3,031.3	3,056.1	0.00	0.00	0.00
10,000.0	89.98	270.00	6,873.6	474.6	-3,131.3	3,155.9	0.00	0.00	0.00
10,100.0	89.98	270.00	6,873.6	474.6	-3,231.3	3,255.7	0.00	0.00	0.00
10,200.0	89.98	270.00	6,873.7	474.6	-3,331.3	3,355.5	0.00	0.00	0.00
10,300.0	89.98	270.00	6,873.7	474.6	-3,431.3	3,455.3	0.00	0.00	0.00
10,400.0	89.98	270.00	6,873.7	474.6	-3,531.3	3,555.0	0.00	0.00	0.00
10,500.0	89.98	270.00	6,873.8	474.6	-3,631.3	3,654.8	0.00	0.00	0.00
10,600.0	89.98	270.00	6,873.8	474.6	-3,731.3	3,754.6	0.00	0.00	0.00
10,700.0	89.98	270.00	6,873.8	474.6	-3,831.3	3,854.4	0.00	0.00	0.00
10,800.0	89.98	270.00	6,873.9	474.6	-3,931.3	3,954.1	0.00	0.00	0.00
10,900.0	89.98	270.00	6,873.9	474.6	-4,031.3	4,053.9	0.00	0.00	0.00
11,000.0	89.98	270.00	6,874.0	474.6	-4,131.3	4,153.7	0.00	0.00	0.00
11,100.0	89.98	270.00	6,874.0	474.6	-4,231.3	4,253.5	0.00	0.00	0.00
11,200.0	89.98	270.00	6,874.0	474.6	-4,331.3	4,353.3	0.00	0.00	0.00
11,300.0	89.98	270.00	6,874.1	474.6	-4,431.3	4,453.0	0.00	0.00	0.00
11,400.0	89.98	270.00	6,874.1	474.6	-4,531.3	4,552.8	0.00	0.00	0.00
11,500.0	89.98	270.00	6,874.1	474.6	-4,631.3	4,652.6	0.00	0.00	0.00
11,600.0	89.98	270.00	6,874.2	474.6	-4,731.3	4,752.4	0.00	0.00	0.00
11,700.0	89.98	270.00	6,874.2	474.6	-4,831.3	4,852.2	0.00	0.00	0.00
11,800.0	89.98	270.00	6,874.2	474.6	-4,931.3	4,951.9	0.00	0.00	0.00
11,900.0	89.98	270.00	6,874.3	474.6	-5,031.3	5,051.7	0.00	0.00	0.00
12,000.0	89.98	270.00	6,874.3	474.6	-5,131.3	5,151.5	0.00	0.00	0.00
12,100.0	89.98	270.00	6,874.3	474.6	-5,231.3	5,251.3	0.00	0.00	0.00
12,200.0	89.98	270.00	6,874.4	474.6	-5,331.3	5,351.1	0.00	0.00	0.00
12,300.0	89.98	270.00	6,874.4	474.6	-5,431.3	5,450.8	0.00	0.00	0.00
12,400.0	89.98	270.00	6,874.4	474.6	-5,531.3	5,550.6	0.00	0.00	0.00
12,500.0	89.98	270.00	6,874.5	474.6	-5,631.3	5,650.4	0.00	0.00	0.00
12,600.0	89.98	270.00	6,874.5	474.6	-5,731.3	5,750.2	0.00	0.00	0.00
12,700.0	89.98	270.00	6,874.5	474.6	-5,831.3	5,849.9	0.00	0.00	0.00
12,800.0	89.98	270.00	6,874.6	474.6	-5,931.3	5,949.7	0.00	0.00	0.00
12,900.0	89.98	270.00	6,874.6	474.6	-6,031.3	6,049.5	0.00	0.00	0.00
13,000.0	89.98	270.00	6,874.7	474.6	-6,131.3	6,149.3	0.00	0.00	0.00
13,100.0	89.98	270.00	6,874.7	474.6	-6,231.3	6,249.1	0.00	0.00	0.00
13,200.0	89.98	270.00	6,874.7	474.6	-6,331.3	6,348.8	0.00	0.00	0.00
13,300.0	89.98	270.00	6,874.8	474.6	-6,431.3	6,448.6	0.00	0.00	0.00

Database:	landmark	**Local Co-ordinate Reference:**	Well LDS 1V-434
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**TVD Reference:**	WELL @ 4628.0ft (Original Well Elev)
Project:	SEC.1-T5N-R65W	**MD Reference:**	WELL @ 4628.0ft (Original Well Elev)
Site:	LDS 5N65W1W Pad Sec.1-T5N-R65W	**North Reference:**	True
Well:	LDS 1V-434	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (9-4-14)		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
13,400.0	89.98	270.00	6,874.8	474.6	-6,531.3	6,548.4	0.00	0.00	0.00
13,500.0	89.98	270.00	6,874.8	474.6	-6,631.3	6,648.2	0.00	0.00	0.00
13,600.0	89.98	270.00	6,874.9	474.6	-6,731.3	6,748.0	0.00	0.00	0.00
13,700.0	89.98	270.00	6,874.9	474.6	-6,831.3	6,847.7	0.00	0.00	0.00
13,800.0	89.98	270.00	6,874.9	474.6	-6,931.3	6,947.5	0.00	0.00	0.00
13,900.0	89.98	270.00	6,875.0	474.6	-7,031.3	7,047.3	0.00	0.00	0.00
13,995.6	89.98	270.00	6,875.0	474.6	-7,126.9	7,142.7	0.00	0.00	0.00

Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
BHL 1628'FNL & 214' - plan hits target - Point	0.00	0.00	6,875.0	474.6	-7,126.9	1,400,925.52	3,242,599.71	40.430670	-104.628530
SHL 2094'FNL & 331' - plan hits target - Point	0.00	0.00	1.0	0.0	0.0	1,400,523.02	3,249,730.79	40.429370	-104.602930

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,349.4	6,872.7	7"	7	7-1/2

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,512.3	3,486.0	PARKMAN		0.00	
4,279.4	4,244.0	SUSSEX		0.00	
5,240.9	5,200.0	SHANNON		0.00	
6,565.1	6,504.0	SHARON SPRINGS		0.00	
6,685.9	6,602.0	NIOBRARA A		0.00	
6,846.7	6,713.0	NIOBRARA B		0.00	
6,953.0	6,772.0	NIOBRARA C		0.00	
7,241.2	6,865.0	FT HAYS		0.00	
	6,887.0	CODELL		0.00	

Database:	landmark	**Local Co-ordinate Reference:**	Well LDS 1V-434
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**TVD Reference:**	WELL @ 4628.0ft (Original Well Elev)
Project:	SEC.1-T5N-R65W	**MD Reference:**	WELL @ 4628.0ft (Original Well Elev)
Site:	LDS 5N65W1W Pad Sec.1-T5N-R65W	**North Reference:**	True
Well:	LDS 1V-434	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (9-4-14)		

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
1,000.0	1,000.0	0.0	0.0	KOP #1
6,149.6	6,108.7	29.2	17.4	KOP #2
7,349.4	6,872.7	445.5	265.6	End of Build

ENSIGN Directional

PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.1-T5N-R65W
LDS 5N65W1W Pad Sec.1-T5N-R65W
LDS 1V-434

Wellbore #1
Plan #1 (9-4-14)

Anticollision Report

16 September, 2014

PDC ENERGY
Growing E&P Value

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well LDS 1V-434
Project:	SEC.1-T5N-R65W	**TVD Reference:**	WELL @ 4628.0ft (Original Well Elev)
Reference Site:	LDS 5N65W1W Pad Sec.1-T5N-R65W	**MD Reference:**	WELL @ 4628.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	LDS 1V-434	**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 (9-4-14)	**Offset TVD Reference:**	Offset Datum

Reference Plan #1 (9-4-14)

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

Survey Tool Program **Date** 9/16/2014

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	13,995.6	Plan #1 (9-4-14) (Wellbore #1)	MWD	MWD - Standard

Summary

Site Name / Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Existing Wells Sec.1-T5N-R65W						
BJB 2 (Exist.) - Wellbore #1 - Wellbore #1	1,331.1	1,316.3	238.3	209.1	8.157	CC
BJB 2 (Exist.) - Wellbore #1 - Wellbore #1	7,056.4	6,803.1	336.2	182.3	2.184	ES, SF
BJB 3 (SI) - Wellbore #1 - Wellbore #1	8,544.7	6,877.1	481.9	292.3	2.542	CC, ES
BJB 3 (SI) - Wellbore #1 - Wellbore #1	8,600.0	6,877.1	485.0	294.0	2.539	SF
BJB 5 (Exist.) - Wellbore #1 - Wellbore #1	7,786.5	6,886.2	411.6	366.3	9.087	CC
BJB 5 (Exist.) - Wellbore #1 - Wellbore #1	7,800.0	6,886.0	411.8	366.2	9.027	ES
BJB 5 (Exist.) - Wellbore #1 - Wellbore #1	7,900.0	6,884.6	427.0	378.9	8.878	SF
BJB 6I (Exist.) - Wellbore #1 - Wellbore #1	9,122.2	7,040.6	299.6	214.1	3.504	CC, ES, SF
Gatewood 5 (Exist.) - Wellbore #1 - Wellbore #1	10,521.2	6,884.8	345.3	101.4	1.416	Level 3, CC, ES, SF
Gatewood 6-1 (Exist.) - Wellbore #1 - Wellbore #1	9,734.0	6,882.0	7.6	-186.1	0.039	Level 1, CC, ES, SF
Existing Wells Sec.2-T5N-R65W						
Caraccioli 1 (Exist.) - Wellbore #1 - Wellbore #1	12,560.2	6,892.6	509.4	332.4	2.878	CC, ES
Caraccioli 1 (Exist.) - Wellbore #1 - Wellbore #1	12,600.0	6,891.9	510.9	332.8	2.869	SF
LDS 5N65W1W Pad Sec.1-T5N-R65W						
LDS 1V-234 - Wellbore #1 - Plan #1 (9-4-14)	1,000.0	1,000.0	29.3	25.0	6.856	CC
LDS 1V-234 - Wellbore #1 - Plan #1 (9-4-14)	13,995.6	13,871.4	227.9	-31.3	0.879	Level 1, ES, SF
LDS 1W-314 - Wellbore #1 - Plan #1 (9-4-14)	1,000.0	1,000.0	58.4	54.1	13.665	CC, ES
LDS 1W-314 - Wellbore #1 - Plan #1 (9-4-14)	12,300.0	12,202.1	551.1	243.8	1.793	SF
LDS 1W-414 - Wellbore #1 - Plan #1 (9-4-14)	1,000.0	1,000.0	91.1	86.9	21.337	CC, ES
LDS 1W-414 - Wellbore #1 - Plan #1 (9-4-14)	13,995.6	13,972.0	739.7	333.3	1.820	SF
Noffsinger Pad Sec.2-T5N-R65W						
Noffsinger 2C (Vert.) - Wellbore #1 - Design #1	12,967.1	6,906.6	593.5	403.7	3.126	CC
Noffsinger 2C (Vert.) - Wellbore #1 - Design #1	13,000.0	6,906.7	594.5	403.7	3.116	ES, SF
Noffsinger 2SD - Wellbore #1 - Wellbore #1	13,161.2	7,136.7	795.5	598.6	4.040	CC
Noffsinger 2SD - Wellbore #1 - Wellbore #1	13,200.0	7,138.2	796.4	598.5	4.023	ES
Noffsinger 2SD - Wellbore #1 - Wellbore #1	13,300.0	7,141.8	807.5	606.7	4.022	SF
Noffsinger 2VD - Wellbore #1 - Wellbore #1	11,915.2	7,040.6	343.7	175.7	2.045	CC, ES, SF
Noffsinger 32-2D - Wellbore #1 - Wellbore #1	13,837.9	7,062.1	280.7	60.6	1.275	Level 3, CC, ES, SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well LDS 1V-434
Project:	SEC.1-T5N-R65W	**TVD Reference:**	WELL @ 4628.0ft (Original Well Elev)
Reference Site:	LDS 5N65W1W Pad Sec.1-T5N-R65W	**MD Reference:**	WELL @ 4628.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	LDS 1V-434	**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 (9-4-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Existing Wells Sec.1-T5N-R65W - BJB 2 (Exist.) - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

Survey Program: 7050-UNKNOWN

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-54.61	138.4	-194.9	239.5				
100.0	100.0	86.0	86.0	0.1	1.7	-54.61	138.4	-194.9	239.0	237.2	1.83	130.443	
200.0	200.0	186.0	186.0	0.3	3.7	-54.61	138.4	-194.9	239.0	235.0	4.06	58.917	
300.0	300.0	286.0	286.0	0.6	5.7	-54.61	138.4	-194.9	239.0	232.8	6.28	38.052	
400.0	400.0	386.0	386.0	0.8	7.7	-54.61	138.4	-194.9	239.0	230.5	8.51	28.101	
500.0	500.0	486.0	486.0	1.0	9.7	-54.61	138.4	-194.9	239.0	228.3	10.73	22.275	
600.0	600.0	586.0	586.0	1.2	11.7	-54.61	138.4	-194.9	239.0	226.1	12.96	18.450	
700.0	700.0	686.0	686.0	1.5	13.7	-54.61	138.4	-194.9	239.0	223.9	15.18	15.746	
800.0	800.0	786.0	786.0	1.7	15.7	-54.61	138.4	-194.9	239.0	221.6	17.41	13.734	
900.0	900.0	886.0	886.0	1.9	17.7	-54.61	138.4	-194.9	239.0	219.4	19.63	12.177	
1,000.0	1,000.0	986.0	986.0	2.1	19.7	-54.61	138.4	-194.9	239.0	217.2	21.86	10.938	
1,100.0	1,100.0	1,086.0	1,086.0	2.4	21.7	-85.84	138.4	-194.9	238.9	214.8	24.08	9.923	
1,200.0	1,199.8	1,185.8	1,185.8	2.6	23.7	-87.09	138.4	-194.9	238.6	212.3	26.30	9.073	
1,300.0	1,299.5	1,285.5	1,285.5	2.8	25.7	-89.18	138.4	-194.9	238.3	209.8	28.52	8.356	
1,331.1	1,330.3	1,316.3	1,316.3	2.9	26.3	-90.00	138.4	-194.9	238.3	209.1	29.21	8.157 CC	
1,400.0	1,398.7	1,384.7	1,384.7	3.1	27.7	-92.09	138.4	-194.9	238.4	207.7	30.75	7.755	
1,500.0	1,497.6	1,483.6	1,483.6	3.3	29.7	-95.64	138.4	-194.9	239.5	206.5	32.99	7.260	
1,600.0	1,596.4	1,582.4	1,582.4	3.6	31.6	-99.23	138.4	-194.9	241.5	206.2	35.24	6.853	
1,700.0	1,695.2	1,681.2	1,681.2	3.9	33.6	-102.74	138.4	-194.9	244.4	206.9	37.49	6.520	
1,800.0	1,794.0	1,780.0	1,780.0	4.2	35.6	-106.16	138.4	-194.9	248.3	208.6	39.75	6.247	
1,900.0	1,892.8	1,878.8	1,878.8	4.5	37.6	-109.46	138.4	-194.9	253.1	211.1	42.00	6.025	
2,000.0	1,991.6	1,977.6	1,977.6	4.9	39.6	-112.64	138.4	-194.9	258.6	214.4	44.25	5.844	
2,100.0	2,090.5	2,076.5	2,076.5	5.2	41.5	-115.67	138.4	-194.9	265.0	218.5	46.50	5.699	
2,200.0	2,189.3	2,175.3	2,175.3	5.5	43.5	-118.56	138.4	-194.9	272.0	223.3	48.74	5.582	
2,300.0	2,288.1	2,274.1	2,274.1	5.8	45.5	-121.30	138.4	-194.9	279.8	228.8	50.97	5.489	
2,400.0	2,386.9	2,372.9	2,372.9	6.2	47.5	-123.89	138.4	-194.9	288.1	234.9	53.20	5.416	
2,500.0	2,485.7	2,471.7	2,471.7	6.5	49.4	-126.33	138.4	-194.9	297.0	241.6	55.42	5.360	
2,600.0	2,584.5	2,570.5	2,570.5	6.9	51.4	-128.62	138.4	-194.9	306.4	248.8	57.63	5.317	
2,700.0	2,683.3	2,669.3	2,669.3	7.2	53.4	-130.78	138.4	-194.9	316.3	256.5	59.84	5.286	
2,800.0	2,782.2	2,768.2	2,768.2	7.6	55.4	-132.81	138.4	-194.9	326.6	264.6	62.04	5.264	
2,900.0	2,881.0	2,867.0	2,867.0	7.9	57.3	-134.71	138.4	-194.9	337.3	273.0	64.25	5.250	
3,000.0	2,979.8	2,965.8	2,965.8	8.2	59.3	-136.49	138.4	-194.9	348.3	281.9	66.44	5.242	
3,100.0	3,078.6	3,064.6	3,064.6	8.6	61.3	-138.17	138.4	-194.9	359.7	291.0	68.64	5.240	
3,200.0	3,177.4	3,163.4	3,163.4	8.9	63.3	-139.74	138.4	-194.9	371.3	300.5	70.83	5.242	
3,300.0	3,276.2	3,262.2	3,262.2	9.3	65.2	-141.22	138.4	-194.9	383.2	310.2	73.02	5.248	
3,400.0	3,375.0	3,361.0	3,361.0	9.7	67.2	-142.60	138.4	-194.9	395.3	320.1	75.21	5.256	
3,500.0	3,473.9	3,459.9	3,459.9	10.0	69.2	-143.91	138.4	-194.9	407.7	330.3	77.40	5.267	
3,600.0	3,572.7	3,558.7	3,558.7	10.4	71.2	-145.14	138.4	-194.9	420.2	340.6	79.59	5.280	
3,700.0	3,671.5	3,657.5	3,657.5	10.7	73.1	-146.29	138.4	-194.9	433.0	351.2	81.78	5.295	
3,800.0	3,770.3	3,756.3	3,756.3	11.1	75.1	-147.39	138.4	-194.9	445.9	361.9	83.96	5.310	
3,900.0	3,869.1	3,855.1	3,855.1	11.4	77.1	-148.41	138.4	-194.9	458.9	372.8	86.15	5.327	
4,000.0	3,967.9	3,953.9	3,953.9	11.8	79.1	-149.39	138.4	-194.9	472.1	383.8	88.33	5.344	
4,100.0	4,066.8	4,052.8	4,052.8	12.1	81.1	-150.31	138.4	-194.9	485.4	394.9	90.52	5.362	
4,200.0	4,165.6	4,151.6	4,151.6	12.5	83.0	-151.18	138.4	-194.9	498.8	406.1	92.71	5.381	
4,300.0	4,264.4	4,250.4	4,250.4	12.8	85.0	-152.00	138.4	-194.9	512.4	417.5	94.89	5.399	
4,400.0	4,363.2	4,349.2	4,349.2	13.2	87.0	-152.79	138.4	-194.9	526.0	428.9	97.08	5.418	
4,500.0	4,462.0	4,448.0	4,448.0	13.6	89.0	-153.53	138.4	-194.9	539.7	440.5	99.27	5.437	
4,600.0	4,560.8	4,546.8	4,546.8	13.9	90.9	-154.24	138.4	-194.9	553.6	452.1	101.45	5.456	
4,700.0	4,659.9	4,645.9	4,645.9	14.2	92.9	-154.94	138.4	-194.9	565.9	461.9	103.98	5.442	
4,800.0	4,759.4	4,745.4	4,745.4	14.4	94.9	-155.44	138.4	-194.9	575.1	468.7	106.40	5.405	
4,900.0	4,859.1	4,845.1	4,845.1	14.6	96.9	-155.77	138.4	-194.9	581.1	472.4	108.73	5.345	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well LDS 1V-434
Project:	SEC.1-T5N-R65W	**TVD Reference:**	WELL @ 4628.0ft (Original Well Elev)
Reference Site:	LDS 5N65W1W Pad Sec.1-T5N-R65W	**MD Reference:**	WELL @ 4628.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	LDS 1V-434	**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 (9-4-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Existing Wells Sec.1-T5N-R65W - BJB 2 (Exist.) - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

Survey Program: 7050-UNKNOWN

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,000.0	4,959.1	4,945.1	4,945.1	14.8	98.9	-155.92	138.4	-194.9	584.0	473.1	110.96	5.264	
5,100.0	5,059.1	5,045.1	5,045.1	15.0	100.9	-125.13	138.4	-194.9	584.3	468.9	115.40	5.063	
5,200.0	5,159.1	5,145.1	5,145.1	15.1	102.9	-125.13	138.4	-194.9	584.3	466.7	117.57	4.970	
5,300.0	5,259.1	5,245.1	5,245.1	15.3	104.9	-125.13	138.4	-194.9	584.3	464.6	119.74	4.880	
5,400.0	5,359.1	5,345.1	5,345.1	15.4	106.9	-125.13	138.4	-194.9	584.3	462.4	121.91	4.793	
5,500.0	5,459.1	5,445.1	5,445.1	15.6	108.9	-125.13	138.4	-194.9	584.3	460.2	124.08	4.709	
5,600.0	5,559.1	5,545.1	5,545.1	15.8	110.9	-125.13	138.4	-194.9	584.3	458.0	126.26	4.628	
5,700.0	5,659.1	5,645.1	5,645.1	15.9	112.9	-125.13	138.4	-194.9	584.3	455.9	128.43	4.549	
5,800.0	5,759.1	5,745.1	5,745.1	16.1	114.9	-125.13	138.4	-194.9	584.3	453.7	130.61	4.474	
5,900.0	5,859.1	5,845.1	5,845.1	16.3	116.9	-125.13	138.4	-194.9	584.3	451.5	132.78	4.400	
6,000.0	5,959.1	5,945.1	5,945.1	16.5	118.9	-125.13	138.4	-194.9	584.3	449.3	134.96	4.329	
6,100.0	6,059.1	6,045.1	6,045.1	16.6	120.9	-125.13	138.4	-194.9	584.3	447.2	137.14	4.260	
6,200.0	6,159.1	6,145.1	6,145.1	16.8	122.9	-35.28	138.4	-194.9	582.9	445.9	137.07	4.253	
6,300.0	6,258.1	6,244.1	6,244.1	16.9	124.9	-36.51	138.4	-194.9	572.3	434.7	137.58	4.160	
6,400.0	6,354.6	6,340.6	6,340.6	16.9	126.8	-39.08	138.4	-194.9	551.5	414.7	136.81	4.032	
6,500.0	6,446.9	6,432.9	6,432.9	16.9	128.7	-43.22	138.4	-194.9	521.7	386.2	135.54	3.849	
6,600.0	6,533.5	6,519.5	6,519.5	16.9	130.4	-49.22	138.4	-194.9	484.6	349.4	135.13	3.586	
6,700.0	6,612.7	6,598.7	6,598.7	16.9	132.0	-57.22	138.4	-194.9	442.7	305.6	137.16	3.228	
6,800.0	6,683.3	6,669.3	6,669.3	16.9	133.4	-66.92	138.4	-194.9	400.4	258.2	142.11	2.817	
6,900.0	6,744.1	6,730.1	6,730.1	16.9	134.6	-77.16	138.4	-194.9	363.5	215.4	148.08	2.454	
7,000.0	6,794.1	6,780.1	6,780.1	17.3	135.6	-86.13	138.4	-194.9	340.1	187.7	152.44	2.231	
7,056.4	6,817.1	6,803.1	6,803.1	18.0	136.1	-90.00	138.4	-194.9	336.2	182.3	153.95	2.184	ES, SF
7,100.0	6,832.3	6,818.3	6,818.3	18.6	136.4	-92.23	138.4	-194.9	338.7	183.9	154.73	2.189	
7,200.0	6,858.1	6,844.1	6,844.1	20.2	136.9	-94.55	138.4	-194.9	363.2	206.7	156.48	2.321	
7,300.0	6,871.1	6,857.1	6,857.1	22.0	137.1	-92.62	138.4	-194.9	411.0	252.2	158.80	2.588	
7,400.0	6,872.7	6,858.7	6,858.7	24.0	137.2	-90.02	138.4	-194.9	475.6	314.7	160.90	2.956	
7,500.0	6,872.7	6,858.7	6,858.7	26.1	137.2	-90.03	138.4	-194.9	550.9	387.9	163.02	3.379	
7,600.0	6,872.8	6,858.8	6,858.8	28.3	137.2	-90.03	138.4	-194.9	633.1	467.8	165.26	3.831	
7,700.0	6,872.8	6,858.8	6,858.8	30.7	137.2	-90.04	138.4	-194.9	719.8	552.2	167.60	4.295	
7,800.0	6,872.8	6,858.8	6,858.8	33.1	137.2	-90.04	138.4	-194.9	809.5	639.5	170.01	4.762	
7,900.0	6,872.9	6,858.9	6,858.9	35.5	137.2	-90.05	138.4	-194.9	901.5	729.0	172.48	5.227	
8,000.0	6,872.9	6,858.9	6,858.9	38.0	137.2	-90.06	138.4	-194.9	994.9	820.0	174.99	5.686	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well LDS 1V-434
Project:	SEC.1-T5N-R65W	**TVD Reference:**	WELL @ 4628.0ft (Original Well Elev)
Reference Site:	LDS 5N65W1W Pad Sec.1-T5N-R65W	**MD Reference:**	WELL @ 4628.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	LDS 1V-434	**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 (9-4-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Existing Wells Sec.1-T5N-R65W - BJB 3 (SI) - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

Survey Program: 7027-UNKNOWN

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
7,700.0	6,872.8	6,876.8	6,876.8	30.7	137.5	-89.96	-7.2	-1,676.0	972.5	804.5	167.96	5.790	
7,800.0	6,872.8	6,876.8	6,876.8	33.1	137.5	-89.97	-7.2	-1,676.0	887.0	716.6	170.37	5.206	
7,900.0	6,872.9	6,876.9	6,876.9	35.5	137.5	-89.97	-7.2	-1,676.0	804.9	632.0	172.83	4.657	
8,000.0	6,872.9	6,876.9	6,876.9	38.0	137.5	-89.98	-7.2	-1,676.0	727.2	551.9	175.35	4.147	
8,100.0	6,872.9	6,876.9	6,876.9	40.6	137.5	-89.98	-7.2	-1,676.0	655.7	477.8	177.91	3.686	
8,200.0	6,873.0	6,877.0	6,877.0	43.2	137.5	-89.99	-7.2	-1,676.0	592.5	412.0	180.49	3.282	
8,300.0	6,873.0	6,877.0	6,877.0	45.8	137.5	-89.99	-7.2	-1,676.0	540.4	357.3	183.11	2.951	
8,400.0	6,873.0	6,877.0	6,877.0	48.4	137.5	-89.99	-7.2	-1,676.0	503.1	317.4	185.74	2.709	
8,500.0	6,873.1	6,877.1	6,877.1	51.0	137.5	-90.00	-7.2	-1,676.0	483.9	295.5	188.40	2.569	
8,544.7	6,873.1	6,877.1	6,877.1	52.2	137.5	-90.00	-7.2	-1,676.0	481.9	292.3	189.59	2.542	CC, ES
8,600.0	6,873.1	6,877.1	6,877.1	53.7	137.5	-90.00	-7.2	-1,676.0	485.0	294.0	191.07	2.539	SF
8,700.0	6,873.2	6,877.2	6,877.2	56.4	137.5	-90.01	-7.2	-1,676.0	506.3	312.5	193.75	2.613	
8,800.0	6,873.2	6,877.2	6,877.2	59.1	137.5	-90.01	-7.2	-1,676.0	545.3	348.9	196.45	2.776	
8,900.0	6,873.2	6,877.2	6,877.2	61.8	137.5	-90.01	-7.2	-1,676.0	598.7	399.6	199.15	3.006	
9,000.0	6,873.3	6,877.3	6,877.3	64.5	137.5	-90.02	-7.2	-1,676.0	663.0	461.1	201.87	3.284	
9,100.0	6,873.3	6,877.3	6,877.3	67.2	137.5	-90.02	-7.2	-1,676.0	735.2	530.7	204.59	3.594	
9,200.0	6,873.3	6,877.3	6,877.3	69.9	137.5	-90.03	-7.2	-1,676.0	813.4	606.1	207.32	3.923	
9,300.0	6,873.4	6,877.4	6,877.4	72.6	137.5	-90.03	-7.2	-1,676.0	895.9	685.9	210.06	4.265	
9,400.0	6,873.4	6,877.4	6,877.4	75.4	137.5	-90.04	-7.2	-1,676.0	981.7	768.9	212.80	4.613	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well LDS 1V-434
Project:	SEC.1-T5N-R65W	**TVD Reference:**	WELL @ 4628.0ft (Original Well Elev)
Reference Site:	LDS 5N65W1W Pad Sec.1-T5N-R65W	**MD Reference:**	WELL @ 4628.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	LDS 1V-434	**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 (9-4-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Existing Wells Sec.1-T5N-R65W - BJB 5 (Exist.) - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

Survey Program: 100-NS-GYRO-MS

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
6,900.0	6,744.1	6,770.4	6,768.9	16.9	12.5	41.31	886.2	-919.5	955.9	931.7	24.18	39.537	
7,000.0	6,794.1	6,819.1	6,817.5	17.3	12.6	51.08	886.2	-918.8	877.9	852.0	25.93	33.855	
7,100.0	6,832.3	6,855.9	6,854.3	18.6	12.7	63.01	886.2	-918.2	797.1	768.1	28.96	27.527	
7,200.0	6,858.1	6,880.3	6,878.6	20.2	12.8	75.62	886.3	-917.9	715.8	683.7	32.16	22.257	
7,300.0	6,871.1	6,891.8	6,890.2	22.0	12.8	86.59	886.3	-917.7	637.2	602.6	34.59	18.419	
7,400.0	6,872.7	6,891.9	6,890.3	24.0	12.8	90.76	886.3	-917.7	564.6	528.1	36.51	15.462	
7,500.0	6,872.7	6,890.4	6,888.8	26.1	12.8	90.56	886.3	-917.7	501.5	462.8	38.63	12.980	
7,600.0	6,872.8	6,889.0	6,887.4	28.3	12.8	90.35	886.3	-917.7	451.9	411.0	40.88	11.055	
7,700.0	6,872.8	6,887.5	6,885.9	30.7	12.8	90.15	886.3	-917.7	420.6	377.4	43.21	9.733	
7,786.5	6,872.8	6,886.2	6,884.6	32.7	12.8	89.97	886.3	-917.8	411.6	366.3	45.30	9.087	CC
7,800.0	6,872.8	6,886.0	6,884.4	33.1	12.8	89.94	886.3	-917.8	411.8	366.2	45.62	9.027	ES
7,900.0	6,872.9	6,884.6	6,883.0	35.5	12.8	89.74	886.3	-917.8	427.0	378.9	48.09	8.878	SF
8,000.0	6,872.9	6,883.1	6,881.5	38.0	12.8	89.54	886.3	-917.8	463.7	413.1	50.61	9.162	
8,100.0	6,872.9	6,881.7	6,880.0	40.6	12.8	89.33	886.3	-917.8	517.4	464.2	53.16	9.733	
8,200.0	6,873.0	6,880.2	6,878.6	43.2	12.8	89.13	886.3	-917.9	583.4	527.7	55.75	10.466	
8,300.0	6,873.0	6,878.7	6,877.1	45.8	12.8	88.93	886.3	-917.9	658.1	599.7	58.36	11.277	
8,400.0	6,873.0	6,877.3	6,875.7	48.4	12.8	88.72	886.3	-917.9	738.8	677.8	60.99	12.113	
8,500.0	6,873.1	6,875.8	6,874.2	51.0	12.8	88.52	886.2	-917.9	823.7	760.0	63.64	12.943	
8,600.0	6,873.1	6,874.3	6,872.7	53.7	12.8	88.32	886.2	-917.9	911.7	845.4	66.30	13.750	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well LDS 1V-434
Project:	SEC.1-T5N-R65W	**TVD Reference:**	WELL @ 4628.0ft (Original Well Elev)
Reference Site:	LDS 5N65W1W Pad Sec.1-T5N-R65W	**MD Reference:**	WELL @ 4628.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	LDS 1V-434	**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 (9-4-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Existing Wells Sec.1-T5N-R65W - BJB 6I (Exist.) - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

Survey Program: 552-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
8,200.0	6,873.0	7,028.0	6,873.7	43.2	22.6	87.59	774.2	-2,253.3	969.5	908.8	60.71	15.971	
8,300.0	6,873.0	7,029.4	6,875.1	45.8	22.6	87.86	774.2	-2,253.3	875.0	811.7	63.33	13.816	
8,400.0	6,873.0	7,030.8	6,876.5	48.4	22.6	88.13	774.2	-2,253.4	781.8	715.8	65.98	11.849	
8,500.0	6,873.1	7,032.2	6,877.9	51.0	22.6	88.39	774.2	-2,253.4	690.5	621.9	68.64	10.059	
8,600.0	6,873.1	7,033.6	6,879.3	53.7	22.6	88.66	774.2	-2,253.4	602.0	530.6	71.32	8.440	
8,700.0	6,873.2	7,034.9	6,880.6	56.4	22.6	88.92	774.2	-2,253.4	517.6	443.6	74.01	6.994	
8,800.0	6,873.2	7,036.3	6,882.0	59.1	22.6	89.18	774.2	-2,253.4	439.9	363.2	76.72	5.734	
8,900.0	6,873.2	7,037.7	6,883.4	61.8	22.6	89.44	774.2	-2,253.4	373.0	293.5	79.43	4.695	
9,000.0	6,873.3	7,039.0	6,884.7	64.5	22.6	89.69	774.2	-2,253.5	323.5	241.4	82.15	3.938	
9,100.0	6,873.3	7,040.3	6,886.0	67.2	22.6	89.95	774.2	-2,253.5	300.4	215.5	84.88	3.539	
9,122.2	6,873.3	7,040.6	6,886.3	67.8	22.6	90.00	774.2	-2,253.5	299.6	214.1	85.48	3.504	CC, ES, SF
9,200.0	6,873.3	7,041.6	6,887.3	69.9	22.6	90.20	774.2	-2,253.5	309.5	221.9	87.61	3.533	
9,300.0	6,873.4	7,043.0	6,888.7	72.6	22.6	90.45	774.2	-2,253.5	348.3	258.0	90.35	3.856	
9,400.0	6,873.4	7,044.3	6,890.0	75.4	22.6	90.70	774.2	-2,253.5	408.5	315.4	93.09	4.389	
9,500.0	6,873.4	7,045.6	6,891.3	78.1	22.6	90.95	774.2	-2,253.5	482.1	386.3	95.83	5.031	
9,600.0	6,873.5	7,046.8	6,892.5	80.9	22.6	91.19	774.2	-2,253.6	563.9	465.3	98.58	5.721	
9,700.0	6,873.5	7,048.1	6,893.8	83.6	22.6	91.44	774.2	-2,253.6	650.8	549.5	101.32	6.423	
9,800.0	6,873.5	7,049.4	6,895.1	86.4	22.6	91.68	774.2	-2,253.6	741.0	636.9	104.07	7.120	
9,900.0	6,873.6	7,050.6	6,896.3	89.1	22.6	91.92	774.2	-2,253.6	833.4	726.6	106.82	7.802	
10,000.0	6,873.6	7,051.9	6,897.6	91.9	22.6	92.16	774.2	-2,253.6	927.4	817.9	109.58	8.464	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well LDS 1V-434
Project:	SEC.1-T5N-R65W	**TVD Reference:**	WELL @ 4628.0ft (Original Well Elev)
Reference Site:	LDS 5N65W1W Pad Sec.1-T5N-R65W	**MD Reference:**	WELL @ 4628.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	LDS 1V-434	**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 (9-4-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Existing Wells Sec.1-T5N-R65W - Gatewood 5 (Exist.) - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

Survey Program: 7123-UNKNOWN

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
9,600.0	6,873.5	6,884.5	6,884.5	80.9	137.7	89.95	820.0	-3,652.5	983.8	765.4	218.44	4.504	
9,700.0	6,873.5	6,884.5	6,884.5	83.6	137.7	89.95	820.0	-3,652.5	890.9	669.7	221.19	4.028	
9,800.0	6,873.5	6,884.5	6,884.5	86.4	137.7	89.96	820.0	-3,652.5	799.6	575.7	223.95	3.571	
9,900.0	6,873.6	6,884.6	6,884.6	89.1	137.7	89.96	820.0	-3,652.5	710.7	484.0	226.71	3.135	
10,000.0	6,873.6	6,884.6	6,884.6	91.9	137.7	89.97	820.0	-3,652.5	625.2	395.8	229.47	2.725	
10,100.0	6,873.6	6,884.6	6,884.6	94.7	137.7	89.98	820.0	-3,652.5	544.7	312.4	232.24	2.345	
10,200.0	6,873.7	6,884.7	6,884.7	97.4	137.7	89.98	820.0	-3,652.5	471.6	236.6	235.01	2.007	
10,300.0	6,873.7	6,884.7	6,884.7	100.2	137.7	89.99	820.0	-3,652.5	410.1	172.3	237.78	1.725	
10,400.0	6,873.7	6,884.7	6,884.7	103.0	137.7	89.99	820.0	-3,652.5	366.0	125.4	240.56	1.521	
10,500.0	6,873.8	6,884.8	6,884.8	105.7	137.7	90.00	820.0	-3,652.5	346.0	102.7	243.33	1.422	Level 3
10,521.2	6,873.8	6,884.8	6,884.8	106.3	137.7	90.00	820.0	-3,652.5	345.3	101.4	243.92	1.416	Level 3, CC, ES, SF
10,600.0	6,873.8	6,884.8	6,884.8	108.5	137.7	90.00	820.0	-3,652.5	354.2	108.1	246.11	1.439	Level 3
10,700.0	6,873.8	6,884.8	6,884.8	111.3	137.7	90.01	820.0	-3,652.5	388.9	140.0	248.89	1.562	
10,800.0	6,873.9	6,884.9	6,884.9	114.1	137.7	90.02	820.0	-3,652.5	443.8	192.2	251.67	1.764	
10,900.0	6,873.9	6,884.9	6,884.9	116.8	137.7	90.02	820.0	-3,652.5	512.6	258.1	254.45	2.014	
11,000.0	6,874.0	6,885.0	6,885.0	119.6	137.7	90.03	820.0	-3,652.5	590.3	333.1	257.23	2.295	
11,100.0	6,874.0	6,885.0	6,885.0	122.4	137.7	90.03	820.0	-3,652.5	674.0	414.0	260.02	2.592	
11,200.0	6,874.0	6,885.0	6,885.0	125.2	137.7	90.04	820.0	-3,652.5	761.6	498.8	262.80	2.898	
11,300.0	6,874.1	6,885.1	6,885.1	128.0	137.7	90.05	820.0	-3,652.5	851.9	586.3	265.59	3.208	
11,400.0	6,874.1	6,885.1	6,885.1	130.8	137.7	90.05	820.0	-3,652.5	944.2	675.8	268.38	3.518	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well LDS 1V-434
Project:	SEC.1-T5N-R65W	**TVD Reference:**	WELL @ 4628.0ft (Original Well Elev)
Reference Site:	LDS 5N65W1W Pad Sec.1-T5N-R65W	**MD Reference:**	WELL @ 4628.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	LDS 1V-434	**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 (9-4-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Existing Wells Sec.1-T5N-R65W - Gatewood 6-1 (Exist.) - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

Survey Program: 100-UNKNOWN

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
8,800.0	6,873.2	6,880.5	6,880.1	59.1	109.2	79.54	482.2	-2,865.3	934.0	768.6	165.43	5.646	
8,900.0	6,873.2	6,880.7	6,880.3	61.8	109.2	80.69	482.2	-2,865.3	834.0	665.3	168.66	4.945	
9,000.0	6,873.3	6,880.9	6,880.4	64.5	109.2	81.84	482.2	-2,865.3	734.0	562.2	171.85	4.271	
9,100.0	6,873.3	6,881.0	6,880.6	67.2	109.2	83.01	482.2	-2,865.3	634.0	459.0	174.99	3.623	
9,200.0	6,873.3	6,881.2	6,880.7	69.9	109.2	84.18	482.2	-2,865.3	534.0	355.9	178.09	2.998	
9,300.0	6,873.4	6,881.3	6,880.9	72.6	109.2	85.35	482.2	-2,865.3	434.0	252.9	181.14	2.396	
9,400.0	6,873.4	6,881.5	6,881.1	75.4	109.2	86.53	482.2	-2,865.3	334.0	149.9	184.13	1.814	
9,500.0	6,873.4	6,881.6	6,881.2	78.1	109.2	87.71	482.2	-2,865.3	234.1	47.0	187.05	1.251	Level 3
9,600.0	6,873.5	6,881.8	6,881.4	80.9	109.2	88.90	482.2	-2,865.3	134.2	-55.7	189.91	0.707	Level 1
9,700.0	6,873.5	6,882.0	6,881.5	83.6	109.2	90.08	482.2	-2,865.3	34.8	-157.9	192.69	0.181	Level 1
9,734.0	6,873.5	6,882.0	6,881.6	84.6	109.2	90.49	482.2	-2,865.3	7.6	-186.1	193.62	0.039	Level 1, CC, ES, SF
9,800.0	6,873.5	6,882.1	6,881.7	86.4	109.2	91.27	482.2	-2,865.3	66.5	-128.9	195.40	0.340	Level 1
9,900.0	6,873.6	6,882.3	6,881.8	89.1	109.2	92.45	482.2	-2,865.3	166.2	-31.8	198.03	0.839	Level 1
10,000.0	6,873.6	6,882.4	6,882.0	91.9	109.2	93.64	482.2	-2,865.3	266.1	65.6	200.57	1.327	Level 3
10,100.0	6,873.6	6,882.6	6,882.1	94.7	109.2	94.82	482.2	-2,865.3	366.1	163.1	203.03	1.803	
10,200.0	6,873.7	6,882.7	6,882.3	97.4	109.2	96.00	482.2	-2,865.3	466.1	260.7	205.40	2.269	
10,300.0	6,873.7	6,882.9	6,882.5	100.2	109.2	97.17	482.2	-2,865.3	566.1	358.4	207.68	2.726	
10,400.0	6,873.7	6,883.0	6,882.6	103.0	109.2	98.34	482.2	-2,865.3	666.1	456.2	209.86	3.174	
10,500.0	6,873.8	6,883.2	6,882.8	105.7	109.2	99.50	482.2	-2,865.3	766.1	554.1	211.96	3.614	
10,600.0	6,873.8	6,883.4	6,882.9	108.5	109.2	100.65	482.2	-2,865.3	866.1	652.1	213.96	4.048	
10,700.0	6,873.8	6,883.5	6,883.1	111.3	109.2	101.80	482.2	-2,865.3	966.1	750.2	215.86	4.475	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well LDS 1V-434
Project:	SEC.1-T5N-R65W	**TVD Reference:**	WELL @ 4628.0ft (Original Well Elev)
Reference Site:	LDS 5N65W1W Pad Sec.1-T5N-R65W	**MD Reference:**	WELL @ 4628.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	LDS 1V-434	**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 (9-4-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Existing Wells Sec.2-T5N-R65W - Caraccioli 1 (Exist.) - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

Survey Program: 100-NS-GYRO-MS

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
11,700.0	6,874.2	6,908.4	6,907.6	139.1	13.9	-91.92	-34.7	-5,691.2	999.6	846.6	152.94	6.535	
11,800.0	6,874.2	6,906.5	6,905.8	141.9	13.9	-91.72	-34.7	-5,691.2	914.9	759.2	155.74	5.875	
11,900.0	6,874.3	6,904.7	6,903.9	144.7	13.9	-91.51	-34.7	-5,691.2	833.8	675.2	158.54	5.259	
12,000.0	6,874.3	6,902.9	6,902.1	147.5	13.9	-91.30	-34.7	-5,691.3	757.1	595.7	161.34	4.692	
12,100.0	6,874.3	6,901.0	6,900.3	150.3	13.9	-91.10	-34.7	-5,691.3	686.4	522.3	164.13	4.182	
12,200.0	6,874.4	6,899.2	6,898.4	153.1	13.9	-90.89	-34.7	-5,691.3	623.8	456.9	166.93	3.737	
12,300.0	6,874.4	6,897.4	6,896.6	155.9	13.9	-90.69	-34.7	-5,691.4	572.0	402.2	169.72	3.370	
12,400.0	6,874.4	6,895.6	6,894.8	158.7	13.9	-90.48	-34.7	-5,691.4	534.0	361.4	172.52	3.095	
12,500.0	6,874.5	6,893.7	6,892.9	161.5	13.9	-90.28	-34.7	-5,691.4	512.9	337.6	175.31	2.926	
12,560.2	6,874.5	6,892.6	6,891.8	163.1	13.9	-90.15	-34.7	-5,691.5	509.4	332.4	176.99	2.878	CC, ES
12,600.0	6,874.5	6,891.9	6,891.1	164.2	13.9	-90.07	-34.7	-5,691.5	510.9	332.8	178.10	2.869	SF
12,700.0	6,874.5	6,890.1	6,889.3	167.0	13.9	-89.86	-34.7	-5,691.5	528.2	347.3	180.89	2.920	
12,800.0	6,874.6	6,888.2	6,887.5	169.8	13.9	-89.66	-34.7	-5,691.6	563.0	379.3	183.67	3.065	
12,900.0	6,874.6	6,886.4	6,885.6	172.6	13.9	-89.45	-34.7	-5,691.6	612.3	425.8	186.46	3.284	
13,000.0	6,874.7	6,884.6	6,883.8	175.4	13.9	-89.25	-34.7	-5,691.6	672.9	483.7	189.24	3.556	
13,100.0	6,874.7	6,882.7	6,882.0	178.2	13.9	-89.04	-34.8	-5,691.7	742.1	550.1	192.02	3.865	
13,200.0	6,874.7	6,880.9	6,880.1	181.0	13.9	-88.84	-34.8	-5,691.7	817.7	622.9	194.80	4.198	
13,300.0	6,874.8	6,879.1	6,878.3	183.8	13.9	-88.63	-34.8	-5,691.7	898.1	700.5	197.58	4.546	
13,400.0	6,874.8	6,877.3	6,876.5	186.6	13.9	-88.42	-34.8	-5,691.8	982.1	781.8	200.35	4.902	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well LDS 1V-434
Project:	SEC.1-T5N-R65W	**TVD Reference:**	WELL @ 4628.0ft (Original Well Elev)
Reference Site:	LDS 5N65W1W Pad Sec.1-T5N-R65W	**MD Reference:**	WELL @ 4628.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	LDS 1V-434	**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 (9-4-14)	**Offset TVD Reference:**	Offset Datum

Offset Design LDS 5N65W1W Pad Sec.1-T5N-R65W - LDS 1V-234 - Wellbore #1 - Plan #1 (9-4-14)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-174.54	-29.1	-2.8	29.3				
100.0	100.0	100.0	100.0	0.1	0.1	-174.54	-29.1	-2.8	29.3	29.1	0.22	130.259	
200.0	200.0	200.0	200.0	0.3	0.3	-174.54	-29.1	-2.8	29.3	28.6	0.67	43.420	
300.0	300.0	300.0	300.0	0.6	0.6	-174.54	-29.1	-2.8	29.3	28.2	1.12	26.052	
400.0	400.0	400.0	400.0	0.8	0.8	-174.54	-29.1	-2.8	29.3	27.7	1.57	18.608	
500.0	500.0	500.0	500.0	1.0	1.0	-174.54	-29.1	-2.8	29.3	27.3	2.02	14.473	
600.0	600.0	600.0	600.0	1.2	1.2	-174.54	-29.1	-2.8	29.3	26.8	2.47	11.842	
700.0	700.0	700.0	700.0	1.5	1.5	-174.54	-29.1	-2.8	29.3	26.4	2.92	10.020	
800.0	800.0	800.0	800.0	1.7	1.7	-174.54	-29.1	-2.8	29.3	25.9	3.37	8.684	
900.0	900.0	900.0	900.0	1.9	1.9	-174.54	-29.1	-2.8	29.3	25.5	3.82	7.662	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-174.54	-29.1	-2.8	29.3	25.0	4.27	6.856	CC
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	156.03	-29.1	-2.8	30.9	26.1	4.72	6.542	
1,200.0	1,199.8	1,199.8	1,199.8	2.6	2.6	159.40	-29.1	-2.8	35.7	30.5	5.16	6.919	
1,300.0	1,299.5	1,299.5	1,299.5	2.8	2.8	163.35	-29.1	-2.8	44.0	38.4	5.60	7.852	
1,400.0	1,398.7	1,398.7	1,398.7	3.1	3.0	166.89	-29.1	-2.8	55.8	49.7	6.04	9.240	
1,500.0	1,497.6	1,499.9	1,499.8	3.3	3.3	169.26	-27.8	-1.7	68.9	62.4	6.48	10.638	
1,600.0	1,596.4	1,601.9	1,601.7	3.6	3.5	170.20	-23.5	1.6	79.0	72.1	6.93	11.407	
1,700.0	1,695.2	1,704.5	1,703.9	3.9	3.7	170.26	-16.4	7.1	85.7	78.3	7.39	11.605	
1,800.0	1,794.0	1,805.8	1,804.5	4.2	4.0	169.73	-6.9	14.5	89.5	81.7	7.85	11.398	
1,900.0	1,892.8	1,905.7	1,903.7	4.5	4.2	169.19	2.8	22.0	93.0	84.6	8.33	11.167	
2,000.0	1,991.6	2,005.6	2,002.8	4.9	4.5	168.68	12.5	29.4	96.4	87.6	8.80	10.954	
2,100.0	2,090.5	2,105.6	2,102.0	5.2	4.7	168.21	22.1	36.9	99.9	90.6	9.28	10.760	
2,200.0	2,189.3	2,205.5	2,201.2	5.5	5.0	167.78	31.8	44.4	103.4	93.6	9.77	10.581	
2,300.0	2,288.1	2,305.4	2,300.4	5.8	5.3	167.37	41.5	51.9	106.8	96.6	10.26	10.416	
2,400.0	2,386.9	2,405.4	2,399.6	6.2	5.6	166.98	51.1	59.4	110.3	99.6	10.75	10.263	
2,500.0	2,485.7	2,505.3	2,498.8	6.5	5.8	166.62	60.8	66.9	113.8	102.5	11.24	10.122	
2,600.0	2,584.5	2,605.3	2,598.0	6.9	6.1	166.28	70.5	74.4	117.3	105.5	11.74	9.990	
2,700.0	2,683.3	2,705.2	2,697.1	7.2	6.4	165.96	80.1	81.9	120.8	108.5	12.24	9.868	
2,800.0	2,782.2	2,805.1	2,796.3	7.6	6.7	165.66	89.8	89.4	124.3	111.5	12.74	9.754	
2,900.0	2,881.0	2,905.1	2,895.5	7.9	7.0	165.37	99.5	96.8	127.8	114.5	13.24	9.647	
3,000.0	2,979.8	3,005.0	2,994.7	8.2	7.3	165.10	109.1	104.3	131.3	117.5	13.75	9.547	
3,100.0	3,078.6	3,104.9	3,093.9	8.6	7.6	164.85	118.8	111.8	134.8	120.5	14.26	9.453	
3,200.0	3,177.4	3,204.9	3,193.1	8.9	7.9	164.61	128.5	119.3	138.3	123.5	14.77	9.364	
3,300.0	3,276.2	3,304.8	3,292.3	9.3	8.2	164.38	138.2	126.8	141.8	126.5	15.28	9.281	
3,400.0	3,375.0	3,404.8	3,391.4	9.7	8.5	164.16	147.8	134.3	145.3	129.5	15.79	9.203	
3,500.0	3,473.9	3,504.7	3,490.6	10.0	8.8	163.95	157.5	141.8	148.8	132.5	16.30	9.128	
3,600.0	3,572.7	3,604.6	3,589.8	10.4	9.1	163.75	167.2	149.3	152.3	135.5	16.82	9.058	
3,700.0	3,671.5	3,704.6	3,689.0	10.7	9.4	163.56	176.8	156.8	155.8	138.5	17.33	8.992	
3,800.0	3,770.3	3,804.5	3,788.2	11.1	9.7	163.37	186.5	164.3	159.4	141.5	17.85	8.929	
3,900.0	3,869.1	3,904.4	3,887.4	11.4	10.0	163.20	196.2	171.7	162.9	144.5	18.37	8.869	
4,000.0	3,967.9	4,004.4	3,986.6	11.8	10.3	163.03	205.8	179.2	166.4	147.5	18.88	8.812	
4,100.0	4,066.8	4,104.3	4,085.7	12.1	10.6	162.87	215.5	186.7	169.9	150.5	19.40	8.757	
4,200.0	4,165.6	4,204.2	4,184.9	12.5	11.0	162.72	225.2	194.2	173.5	153.5	19.92	8.706	
4,300.0	4,264.4	4,304.2	4,284.1	12.8	11.3	162.57	234.8	201.7	177.0	156.5	20.45	8.656	
4,400.0	4,363.2	4,404.1	4,383.3	13.2	11.6	162.43	244.5	209.2	180.5	159.5	20.97	8.609	
4,500.0	4,462.0	4,504.1	4,482.5	13.6	11.9	162.29	254.2	216.7	184.0	162.5	21.49	8.564	
4,600.0	4,560.8	4,604.0	4,581.7	13.9	12.2	162.16	263.8	224.2	187.6	165.5	22.01	8.521	
4,700.0	4,659.9	4,704.0	4,680.9	14.2	12.5	161.88	273.5	231.7	189.4	166.9	22.53	8.406	
4,800.0	4,759.4	4,803.9	4,780.1	14.4	12.8	161.25	283.2	239.1	188.0	164.9	23.02	8.165	
4,900.0	4,859.1	4,903.8	4,879.2	14.6	13.1	160.23	292.8	246.6	183.2	159.7	23.51	7.796	
5,000.0	4,959.1	5,003.3	4,978.0	14.8	13.4	158.72	302.5	254.1	175.3	151.3	24.00	7.305	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well LDS 1V-434
Project:	SEC.1-T5N-R65W	**TVD Reference:**	WELL @ 4628.0ft (Original Well Elev)
Reference Site:	LDS 5N65W1W Pad Sec.1-T5N-R65W	**MD Reference:**	WELL @ 4628.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	LDS 1V-434	**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 (9-4-14)	**Offset TVD Reference:**	Offset Datum

Offset Design LDS 5N65W1W Pad Sec.1-T5N-R65W - LDS 1V-234 - Wellbore #1 - Plan #1 (9-4-14)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	5,059.1	5,102.6	5,076.6	15.0	13.8	-172.48	312.1	261.5	164.9	137.3	27.62	5.970	
5,200.0	5,159.1	5,200.0	5,173.2	15.1	14.0	-174.69	321.4	268.8	154.5	126.6	27.90	5.538	
5,300.0	5,259.1	5,296.1	5,268.8	15.3	14.3	-176.66	328.8	274.5	146.4	118.3	28.12	5.205	
5,400.0	5,359.1	5,392.0	5,364.5	15.4	14.5	-178.07	333.7	278.3	141.2	112.8	28.37	4.976	
5,500.0	5,459.1	5,488.1	5,460.6	15.6	14.6	-178.78	336.0	280.1	138.7	110.0	28.65	4.841	
5,556.4	5,515.5	5,543.0	5,515.5	15.7	14.7	-178.85	336.2	280.2	138.5	109.6	28.83	4.803	
5,600.0	5,559.1	5,586.6	5,559.1	15.8	14.8	-178.85	336.2	280.2	138.5	109.5	28.98	4.777	
5,700.0	5,659.1	5,686.6	5,659.1	15.9	15.0	-178.85	336.2	280.2	138.5	109.1	29.35	4.718	
5,800.0	5,759.1	5,786.6	5,759.1	16.1	15.1	-178.85	336.2	280.2	138.5	108.8	29.71	4.660	
5,900.0	5,859.1	5,886.6	5,859.1	16.3	15.3	-178.85	336.2	280.2	138.5	108.4	30.08	4.603	
6,000.0	5,959.1	5,986.6	5,959.1	16.5	15.5	-178.85	336.2	280.2	138.5	108.0	30.46	4.547	
6,057.0	6,016.1	6,043.6	6,016.1	16.6	15.6	-178.85	336.2	280.2	138.5	107.8	30.67	4.515	
6,100.0	6,059.1	6,086.5	6,059.0	16.6	15.7	-178.68	336.2	279.8	138.5	107.6	30.84	4.490	
6,200.0	6,159.1	6,185.1	6,157.0	16.8	15.8	-85.11	336.2	269.6	139.0	109.9	29.06	4.782	
6,300.0	6,258.1	6,282.1	6,251.1	16.9	15.8	-80.63	336.2	246.3	140.3	111.4	28.91	4.855	
6,400.0	6,354.6	6,377.5	6,339.7	16.9	15.9	-76.05	336.2	211.1	142.7	114.0	28.72	4.968	
6,500.0	6,446.9	6,471.4	6,421.4	16.9	15.8	-71.53	336.2	165.1	146.1	117.5	28.56	5.115	
6,600.0	6,533.5	6,563.8	6,495.2	16.9	15.8	-67.19	336.2	109.6	150.4	121.9	28.43	5.288	
6,700.0	6,612.7	6,654.8	6,560.2	16.9	15.8	-63.14	336.2	46.0	155.4	127.0	28.38	5.477	
6,800.0	6,683.3	6,744.4	6,615.6	16.9	15.8	-59.44	336.2	-24.3	161.0	132.6	28.43	5.664	
6,900.0	6,744.1	6,832.7	6,661.2	16.9	16.4	-56.14	336.2	-99.9	167.0	138.4	28.64	5.833	
7,000.0	6,794.1	6,920.0	6,696.6	17.3	17.4	-53.23	336.2	-179.6	173.2	144.1	29.07	5.957	
7,100.0	6,832.3	7,006.2	6,721.6	18.6	18.6	-50.72	336.2	-262.1	179.2	149.4	29.76	6.021	
7,200.0	6,858.1	7,091.5	6,736.3	20.2	20.1	-48.58	336.2	-346.0	184.9	154.1	30.76	6.012	
7,300.0	6,871.1	7,176.0	6,740.8	22.0	21.6	-46.81	336.2	-430.4	190.1	158.1	32.06	5.930	
7,400.0	6,872.7	7,276.0	6,740.1	24.0	23.6	-46.23	336.2	-530.4	191.7	157.2	34.51	5.555	
7,500.0	6,872.7	7,376.0	6,739.4	26.1	25.8	-46.07	336.2	-630.4	192.2	154.7	37.55	5.119	
7,600.0	6,872.8	7,476.0	6,738.7	28.3	28.1	-45.91	336.2	-730.4	192.7	152.0	40.77	4.728	
7,700.0	6,872.8	7,576.0	6,738.0	30.7	30.4	-45.76	336.2	-830.4	193.2	149.1	44.11	4.381	
7,800.0	6,872.8	7,676.0	6,737.3	33.1	32.8	-45.60	336.2	-930.4	193.8	146.2	47.55	4.075	
7,900.0	6,872.9	7,776.0	6,736.6	35.5	35.3	-45.45	336.2	-1,030.3	194.3	143.2	51.06	3.805	
8,000.0	6,872.9	7,876.0	6,735.9	38.0	37.8	-45.29	336.2	-1,130.3	194.8	140.2	54.62	3.566	
8,100.0	6,872.9	7,976.0	6,735.2	40.6	40.4	-45.14	336.2	-1,230.3	195.3	137.1	58.23	3.354	
8,200.0	6,873.0	8,076.0	6,734.5	43.2	43.0	-44.99	336.2	-1,330.3	195.8	134.0	61.87	3.165	
8,300.0	6,873.0	8,176.0	6,733.8	45.8	45.6	-44.84	336.2	-1,430.3	196.3	130.8	65.52	2.996	
8,400.0	6,873.0	8,276.0	6,733.1	48.4	48.3	-44.69	336.2	-1,530.3	196.9	127.7	69.20	2.845	
8,500.0	6,873.1	8,376.0	6,732.4	51.0	50.9	-44.54	336.2	-1,630.3	197.4	124.5	72.88	2.708	
8,600.0	6,873.1	8,476.0	6,731.7	53.7	53.6	-44.39	336.2	-1,730.3	197.9	121.3	76.57	2.585	
8,700.0	6,873.2	8,576.0	6,731.0	56.4	56.3	-44.24	336.2	-1,830.3	198.4	118.2	80.26	2.472	
8,800.0	6,873.2	8,676.0	6,730.3	59.1	59.0	-44.09	336.2	-1,930.3	199.0	115.0	83.95	2.370	
8,900.0	6,873.2	8,775.9	6,729.6	61.8	61.7	-43.95	336.2	-2,030.3	199.5	111.8	87.64	2.276	
9,000.0	6,873.3	8,875.9	6,728.9	64.5	64.4	-43.80	336.2	-2,130.3	200.0	108.7	91.33	2.190	
9,100.0	6,873.3	8,975.9	6,728.2	67.2	67.1	-43.66	336.2	-2,230.3	200.5	105.5	95.01	2.111	
9,200.0	6,873.3	9,075.9	6,727.5	69.9	69.8	-43.51	336.2	-2,330.3	201.1	102.4	98.68	2.038	
9,300.0	6,873.4	9,175.9	6,726.8	72.6	72.6	-43.37	336.2	-2,430.3	201.6	99.3	102.34	1.970	
9,400.0	6,873.4	9,275.9	6,726.1	75.4	75.3	-43.23	336.2	-2,530.3	202.1	96.1	105.99	1.907	
9,500.0	6,873.4	9,375.9	6,725.4	78.1	78.1	-43.08	336.2	-2,630.3	202.7	93.0	109.64	1.849	
9,600.0	6,873.5	9,475.9	6,724.7	80.9	80.8	-42.94	336.2	-2,730.3	203.2	89.9	113.27	1.794	
9,700.0	6,873.5	9,575.9	6,724.0	83.6	83.6	-42.80	336.2	-2,830.3	203.7	86.9	116.89	1.743	
9,800.0	6,873.5	9,675.9	6,723.3	86.4	86.3	-42.66	336.2	-2,930.2	204.3	83.8	120.50	1.695	
9,900.0	6,873.6	9,775.9	6,722.6	89.1	89.1	-42.52	336.2	-3,030.2	204.8	80.7	124.10	1.650	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well LDS 1V-434
Project:	SEC.1-T5N-R65W	**TVD Reference:**	WELL @ 4628.0ft (Original Well Elev)
Reference Site:	LDS 5N65W1W Pad Sec.1-T5N-R65W	**MD Reference:**	WELL @ 4628.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	LDS 1V-434	**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 (9-4-14)	**Offset TVD Reference:**	Offset Datum

Offset Design LDS 5N65W1W Pad Sec.1-T5N-R65W - LDS 1V-234 - Wellbore #1 - Plan #1 (9-4-14)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,000.0	6,873.6	9,875.9	6,721.9	91.9	91.9	-42.39	336.2	-3,130.2	205.4	77.7	127.68	1.608	
10,100.0	6,873.6	9,975.9	6,721.2	94.7	94.6	-42.25	336.2	-3,230.2	205.9	74.7	131.25	1.569	
10,200.0	6,873.7	10,075.9	6,720.5	97.4	97.4	-42.11	336.2	-3,330.2	206.4	71.6	134.81	1.531	
10,300.0	6,873.7	10,175.9	6,719.8	100.2	100.2	-41.98	336.2	-3,430.2	207.0	68.6	138.36	1.496	Level 3
10,400.0	6,873.7	10,275.9	6,719.1	103.0	102.9	-41.84	336.2	-3,530.2	207.5	65.6	141.89	1.463	Level 3
10,500.0	6,873.8	10,375.9	6,718.4	105.7	105.7	-41.71	336.2	-3,630.2	208.1	62.7	145.41	1.431	Level 3
10,600.0	6,873.8	10,475.9	6,717.7	108.5	108.5	-41.57	336.2	-3,730.2	208.6	59.7	148.91	1.401	Level 3
10,700.0	6,873.8	10,575.9	6,717.0	111.3	111.3	-41.44	336.2	-3,830.2	209.2	56.8	152.40	1.373	Level 3
10,800.0	6,873.9	10,675.9	6,716.3	114.1	114.1	-41.31	336.2	-3,930.2	209.7	53.9	155.88	1.345	Level 3
10,900.0	6,873.9	10,775.9	6,715.6	116.8	116.8	-41.17	336.2	-4,030.2	210.3	50.9	159.34	1.320	Level 3
11,000.0	6,874.0	10,875.9	6,714.9	119.6	119.6	-41.04	336.2	-4,130.2	210.8	48.0	162.79	1.295	Level 3
11,100.0	6,874.0	10,975.9	6,714.2	122.4	122.4	-40.91	336.2	-4,230.2	211.4	45.2	166.22	1.272	Level 3
11,200.0	6,874.0	11,075.9	6,713.5	125.2	125.2	-40.78	336.2	-4,330.2	211.9	42.3	169.64	1.249	Level 2
11,300.0	6,874.1	11,175.9	6,712.8	128.0	128.0	-40.65	336.2	-4,430.2	212.5	39.5	173.05	1.228	Level 2
11,400.0	6,874.1	11,275.9	6,712.1	130.8	130.8	-40.53	336.2	-4,530.2	213.1	36.6	176.44	1.208	Level 2
11,500.0	6,874.1	11,375.9	6,711.5	133.5	133.6	-40.40	336.2	-4,630.2	213.6	33.8	179.82	1.188	Level 2
11,600.0	6,874.2	11,475.9	6,710.8	136.3	136.3	-40.27	336.2	-4,730.2	214.2	31.0	183.18	1.169	Level 2
11,700.0	6,874.2	11,575.9	6,710.1	139.1	139.1	-40.14	336.2	-4,830.2	214.7	28.2	186.53	1.151	Level 2
11,800.0	6,874.2	11,675.9	6,709.4	141.9	141.9	-40.02	336.2	-4,930.1	215.3	25.4	189.87	1.134	Level 2
11,900.0	6,874.3	11,775.9	6,708.7	144.7	144.7	-39.89	336.2	-5,030.1	215.9	22.7	193.19	1.117	Level 2
12,000.0	6,874.3	11,875.9	6,708.0	147.5	147.5	-39.77	336.2	-5,130.1	216.4	19.9	196.49	1.101	Level 2
12,100.0	6,874.3	11,975.9	6,707.3	150.3	150.3	-39.65	336.2	-5,230.1	217.0	17.2	199.79	1.086	Level 2
12,200.0	6,874.4	12,075.9	6,706.6	153.1	153.1	-39.52	336.2	-5,330.1	217.5	14.5	203.07	1.071	Level 2
12,300.0	6,874.4	12,175.9	6,705.9	155.9	155.9	-39.40	336.2	-5,430.1	218.1	11.8	206.33	1.057	Level 2
12,400.0	6,874.4	12,275.9	6,705.2	158.7	158.7	-39.28	336.2	-5,530.1	218.7	9.1	209.58	1.043	Level 2
12,500.0	6,874.5	12,375.9	6,704.5	161.5	161.5	-39.16	336.2	-5,630.1	219.2	6.4	212.82	1.030	Level 2
12,600.0	6,874.5	12,475.8	6,703.8	164.2	164.3	-39.04	336.2	-5,730.1	219.8	3.8	216.04	1.017	Level 2
12,700.0	6,874.5	12,575.8	6,703.1	167.0	167.1	-38.92	336.2	-5,830.1	220.4	1.1	219.25	1.005	Level 2
12,800.0	6,874.6	12,675.8	6,702.4	169.8	169.9	-38.80	336.2	-5,930.1	221.0	-1.5	222.45	0.993	Level 1
12,900.0	6,874.6	12,775.8	6,701.7	172.6	172.7	-38.68	336.2	-6,030.1	221.5	-4.1	225.63	0.982	Level 1
13,000.0	6,874.7	12,875.8	6,701.0	175.4	175.5	-38.56	336.2	-6,130.1	222.1	-6.7	228.80	0.971	Level 1
13,100.0	6,874.7	12,975.8	6,700.3	178.2	178.3	-38.44	336.2	-6,230.1	222.7	-9.3	231.95	0.960	Level 1
13,200.0	6,874.7	13,075.8	6,699.6	181.0	181.1	-38.32	336.2	-6,330.1	223.3	-11.8	235.10	0.950	Level 1
13,300.0	6,874.8	13,175.8	6,698.9	183.8	183.9	-38.21	336.2	-6,430.1	223.8	-14.4	238.22	0.940	Level 1
13,400.0	6,874.8	13,275.8	6,698.2	186.6	186.7	-38.09	336.2	-6,530.1	224.4	-16.9	241.34	0.930	Level 1
13,500.0	6,874.8	13,375.8	6,697.5	189.4	189.4	-37.98	336.2	-6,630.1	225.0	-19.5	244.44	0.920	Level 1
13,600.0	6,874.9	13,475.8	6,696.8	192.2	192.2	-37.86	336.2	-6,730.1	225.6	-22.0	247.53	0.911	Level 1
13,700.0	6,874.9	13,575.8	6,696.1	195.0	195.0	-37.75	336.2	-6,830.0	226.1	-24.5	250.61	0.902	Level 1
13,800.0	6,874.9	13,675.8	6,695.4	197.8	197.8	-37.64	336.2	-6,930.0	226.7	-27.0	253.67	0.894	Level 1
13,900.0	6,875.0	13,775.8	6,694.7	200.6	200.6	-37.52	336.2	-7,030.0	227.3	-29.4	256.72	0.885	Level 1
13,995.6	6,875.0	13,871.4	6,694.0	203.3	202.6	-37.42	336.2	-7,125.7	227.9	-31.3	259.15	0.879	Level 1, ES, SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well LDS 1V-434
Project:	SEC.1-T5N-R65W	**TVD Reference:**	WELL @ 4628.0ft (Original Well Elev)
Reference Site:	LDS 5N65W1W Pad Sec.1-T5N-R65W	**MD Reference:**	WELL @ 4628.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	LDS 1V-434	**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 (9-4-14)	**Offset TVD Reference:**	Offset Datum

Offset Design LDS 5N65W1W Pad Sec.1-T5N-R65W - LDS 1W-314 - Wellbore #1 - Plan #1 (9-4-14)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-177.27	-58.3	-2.8	58.4				
100.0	100.0	100.0	100.0	0.1	0.1	-177.27	-58.3	-2.8	58.4	58.1	0.22	259.633	
200.0	200.0	200.0	200.0	0.3	0.3	-177.27	-58.3	-2.8	58.4	57.7	0.67	86.544	
300.0	300.0	300.0	300.0	0.6	0.6	-177.27	-58.3	-2.8	58.4	57.2	1.12	51.927	
400.0	400.0	400.0	400.0	0.8	0.8	-177.27	-58.3	-2.8	58.4	56.8	1.57	37.090	
500.0	500.0	500.0	500.0	1.0	1.0	-177.27	-58.3	-2.8	58.4	56.3	2.02	28.848	
600.0	600.0	600.0	600.0	1.2	1.2	-177.27	-58.3	-2.8	58.4	55.9	2.47	23.603	
700.0	700.0	700.0	700.0	1.5	1.5	-177.27	-58.3	-2.8	58.4	55.4	2.92	19.972	
800.0	800.0	800.0	800.0	1.7	1.7	-177.27	-58.3	-2.8	58.4	55.0	3.37	17.309	
900.0	900.0	900.0	900.0	1.9	1.9	-177.27	-58.3	-2.8	58.4	54.5	3.82	15.273	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-177.27	-58.3	-2.8	58.4	54.1	4.27	13.665	CC, ES
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	152.70	-58.3	-2.8	59.9	55.2	4.72	12.697	
1,200.0	1,199.8	1,199.8	1,199.8	2.6	2.6	154.79	-58.3	-2.8	64.6	59.4	5.16	12.515	
1,300.0	1,299.5	1,299.5	1,299.5	2.8	2.8	157.66	-58.3	-2.8	72.6	67.0	5.60	12.955	
1,400.0	1,398.7	1,398.7	1,398.7	3.1	3.0	160.74	-58.3	-2.8	84.0	77.9	6.04	13.906	
1,500.0	1,497.6	1,497.6	1,497.6	3.3	3.3	163.60	-58.3	-2.8	98.3	91.9	6.48	15.168	
1,600.0	1,596.4	1,596.4	1,596.4	3.6	3.5	165.79	-58.3	-2.8	113.2	106.2	6.94	16.316	
1,700.0	1,695.2	1,695.2	1,695.2	3.9	3.7	167.48	-58.3	-2.8	128.1	120.7	7.39	17.336	
1,800.0	1,794.0	1,794.0	1,794.0	4.2	3.9	168.81	-58.3	-2.8	143.1	135.3	7.85	18.244	
1,900.0	1,892.8	1,892.8	1,892.8	4.5	4.1	169.89	-58.3	-2.8	158.2	149.9	8.30	19.058	
2,000.0	1,991.6	1,991.6	1,991.6	4.9	4.4	170.78	-58.3	-2.8	173.4	164.6	8.76	19.788	
2,100.0	2,090.5	2,092.5	2,092.5	5.2	4.6	171.11	-58.3	-1.3	188.0	178.8	9.21	20.409	
2,200.0	2,189.3	2,193.9	2,193.8	5.5	4.8	170.43	-58.5	3.8	201.5	191.9	9.66	20.859	
2,300.0	2,288.1	2,295.3	2,294.8	5.8	5.0	168.93	-58.8	12.4	213.9	203.8	10.13	21.130	
2,400.0	2,386.9	2,395.8	2,394.6	6.2	5.2	166.79	-59.3	24.3	225.6	215.0	10.61	21.261	
2,500.0	2,485.7	2,494.7	2,492.7	6.5	5.5	164.72	-59.7	36.7	237.3	226.2	11.11	21.359	
2,600.0	2,584.5	2,593.7	2,590.9	6.9	5.7	162.85	-60.2	49.1	249.3	237.7	11.62	21.448	
2,700.0	2,683.3	2,692.7	2,689.1	7.2	5.9	161.15	-60.6	61.5	261.6	249.4	12.15	21.527	
2,800.0	2,782.2	2,791.6	2,787.3	7.6	6.2	159.60	-61.1	73.9	274.0	261.4	12.69	21.597	
2,900.0	2,881.0	2,890.6	2,885.4	7.9	6.5	158.19	-61.5	86.3	286.7	273.5	13.24	21.660	
3,000.0	2,979.8	2,989.5	2,983.6	8.2	6.7	156.89	-62.0	98.7	299.5	285.7	13.79	21.716	
3,100.0	3,078.6	3,088.5	3,081.8	8.6	7.0	155.71	-62.4	111.1	312.4	298.1	14.35	21.767	
3,200.0	3,177.4	3,187.5	3,180.0	8.9	7.3	154.62	-62.9	123.5	325.5	310.6	14.92	21.812	
3,300.0	3,276.2	3,286.4	3,278.2	9.3	7.6	153.61	-63.4	136.0	338.7	323.2	15.50	21.852	
3,400.0	3,375.0	3,385.4	3,376.3	9.7	7.8	152.67	-63.8	148.4	351.9	335.8	16.08	21.889	
3,500.0	3,473.9	3,484.3	3,474.5	10.0	8.1	151.81	-64.3	160.8	365.3	348.6	16.66	21.922	
3,600.0	3,572.7	3,583.3	3,572.7	10.4	8.4	151.01	-64.7	173.2	378.7	361.4	17.25	21.953	
3,700.0	3,671.5	3,682.3	3,670.9	10.7	8.7	150.26	-65.2	185.6	392.2	374.3	17.84	21.981	
3,800.0	3,770.3	3,781.2	3,769.0	11.1	9.0	149.56	-65.6	198.0	405.7	387.3	18.44	22.007	
3,900.0	3,869.1	3,880.2	3,867.2	11.4	9.3	148.90	-66.1	210.4	419.3	400.3	19.03	22.031	
4,000.0	3,967.9	3,979.1	3,965.4	11.8	9.6	148.29	-66.5	222.8	433.0	413.4	19.63	22.053	
4,100.0	4,066.8	4,078.1	4,063.6	12.1	9.9	147.72	-67.0	235.2	446.7	426.5	20.24	22.073	
4,200.0	4,165.6	4,177.1	4,161.8	12.5	10.2	147.18	-67.4	247.6	460.5	439.6	20.84	22.093	
4,300.0	4,264.4	4,276.3	4,260.2	12.8	10.5	146.67	-67.9	260.0	474.2	452.8	21.44	22.117	
4,400.0	4,363.2	4,376.6	4,360.0	13.2	10.7	146.47	-68.2	270.2	487.9	465.9	21.97	22.205	
4,500.0	4,462.0	4,477.0	4,460.2	13.6	10.9	146.69	-68.5	276.8	501.2	478.8	22.46	22.321	
4,600.0	4,560.8	4,577.3	4,560.4	13.9	11.1	147.29	-68.6	279.9	514.4	491.5	22.90	22.462	
4,700.0	4,659.9	4,676.8	4,659.9	14.2	11.3	148.19	-68.6	280.2	525.9	502.6	23.31	22.561	
4,800.0	4,759.4	4,776.3	4,759.4	14.4	11.5	148.85	-68.6	280.2	534.6	510.9	23.68	22.572	
4,900.0	4,859.1	4,876.0	4,859.1	14.6	11.7	149.27	-68.6	280.2	540.3	516.2	24.04	22.474	
5,000.0	4,959.1	4,976.0	4,959.1	14.8	11.9	149.47	-68.6	280.2	543.0	518.6	24.38	22.275	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well LDS 1V-434
Project:	SEC.1-T5N-R65W	**TVD Reference:**	WELL @ 4628.0ft (Original Well Elev)
Reference Site:	LDS 5N65W1W Pad Sec.1-T5N-R65W	**MD Reference:**	WELL @ 4628.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	LDS 1V-434	**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 (9-4-14)	**Offset TVD Reference:**	Offset Datum

Offset Design LDS 5N65W1W Pad Sec.1-T5N-R65W - LDS 1W-314 - Wellbore #1 - Plan #1 (9-4-14)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	5,059.1	5,076.0	5,059.1	15.0	12.1	-179.71	-68.6	280.2	543.3	518.2	25.07	21.669	
5,200.0	5,159.1	5,176.0	5,159.1	15.1	12.3	-179.71	-68.6	280.2	543.3	517.8	25.45	21.343	
5,300.0	5,259.1	5,276.0	5,259.1	15.3	12.5	-179.71	-68.6	280.2	543.3	517.4	25.84	21.025	
5,400.0	5,359.1	5,376.0	5,359.1	15.4	12.7	-179.71	-68.6	280.2	543.3	517.0	26.23	20.714	
5,500.0	5,459.1	5,476.0	5,459.1	15.6	12.9	-179.71	-68.6	280.2	543.3	516.6	26.62	20.411	
5,600.0	5,559.1	5,576.0	5,559.1	15.8	13.1	-179.71	-68.6	280.2	543.3	516.3	27.01	20.116	
5,700.0	5,659.1	5,676.0	5,659.1	15.9	13.3	-179.71	-68.6	280.2	543.3	515.9	27.40	19.828	
5,800.0	5,759.1	5,776.0	5,759.1	16.1	13.5	-179.71	-68.6	280.2	543.3	515.5	27.79	19.547	
5,900.0	5,859.1	5,876.0	5,859.1	16.3	13.7	-179.71	-68.6	280.2	543.3	515.1	28.19	19.273	
6,000.0	5,959.1	5,976.0	5,959.1	16.5	13.9	-179.71	-68.6	280.2	543.3	514.7	28.58	19.005	
6,058.3	6,017.4	6,034.2	6,017.4	16.6	14.0	-179.71	-68.6	280.2	543.3	514.4	28.82	18.852	
6,100.0	6,059.1	6,075.9	6,059.0	16.6	14.1	-179.68	-68.6	279.9	543.3	514.3	28.98	18.746	
6,200.0	6,159.1	6,174.8	6,157.4	16.8	14.2	-88.88	-68.6	270.8	543.4	514.4	29.00	18.734	
6,300.0	6,258.1	6,272.4	6,252.6	16.9	14.3	-87.94	-68.6	249.4	543.6	514.5	29.16	18.643	
6,400.0	6,354.6	6,369.0	6,343.4	16.9	14.4	-87.04	-68.6	216.5	544.0	514.7	29.25	18.596	
6,500.0	6,446.9	6,464.7	6,428.4	16.9	14.5	-86.19	-68.6	172.9	544.5	515.1	29.35	18.549	
6,600.0	6,533.5	6,559.4	6,506.6	16.9	14.6	-85.41	-68.6	119.5	545.0	515.5	29.56	18.437	
6,700.0	6,612.7	6,653.4	6,577.1	16.9	14.9	-84.71	-68.6	57.5	545.6	515.6	30.00	18.187	
6,800.0	6,683.3	6,746.7	6,639.0	16.9	15.4	-84.09	-68.6	-12.2	546.2	515.4	30.81	17.729	
6,900.0	6,744.1	6,839.4	6,691.7	16.9	16.1	-83.57	-68.6	-88.5	546.7	514.6	32.11	17.025	
7,000.0	6,794.1	6,931.7	6,734.6	17.3	17.1	-83.16	-68.6	-170.1	547.2	513.2	33.98	16.101	
7,100.0	6,832.3	7,023.6	6,767.2	18.6	18.4	-82.85	-68.6	-256.0	547.5	511.1	36.44	15.026	
7,200.0	6,858.1	7,115.3	6,789.2	20.2	19.9	-82.65	-68.6	-345.0	547.8	508.3	39.42	13.895	
7,300.0	6,871.1	7,206.9	6,800.4	22.0	21.6	-82.57	-68.6	-435.8	547.9	505.0	42.84	12.789	
7,400.0	6,872.7	7,302.1	6,801.7	24.0	23.5	-82.56	-68.6	-531.0	547.9	501.2	46.67	11.740	
7,500.0	6,872.7	7,402.1	6,801.3	26.1	25.6	-82.51	-68.6	-631.0	547.9	497.0	50.90	10.766	
7,600.0	6,872.8	7,502.1	6,800.9	28.3	27.9	-82.47	-68.6	-731.0	548.0	492.6	55.36	9.898	
7,700.0	6,872.8	7,602.1	6,800.5	30.7	30.3	-82.42	-68.6	-831.0	548.0	488.0	60.01	9.132	
7,800.0	6,872.8	7,702.1	6,800.1	33.1	32.7	-82.38	-68.6	-931.0	548.1	483.3	64.81	8.457	
7,900.0	6,872.9	7,802.1	6,799.7	35.5	35.2	-82.33	-68.6	-1,031.0	548.2	478.4	69.72	7.863	
8,000.0	6,872.9	7,902.1	6,799.3	38.0	37.7	-82.28	-68.6	-1,131.0	548.2	473.5	74.72	7.337	
8,100.0	6,872.9	8,002.1	6,798.9	40.6	40.3	-82.24	-68.6	-1,231.0	548.3	468.5	79.79	6.872	
8,200.0	6,873.0	8,102.1	6,798.5	43.2	42.9	-82.19	-68.6	-1,331.0	548.3	463.4	84.92	6.457	
8,300.0	6,873.0	8,202.1	6,798.1	45.8	45.5	-82.15	-68.6	-1,431.0	548.4	458.3	90.10	6.086	
8,400.0	6,873.0	8,302.1	6,797.7	48.4	48.2	-82.10	-68.6	-1,531.0	548.5	453.1	95.33	5.753	
8,500.0	6,873.1	8,402.1	6,797.3	51.0	50.8	-82.06	-68.6	-1,631.0	548.5	447.9	100.59	5.453	
8,600.0	6,873.1	8,502.1	6,796.9	53.7	53.5	-82.01	-68.6	-1,731.0	548.6	442.7	105.87	5.181	
8,700.0	6,873.2	8,602.1	6,796.5	56.4	56.2	-81.97	-68.6	-1,831.0	548.6	437.5	111.19	4.934	
8,800.0	6,873.2	8,702.1	6,796.1	59.1	58.9	-81.92	-68.6	-1,931.0	548.7	432.2	116.52	4.709	
8,900.0	6,873.2	8,802.1	6,795.7	61.8	61.6	-81.88	-68.6	-2,031.0	548.8	426.9	121.87	4.503	
9,000.0	6,873.3	8,902.1	6,795.3	64.5	64.3	-81.83	-68.6	-2,131.0	548.8	421.6	127.24	4.313	
9,100.0	6,873.3	9,002.1	6,794.9	67.2	67.0	-81.79	-68.6	-2,231.0	548.9	416.3	132.63	4.139	
9,200.0	6,873.3	9,102.1	6,794.5	69.9	69.8	-81.74	-68.6	-2,331.0	548.9	410.9	138.02	3.977	
9,300.0	6,873.4	9,202.1	6,794.1	72.6	72.5	-81.70	-68.6	-2,431.0	549.0	405.6	143.43	3.828	
9,400.0	6,873.4	9,302.1	6,793.7	75.4	75.3	-81.65	-68.6	-2,531.0	549.1	400.2	148.84	3.689	
9,500.0	6,873.4	9,402.1	6,793.3	78.1	78.0	-81.61	-68.6	-2,631.0	549.1	394.9	154.26	3.560	
9,600.0	6,873.5	9,502.1	6,792.9	80.9	80.8	-81.56	-68.6	-2,731.0	549.2	389.5	159.69	3.439	
9,700.0	6,873.5	9,602.1	6,792.5	83.6	83.5	-81.52	-68.6	-2,831.0	549.3	384.1	165.13	3.326	
9,800.0	6,873.5	9,702.1	6,792.1	86.4	86.3	-81.47	-68.6	-2,931.0	549.3	378.8	170.57	3.221	
9,900.0	6,873.6	9,802.1	6,791.7	89.1	89.1	-81.43	-68.6	-3,031.0	549.4	373.4	176.02	3.121	
10,000.0	6,873.6	9,902.1	6,791.3	91.9	91.8	-81.38	-68.6	-3,131.0	549.5	368.0	181.47	3.028	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well LDS 1V-434
Project:	SEC.1-T5N-R65W	**TVD Reference:**	WELL @ 4628.0ft (Original Well Elev)
Reference Site:	LDS 5N65W1W Pad Sec.1-T5N-R65W	**MD Reference:**	WELL @ 4628.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	LDS 1V-434	**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 (9-4-14)	**Offset TVD Reference:**	Offset Datum

Offset Design LDS 5N65W1W Pad Sec.1-T5N-R65W - LDS 1W-314 - Wellbore #1 - Plan #1 (9-4-14)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,100.0	6,873.6	10,002.1	6,790.9	94.7	94.6	-81.34	-68.6	-3,231.0	549.5	362.6	186.92	2.940	
10,200.0	6,873.7	10,102.1	6,790.5	97.4	97.4	-81.29	-68.6	-3,331.0	549.6	357.2	192.38	2.857	
10,300.0	6,873.7	10,202.1	6,790.1	100.2	100.1	-81.25	-68.6	-3,431.0	549.7	351.8	197.84	2.778	
10,400.0	6,873.7	10,302.1	6,789.7	103.0	102.9	-81.20	-68.6	-3,531.0	549.7	346.4	203.30	2.704	
10,500.0	6,873.8	10,402.1	6,789.3	105.7	105.7	-81.16	-68.6	-3,631.0	549.8	341.0	208.77	2.633	
10,600.0	6,873.8	10,502.1	6,788.9	108.5	108.5	-81.11	-68.6	-3,731.0	549.9	335.6	214.24	2.567	
10,700.0	6,873.8	10,602.1	6,788.5	111.3	111.2	-81.07	-68.6	-3,831.0	549.9	330.2	219.71	2.503	
10,800.0	6,873.9	10,702.1	6,788.1	114.1	114.0	-81.02	-68.6	-3,931.0	550.0	324.8	225.18	2.442	
10,900.0	6,873.9	10,802.1	6,787.7	116.8	116.8	-80.98	-68.6	-4,031.0	550.1	319.4	230.65	2.385	
11,000.0	6,874.0	10,902.1	6,787.3	119.6	119.6	-80.93	-68.6	-4,130.9	550.1	314.0	236.12	2.330	
11,100.0	6,874.0	11,002.1	6,786.9	122.4	122.4	-80.89	-68.6	-4,230.9	550.2	308.6	241.60	2.277	
11,200.0	6,874.0	11,102.1	6,786.5	125.2	125.2	-80.84	-68.6	-4,330.9	550.3	303.2	247.07	2.227	
11,300.0	6,874.1	11,202.1	6,786.1	128.0	128.0	-80.80	-68.6	-4,430.9	550.3	297.8	252.55	2.179	
11,400.0	6,874.1	11,302.1	6,785.7	130.8	130.7	-80.75	-68.6	-4,530.9	550.4	292.4	258.02	2.133	
11,500.0	6,874.1	11,402.1	6,785.3	133.5	133.5	-80.71	-68.6	-4,630.9	550.5	287.0	263.50	2.089	
11,600.0	6,874.2	11,502.1	6,784.9	136.3	136.3	-80.66	-68.6	-4,730.9	550.5	281.6	268.98	2.047	
11,700.0	6,874.2	11,602.1	6,784.5	139.1	139.1	-80.62	-68.6	-4,830.9	550.6	276.2	274.45	2.006	
11,800.0	6,874.2	11,702.1	6,784.1	141.9	141.9	-80.58	-68.6	-4,930.9	550.7	270.8	279.93	1.967	
11,900.0	6,874.3	11,802.1	6,783.7	144.7	144.7	-80.53	-68.6	-5,030.9	550.8	265.4	285.41	1.930	
12,000.0	6,874.3	11,902.1	6,783.3	147.5	147.5	-80.49	-68.6	-5,130.9	550.8	260.0	290.88	1.894	
12,100.0	6,874.3	12,002.1	6,782.9	150.3	150.3	-80.44	-68.6	-5,230.9	550.9	254.5	296.36	1.859	
12,200.0	6,874.4	12,102.1	6,782.4	153.1	153.1	-80.40	-68.6	-5,330.9	551.0	249.1	301.84	1.825	
12,300.0	6,874.4	12,202.1	6,782.0	155.9	155.9	-80.35	-68.6	-5,430.9	551.1	243.8	307.29	1.793 SF	
12,400.0	6,874.4	12,213.9	6,782.0	158.7	156.1	-80.35	-68.6	-5,442.8	558.1	247.9	310.25	1.799	
12,500.0	6,874.5	12,213.9	6,782.0	161.5	156.1	-80.35	-68.6	-5,442.8	582.4	269.4	313.01	1.861	
12,600.0	6,874.5	12,213.9	6,782.0	164.2	156.1	-80.35	-68.6	-5,442.8	622.0	306.3	315.77	1.970	
12,700.0	6,874.5	12,213.9	6,782.0	167.0	156.1	-80.35	-68.6	-5,442.8	674.3	355.8	318.53	2.117	
12,800.0	6,874.6	12,213.9	6,782.0	169.8	156.1	-80.35	-68.6	-5,442.8	736.5	415.2	321.29	2.292	
12,900.0	6,874.6	12,213.9	6,782.0	172.6	156.1	-80.35	-68.6	-5,442.8	806.3	482.2	324.04	2.488	
13,000.0	6,874.7	12,213.9	6,782.0	175.4	156.1	-80.35	-68.6	-5,442.8	881.9	555.1	326.80	2.699	
13,100.0	6,874.7	12,213.9	6,782.0	178.2	156.1	-80.35	-68.6	-5,442.8	962.0	632.5	329.56	2.919	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well LDS 1V-434
Project:	SEC.1-T5N-R65W	**TVD Reference:**	WELL @ 4628.0ft (Original Well Elev)
Reference Site:	LDS 5N65W1W Pad Sec.1-T5N-R65W	**MD Reference:**	WELL @ 4628.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	LDS 1V-434	**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 (9-4-14)	**Offset TVD Reference:**	Offset Datum

Offset Design LDS 5N65W1W Pad Sec.1-T5N-R65W - LDS 1W-414 - Wellbore #1 - Plan #1 (9-4-14)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-178.25	-91.1	-2.8	91.1				
100.0	100.0	100.0	100.0	0.1	0.1	-178.25	-91.1	-2.8	91.1	90.9	0.22	405.404	
200.0	200.0	200.0	200.0	0.3	0.3	-178.25	-91.1	-2.8	91.1	90.4	0.67	135.135	
300.0	300.0	300.0	300.0	0.6	0.6	-178.25	-91.1	-2.8	91.1	90.0	1.12	81.081	
400.0	400.0	400.0	400.0	0.8	0.8	-178.25	-91.1	-2.8	91.1	89.5	1.57	57.915	
500.0	500.0	500.0	500.0	1.0	1.0	-178.25	-91.1	-2.8	91.1	89.1	2.02	45.045	
600.0	600.0	600.0	600.0	1.2	1.2	-178.25	-91.1	-2.8	91.1	88.6	2.47	36.855	
700.0	700.0	700.0	700.0	1.5	1.5	-178.25	-91.1	-2.8	91.1	88.2	2.92	31.185	
800.0	800.0	800.0	800.0	1.7	1.7	-178.25	-91.1	-2.8	91.1	87.7	3.37	27.027	
900.0	900.0	900.0	900.0	1.9	1.9	-178.25	-91.1	-2.8	91.1	87.3	3.82	23.847	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-178.25	-91.1	-2.8	91.1	86.9	4.27	21.337	CC, ES
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	151.46	-91.1	-2.8	92.7	87.9	4.72	19.638	
1,200.0	1,199.8	1,199.8	1,199.8	2.6	2.6	152.89	-91.1	-2.8	97.3	92.1	5.16	18.846	
1,300.0	1,299.5	1,299.5	1,299.5	2.8	2.8	154.98	-91.1	-2.8	105.1	99.5	5.60	18.759	
1,400.0	1,398.7	1,398.7	1,398.7	3.1	3.0	157.43	-91.1	-2.8	116.3	110.2	6.04	19.244	
1,500.0	1,497.6	1,497.6	1,497.6	3.3	3.3	159.93	-91.1	-2.8	130.3	123.8	6.49	20.087	
1,600.0	1,596.4	1,596.4	1,596.4	3.6	3.5	162.01	-91.1	-2.8	144.9	137.9	6.94	20.865	
1,700.0	1,695.2	1,693.6	1,693.6	3.9	3.7	163.16	-91.9	-1.5	160.0	152.6	7.38	21.685	
1,800.0	1,794.0	1,790.6	1,790.5	4.2	3.9	163.07	-94.4	2.6	176.2	168.4	7.81	22.570	
1,900.0	1,892.8	1,887.2	1,886.7	4.5	4.1	162.06	-98.6	9.5	193.4	185.1	8.25	23.447	
2,000.0	1,991.6	1,983.7	1,982.5	4.9	4.3	160.39	-104.4	19.0	211.7	203.0	8.71	24.306	
2,100.0	2,090.5	2,081.7	2,079.8	5.2	4.5	158.76	-110.8	29.4	230.5	221.3	9.19	25.078	
2,200.0	2,189.3	2,179.7	2,177.0	5.5	4.7	157.37	-117.2	39.8	249.5	239.8	9.69	25.759	
2,300.0	2,288.1	2,277.7	2,274.3	5.8	5.0	156.18	-123.6	50.2	268.6	258.4	10.19	26.358	
2,400.0	2,386.9	2,375.7	2,371.5	6.2	5.2	155.14	-130.0	60.7	287.8	277.1	10.70	26.889	
2,500.0	2,485.7	2,473.8	2,468.8	6.5	5.5	154.24	-136.5	71.1	307.0	295.8	11.22	27.357	
2,600.0	2,584.5	2,571.8	2,566.0	6.9	5.7	153.44	-142.9	81.5	326.4	314.6	11.75	27.777	
2,700.0	2,683.3	2,669.8	2,663.3	7.2	6.0	152.73	-149.3	91.9	345.8	333.5	12.28	28.151	
2,800.0	2,782.2	2,767.8	2,760.5	7.6	6.3	152.10	-155.7	102.3	365.2	352.4	12.82	28.487	
2,900.0	2,881.0	2,865.8	2,857.8	7.9	6.6	151.53	-162.1	112.8	384.7	371.3	13.36	28.790	
3,000.0	2,979.8	2,963.8	2,955.0	8.2	6.9	151.02	-168.5	123.2	404.2	390.3	13.91	29.064	
3,100.0	3,078.6	3,061.9	3,052.3	8.6	7.2	150.55	-174.9	133.6	423.7	409.3	14.46	29.313	
3,200.0	3,177.4	3,159.9	3,149.6	8.9	7.4	150.13	-181.3	144.0	443.3	428.3	15.01	29.539	
3,300.0	3,276.2	3,257.9	3,246.8	9.3	7.7	149.74	-187.7	154.4	462.9	447.3	15.56	29.746	
3,400.0	3,375.0	3,355.9	3,344.1	9.7	8.0	149.38	-194.1	164.9	482.5	466.3	16.12	29.936	
3,500.0	3,473.9	3,453.9	3,441.3	10.0	8.3	149.05	-200.5	175.3	502.1	485.4	16.67	30.110	
3,600.0	3,572.7	3,551.9	3,538.6	10.4	8.6	148.74	-206.9	185.7	521.7	504.5	17.23	30.271	
3,700.0	3,671.5	3,650.0	3,635.8	10.7	8.9	148.46	-213.3	196.1	541.3	523.6	17.80	30.419	
3,800.0	3,770.3	3,748.0	3,733.1	11.1	9.2	148.19	-219.7	206.5	561.0	542.6	18.36	30.556	
3,900.0	3,869.1	3,846.0	3,830.3	11.4	9.6	147.95	-226.1	217.0	580.7	561.7	18.92	30.684	
4,000.0	3,967.9	3,944.0	3,927.6	11.8	9.9	147.72	-232.5	227.4	600.3	580.9	19.49	30.803	
4,100.0	4,066.8	4,042.0	4,024.8	12.1	10.2	147.50	-238.9	237.8	620.0	600.0	20.06	30.913	
4,200.0	4,165.6	4,140.1	4,122.1	12.5	10.5	147.30	-245.3	248.2	639.7	619.1	20.63	31.017	
4,300.0	4,264.4	4,238.1	4,219.3	12.8	10.8	147.11	-251.7	258.7	659.4	638.2	21.19	31.114	
4,400.0	4,363.2	4,347.2	4,327.8	13.2	11.1	147.01	-258.1	269.2	678.5	656.8	21.75	31.194	
4,500.0	4,462.0	4,460.7	4,440.9	13.6	11.3	147.20	-262.6	276.4	695.5	673.3	22.27	31.232	
4,600.0	4,560.8	4,574.6	4,554.8	13.9	11.5	147.70	-264.7	279.9	710.5	687.7	22.76	31.218	
4,700.0	4,659.9	4,679.8	4,659.9	14.2	11.7	148.41	-264.9	280.2	722.2	699.0	23.22	31.107	
4,800.0	4,759.4	4,779.2	4,759.4	14.4	11.9	148.92	-264.9	280.2	730.9	707.3	23.61	30.954	
4,900.0	4,859.1	4,879.0	4,859.1	14.6	12.1	149.24	-264.9	280.2	736.6	712.6	23.98	30.714	
5,000.0	4,959.1	4,979.0	4,959.1	14.8	12.2	149.40	-264.9	280.2	739.3	715.0	24.33	30.391	

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

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well LDS 1V-434
Project:	SEC.1-T5N-R65W	**TVD Reference:**	WELL @ 4628.0ft (Original Well Elev)
Reference Site:	LDS 5N65W1W Pad Sec.1-T5N-R65W	**MD Reference:**	WELL @ 4628.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	LDS 1V-434	**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 (9-4-14)	**Offset TVD Reference:**	Offset Datum

Offset Design LDS 5N65W1W Pad Sec.1-T5N-R65W - LDS 1W-414 - Wellbore #1 - Plan #1 (9-4-14)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	5,059.1	5,079.0	5,059.1	15.0	12.4	-179.78	-264.9	280.2	739.6	714.1	25.45	29.058	
5,200.0	5,159.1	5,179.0	5,159.1	15.1	12.6	-179.78	-264.9	280.2	739.6	713.7	25.82	28.645	
5,300.0	5,259.1	5,279.0	5,259.1	15.3	12.8	-179.78	-264.9	280.2	739.6	713.4	26.19	28.241	
5,400.0	5,359.1	5,379.0	5,359.1	15.4	13.0	-179.78	-264.9	280.2	739.6	713.0	26.56	27.846	
5,500.0	5,459.1	5,479.0	5,459.1	15.6	13.2	-179.78	-264.9	280.2	739.6	712.6	26.93	27.459	
5,600.0	5,559.1	5,579.0	5,559.1	15.8	13.4	-179.78	-264.9	280.2	739.6	712.3	27.31	27.081	
5,700.0	5,659.1	5,679.0	5,659.1	15.9	13.6	-179.78	-264.9	280.2	739.6	711.9	27.69	26.711	
5,800.0	5,759.1	5,779.0	5,759.1	16.1	13.7	-179.78	-264.9	280.2	739.6	711.5	28.07	26.349	
5,900.0	5,859.1	5,879.0	5,859.1	16.3	13.9	-179.78	-264.9	280.2	739.6	711.1	28.45	25.995	
6,000.0	5,959.1	5,979.0	5,959.1	16.5	14.1	-179.78	-264.9	280.2	739.6	710.7	28.83	25.649	
6,100.0	6,059.1	6,079.0	6,059.1	16.6	14.3	-179.78	-264.9	280.2	739.6	710.3	29.22	25.310	
6,200.0	6,159.1	6,178.8	6,158.9	16.8	14.5	-89.79	-264.9	278.6	739.6	710.6	28.97	25.529	
6,300.0	6,258.1	6,278.4	6,257.6	16.9	14.6	-89.79	-264.9	265.6	739.6	710.4	29.20	25.329	
6,400.0	6,354.6	6,378.1	6,353.8	16.9	14.7	-89.80	-264.9	239.9	739.6	710.2	29.33	25.211	
6,500.0	6,446.9	6,477.8	6,445.9	16.9	14.7	-89.82	-264.9	201.9	739.6	710.1	29.44	25.119	
6,600.0	6,533.5	6,577.5	6,532.3	16.9	14.8	-89.83	-264.9	152.2	739.6	709.9	29.62	24.971	
6,700.0	6,612.7	6,677.2	6,611.4	16.9	14.9	-89.85	-264.9	91.7	739.6	709.6	30.00	24.656	
6,800.0	6,683.3	6,777.0	6,682.1	16.9	15.2	-89.87	-264.9	21.4	739.6	708.8	30.74	24.062	
6,900.0	6,744.1	6,876.8	6,743.0	16.9	15.7	-89.90	-264.9	-57.6	739.6	707.6	31.99	23.117	
7,000.0	6,794.1	6,976.6	6,793.2	17.3	16.7	-89.92	-264.9	-143.8	739.6	705.7	33.87	21.834	
7,100.0	6,832.3	7,076.5	6,831.6	18.6	18.0	-89.95	-264.9	-235.9	739.6	703.1	36.41	20.314	
7,200.0	6,858.1	7,176.4	6,857.8	20.2	19.6	-89.98	-264.9	-332.3	739.6	700.0	39.54	18.702	
7,279.5	6,869.5	7,255.9	6,869.5	21.6	21.0	-90.00	-264.9	-410.9	739.6	697.1	42.41	17.440	
7,300.0	6,871.1	7,276.4	6,871.1	22.0	21.4	-90.01	-264.9	-431.3	739.6	696.4	43.17	17.131	
7,400.0	6,872.7	7,376.4	6,872.8	24.0	23.4	-90.01	-264.9	-531.3	739.6	692.4	47.14	15.687	
7,459.7	6,872.7	7,436.1	6,872.7	25.2	24.7	-90.00	-264.9	-591.0	739.6	689.9	49.68	14.886	
7,500.0	6,872.7	7,476.4	6,872.6	26.1	25.6	-89.99	-264.9	-631.3	739.6	688.1	51.42	14.384	
7,600.0	6,872.8	7,576.4	6,872.4	28.3	27.9	-89.97	-264.9	-731.3	739.6	683.6	55.92	13.225	
7,700.0	6,872.8	7,676.4	6,872.2	30.7	30.2	-89.95	-264.9	-831.3	739.6	678.9	60.61	12.201	
7,800.0	6,872.8	7,776.4	6,872.0	33.1	32.6	-89.94	-264.9	-931.3	739.6	674.1	65.45	11.299	
7,900.0	6,872.9	7,876.4	6,871.8	35.5	35.1	-89.92	-264.9	-1,031.3	739.6	669.1	70.41	10.504	
8,000.0	6,872.9	7,976.4	6,871.6	38.0	37.7	-89.90	-264.9	-1,131.3	739.6	664.1	75.45	9.801	
8,100.0	6,872.9	8,076.4	6,871.4	40.6	40.2	-89.88	-264.9	-1,231.3	739.6	659.0	80.58	9.178	
8,200.0	6,873.0	8,176.4	6,871.2	43.2	42.8	-89.86	-264.9	-1,331.3	739.6	653.8	85.76	8.623	
8,300.0	6,873.0	8,276.4	6,871.0	45.8	45.5	-89.84	-264.9	-1,431.3	739.6	648.6	91.00	8.127	
8,400.0	6,873.0	8,376.4	6,870.7	48.4	48.1	-89.82	-264.9	-1,531.3	739.6	643.3	96.28	7.681	
8,500.0	6,873.1	8,476.4	6,870.5	51.0	50.8	-89.80	-264.9	-1,631.3	739.6	638.0	101.60	7.279	
8,600.0	6,873.1	8,576.4	6,870.3	53.7	53.4	-89.78	-264.9	-1,731.3	739.6	632.6	106.94	6.915	
8,700.0	6,873.2	8,676.4	6,870.1	56.4	56.1	-89.77	-264.9	-1,831.3	739.6	627.2	112.32	6.585	
8,800.0	6,873.2	8,776.4	6,869.9	59.1	58.8	-89.75	-264.9	-1,931.3	739.6	621.8	117.71	6.283	
8,900.0	6,873.2	8,876.4	6,869.7	61.8	61.5	-89.73	-264.9	-2,031.3	739.6	616.4	123.13	6.006	
9,000.0	6,873.3	8,976.4	6,869.5	64.5	64.3	-89.71	-264.9	-2,131.3	739.6	611.0	128.56	5.752	
9,100.0	6,873.3	9,076.4	6,869.3	67.2	67.0	-89.69	-264.9	-2,231.3	739.6	605.6	134.01	5.519	
9,200.0	6,873.3	9,176.4	6,869.1	69.9	69.7	-89.67	-264.9	-2,331.3	739.6	600.1	139.48	5.302	
9,300.0	6,873.4	9,276.4	6,868.9	72.6	72.5	-89.65	-264.9	-2,431.3	739.6	594.6	144.95	5.102	
9,400.0	6,873.4	9,376.4	6,868.7	75.4	75.2	-89.63	-264.9	-2,531.3	739.6	589.1	150.44	4.916	
9,500.0	6,873.4	9,476.4	6,868.4	78.1	78.0	-89.61	-264.9	-2,631.3	739.6	583.6	155.93	4.743	
9,600.0	6,873.5	9,576.4	6,868.2	80.9	80.7	-89.59	-264.9	-2,731.3	739.6	578.1	161.43	4.581	
9,700.0	6,873.5	9,676.4	6,868.0	83.6	83.5	-89.58	-264.9	-2,831.3	739.6	572.6	166.94	4.430	
9,800.0	6,873.5	9,776.4	6,867.8	86.4	86.2	-89.56	-264.9	-2,931.3	739.6	567.1	172.46	4.288	
9,900.0	6,873.6	9,876.4	6,867.6	89.1	89.0	-89.54	-264.9	-3,031.3	739.6	561.6	177.98	4.155	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well LDS 1V-434
Project:	SEC.1-T5N-R65W	**TVD Reference:**	WELL @ 4628.0ft (Original Well Elev)
Reference Site:	LDS 5N65W1W Pad Sec.1-T5N-R65W	**MD Reference:**	WELL @ 4628.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	LDS 1V-434	**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 (9-4-14)	**Offset TVD Reference:**	Offset Datum

Offset Design LDS 5N65W1W Pad Sec.1-T5N-R65W - LDS 1W-414 - Wellbore #1 - Plan #1 (9-4-14)

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,000.0	6,873.6	9,976.4	6,867.4	91.9	91.8	-89.52	-264.9	-3,131.3	739.6	556.1	183.51	4.030	
10,100.0	6,873.6	10,076.4	6,867.2	94.7	94.5	-89.50	-264.9	-3,231.3	739.6	550.5	189.05	3.912	
10,200.0	6,873.7	10,176.4	6,867.0	97.4	97.3	-89.48	-264.9	-3,331.3	739.6	545.0	194.59	3.801	
10,300.0	6,873.7	10,276.4	6,866.8	100.2	100.1	-89.46	-264.9	-3,431.3	739.6	539.5	200.13	3.696	
10,400.0	6,873.7	10,376.4	6,866.6	103.0	102.8	-89.44	-264.9	-3,531.3	739.6	533.9	205.68	3.596	
10,500.0	6,873.8	10,476.4	6,866.4	105.7	105.6	-89.42	-264.9	-3,631.3	739.6	528.4	211.23	3.501	
10,600.0	6,873.8	10,576.4	6,866.1	108.5	108.4	-89.41	-264.9	-3,731.3	739.6	522.8	216.78	3.412	
10,700.0	6,873.8	10,676.4	6,865.9	111.3	111.2	-89.39	-264.9	-3,831.3	739.6	517.3	222.34	3.326	
10,800.0	6,873.9	10,776.4	6,865.7	114.1	114.0	-89.37	-264.9	-3,931.3	739.6	511.7	227.90	3.245	
10,900.0	6,873.9	10,876.4	6,865.5	116.8	116.8	-89.35	-264.9	-4,031.3	739.6	506.1	233.47	3.168	
11,000.0	6,874.0	10,976.4	6,865.3	119.6	119.5	-89.33	-264.9	-4,131.3	739.6	500.6	239.03	3.094	
11,100.0	6,874.0	11,076.4	6,865.1	122.4	122.3	-89.31	-264.9	-4,231.3	739.6	495.0	244.60	3.024	
11,200.0	6,874.0	11,176.4	6,864.9	125.2	125.1	-89.29	-264.9	-4,331.3	739.6	489.4	250.17	2.956	
11,300.0	6,874.1	11,276.4	6,864.7	128.0	127.9	-89.27	-264.9	-4,431.3	739.6	483.9	255.74	2.892	
11,400.0	6,874.1	11,376.4	6,864.5	130.8	130.7	-89.25	-264.9	-4,531.3	739.6	478.3	261.32	2.830	
11,500.0	6,874.1	11,476.4	6,864.3	133.5	133.5	-89.24	-264.9	-4,631.3	739.6	472.7	266.89	2.771	
11,600.0	6,874.2	11,576.4	6,864.0	136.3	136.3	-89.22	-264.9	-4,731.3	739.6	467.2	272.47	2.715	
11,700.0	6,874.2	11,676.4	6,863.8	139.1	139.1	-89.20	-264.9	-4,831.3	739.6	461.6	278.05	2.660	
11,800.0	6,874.2	11,776.4	6,863.6	141.9	141.8	-89.18	-264.9	-4,931.3	739.6	456.0	283.63	2.608	
11,900.0	6,874.3	11,876.4	6,863.4	144.7	144.6	-89.16	-264.9	-5,031.3	739.6	450.4	289.21	2.557	
12,000.0	6,874.3	11,976.4	6,863.2	147.5	147.4	-89.14	-264.9	-5,131.3	739.6	444.8	294.79	2.509	
12,100.0	6,874.3	12,076.4	6,863.0	150.3	150.2	-89.12	-264.9	-5,231.3	739.6	439.3	300.38	2.462	
12,200.0	6,874.4	12,176.4	6,862.8	153.1	153.0	-89.10	-264.9	-5,331.3	739.6	433.7	305.96	2.417	
12,300.0	6,874.4	12,276.4	6,862.6	155.9	155.8	-89.08	-264.9	-5,431.3	739.6	428.1	311.55	2.374	
12,400.0	6,874.4	12,376.4	6,862.4	158.7	158.6	-89.06	-264.9	-5,531.3	739.7	422.5	317.14	2.332	
12,500.0	6,874.5	12,476.4	6,862.2	161.5	161.4	-89.05	-264.9	-5,631.3	739.7	416.9	322.72	2.292	
12,600.0	6,874.5	12,576.4	6,862.0	164.2	164.2	-89.03	-264.9	-5,731.3	739.7	411.3	328.31	2.253	
12,700.0	6,874.5	12,676.4	6,861.7	167.0	167.0	-89.01	-264.9	-5,831.3	739.7	405.8	333.90	2.215	
12,800.0	6,874.6	12,776.4	6,861.5	169.8	169.8	-88.99	-264.9	-5,931.3	739.7	400.2	339.49	2.179	
12,900.0	6,874.6	12,876.4	6,861.3	172.6	172.6	-88.97	-264.9	-6,031.3	739.7	394.6	345.08	2.143	
13,000.0	6,874.7	12,976.4	6,861.1	175.4	175.4	-88.95	-264.9	-6,131.3	739.7	389.0	350.68	2.109	
13,100.0	6,874.7	13,076.4	6,860.9	178.2	178.2	-88.93	-264.9	-6,231.3	739.7	383.4	356.27	2.076	
13,200.0	6,874.7	13,176.4	6,860.7	181.0	181.0	-88.91	-264.9	-6,331.3	739.7	377.8	361.86	2.044	
13,300.0	6,874.8	13,276.4	6,860.5	183.8	183.8	-88.89	-264.9	-6,431.3	739.7	372.2	367.46	2.013	
13,400.0	6,874.8	13,376.4	6,860.3	186.6	186.6	-88.88	-264.9	-6,531.3	739.7	366.6	373.05	1.983	
13,500.0	6,874.8	13,476.4	6,860.1	189.4	189.4	-88.86	-264.9	-6,631.3	739.7	361.1	378.64	1.954	
13,600.0	6,874.9	13,576.4	6,859.9	192.2	192.2	-88.84	-264.9	-6,731.3	739.7	355.5	384.24	1.925	
13,700.0	6,874.9	13,676.4	6,859.6	195.0	195.0	-88.82	-264.9	-6,831.3	739.7	349.9	389.84	1.897	
13,800.0	6,874.9	13,776.4	6,859.4	197.8	197.8	-88.80	-264.9	-6,931.3	739.7	344.3	395.43	1.871	
13,900.0	6,875.0	13,876.4	6,859.2	200.6	200.6	-88.78	-264.9	-7,031.3	739.7	338.7	401.03	1.845	
13,995.6	6,875.0	13,972.0	6,859.0	203.3	203.3	-88.76	-264.9	-7,126.9	739.7	333.3	406.38	1.820	SF

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well LDS 1V-434
Project:	SEC.1-T5N-R65W	**TVD Reference:**	WELL @ 4628.0ft (Original Well Elev)
Reference Site:	LDS 5N65W1W Pad Sec.1-T5N-R65W	**MD Reference:**	WELL @ 4628.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	LDS 1V-434	**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 (9-4-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Noffsinger Pad Sec.2-T5N-R65W - Noffsinger 2C (Vert.) - Wellbore #1 - Design #1

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
12,200.0	6,874.4	6,906.4	6,906.4	153.1	15.4	89.97	1,068.2	-6,098.4	969.9	801.5	168.42	5.759	
12,300.0	6,874.4	6,906.4	6,906.4	155.9	15.4	89.98	1,068.2	-6,098.4	892.9	721.7	171.21	5.215	
12,400.0	6,874.4	6,906.4	6,906.4	158.7	15.4	89.98	1,068.2	-6,098.4	820.9	646.9	174.01	4.718	
12,500.0	6,874.5	6,906.5	6,906.5	161.5	15.4	89.98	1,068.2	-6,098.4	755.3	578.5	176.80	4.272	
12,600.0	6,874.5	6,906.5	6,906.5	164.2	15.4	89.99	1,068.2	-6,098.4	697.9	518.3	179.60	3.886	
12,700.0	6,874.5	6,906.5	6,906.5	167.0	15.4	89.99	1,068.2	-6,098.4	650.9	468.5	182.39	3.569	
12,800.0	6,874.6	6,906.6	6,906.6	169.8	15.4	89.99	1,068.2	-6,098.4	616.6	431.4	185.19	3.330	
12,900.0	6,874.6	6,906.6	6,906.6	172.6	15.4	90.00	1,068.2	-6,098.4	597.3	409.3	187.98	3.178	
12,967.1	6,874.6	6,906.6	6,906.6	174.5	15.4	90.00	1,068.2	-6,098.4	593.5	403.7	189.86	3.126	CC
13,000.0	6,874.7	6,906.7	6,906.7	175.4	15.4	90.00	1,068.2	-6,098.4	594.5	403.7	190.78	3.116	ES, SF
13,100.0	6,874.7	6,906.7	6,906.7	178.2	15.4	90.00	1,068.2	-6,098.4	608.2	414.7	193.58	3.142	
13,200.0	6,874.7	6,906.7	6,906.7	181.0	15.4	90.01	1,068.2	-6,098.4	637.6	441.2	196.38	3.247	
13,300.0	6,874.8	6,906.8	6,906.8	183.8	15.4	90.01	1,068.2	-6,098.4	680.5	481.4	199.18	3.417	
13,400.0	6,874.8	6,906.8	6,906.8	186.6	15.4	90.01	1,068.2	-6,098.4	734.7	532.7	201.97	3.637	
13,500.0	6,874.8	6,906.8	6,906.8	189.4	15.4	90.02	1,068.2	-6,098.4	797.7	592.9	204.77	3.895	
13,600.0	6,874.9	6,906.9	6,906.9	192.2	15.4	90.02	1,068.2	-6,098.4	867.7	660.1	207.57	4.180	
13,700.0	6,874.9	6,906.9	6,906.9	195.0	15.4	90.02	1,068.2	-6,098.4	943.1	732.7	210.37	4.483	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well LDS 1V-434
Project:	SEC.1-T5N-R65W	**TVD Reference:**	WELL @ 4628.0ft (Original Well Elev)
Reference Site:	LDS 5N65W1W Pad Sec.1-T5N-R65W	**MD Reference:**	WELL @ 4628.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	LDS 1V-434	**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 (9-4-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Noffsinger Pad Sec.2-T5N-R65W - Noffsinger 2SD - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

Survey Program: 761-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
12,600.0	6,874.5	7,116.4	6,877.1	164.2	28.3	-87.87	-320.6	-6,291.7	973.3	792.2	181.10	5.374	
12,700.0	6,874.5	7,120.0	6,880.7	167.0	28.3	-88.13	-320.6	-6,291.9	919.4	735.4	183.92	4.999	
12,800.0	6,874.6	7,123.6	6,884.3	169.8	28.3	-88.39	-320.6	-6,292.0	873.6	686.8	186.73	4.678	
12,900.0	6,874.6	7,127.2	6,887.9	172.6	28.3	-88.65	-320.7	-6,292.2	837.2	647.7	189.55	4.417	
13,000.0	6,874.7	7,130.9	6,891.6	175.4	28.3	-88.91	-320.7	-6,292.3	811.6	619.3	192.36	4.219	
13,100.0	6,874.7	7,134.5	6,895.2	178.2	28.3	-89.17	-320.8	-6,292.4	797.8	602.7	195.17	4.088	
13,161.2	6,874.7	7,136.7	6,897.4	179.9	28.3	-89.33	-320.8	-6,292.5	795.5	598.6	196.88	4.040	CC
13,200.0	6,874.7	7,138.2	6,898.9	181.0	28.3	-89.43	-320.8	-6,292.6	796.4	598.5	197.97	4.023	ES
13,300.0	6,874.8	7,141.8	6,902.5	183.8	28.3	-89.70	-320.8	-6,292.7	807.5	606.7	200.77	4.022	SF
13,400.0	6,874.8	7,145.5	6,906.2	186.6	28.3	-89.96	-320.9	-6,292.9	830.5	626.9	203.57	4.080	
13,500.0	6,874.8	7,149.2	6,909.9	189.4	28.3	-90.23	-320.9	-6,293.0	864.5	658.2	206.36	4.189	
13,600.0	6,874.9	7,152.9	6,913.6	192.2	28.4	-90.50	-321.0	-6,293.2	908.3	699.2	209.15	4.343	
13,700.0	6,874.9	7,156.7	6,917.3	195.0	28.4	-90.76	-321.0	-6,293.3	960.5	748.6	211.94	4.532	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well LDS 1V-434
Project:	SEC.1-T5N-R65W	**TVD Reference:**	WELL @ 4628.0ft (Original Well Elev)
Reference Site:	LDS 5N65W1W Pad Sec.1-T5N-R65W	**MD Reference:**	WELL @ 4628.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	LDS 1V-434	**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 (9-4-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Noffsinger Pad Sec.2-T5N-R65W - Noffsinger 2VD - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

Survey Program: 700-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
11,000.0	6,874.0	7,056.6	6,922.7	119.6	23.5	92.74	818.4	-5,046.2	977.4	835.1	142.39	6.864	
11,100.0	6,874.0	7,054.9	6,921.0	122.4	23.5	92.45	818.4	-5,046.2	884.5	739.3	145.21	6.092	
11,200.0	6,874.0	7,053.1	6,919.3	125.2	23.4	92.17	818.4	-5,046.2	793.4	645.4	148.02	5.360	
11,300.0	6,874.1	7,051.4	6,917.6	128.0	23.4	91.88	818.4	-5,046.3	704.6	553.8	150.83	4.671	
11,400.0	6,874.1	7,049.7	6,915.8	130.8	23.4	91.59	818.4	-5,046.3	619.2	465.6	153.64	4.030	
11,500.0	6,874.1	7,047.9	6,914.1	133.5	23.4	91.30	818.4	-5,046.3	538.9	382.5	156.45	3.445	
11,600.0	6,874.2	7,046.2	6,912.3	136.3	23.4	91.01	818.4	-5,046.3	466.3	307.1	159.25	2.928	
11,700.0	6,874.2	7,044.4	6,910.6	139.1	23.4	90.72	818.4	-5,046.4	405.5	243.4	162.06	2.502	
11,800.0	6,874.2	7,042.7	6,908.8	141.9	23.4	90.42	818.4	-5,046.4	362.5	197.6	164.86	2.199	
11,900.0	6,874.3	7,040.9	6,907.0	144.7	23.4	90.13	818.4	-5,046.4	344.1	176.4	167.65	2.052	
11,915.2	6,874.3	7,040.6	6,906.8	145.1	23.4	90.08	818.4	-5,046.5	343.7	175.7	168.08	2.045	CC, ES, SF
12,000.0	6,874.3	7,039.1	6,905.3	147.5	23.4	89.83	818.4	-5,046.5	354.0	183.6	170.45	2.077	
12,100.0	6,874.3	7,037.3	6,903.5	150.3	23.4	89.53	818.4	-5,046.5	390.3	217.0	173.24	2.253	
12,200.0	6,874.4	7,035.5	6,901.7	153.1	23.4	89.23	818.4	-5,046.5	446.4	270.4	176.02	2.536	
12,300.0	6,874.4	7,033.7	6,899.8	155.9	23.4	88.93	818.4	-5,046.6	516.0	337.2	178.81	2.886	
12,400.0	6,874.4	7,031.9	6,898.0	158.7	23.4	88.62	818.4	-5,046.6	594.3	412.7	181.58	3.273	
12,500.0	6,874.5	7,030.0	6,896.2	161.5	23.4	88.32	818.4	-5,046.6	678.3	493.9	184.36	3.679	
12,600.0	6,874.5	7,028.2	6,894.3	164.2	23.4	88.01	818.4	-5,046.7	766.2	579.0	187.12	4.094	
12,700.0	6,874.5	7,026.3	6,892.5	167.0	23.4	87.70	818.4	-5,046.7	856.7	666.8	189.89	4.512	
12,800.0	6,874.6	7,024.5	6,890.6	169.8	23.4	87.39	818.4	-5,046.7	949.1	756.5	192.64	4.927	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well LDS 1V-434
Project:	SEC.1-T5N-R65W	**TVD Reference:**	WELL @ 4628.0ft (Original Well Elev)
Reference Site:	LDS 5N65W1W Pad Sec.1-T5N-R65W	**MD Reference:**	WELL @ 4628.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	LDS 1V-434	**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 (9-4-14)	**Offset TVD Reference:**	Offset Datum

Offset Design Noffsinger Pad Sec.2-T5N-R65W - Noffsinger 32-2D - Wellbore #1 - Wellbore #1

Offset Site Error: 0.0 ft

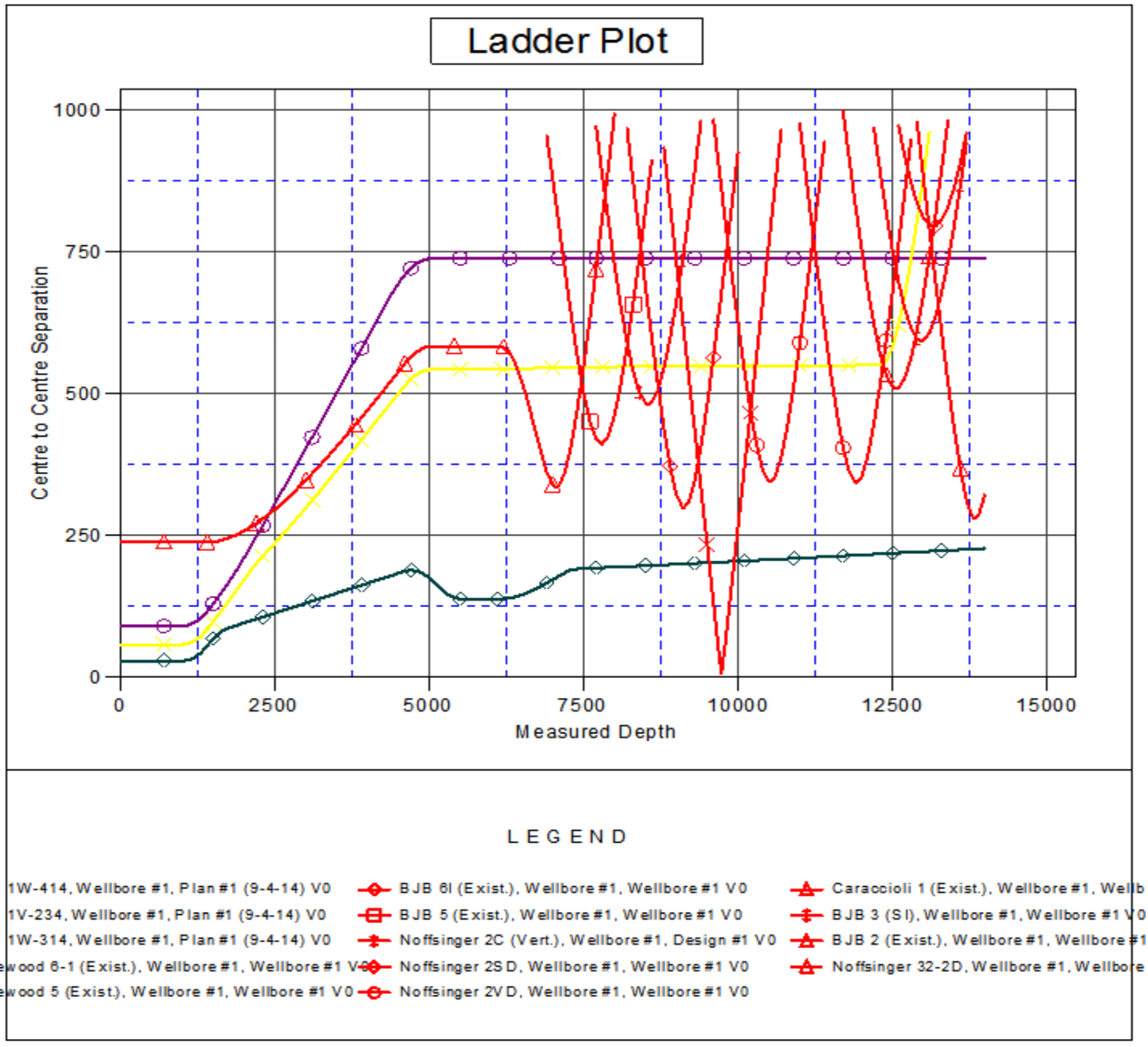
Survey Program: 668-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
12,900.0	6,874.6	7,043.3	6,878.1	172.6	25.9	-84.11	194.8	-6,968.8	978.8	785.8	193.03	5.071	
13,000.0	6,874.7	7,045.3	6,880.1	175.4	25.9	-84.52	194.7	-6,968.9	883.5	687.6	195.95	4.509	
13,100.0	6,874.7	7,047.4	6,882.1	178.2	25.9	-84.94	194.7	-6,968.9	789.4	590.5	198.85	3.970	
13,200.0	6,874.7	7,049.4	6,884.2	181.0	25.9	-85.35	194.6	-6,969.0	696.8	495.1	201.76	3.454	
13,300.0	6,874.8	7,051.4	6,886.2	183.8	25.9	-85.76	194.5	-6,969.0	606.7	402.0	204.65	2.964	
13,400.0	6,874.8	7,053.4	6,888.2	186.6	25.9	-86.17	194.4	-6,969.0	520.1	312.5	207.54	2.506	
13,500.0	6,874.8	7,055.4	6,890.2	189.4	25.9	-86.57	194.4	-6,969.1	439.2	228.8	210.43	2.087	
13,600.0	6,874.9	7,057.4	6,892.1	192.2	25.9	-86.98	194.3	-6,969.1	367.9	154.6	213.30	1.725	
13,700.0	6,874.9	7,059.3	6,894.1	195.0	25.9	-87.38	194.2	-6,969.2	312.7	96.6	216.17	1.447	Level 3
13,800.0	6,874.9	7,061.3	6,896.1	197.8	25.9	-87.78	194.2	-6,969.2	283.2	64.2	219.03	1.293	Level 3
13,837.9	6,874.9	7,062.1	6,896.8	198.9	25.9	-87.93	194.1	-6,969.2	280.7	60.6	220.11	1.275	Level 3, CC, ES, SF
13,900.0	6,875.0	7,063.3	6,898.0	200.6	25.9	-88.18	194.1	-6,969.2	287.5	65.6	221.88	1.296	Level 3
13,995.6	6,875.0	7,065.1	6,899.9	203.3	26.0	-88.56	194.0	-6,969.3	322.0	97.4	224.60	1.433	Level 3

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well LDS 1V-434
Project:	SEC.1-T5N-R65W	**TVD Reference:**	WELL @ 4628.0ft (Original Well Elev)
Reference Site:	LDS 5N65W1W Pad Sec.1-T5N-R65W	**MD Reference:**	WELL @ 4628.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	LDS 1V-434	**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 (9-4-14)	**Offset TVD Reference:**	Offset Datum

Reference Depths are relative to WELL @ 4628.0ft (Original Well Elev)
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000 °
Coordinates are relative to: LDS 1V-434
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.58°



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	**Local Co-ordinate Reference:**	Well LDS 1V-434
Project:	SEC.1-T5N-R65W	**TVD Reference:**	WELL @ 4628.0ft (Original Well Elev)
Reference Site:	LDS 5N65W1W Pad Sec.1-T5N-R65W	**MD Reference:**	WELL @ 4628.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	LDS 1V-434	**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 (9-4-14)	**Offset TVD Reference:**	Offset Datum

Reference Depths are relative to WELL @ 4628.0ft (Original Well Elev) Coordinates are relative to: LDS 1V-434
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: 0.58°