

Well Name: **Schaefer 42-7D**

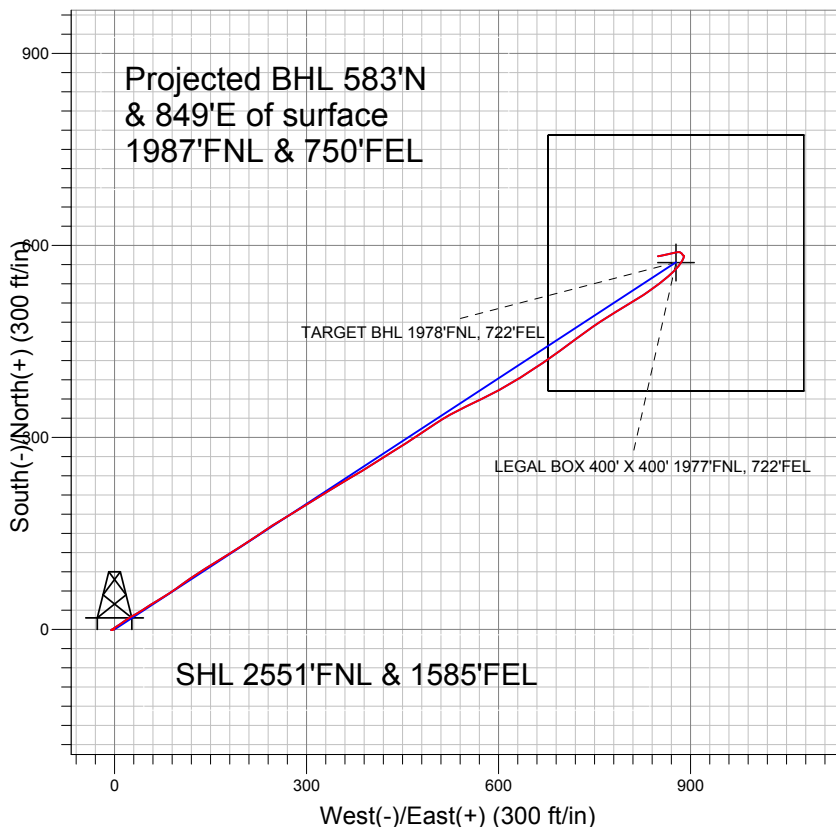
Surface Location: Schaefer 42-7D Pad Sec.7-T6N-R66W  
North American Datum 1983 US State Plane 1983 Colorado Northern Zone

Ground Elevation: 4860.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.0	0.0	1426540.98	3189847.58	40° 30' 8.100 N	104° 49' 2.316 W
Original Well Elev WELL @ 4873.0ft (Original Well Elev)					

Slot

**PETROLEUM DEVELOPMENT CORP Weld County CO**

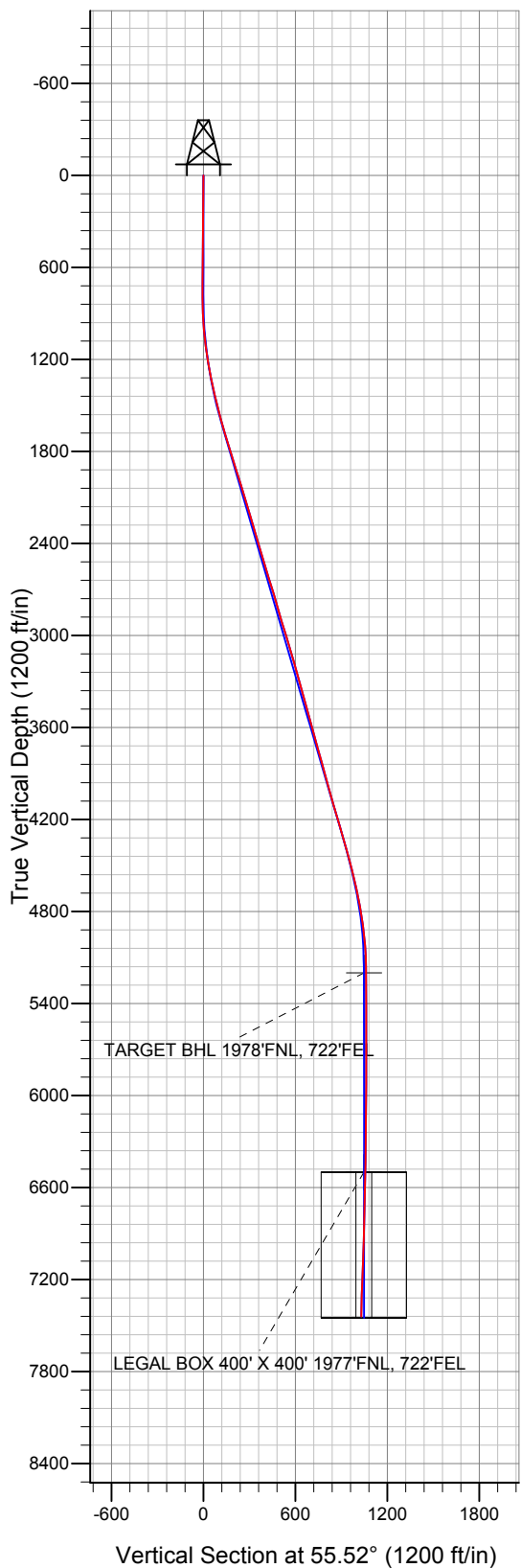


**LEGEND**

- Schaefer 42-7D, Wellbore #1, Plan #1 (5-28-10) V0
- Wellbore #1
- Survey #1

**Final Survey Plot**

Projected Final Survey -  
7585'MD & 7442'TVD @ 1030' VS  
1.4 deg Inc 255.0 deg AZ



Project: SEC.7-T6N-R66W  
Site: Schaefer 42-7D Pad Sec.7-T6N-R66W  
Well: Schaefer 42-7D  
Plan: Wellbore #1



## **Directional**

# **PETROLEUM DEVELOPMENT CORP Weld County CO**

**SEC.7-T6N-R66W**

**Schaefer 42-7D Pad Sec.7-T6N-R66W**

**Schaefer 42-7D**

**Wellbore #1**

**Survey: Survey #1**

## **Standard Survey Report**

**08 February, 2011**

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Schaefer 42-7D
<b>Project:</b>	SEC.7-T6N-R66W	<b>TVD Reference:</b>	WELL @ 4873.0ft (Original Well Elev)
<b>Site:</b>	Schaefer 42-7D Pad Sec.7-T6N-R66W	<b>MD Reference:</b>	WELL @ 4873.0ft (Original Well Elev)
<b>Well:</b>	Schaefer 42-7D	<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.7-T6N-R66W, 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		Schaefer 42-7D Pad Sec.7-T6N-R66W			
Site Position:		Northing:	1,426,540.99 ft	Latitude:	40° 30' 8.100 N
From:	Lat/Long	Easting:	3,189,847.58 ft	Longitude:	104° 49' 2.316 W
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.44 °

Well	Schaefer 42-7D					
Well Position	+N-S	0.0 ft	Northing:	1,426,540.98 ft	Latitude:	40° 30' 8.100 N
	+E-W	0.0 ft	Easting:	3,189,847.58 ft	Longitude:	104° 49' 2.316 W
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,860.0 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	1/18/2011	8.96	67.14	53,222

<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	55.52	

<b>Survey Program</b>	<b>Date</b> 2/8/2011				
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
705.0	7,585.0	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
705.0	0.90	260.20	705.0	-0.9	-5.5	-5.0	0.13	0.13	0.00
800.0	0.60	90.30	800.0	-1.1	-5.7	-5.3	1.57	-0.32	-178.84
895.0	2.10	56.60	894.9	-0.1	-3.7	-3.2	1.72	1.58	-35.47
990.0	4.50	54.80	989.8	3.0	0.8	2.3	2.53	2.53	-1.89
1,085.0	6.50	56.00	1,084.3	8.1	8.3	11.4	2.11	2.11	1.26
1,180.0	8.70	55.40	1,178.5	15.2	18.6	24.0	2.32	2.32	-0.63
1,274.0	10.60	62.30	1,271.2	23.3	32.1	39.7	2.36	2.02	7.34
1,369.0	12.40	55.70	1,364.3	33.1	48.3	58.6	2.34	1.89	-6.95
1,464.0	13.80	59.90	1,456.8	44.5	66.5	80.1	1.78	1.47	4.42
1,559.0	14.70	56.00	1,548.9	57.0	86.3	103.4	1.38	0.95	-4.11
1,654.0	15.70	54.10	1,640.5	71.2	106.7	128.3	1.18	1.05	-2.00

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Schaefer 42-7D
<b>Project:</b>	SEC.7-T6N-R66W	<b>TVD Reference:</b>	WELL @ 4873.0ft (Original Well Elev)
<b>Site:</b>	Schaefer 42-7D Pad Sec.7-T6N-R66W	<b>MD Reference:</b>	WELL @ 4873.0ft (Original Well Elev)
<b>Well:</b>	Schaefer 42-7D	<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)
1,749.0	16.90	57.10	1,731.7	86.3	128.7	155.0	1.54	1.26	3.16
1,844.0	17.80	57.60	1,822.4	101.6	152.6	183.3	0.96	0.95	0.53
1,939.0	17.30	58.50	1,913.0	116.7	176.9	211.9	0.60	-0.53	0.95
2,034.0	17.10	57.50	2,003.7	131.6	200.7	240.0	0.38	-0.21	-1.05
2,129.0	16.90	54.80	2,094.6	147.1	223.8	267.7	0.86	-0.21	-2.84
2,223.0	16.40	57.50	2,184.6	162.1	246.1	294.7	0.98	-0.53	2.87
2,318.0	16.60	58.90	2,275.7	176.3	269.1	321.6	0.47	0.21	1.47
2,413.0	16.70	59.60	2,366.7	190.2	292.5	348.8	0.24	0.11	0.74
2,508.0	16.80	56.80	2,457.7	204.6	315.7	376.1	0.86	0.11	-2.95
2,603.0	16.60	58.50	2,548.7	219.2	338.8	403.4	0.56	-0.21	1.79
2,698.0	16.90	60.20	2,639.7	233.2	362.3	430.7	0.60	0.32	1.79
2,793.0	17.10	58.60	2,730.5	247.3	386.2	458.4	0.54	0.21	-1.68
2,888.0	16.40	56.90	2,821.5	261.9	409.4	485.8	0.90	-0.74	-1.79
2,982.0	16.40	58.70	2,911.7	276.1	431.9	512.3	0.54	0.00	1.91
3,077.0	17.10	57.10	3,002.6	290.6	455.0	539.6	0.88	0.74	-1.68
3,172.0	16.90	56.40	3,093.5	305.9	478.3	567.4	0.30	-0.21	-0.74
3,267.0	16.20	55.60	3,184.6	321.0	500.7	594.5	0.77	-0.74	-0.84
3,362.0	15.10	61.20	3,276.0	334.4	522.5	620.0	1.97	-1.16	5.89
3,457.0	15.20	64.80	3,367.7	345.7	544.6	644.6	1.00	0.11	3.79
3,551.0	15.60	63.50	3,458.4	356.6	567.1	669.3	0.56	0.43	-1.38
3,646.0	15.90	62.00	3,549.8	368.4	590.0	694.9	0.53	0.32	-1.58
3,741.0	15.30	60.50	3,641.3	380.7	612.4	720.3	0.76	-0.63	-1.58
3,836.0	15.60	58.10	3,732.9	393.6	634.1	745.6	0.74	0.32	-2.53
3,931.0	15.50	56.20	3,824.4	407.4	655.5	771.0	0.55	-0.11	-2.00
4,026.0	15.60	55.40	3,915.9	421.7	676.6	796.5	0.25	0.11	-0.84
4,121.0	15.30	54.70	4,007.5	436.2	697.3	821.8	0.37	-0.32	-0.74
4,216.0	15.90	51.80	4,099.0	451.5	717.8	847.3	1.04	0.63	-3.05
4,310.0	15.70	54.50	4,189.4	466.9	738.3	872.9	0.81	-0.21	2.87
4,405.0	16.90	57.60	4,280.6	481.7	760.4	899.5	1.56	1.26	3.26
4,500.0	16.20	58.60	4,371.7	496.0	783.4	926.6	0.80	-0.74	1.05
4,595.0	15.00	59.30	4,463.2	509.2	805.2	952.1	1.28	-1.26	0.74
4,690.0	14.70	56.40	4,555.0	522.1	825.9	976.4	0.84	-0.32	-3.05
4,785.0	12.00	53.20	4,647.4	534.7	843.8	998.3	2.95	-2.84	-3.37
4,880.0	10.50	50.90	4,740.6	546.1	858.4	1,016.8	1.65	-1.58	-2.42
4,975.0	8.50	47.40	4,834.3	556.3	870.3	1,032.4	2.19	-2.11	-3.68
5,069.0	7.20	40.80	4,927.4	565.5	879.3	1,045.0	1.68	-1.38	-7.02
5,164.0	5.10	30.80	5,021.9	573.6	885.3	1,054.5	2.47	-2.21	-10.53
5,259.0	2.70	22.50	5,116.6	579.3	888.4	1,060.3	2.59	-2.53	-8.74
5,342.0	1.30	19.47	5,199.6	582.0	889.4	1,062.7	1.69	-1.68	-3.65
TARGET BHL 1978'FNL, 722'FEL									
5,354.0	1.10	18.40	5,211.6	582.3	889.5	1,062.9	1.69	-1.68	-8.95
5,447.0	0.30	335.00	5,304.6	583.3	889.7	1,063.6	0.97	-0.86	-46.67
5,543.0	0.40	324.40	5,400.6	583.8	889.4	1,063.6	0.12	0.10	-11.04
5,638.0	0.40	247.40	5,495.6	584.0	888.9	1,063.3	0.52	0.00	-81.05
5,734.0	0.50	301.20	5,591.6	584.0	888.2	1,062.8	0.43	0.10	56.04
5,828.0	0.80	333.80	5,685.6	584.9	887.6	1,062.7	0.49	0.32	34.68
5,923.0	1.00	322.40	5,780.5	586.1	886.8	1,062.8	0.28	0.21	-12.00
6,018.0	0.90	316.40	5,875.5	587.3	885.8	1,062.6	0.15	-0.11	-6.32
6,113.0	0.90	311.50	5,970.5	588.3	884.7	1,062.3	0.08	0.00	-5.16
6,208.0	0.70	298.20	6,065.5	589.1	883.6	1,061.9	0.29	-0.21	-14.00
6,302.0	0.30	279.30	6,159.5	589.4	882.9	1,061.4	0.45	-0.43	-20.11
6,398.0	0.90	265.90	6,255.5	589.4	881.9	1,060.6	0.64	0.63	-13.96
6,493.0	1.00	265.30	6,350.5	589.3	880.3	1,059.2	0.11	0.11	-0.63

<b>Company:</b>	PETROLEUM DEVELOPMENT CORP Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Schaefer 42-7D
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<b>Site:</b>	Schaefer 42-7D Pad Sec.7-T6N-R66W	<b>MD Reference:</b>	WELL @ 4873.0ft (Original Well Elev)
<b>Well:</b>	Schaefer 42-7D	<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)
6,588.0	1.10	257.20	6,445.5	589.0	878.6	1,057.7	0.19	0.11	-8.53
6,642.6	1.10	262.20	6,500.1	588.8	877.5	1,056.7	0.18	-0.01	9.16
<b>LEGAL BOX 400' X 400' 1977'FNL, 722'FEL</b>									
6,683.0	1.10	265.90	6,540.5	588.7	876.8	1,056.0	0.18	0.01	9.15
6,778.0	1.30	255.00	6,635.4	588.4	874.8	1,054.2	0.32	0.21	-11.47
6,872.0	1.40	259.40	6,729.4	587.9	872.7	1,052.2	0.15	0.11	4.68
6,967.0	1.60	257.70	6,824.4	587.4	870.2	1,049.9	0.22	0.21	-1.79
7,062.0	1.90	256.60	6,919.3	586.8	867.4	1,047.2	0.32	0.32	-1.16
7,157.0	2.20	256.50	7,014.3	586.0	864.1	1,044.0	0.32	0.32	-0.11
7,252.0	2.20	257.20	7,109.2	585.1	860.5	1,040.6	0.03	0.00	0.74
7,347.0	2.10	259.40	7,204.1	584.4	857.1	1,037.3	0.14	-0.11	2.32
7,442.0	2.20	261.20	7,299.1	583.8	853.5	1,034.1	0.13	0.11	1.89
7,543.0	1.80	258.10	7,400.0	583.2	850.1	1,030.9	0.41	-0.40	-3.07
7,585.0	1.40	255.00	7,442.0	582.9	848.9	1,029.8	0.97	-0.95	-7.38

Checked By: _____	Approved By: _____	Date: _____
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