

Well Name: **Nelson 23-32D**

Surface Location: Nelson 32BD Pad Sec.32-T7N-R66W
North American Datum 1983 US State Plane 1983 Colorado Northern Zone

Ground Elevation: 4860.0

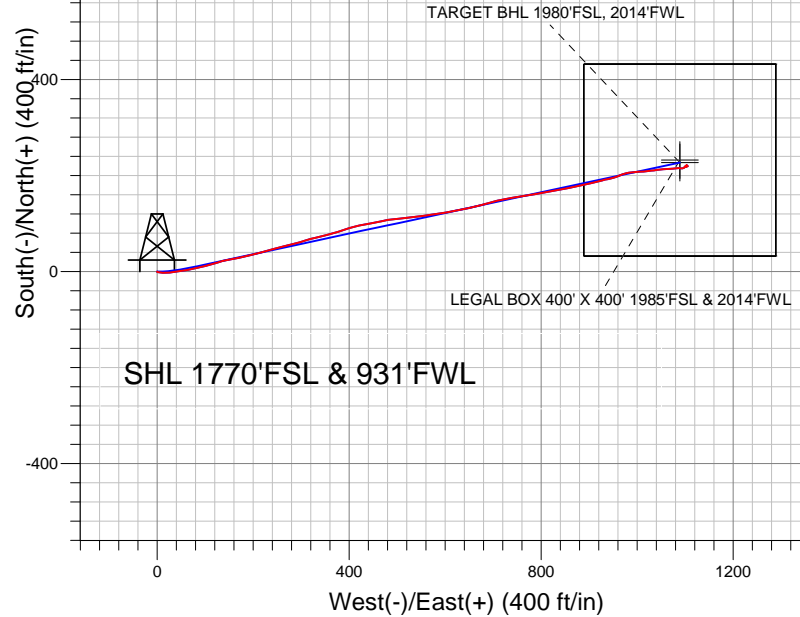
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.0	0.0	1436131.25	3191914.27	40° 31' 42.708 N	104° 48' 34.596 W

Original Well Elev WELL @ 4873.0ft (Original Well Elev)

Slot

PETROLEUM DEVELOPMENT CORP Weld County CO

Projected BHL 219°N & 1105°E of
surface 1972'FSL & 2031'FWL



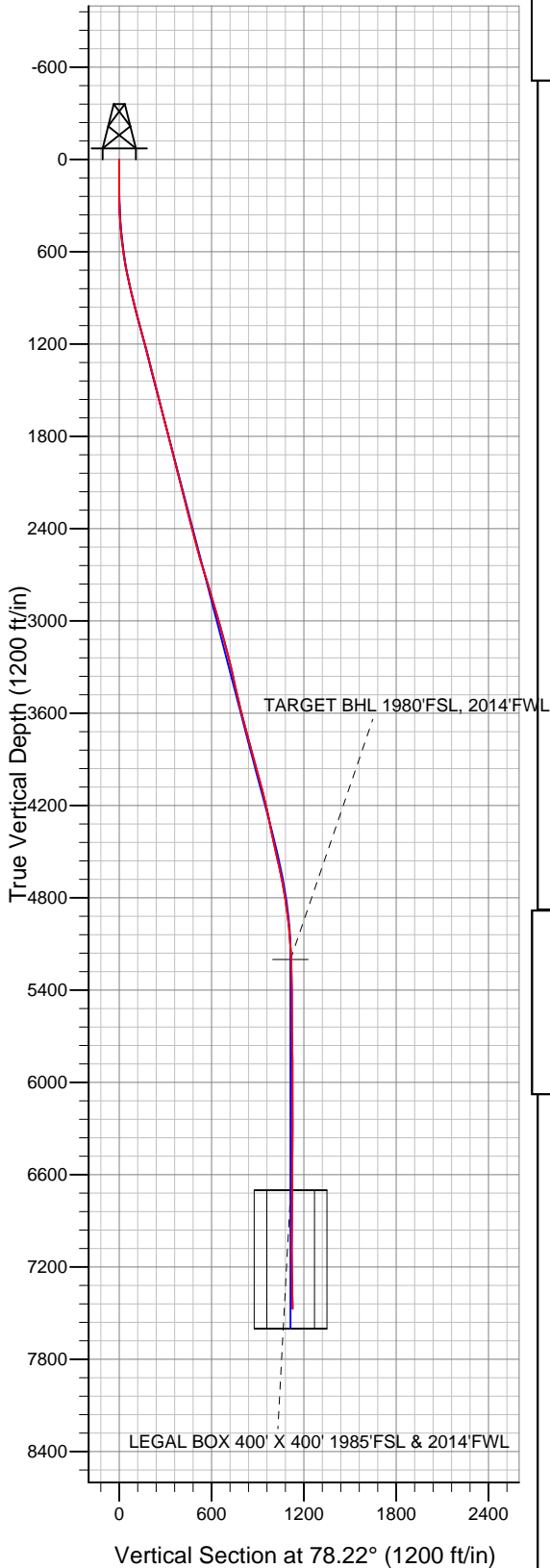
SHL 1770'FSL & 931'FWL

LEGEND

- ▲ Nelson 23-32D, Wellbore #1, Plan #1 (1-04-11) V0
- Wellbore #1
- Survey #1

Final Survey Plot

Projected Final Survey -
7606'MD & 7470'TVD @ 1127'VS
1.6 deg Inc 74.1 deg AZ



Project: SEC.32-T7N-R66W
Site: Nelson 32BD Pad Sec.32-T7N-R66W
Well: Nelson 23-32D
Plan: Wellbore #1



Directional

PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.32-T7N-R66W

Nelson 32BD Pad Sec.32-T7N-R66W

Nelson 23-32D

Wellbore #1

Survey: Survey #1

Standard Survey Report

21 April, 2011

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Nelson 23-32D
Project:	SEC.32-T7N-R66W	TVD Reference:	WELL @ 4873.0ft (Original Well Elev)
Site:	Nelson 32BD Pad Sec.32-T7N-R66W	MD Reference:	WELL @ 4873.0ft (Original Well Elev)
Well:	Nelson 23-32D	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Landmark

Project	SEC.32-T7N-R66W, Weld County, Colorado		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		Using Well Reference Point
Map Zone:	Colorado Northern Zone		Using geodetic scale factor

Site	Nelson 32BD Pad Sec.32-T7N-R66W		
Site Position:		Northing:	1,436,065.66 ft
From:	Lat/Long	Easting:	3,191,912.00 ft
Position Uncertainty:	0.0 ft	Slot Radius:	"
		Latitude:	40° 31' 42.060 N
		Longitude:	104° 48' 34.632 W
		Grid Convergence:	0.45 °

Well	Nelson 23-32D		
Well Position	+N/-S	0.0 ft	Northing: 1,436,131.25 ft
	+E/-W	0.0 ft	Easting: 3,191,914.27 ft
Position Uncertainty	0.0 ft	Wellhead Elevation:	ft
		Latitude:	40° 31' 42.708 N
		Longitude:	104° 48' 34.596 W
		Ground Level:	4,860.0 ft

Wellbore	Wellbore #1		
Magnetics	Model Name	Sample Date	Declination (°)
	IGRF2010	1/11/2011	8.96
			Dip Angle (°)
			67.16
			Field Strength (nT)
			53,238

Design	Wellbore #1		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
		Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)
	0.0	0.0	0.0
			Direction (°)
			78.22

Survey Program	Date 4/21/2011		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name
150.0	7,606.0	Survey #1 (Wellbore #1)	MWD
			Description
			MWD - Standard

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
150.0	0.50	233.00	150.0	-0.4	-0.5	-0.6	0.33	0.33	0.00
240.0	0.60	103.20	240.0	-0.7	-0.4	-0.5	1.11	0.11	-144.22
331.0	2.60	101.90	331.0	-1.3	2.1	1.8	2.20	2.20	-1.43
422.0	4.50	98.90	421.8	-2.3	7.7	7.0	2.10	2.09	-3.30
514.0	6.30	90.10	513.4	-2.8	16.3	15.3	2.15	1.96	-9.57
607.0	8.20	82.20	605.6	-1.9	27.9	27.0	2.30	2.04	-8.49
701.0	10.40	81.90	698.4	0.2	43.0	42.1	2.34	2.34	-0.32
795.0	12.10	80.20	790.6	3.1	61.1	60.4	1.84	1.81	-1.81
891.0	14.20	77.60	884.0	7.3	82.5	82.3	2.27	2.19	-2.71
963.0	15.10	75.00	953.7	11.6	100.2	100.5	1.55	1.25	-3.61
1,058.0	15.20	73.10	1,045.4	18.4	124.1	125.2	0.53	0.11	-2.00

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Nelson 23-32D
Project:	SEC.32-T7N-R66W	TVD Reference:	WELL @ 4873.0ft (Original Well Elev)
Site:	Nelson 32BD Pad Sec.32-T7N-R66W	MD Reference:	WELL @ 4873.0ft (Original Well Elev)
Well:	Nelson 23-32D	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Landmark

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)
1,153.0	14.10	79.20	1,137.3	24.2	147.4	149.2	1.99	-1.16	6.42
1,248.0	14.30	79.00	1,229.4	28.6	170.2	172.5	0.22	0.21	-0.21
1,343.0	14.90	76.10	1,321.4	33.8	193.6	196.4	1.00	0.63	-3.05
1,438.0	14.50	74.80	1,413.2	39.9	216.9	220.5	0.55	-0.42	-1.37
1,533.0	14.60	73.70	1,505.2	46.3	239.9	244.3	0.31	0.11	-1.16
1,628.0	14.20	76.60	1,597.2	52.4	262.7	267.9	0.87	-0.42	3.05
1,723.0	14.50	76.00	1,689.2	58.0	285.6	291.4	0.35	0.32	-0.63
1,818.0	14.20	71.80	1,781.3	64.5	308.2	314.9	1.14	-0.32	-4.42
1,913.0	14.60	77.20	1,873.3	70.8	331.0	338.4	1.47	0.42	5.68
2,008.0	14.20	75.30	1,965.3	76.4	353.9	362.1	0.65	-0.42	-2.00
2,102.0	14.60	72.80	2,056.4	82.8	376.4	385.4	0.79	0.43	-2.66
2,197.0	13.50	72.00	2,148.5	89.8	398.4	408.3	1.18	-1.16	-0.84
2,292.0	15.10	78.10	2,240.6	95.8	421.0	431.7	2.31	1.68	6.42
2,387.0	14.40	79.90	2,332.5	100.4	444.8	455.9	0.88	-0.74	1.89
2,482.0	14.80	77.20	2,424.4	105.2	468.2	479.8	0.83	0.42	-2.84
2,577.0	14.80	83.80	2,516.2	109.2	492.1	504.0	1.77	0.00	6.95
2,672.0	16.00	83.60	2,607.8	111.9	517.2	529.2	1.26	1.26	-0.21
2,767.0	17.00	84.30	2,698.9	114.8	544.0	556.0	1.07	1.05	0.74
2,862.0	17.30	82.00	2,789.7	118.1	571.8	583.9	0.78	0.32	-2.42
2,956.0	16.80	80.50	2,879.6	122.3	599.1	611.4	0.71	-0.53	-1.60
3,051.0	15.30	76.40	2,970.9	127.5	624.8	637.7	1.98	-1.58	-4.32
3,146.0	15.30	79.20	3,062.5	132.8	649.3	662.7	0.78	0.00	2.95
3,241.0	16.00	75.70	3,154.0	138.4	674.3	688.3	1.24	0.74	-3.68
3,335.0	13.70	74.60	3,244.8	144.5	697.6	712.4	2.47	-2.45	-1.17
3,430.0	12.70	78.90	3,337.3	149.5	718.7	734.1	1.47	-1.05	4.53
3,525.0	12.80	79.80	3,430.0	153.4	739.3	755.0	0.23	0.11	0.95
3,620.0	13.00	79.90	3,522.6	157.2	760.2	776.2	0.21	0.21	0.11
3,715.0	14.60	81.50	3,614.8	160.8	782.5	798.9	1.73	1.68	1.68
3,810.0	14.40	80.90	3,706.8	164.4	806.0	822.6	0.26	-0.21	-0.63
3,905.0	15.10	79.30	3,798.7	168.6	829.9	846.8	0.85	0.74	-1.68
4,000.0	15.30	78.40	3,890.4	173.4	854.3	871.7	0.33	0.21	-0.95
4,095.0	15.50	77.50	3,981.9	178.7	879.0	896.9	0.33	0.21	-0.95
4,190.0	15.20	77.10	4,073.6	184.2	903.5	922.1	0.33	-0.32	-0.42
4,284.0	13.50	76.20	4,164.6	189.6	926.2	945.4	1.82	-1.81	-0.96
4,379.0	11.40	78.00	4,257.4	194.2	946.1	965.8	2.25	-2.21	1.89
4,474.0	11.60	64.90	4,350.5	200.2	964.0	984.5	2.75	0.21	-13.79
4,569.0	12.50	81.30	4,443.4	205.8	982.8	1,004.1	3.71	0.95	17.26
4,664.0	12.50	87.90	4,536.2	207.7	1,003.2	1,024.5	1.50	0.00	6.95
4,759.0	13.30	82.70	4,628.8	209.5	1,024.3	1,045.5	1.48	0.84	-5.47
4,853.0	10.30	83.90	4,720.8	211.8	1,043.4	1,064.7	3.20	-3.19	1.28
4,948.0	8.70	84.90	4,814.5	213.3	1,059.0	1,080.2	1.69	-1.68	1.05
5,043.0	7.30	86.60	4,908.6	214.3	1,072.2	1,093.4	1.49	-1.47	1.79
5,138.0	5.30	84.60	5,003.0	215.1	1,082.6	1,103.7	2.12	-2.11	-2.11
5,233.0	4.20	95.10	5,097.6	215.2	1,090.4	1,111.4	1.47	-1.16	11.05
5,328.0	2.50	75.00	5,192.5	215.4	1,095.9	1,116.8	2.15	-1.79	-21.16
5,335.5	2.34	72.89	5,200.0	215.5	1,096.2	1,117.1	2.39	-2.08	-28.03
TARGET BHL 1980'FSL, 2014'FWL									
5,423.0	1.20	9.90	5,287.4	216.9	1,098.1	1,119.2	2.39	-1.31	-72.01
5,517.0	0.60	67.20	5,381.4	218.1	1,098.7	1,120.1	1.08	-0.64	60.96
5,622.0	0.70	68.10	5,486.4	218.5	1,099.8	1,121.2	0.10	0.10	0.86
5,707.0	0.80	55.20	5,571.4	219.1	1,100.8	1,122.3	0.23	0.12	-15.18
5,802.0	0.80	43.80	5,666.4	219.9	1,101.8	1,123.4	0.17	0.00	-12.00
5,897.0	0.40	56.60	5,761.4	220.6	1,102.5	1,124.3	0.44	-0.42	13.47

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Site:	Nelson 32BD Pad Sec.32-T7N-R66W	MD Reference:	WELL @ 4873.0ft (Original Well Elev)
Well:	Nelson 23-32D	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Landmark

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)
5,992.0	0.40	72.20	5,856.4	220.9	1,103.1	1,124.9	0.11	0.00	16.42
6,087.0	0.20	72.40	5,951.4	221.0	1,103.6	1,125.4	0.21	-0.21	0.21
6,182.0	0.10	90.50	6,046.4	221.1	1,103.8	1,125.7	0.12	-0.11	19.05
6,277.0	0.00	96.00	6,141.4	221.1	1,103.9	1,125.8	0.11	-0.11	0.00
6,372.0	0.10	227.50	6,236.4	221.0	1,103.8	1,125.7	0.11	0.11	0.00
6,467.0	0.30	346.40	6,331.4	221.2	1,103.7	1,125.6	0.38	0.21	125.16
6,562.0	0.20	265.00	6,426.4	221.4	1,103.5	1,125.4	0.35	-0.11	-85.68
6,657.0	0.40	264.50	6,521.4	221.4	1,103.0	1,124.9	0.21	0.21	-0.53
6,752.0	0.40	235.60	6,616.4	221.2	1,102.4	1,124.3	0.21	0.00	-30.42
6,835.6	0.58	225.16	6,700.0	220.7	1,101.8	1,123.7	0.24	0.21	-12.49
LEGAL BOX 400' X 400' 1985'FSL & 2014'FWL									
6,846.0	0.60	224.30	6,710.4	220.6	1,101.8	1,123.6	0.24	0.22	-8.28
6,941.0	0.60	215.00	6,805.4	219.9	1,101.1	1,122.8	0.10	0.00	-9.79
7,036.0	0.60	216.80	6,900.4	219.0	1,100.5	1,122.1	0.02	0.00	1.89
7,131.0	0.50	213.90	6,995.4	218.3	1,100.0	1,121.4	0.11	-0.11	-3.05
7,226.0	0.30	168.00	7,090.4	217.7	1,099.8	1,121.1	0.38	-0.21	-48.32
7,321.0	0.40	71.90	7,185.4	217.6	1,100.2	1,121.5	0.55	0.11	-101.16
7,416.0	1.00	66.30	7,280.4	218.0	1,101.3	1,122.6	0.63	0.63	-5.89
7,511.0	1.30	71.60	7,375.3	218.7	1,103.1	1,124.5	0.33	0.32	5.58
7,606.0	1.60	74.10	7,470.3	219.4	1,105.4	1,126.9	0.32	0.32	2.63

Checked By: _____	Approved By: _____	Date: _____
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