

PETROLEUM DEVELOPMENT CORP Weld County CO

Well Name: Green 12-24H

Surface Location: Green 12-24H Pad Sec.24-T7N-R65W  
North American Datum 1983 , US State Plane 1983Colorado Northern Zone  
Ground Elevation: 4900.0

+N/-S

+E/-W

Northing

Easting

Latitude

Longitude

Slot

0.0

0.0

1448825.00

3244640.79

40.562090

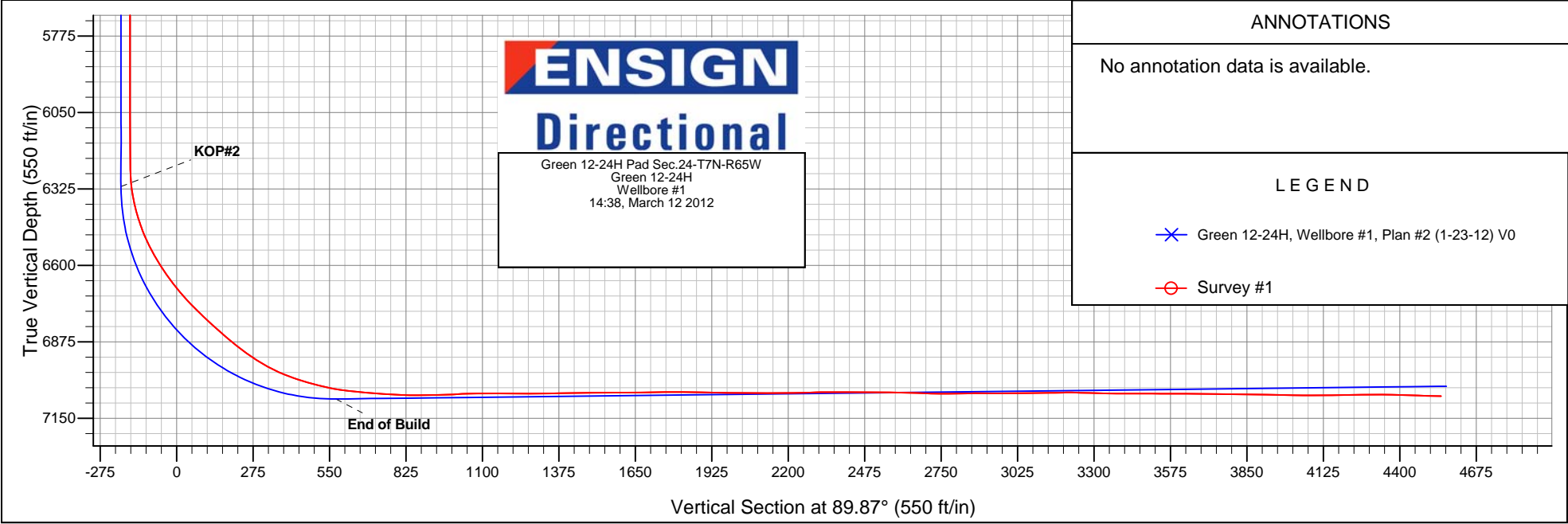
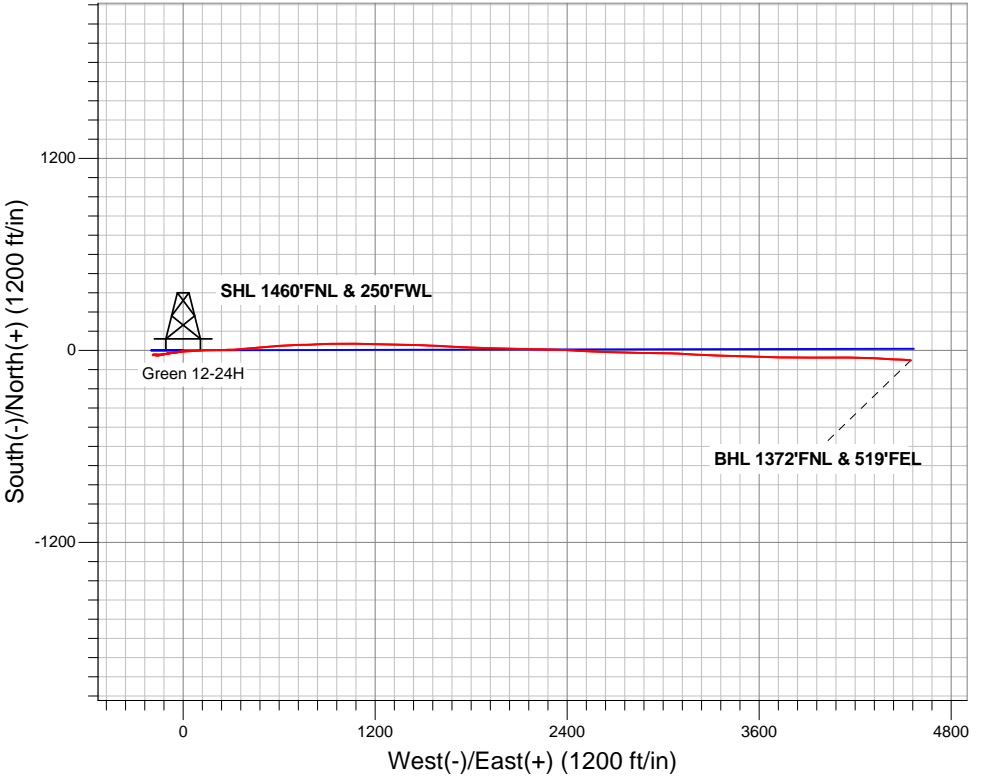
-104.619490

RKB Ensign 32 - 15' WELL @ 4915.0ft (RKB Ensign 32 - 15')

FINAL SURVEY

Projected Bottom Hole Location  
11407'MD 7070'TVD 62'S & 4548'E of SHL

88.60 degree Incl @ 93.40 degree AZM





# **PETROLEUM DEVELOPMENT CORP Weld County CO**

**SEC.24-T7N-R65W**

**Green 12-24H Pad Sec.24-T7N-R65W**

**Green 12-24H**

**Wellbore #1**

**Survey: Survey #1**

## **Standard Survey Report**

**12 March, 2012**

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Green 12-24H
<b>Project:</b>	SEC.24-T7N-R65W	<b>TVD Reference:</b>	WELL @ 4915.0ft (RKB Ensign 32 - 15')
<b>Site:</b>	Green 12-24H Pad Sec.24-T7N-R65W	<b>MD Reference:</b>	WELL @ 4915.0ft (RKB Ensign 32 - 15')
<b>Well:</b>	Green 12-24H	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	Landmark

<b>Project</b>	SEC.24-T7N-R65W, Weld County, Colorado		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		Using Well Reference Point
<b>Map Zone:</b>	Colorado Northern Zone		Using geodetic scale factor

Site	Green 12-24H Pad Sec.24-T7N-R65W				
Site Position:		Northing:	1,448,825.01 ft	Latitude:	40.562090
From:	Lat/Long	Easting:	3,244,640.79 ft	Longitude:	-104.619490
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.57 °

Well	Green 12-24H					
Well Position	+N-S	0.0 ft	Northing:	1,448,825.00 ft	Latitude:	40.562090
	+E-W	0.0 ft	Easting:	3,244,640.79 ft	Longitude:	-104.619490
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,900.0 ft

<b>Wellbore</b>	Wellbore #1				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	1/23/2012	8.72	67.18	53,167

<b>Design</b>	Wellbore #1				
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>	
	0.0	0.0	0.0	89.87	

<b>Survey Program</b>	<b>Date</b> 3/6/2012				
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
945.0	11,407.0	Survey #1 (Wellbore #1)	MWD	MWD - Standard	

<b>Survey</b>										
<b>Measured Depth (ft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Vertical Section (ft)</b>	<b>Dogleg Rate (°/100ft)</b>	<b>Build Rate (°/100ft)</b>	<b>Turn Rate (°/100ft)</b>	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00	
0.8	0.00	237.50	0.8	0.0	0.0	0.0	0.00	0.00	0.00	
<b>HARDLINE BHL 460°FEL</b>										
1.0	0.00	237.50	1.0	0.0	0.0	0.0	0.00	0.00	0.00	
<b>HARDLINE SHL 460°FWL</b>										
4.7	0.00	237.50	4.7	0.0	0.0	0.0	0.13	0.13	0.00	
<b>SECTION LINE 250'W OF SHL</b>										
945.0	1.00	237.50	945.0	-4.4	-7.0	-7.0	0.11	0.11	0.00	
1,037.0	2.00	248.60	1,036.9	-5.4	-9.1	-9.1	1.13	1.09	12.07	
1,129.0	3.30	252.40	1,128.8	-6.8	-13.1	-13.2	1.43	1.41	4.13	
1,221.0	5.00	258.60	1,220.6	-8.4	-19.6	-19.6	1.91	1.85	6.74	
1,314.0	5.50	260.40	1,313.2	-10.0	-28.0	-28.0	0.57	0.54	1.94	

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Green 12-24H
<b>Project:</b>	SEC.24-T7N-R65W	<b>TVD Reference:</b>	WELL @ 4915.0ft (RKB Ensign 32 - 15')
<b>Site:</b>	Green 12-24H Pad Sec.24-T7N-R65W	<b>MD Reference:</b>	WELL @ 4915.0ft (RKB Ensign 32 - 15')
<b>Well:</b>	Green 12-24H	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	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)
1,408.0	5.80	260.70	1,406.7	-11.5	-37.1	-37.1	0.32	0.32	0.32
1,501.0	6.40	261.40	1,499.2	-13.0	-46.9	-46.9	0.65	0.65	0.75
1,594.0	6.90	262.30	1,591.6	-14.5	-57.5	-57.6	0.55	0.54	0.97
1,687.0	7.30	262.00	1,683.9	-16.1	-68.9	-68.9	0.43	0.43	-0.32
1,780.0	7.70	261.80	1,776.1	-17.8	-80.9	-81.0	0.43	0.43	-0.22
1,873.0	7.90	260.90	1,868.2	-19.7	-93.4	-93.4	0.25	0.22	-0.97
1,967.0	8.00	261.10	1,961.3	-21.8	-106.2	-106.3	0.11	0.11	0.21
2,060.0	7.90	261.70	2,053.4	-23.7	-119.0	-119.0	0.14	-0.11	0.65
2,153.0	7.50	263.30	2,145.6	-25.3	-131.3	-131.4	0.49	-0.43	1.72
2,246.0	6.30	265.40	2,237.9	-26.4	-142.4	-142.5	1.32	-1.29	2.26
2,339.0	5.50	275.30	2,330.4	-26.4	-152.0	-152.0	1.39	-0.86	10.65
2,432.0	5.20	273.10	2,423.0	-25.8	-160.6	-160.7	0.39	-0.32	-2.37
2,526.0	4.90	270.40	2,516.6	-25.5	-168.9	-168.9	0.41	-0.32	-2.87
2,619.0	3.90	256.40	2,609.4	-26.3	-175.9	-176.0	1.57	-1.08	-15.05
2,712.0	2.40	264.70	2,702.2	-27.2	-180.9	-181.0	1.68	-1.61	8.92
2,805.0	2.40	265.40	2,795.1	-27.5	-184.8	-184.9	0.03	0.00	0.75
2,899.0	0.30	286.60	2,889.1	-27.6	-187.0	-187.1	2.26	-2.23	22.55
2,993.0	0.30	211.30	2,983.1	-27.7	-187.4	-187.4	0.39	0.00	-80.11
3,085.0	0.30	226.90	3,075.1	-28.1	-187.7	-187.7	0.09	0.00	16.96
3,179.0	0.00	201.50	3,169.1	-28.3	-187.8	-187.9	0.32	-0.32	0.00
3,272.0	0.40	196.80	3,262.1	-28.6	-187.9	-188.0	0.43	0.43	0.00
3,364.0	0.40	227.90	3,354.1	-29.1	-188.3	-188.3	0.23	0.00	33.80
3,458.0	0.40	220.50	3,448.1	-29.6	-188.7	-188.8	0.05	0.00	-7.87
3,552.0	0.40	269.10	3,542.1	-29.8	-189.3	-189.3	0.35	0.00	51.70
3,645.0	0.10	211.70	3,635.1	-29.9	-189.6	-189.7	0.38	-0.32	-61.72
3,739.0	0.40	227.10	3,729.1	-30.2	-189.9	-190.0	0.32	0.32	16.38
3,832.0	0.40	313.60	3,822.1	-30.2	-190.4	-190.5	0.59	0.00	93.01
3,925.0	0.30	349.40	3,915.1	-29.7	-190.7	-190.7	0.25	-0.11	38.49
4,018.0	0.70	53.70	4,008.1	-29.2	-190.3	-190.3	0.68	0.43	69.14
4,111.0	0.70	43.80	4,101.1	-28.4	-189.4	-189.5	0.13	0.00	-10.65
4,204.0	0.60	44.60	4,194.1	-27.7	-188.7	-188.7	0.11	-0.11	0.86
4,297.0	0.70	55.40	4,287.1	-27.0	-187.9	-187.9	0.17	0.11	11.61
4,390.0	0.60	91.10	4,380.1	-26.7	-186.9	-187.0	0.44	-0.11	38.39
4,484.0	1.00	105.50	4,474.1	-26.9	-185.6	-185.7	0.47	0.43	15.32
4,577.0	1.10	114.50	4,567.0	-27.5	-184.0	-184.1	0.21	0.11	9.68
4,670.0	1.20	112.40	4,660.0	-28.2	-182.3	-182.4	0.12	0.11	-2.26
4,763.0	1.60	118.10	4,753.0	-29.2	-180.3	-180.3	0.45	0.43	6.13
4,856.0	1.50	109.80	4,846.0	-30.2	-178.0	-178.1	0.26	-0.11	-8.92
4,948.0	1.60	99.60	4,937.9	-30.9	-175.6	-175.7	0.32	0.11	-11.09
5,040.0	0.50	70.30	5,029.9	-30.9	-173.9	-174.0	1.29	-1.20	-31.85
5,133.0	0.60	36.50	5,122.9	-30.4	-173.3	-173.3	0.36	0.11	-36.34
5,226.0	0.60	66.60	5,215.9	-29.8	-172.5	-172.6	0.34	0.00	32.37
5,319.0	0.70	64.60	5,308.9	-29.4	-171.6	-171.6	0.11	0.11	-2.15
5,412.0	0.60	63.90	5,401.9	-28.9	-170.6	-170.7	0.11	-0.11	-0.75
5,506.0	0.70	97.70	5,495.9	-28.8	-169.6	-169.7	0.41	0.11	35.96
5,599.0	0.70	121.20	5,588.9	-29.2	-168.6	-168.6	0.31	0.00	25.27
5,692.0	1.00	158.80	5,681.9	-30.2	-167.8	-167.8	0.66	0.32	40.43
5,785.0	0.10	255.00	5,774.9	-31.0	-167.6	-167.6	1.09	-0.97	103.44
5,878.0	0.30	168.80	5,867.9	-31.3	-167.6	-167.7	0.33	0.22	-92.69
5,972.0	0.30	187.00	5,961.9	-31.7	-167.6	-167.7	0.10	0.00	19.36
6,065.0	0.50	155.20	6,054.9	-32.3	-167.4	-167.5	0.31	0.22	-34.19
6,160.0	0.40	144.10	6,149.9	-33.0	-167.1	-167.1	0.14	-0.11	-11.68
6,191.0	0.50	138.10	6,180.9	-33.2	-166.9	-167.0	0.36	0.32	-19.35

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<b>Site:</b>	Green 12-24H Pad Sec.24-T7N-R65W	<b>MD Reference:</b>	WELL @ 4915.0ft (RKB Ensign 32 - 15')
<b>Well:</b>	Green 12-24H	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	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)
6,222.0	0.50	138.90	6,211.9	-33.4	-166.7	-166.8	0.02	0.00	2.58
6,253.0	0.40	125.10	6,242.8	-33.5	-166.6	-166.6	0.47	-0.32	-44.52
6,284.0	2.50	95.30	6,273.8	-33.7	-165.8	-165.9	6.97	6.77	-96.13
6,315.0	5.60	90.70	6,304.8	-33.8	-163.6	-163.7	10.05	10.00	-14.84
6,346.0	8.70	78.60	6,335.5	-33.3	-159.8	-159.9	11.06	10.00	-39.03
6,377.0	11.90	75.50	6,366.0	-32.0	-154.4	-154.5	10.47	10.32	-10.00
6,408.0	14.60	76.70	6,396.2	-30.3	-147.5	-147.6	8.75	8.71	3.87
6,439.0	17.20	78.40	6,426.0	-28.5	-139.2	-139.3	8.52	8.39	5.48
6,470.0	19.60	79.70	6,455.4	-26.7	-129.6	-129.7	7.85	7.74	4.19
6,501.0	22.30	79.00	6,484.4	-24.6	-118.7	-118.8	8.75	8.71	-2.26
6,532.0	25.30	78.20	6,512.7	-22.1	-106.5	-106.5	9.73	9.68	-2.58
6,563.0	27.60	80.30	6,540.5	-19.6	-92.9	-92.9	8.01	7.42	6.77
6,594.0	29.90	81.60	6,567.6	-17.2	-78.2	-78.2	7.69	7.42	4.19
6,625.0	32.60	81.50	6,594.1	-14.9	-62.3	-62.3	8.71	8.71	-0.32
6,656.0	34.50	83.70	6,620.0	-12.7	-45.3	-45.3	7.28	6.13	7.10
6,687.0	36.00	85.20	6,645.3	-10.9	-27.5	-27.5	5.59	4.84	4.84
6,718.0	37.80	84.90	6,670.1	-9.3	-8.9	-8.9	5.84	5.81	-0.97
6,749.0	40.00	84.60	6,694.2	-7.6	10.5	10.4	7.12	7.10	-0.97
6,780.0	41.90	85.30	6,717.6	-5.8	30.7	30.7	6.31	6.13	2.26
6,811.0	44.20	84.80	6,740.3	-3.9	51.8	51.8	7.50	7.42	-1.61
6,842.0	45.80	85.00	6,762.2	-2.0	73.6	73.6	5.18	5.16	0.65
6,873.0	46.80	86.70	6,783.6	-0.4	96.0	96.0	5.11	3.23	5.48
6,904.0	46.90	89.90	6,804.8	0.3	118.6	118.6	7.54	0.32	10.32
6,935.0	47.60	90.20	6,825.9	0.3	141.3	141.3	2.37	2.26	0.97
6,966.0	49.10	89.70	6,846.5	0.3	164.5	164.5	4.99	4.84	-1.61
6,997.0	50.50	88.20	6,866.5	0.7	188.2	188.2	5.84	4.52	-4.84
7,028.0	51.80	89.20	6,885.9	1.3	212.3	212.3	4.89	4.19	3.23
7,059.0	52.90	88.90	6,904.9	1.7	236.8	236.8	3.63	3.55	-0.97
7,090.0	54.50	88.30	6,923.2	2.3	261.8	261.8	5.39	5.16	-1.94
7,121.0	57.30	87.90	6,940.6	3.1	287.5	287.5	9.10	9.03	-1.29
7,152.0	60.00	87.40	6,956.7	4.2	313.9	313.9	8.82	8.71	-1.61
7,183.0	63.20	86.60	6,971.5	5.7	341.1	341.2	10.57	10.32	-2.58
7,214.0	66.40	85.40	6,984.6	7.6	369.1	369.1	10.90	10.32	-3.87
7,245.0	68.90	84.70	6,996.4	10.1	397.7	397.7	8.33	8.06	-2.26
7,276.0	71.00	84.00	7,007.1	13.0	426.7	426.7	7.10	6.77	-2.26
7,307.0	73.20	84.20	7,016.6	16.0	456.0	456.0	7.12	7.10	0.65
7,338.0	74.90	84.30	7,025.1	19.0	485.7	485.7	5.49	5.48	0.32
7,369.0	76.40	85.10	7,032.8	21.8	515.6	515.6	5.45	4.84	2.58
7,400.0	78.00	86.20	7,039.7	24.0	545.7	545.7	6.21	5.16	3.55
7,431.0	80.30	85.60	7,045.5	26.2	576.1	576.1	7.66	7.42	-1.94
7,462.0	82.70	86.50	7,050.1	28.3	606.6	606.7	8.26	7.74	2.90
7,509.0	84.90	87.50	7,055.2	30.8	653.3	653.4	5.14	4.68	2.13
7,535.0	85.70	88.50	7,057.3	31.7	679.2	679.3	4.92	3.08	3.85
7,567.0	85.20	88.30	7,059.8	32.6	711.1	711.2	1.68	-1.56	-0.63
7,599.0	85.70	87.80	7,062.4	33.7	743.0	743.0	2.21	1.56	-1.56
7,630.0	86.50	87.70	7,064.5	34.9	773.9	773.9	2.60	2.58	-0.32
7,662.0	87.70	87.60	7,066.1	36.2	805.8	805.9	3.76	3.75	-0.31
7,693.0	89.60	88.00	7,066.8	37.4	836.8	836.9	6.26	6.13	1.29
7,725.0	90.50	87.60	7,066.8	38.6	868.7	868.8	3.08	2.81	-1.25
7,756.0	90.60	87.60	7,066.5	39.9	899.7	899.8	0.32	0.32	0.00
7,788.0	90.90	89.00	7,066.1	40.9	931.7	931.8	4.47	0.94	4.38
7,820.0	91.60	89.10	7,065.4	41.4	963.7	963.8	2.21	2.19	0.31
7,851.0	93.20	89.10	7,064.1	41.9	994.7	994.7	5.16	5.16	0.00

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<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	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)
7,883.0	93.10	90.50	7,062.3	42.0	1,026.6	1,026.7	4.38	-0.31	4.38
7,915.0	91.50	90.70	7,061.0	41.6	1,058.6	1,058.7	5.04	-5.00	0.63
7,947.0	89.80	91.10	7,060.7	41.1	1,090.6	1,090.7	5.46	-5.31	1.25
7,977.0	90.20	91.60	7,060.7	40.4	1,120.6	1,120.6	2.13	1.33	1.67
8,009.0	90.40	91.60	7,060.5	39.5	1,152.6	1,152.6	0.63	0.63	0.00
8,041.0	89.30	90.80	7,060.6	38.9	1,184.5	1,184.6	4.25	-3.44	-2.50
8,073.0	89.60	91.30	7,060.9	38.3	1,216.5	1,216.6	1.82	0.94	1.56
8,105.0	89.90	91.20	7,061.0	37.6	1,248.5	1,248.6	0.99	0.94	-0.31
8,137.0	90.20	91.10	7,061.0	36.9	1,280.5	1,280.6	0.99	0.94	-0.31
8,169.0	90.60	91.20	7,060.8	36.3	1,312.5	1,312.6	1.29	1.25	0.31
8,201.0	90.60	91.30	7,060.4	35.6	1,344.5	1,344.6	0.31	0.00	0.31
8,234.0	90.80	91.20	7,060.0	34.9	1,377.5	1,377.6	0.68	0.61	-0.30
8,265.0	91.30	91.30	7,059.5	34.2	1,408.5	1,408.6	1.64	1.61	0.32
8,297.0	91.40	91.30	7,058.7	33.5	1,440.5	1,440.5	0.31	0.31	0.00
8,329.0	90.80	91.50	7,058.1	32.7	1,472.4	1,472.5	1.98	-1.88	0.63
8,361.0	90.80	92.30	7,057.7	31.6	1,504.4	1,504.5	2.50	0.00	2.50
8,393.0	89.80	92.40	7,057.5	30.3	1,536.4	1,536.5	3.14	-3.13	0.31
8,424.0	89.70	92.70	7,057.6	29.0	1,567.4	1,567.4	1.02	-0.32	0.97
8,456.0	89.80	92.70	7,057.8	27.4	1,599.3	1,599.4	0.31	0.31	0.00
8,487.0	90.40	93.20	7,057.7	25.8	1,630.3	1,630.3	2.52	1.94	1.61
8,519.0	91.20	93.30	7,057.3	24.0	1,662.2	1,662.3	2.52	2.50	0.31
8,552.0	91.90	92.60	7,056.4	22.3	1,695.2	1,695.2	3.00	2.12	-2.12
8,584.0	90.90	92.90	7,055.6	20.8	1,727.1	1,727.2	3.26	-3.13	0.94
8,615.0	90.00	92.30	7,055.4	19.4	1,758.1	1,758.1	3.49	-2.90	-1.94
8,647.0	89.60	92.30	7,055.5	18.1	1,790.1	1,790.1	1.25	-1.25	0.00
8,679.0	89.50	92.00	7,055.7	16.9	1,822.1	1,822.1	0.99	-0.31	-0.94
8,710.0	89.20	92.00	7,056.1	15.8	1,853.0	1,853.1	0.97	-0.97	0.00
8,743.0	89.00	92.00	7,056.6	14.7	1,886.0	1,886.0	0.61	-0.61	0.00
8,775.0	88.90	92.00	7,057.2	13.6	1,918.0	1,918.0	0.31	-0.31	0.00
8,807.0	88.70	92.00	7,057.8	12.4	1,950.0	1,950.0	0.63	-0.63	0.00
8,839.0	89.10	91.80	7,058.5	11.4	1,981.9	1,982.0	1.40	1.25	-0.63
8,871.0	89.20	92.00	7,058.9	10.3	2,013.9	2,013.9	0.70	0.31	0.63
8,903.0	89.90	91.80	7,059.2	9.3	2,045.9	2,045.9	2.28	2.19	-0.63
8,934.0	90.00	90.50	7,059.2	8.6	2,076.9	2,076.9	4.21	0.32	-4.19
8,966.0	90.00	90.60	7,059.2	8.3	2,108.9	2,108.9	0.31	0.00	0.31
8,998.0	90.00	90.70	7,059.2	8.0	2,140.9	2,140.9	0.31	0.00	0.31
9,030.0	90.20	90.60	7,059.2	7.6	2,172.9	2,172.9	0.70	0.63	-0.31
9,061.0	90.50	90.80	7,059.0	7.2	2,203.9	2,203.9	1.16	0.97	0.65
9,093.0	91.40	91.60	7,058.4	6.6	2,235.9	2,235.9	3.76	2.81	2.50
9,125.0	92.00	91.40	7,057.5	5.7	2,267.8	2,267.8	1.98	1.88	-0.63
9,157.0	91.80	91.80	7,056.4	4.8	2,299.8	2,299.8	1.40	-0.63	1.25
9,190.0	90.20	92.20	7,055.8	3.7	2,332.8	2,332.8	5.00	-4.85	1.21
9,221.0	90.00	92.20	7,055.8	2.5	2,363.8	2,363.8	0.65	-0.65	0.00
9,253.0	90.00	92.60	7,055.8	1.1	2,395.7	2,395.7	1.25	0.00	1.25
9,285.0	89.80	92.60	7,055.8	-0.3	2,427.7	2,427.7	0.63	-0.63	0.00
9,317.0	89.60	93.00	7,056.0	-1.9	2,459.7	2,459.6	1.40	-0.63	1.25
9,349.0	89.60	92.90	7,056.2	-3.5	2,491.6	2,491.6	0.31	0.00	-0.31
9,380.0	89.50	93.20	7,056.5	-5.2	2,522.6	2,522.6	1.02	-0.32	0.97
9,412.0	89.50	92.80	7,056.8	-6.8	2,554.5	2,554.5	1.25	0.00	-1.25
9,443.0	89.00	92.70	7,057.2	-8.3	2,585.5	2,585.5	1.64	-1.61	-0.32
9,475.0	88.70	92.70	7,057.8	-9.8	2,617.4	2,617.4	0.94	-0.94	0.00
9,507.0	88.10	92.20	7,058.7	-11.2	2,649.4	2,649.4	2.44	-1.88	-1.56
9,539.0	88.00	92.30	7,059.8	-12.5	2,681.4	2,681.3	0.44	-0.31	0.31
9,571.0	88.50	91.50	7,060.8	-13.5	2,713.3	2,713.3	2.95	1.56	-2.50

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Green 12-24H
<b>Project:</b>	SEC.24-T7N-R65W	<b>TVD Reference:</b>	WELL @ 4915.0ft (RKB Ensign 32 - 15')
<b>Site:</b>	Green 12-24H Pad Sec.24-T7N-R65W	<b>MD Reference:</b>	WELL @ 4915.0ft (RKB Ensign 32 - 15')
<b>Well:</b>	Green 12-24H	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	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)
9,603.0	89.30	91.70	7,061.4	-14.4	2,745.3	2,745.3	2.58	2.50	0.63
9,635.0	90.50	90.60	7,061.4	-15.1	2,777.3	2,777.3	5.09	3.75	-3.44
9,667.0	90.80	90.40	7,061.1	-15.3	2,809.3	2,809.3	1.13	0.94	-0.63
9,699.0	91.20	90.70	7,060.5	-15.6	2,841.3	2,841.3	1.56	1.25	0.94
9,730.0	90.80	90.80	7,060.0	-16.0	2,872.3	2,872.2	1.33	-1.29	0.32
9,762.0	90.00	90.40	7,059.8	-16.4	2,904.3	2,904.2	2.80	-2.50	-1.25
9,794.0	89.70	90.50	7,059.8	-16.6	2,936.3	2,936.2	0.99	-0.94	0.31
9,826.0	89.60	90.20	7,060.0	-16.8	2,968.3	2,968.2	0.99	-0.31	-0.94
9,858.0	89.60	90.90	7,060.3	-17.1	3,000.3	3,000.2	2.19	0.00	2.19
9,890.0	91.30	92.40	7,060.0	-18.1	3,032.3	3,032.2	7.08	5.31	4.69
9,921.0	92.00	92.50	7,059.1	-19.4	3,063.2	3,063.2	2.28	2.26	0.32
9,953.0	90.20	92.50	7,058.5	-20.8	3,095.2	3,095.1	5.63	-5.63	0.00
9,985.0	89.80	93.00	7,058.5	-22.3	3,127.1	3,127.1	2.00	-1.25	1.56
10,017.0	91.30	94.20	7,058.2	-24.3	3,159.1	3,159.0	6.00	4.69	3.75
10,046.0	91.40	93.90	7,057.5	-26.4	3,188.0	3,187.9	1.09	0.34	-1.03
10,078.0	89.00	92.40	7,057.4	-28.1	3,219.9	3,219.9	8.84	-7.50	-4.69
10,110.0	88.70	92.00	7,058.0	-29.4	3,251.9	3,251.8	1.56	-0.94	-1.25
10,141.0	88.30	91.60	7,058.9	-30.3	3,282.9	3,282.8	1.82	-1.29	-1.29
10,173.0	89.00	92.30	7,059.6	-31.4	3,314.9	3,314.8	3.09	2.19	2.19
10,205.0	88.70	91.80	7,060.2	-32.6	3,346.8	3,346.8	1.82	-0.94	-1.56
10,238.0	89.20	91.70	7,060.9	-33.6	3,379.8	3,379.7	1.55	1.52	-0.30
10,270.0	89.80	91.60	7,061.1	-34.5	3,411.8	3,411.7	1.90	1.88	-0.31
10,302.0	89.80	91.70	7,061.2	-35.4	3,443.8	3,443.7	0.31	0.00	0.31
10,334.0	90.30	91.60	7,061.2	-36.3	3,475.8	3,475.7	1.59	1.56	-0.31
10,366.0	90.00	91.60	7,061.1	-37.2	3,507.8	3,507.7	0.94	-0.94	0.00
10,398.0	89.50	91.40	7,061.3	-38.1	3,539.7	3,539.7	1.68	-1.56	-0.63
10,430.0	90.00	92.50	7,061.4	-39.2	3,571.7	3,571.6	3.78	1.56	3.44
10,462.0	89.80	92.10	7,061.5	-40.4	3,603.7	3,603.6	1.40	-0.63	-1.25
10,493.0	89.80	92.30	7,061.6	-41.6	3,634.7	3,634.6	0.65	0.00	0.65
10,525.0	89.20	91.40	7,061.9	-42.7	3,666.7	3,666.6	3.38	-1.88	-2.81
10,557.0	89.40	91.20	7,062.2	-43.4	3,698.7	3,698.5	0.88	0.63	-0.63
10,589.0	89.20	90.70	7,062.6	-43.9	3,730.6	3,730.5	1.68	-0.63	-1.56
10,621.0	89.40	90.80	7,063.0	-44.3	3,762.6	3,762.5	0.70	0.63	0.31
10,653.0	89.10	90.50	7,063.4	-44.7	3,794.6	3,794.5	1.33	-0.94	-0.94
10,685.0	89.70	90.90	7,063.8	-45.1	3,826.6	3,826.5	2.25	1.88	1.25
10,716.0	89.70	90.60	7,063.9	-45.5	3,857.6	3,857.5	0.97	0.00	-0.97
10,749.0	89.00	89.90	7,064.3	-45.6	3,890.6	3,890.5	3.00	-2.12	-2.12
10,781.0	88.50	89.50	7,065.0	-45.5	3,922.6	3,922.5	2.00	-1.56	-1.25
10,813.0	88.90	89.80	7,065.7	-45.3	3,954.6	3,954.5	1.56	1.25	0.94
10,845.0	88.90	89.80	7,066.4	-45.2	3,986.6	3,986.5	0.00	0.00	0.00
10,877.0	88.80	89.40	7,067.0	-44.9	4,018.6	4,018.5	1.29	-0.31	-1.25
10,910.0	89.80	90.50	7,067.4	-44.9	4,051.6	4,051.5	4.50	3.03	3.33
10,942.0	89.90	90.10	7,067.5	-45.1	4,083.6	4,083.5	1.29	0.31	-1.25
10,974.0	90.00	90.20	7,067.5	-45.2	4,115.6	4,115.5	0.44	0.31	0.31
11,006.0	90.60	90.50	7,067.3	-45.4	4,147.6	4,147.5	2.10	1.88	0.94
11,038.0	91.80	90.80	7,066.7	-45.7	4,179.6	4,179.5	3.87	3.75	0.94
11,070.0	91.60	90.70	7,065.7	-46.1	4,211.6	4,211.5	0.70	-0.63	-0.31
11,102.0	90.70	91.70	7,065.1	-46.8	4,243.5	4,243.4	4.20	-2.81	3.13
11,134.0	89.60	92.30	7,065.0	-47.9	4,275.5	4,275.4	3.92	-3.44	1.88
11,166.0	89.10	92.70	7,065.4	-49.3	4,307.5	4,307.4	2.00	-1.56	1.25
11,197.0	90.50	93.10	7,065.5	-50.9	4,338.5	4,338.3	4.70	4.52	1.29
11,230.0	89.10	92.70	7,065.6	-52.6	4,371.4	4,371.3	4.41	-4.24	-1.21
11,261.0	88.80	93.10	7,066.2	-54.1	4,402.4	4,402.2	1.61	-0.97	1.29

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Green 12-24H
<b>Project:</b>	SEC.24-T7N-R65W	<b>TVD Reference:</b>	WELL @ 4915.0ft (RKB Ensign 32 - 15')
<b>Site:</b>	Green 12-24H Pad Sec.24-T7N-R65W	<b>MD Reference:</b>	WELL @ 4915.0ft (RKB Ensign 32 - 15')
<b>Well:</b>	Green 12-24H	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	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)
11,293.0	88.20	92.70	7,067.0	-55.7	4,434.3	4,434.2	2.25	-1.88	-1.25
11,325.0	88.00	93.40	7,068.1	-57.4	4,466.2	4,466.1	2.27	-0.63	2.19
11,356.0	88.60	93.40	7,069.0	-59.3	4,497.2	4,497.0	1.94	1.94	0.00
11,407.0	88.60	93.40	7,070.2	-62.3	4,548.1	4,547.9	0.00	0.00	0.00
BHL 1320'FNL & 500'FEL									

Checked By: _____	Approved By: _____	Date: _____
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