

Well Name: **Schaefer 7CD**

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

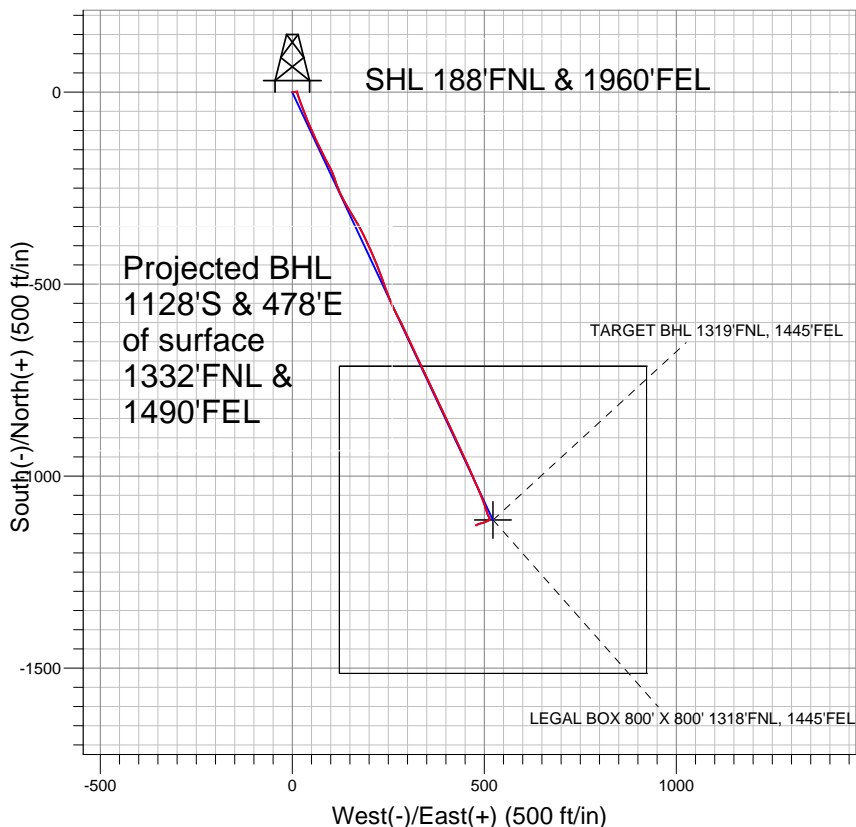
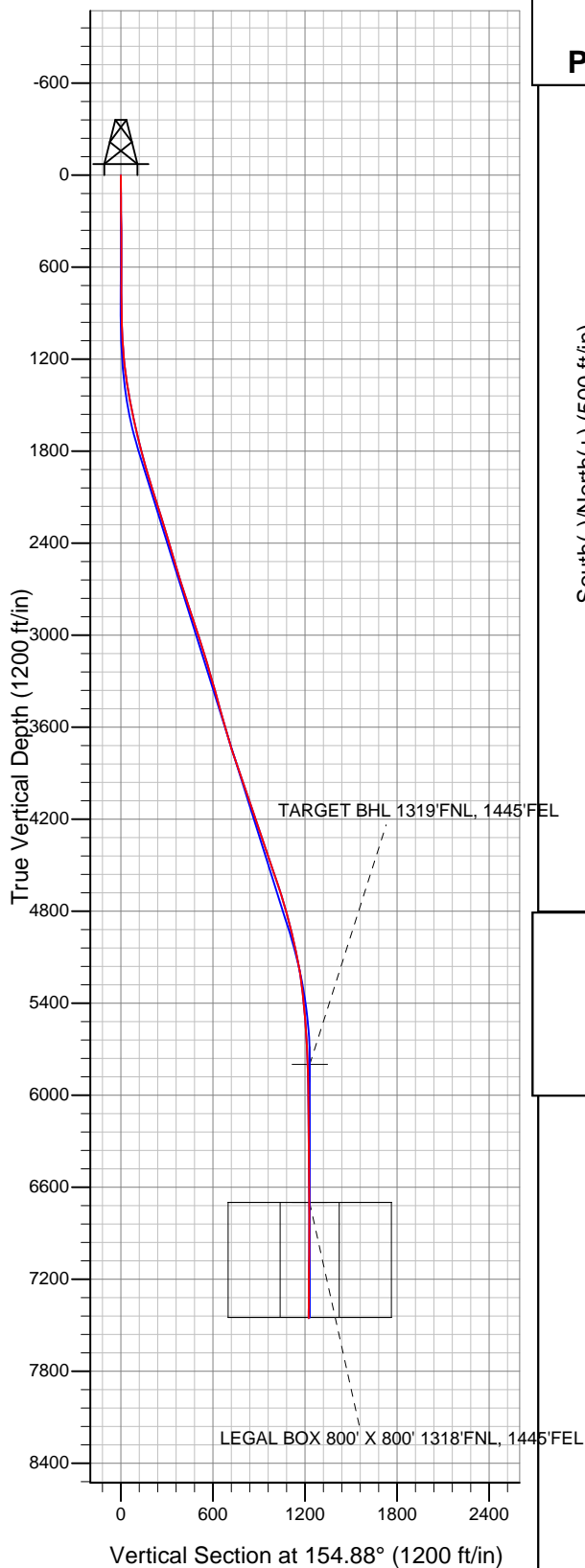
Ground Elevation: 4873.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.0	0.0	1428887.67	3189437.43	40° 30' 31.320 N	104° 49' 7.392 W

Original Well Elev WELL @ 4886.0ft (Original Well Elev)

Slot

PETROLEUM DEVELOPMENT CORP Weld County CO



LEGEND

- Schaefer 7CD, Wellbore #1, Plan #2 (2-8-11) V0
- Wellbore #1
- Survey #1

Final Survey Plot

Projected Final Survey -
7626'MD & 7455'TVD @ 1225' VS
2.1 deg Inc 251.1 deg AZ

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



Directional

PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.7-T6N-R66W

Schaefer 7MD Pad Sec.7-T6N-R66W

Schaefer 7CD

Wellbore #1

Survey: Survey #1

Standard Survey Report

28 February, 2011

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Schaefer 7CD
Project:	SEC.7-T6N-R66W	TVD Reference:	WELL @ 4886.0ft (Original Well Elev)
Site:	Schaefer 7MD Pad Sec.7-T6N-R66W	MD Reference:	WELL @ 4886.0ft (Original Well Elev)
Well:	Schaefer 7CD	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Landmark

Project	SEC.7-T6N-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		Schaefer 7MD Pad Sec.7-T6N-R66W			
Site Position:		Northing:	1,428,909.11 ft	Latitude:	40° 30' 31.536 N
From:	Lat/Long	Easting:	3,189,381.65 ft	Longitude:	104° 49' 8.112 W
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.44 °

Well	Schaefer 7CD					
Well Position	+N-S	0.0 ft	Northing:	1,428,887.67 ft	Latitude:	40° 30' 31.320 N
	+E-W	0.0 ft	Easting:	3,189,437.43 ft	Longitude:	104° 49' 7.392 W
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,873.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	2/15/2011	8.95	67.14	53,217

Design	Wellbore #1				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)	
	5,800.0	0.0	0.0	154.88	

Survey Program	Date	2/28/2011			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
59.0	7,626.0	Survey #1 (Wellbore #1)	MWD	MWD - Standard	

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/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	
59.0	1.10	99.50	59.0	-0.1	0.6	0.3	1.86	1.86	0.00	
150.0	0.70	92.70	150.0	-0.3	2.0	1.1	0.45	-0.44	-7.47	
240.0	0.80	72.00	240.0	-0.1	3.1	1.4	0.32	0.11	-23.00	
331.0	0.80	87.30	331.0	0.1	4.4	1.7	0.23	0.00	16.81	
419.0	1.00	86.80	419.0	0.2	5.7	2.3	0.23	0.23	-0.57	
514.0	1.00	78.80	513.9	0.4	7.4	2.8	0.15	0.00	-8.42	
701.0	0.90	76.40	700.9	1.1	10.4	3.4	0.06	-0.05	-1.28	
802.0	1.40	82.70	801.9	1.4	12.4	4.0	0.51	0.50	6.24	
894.0	0.60	229.70	893.9	1.2	13.2	4.5	2.10	-0.87	159.78	
989.0	2.00	176.40	988.9	-0.7	12.9	6.1	1.80	1.47	-56.11	
1,084.0	3.60	161.50	1,083.7	-5.2	13.9	10.6	1.84	1.68	-15.68	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Schaefer 7CD
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Site:	Schaefer 7MD Pad Sec.7-T6N-R66W	MD Reference:	WELL @ 4886.0ft (Original Well Elev)
Well:	Schaefer 7CD	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)
1,179.0	4.80	162.90	1,178.5	-11.8	16.0	17.5	1.27	1.26	1.47
1,274.0	7.30	162.40	1,273.0	-21.4	19.0	27.5	2.63	2.63	-0.53
1,369.0	9.20	157.40	1,367.0	-34.2	23.8	41.0	2.14	2.00	-5.26
1,464.0	10.60	156.80	1,460.6	-49.2	30.1	57.3	1.48	1.47	-0.63
1,559.0	11.90	160.00	1,553.7	-66.4	36.9	75.8	1.52	1.37	3.37
1,654.0	12.60	157.50	1,646.6	-85.2	44.2	95.9	0.92	0.74	-2.63
1,749.0	13.70	157.70	1,739.1	-105.2	52.5	117.5	1.16	1.16	0.21
1,844.0	14.90	152.60	1,831.1	-126.5	62.4	141.0	1.83	1.26	-5.37
1,939.0	16.60	153.80	1,922.6	-149.5	74.0	166.7	1.82	1.79	1.26
2,033.0	17.10	152.00	2,012.5	-173.7	86.4	194.0	0.77	0.53	-1.91
2,128.0	16.90	153.90	2,103.4	-198.5	99.0	221.7	0.62	-0.21	2.00
2,223.0	18.20	161.00	2,194.0	-224.9	109.9	250.3	2.63	1.37	7.47
2,318.0	17.60	158.50	2,284.4	-252.3	120.0	279.4	1.03	-0.63	-2.63
2,413.0	16.50	152.50	2,375.2	-277.6	131.5	307.2	2.18	-1.16	-6.32
2,508.0	16.10	147.90	2,466.4	-300.7	144.8	333.7	1.42	-0.42	-4.84
2,603.0	16.80	148.80	2,557.5	-323.6	158.9	360.5	0.78	0.74	0.95
2,698.0	16.90	151.00	2,648.4	-347.5	172.7	387.9	0.68	0.11	2.32
2,793.0	18.80	154.10	2,738.8	-373.3	186.1	417.0	2.24	2.00	3.26
2,887.0	18.80	155.30	2,827.8	-400.7	199.0	447.3	0.41	0.00	1.28
2,982.0	18.10	156.50	2,917.9	-428.1	211.3	477.3	0.84	-0.74	1.26
3,077.0	17.80	158.90	3,008.3	-455.2	222.4	506.6	0.84	-0.32	2.53
3,172.0	17.90	160.30	3,098.7	-482.5	232.5	535.6	0.46	0.11	1.47
3,266.0	16.00	160.30	3,188.7	-508.3	241.8	562.9	2.02	-2.02	0.00
3,361.0	16.20	157.10	3,279.9	-532.8	251.4	589.2	0.96	0.21	-3.37
3,456.0	15.20	157.00	3,371.4	-556.5	261.4	614.8	1.05	-1.05	-0.11
3,551.0	15.90	153.00	3,462.9	-579.6	272.2	640.3	1.35	0.74	-4.21
3,648.0	16.10	151.30	3,556.2	-603.2	284.6	667.0	0.53	0.21	-1.75
3,743.0	15.70	155.70	3,647.5	-626.5	296.3	693.0	1.34	-0.42	4.63
3,837.0	17.60	155.00	3,737.6	-651.0	307.5	719.9	2.03	2.02	-0.74
3,932.0	18.50	155.50	3,827.9	-677.7	319.8	749.4	0.96	0.95	0.53
4,027.0	19.30	155.60	3,917.8	-705.7	332.6	780.1	0.84	0.84	0.11
4,122.0	19.70	154.80	4,007.3	-734.5	345.9	811.8	0.51	0.42	-0.84
4,217.0	18.20	155.30	4,097.2	-762.5	358.9	842.7	1.59	-1.58	0.53
4,312.0	18.60	153.30	4,187.3	-789.5	371.9	872.7	0.79	0.42	-2.11
4,406.0	18.80	154.80	4,276.4	-816.6	385.1	902.8	0.55	0.21	1.60
4,501.0	18.90	154.90	4,366.3	-844.4	398.1	933.5	0.11	0.11	0.11
4,596.0	18.50	154.60	4,456.3	-871.9	411.1	964.0	0.43	-0.42	-0.32
4,691.0	19.50	154.90	4,546.1	-899.9	424.3	994.9	1.06	1.05	0.32
4,786.0	18.50	156.20	4,635.9	-928.0	437.1	1,025.8	1.14	-1.05	1.37
4,881.0	17.10	155.00	4,726.3	-954.5	449.1	1,054.8	1.52	-1.47	-1.26
4,976.0	15.10	156.30	4,817.6	-978.5	460.0	1,081.2	2.14	-2.11	1.37
5,071.0	14.00	155.80	4,909.6	-1,000.3	469.7	1,105.0	1.17	-1.16	-0.53
5,166.0	13.00	156.60	5,001.9	-1,020.6	478.6	1,127.2	1.07	-1.05	0.84
5,261.0	11.60	157.00	5,094.8	-1,039.2	486.6	1,147.4	1.48	-1.47	0.42
5,355.0	9.30	158.00	5,187.2	-1,054.9	493.1	1,164.5	2.45	-2.45	1.06
5,450.0	7.30	159.90	5,281.2	-1,067.7	498.1	1,178.2	2.12	-2.11	2.00
5,545.0	5.80	161.90	5,375.6	-1,077.9	501.6	1,188.9	1.60	-1.58	2.11
5,640.0	4.70	163.30	5,470.2	-1,086.2	504.3	1,197.5	1.17	-1.16	1.47
5,735.0	3.90	161.30	5,564.9	-1,093.0	506.4	1,204.6	0.86	-0.84	-2.11
5,830.0	3.30	156.30	5,659.7	-1,098.6	508.5	1,210.5	0.71	-0.63	-5.26
5,925.0	2.60	155.70	5,754.6	-1,103.0	510.5	1,215.4	0.74	-0.74	-0.63
5,970.9	1.96	157.35	5,800.5	-1,104.7	511.3	1,217.3	1.39	-1.39	3.59
TARGET BHL 1319'FNL, 1445'FEL									

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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)
6,019.0	1.30	160.80	5,848.5	-1,106.0	511.8	1,218.6	1.39	-1.38	7.18
6,113.0	0.60	134.50	5,942.5	-1,107.3	512.5	1,220.2	0.86	-0.74	-27.98
6,208.0	0.60	153.50	6,037.5	-1,108.1	513.0	1,221.1	0.21	0.00	20.00
6,303.0	0.60	148.70	6,132.5	-1,109.0	513.5	1,222.1	0.05	0.00	-5.05
6,398.0	0.50	165.00	6,227.5	-1,109.8	513.9	1,223.0	0.19	-0.11	17.16
6,492.0	0.70	175.70	6,321.5	-1,110.8	514.0	1,224.0	0.24	0.21	11.38
6,587.0	0.80	199.00	6,416.5	-1,112.0	513.9	1,225.0	0.34	0.11	24.53
6,682.0	1.00	220.20	6,511.5	-1,113.3	513.1	1,225.8	0.41	0.21	22.32
6,777.0	1.10	222.30	6,606.5	-1,114.6	512.0	1,226.5	0.11	0.11	2.21
6,870.3	1.79	241.19	6,699.7	-1,115.9	510.1	1,226.9	0.89	0.74	20.25
LEGAL BOX 800' X 800' 1318'FNL, 1445'FEL									
6,872.0	1.80	241.40	6,701.4	-1,116.0	510.0	1,226.9	0.89	0.80	12.16
6,967.0	2.30	245.70	6,796.4	-1,117.5	507.0	1,227.0	0.55	0.53	4.53
7,062.0	2.60	249.40	6,891.3	-1,119.0	503.2	1,226.8	0.36	0.32	3.89
7,157.0	2.90	250.00	6,986.2	-1,120.6	499.0	1,226.4	0.32	0.32	0.63
7,252.0	3.10	251.70	7,081.0	-1,122.2	494.3	1,225.9	0.23	0.21	1.79
7,347.0	3.10	252.80	7,175.9	-1,123.8	489.4	1,225.2	0.06	0.00	1.16
7,442.0	2.60	247.60	7,270.8	-1,125.4	484.9	1,224.8	0.59	-0.53	-5.47
7,536.0	2.30	249.30	7,364.7	-1,126.8	481.2	1,224.5	0.33	-0.32	1.81
7,584.0	2.20	250.20	7,412.7	-1,127.5	479.4	1,224.4	0.22	-0.21	1.88
7,626.0	2.10	251.10	7,454.6	-1,128.0	477.9	1,224.2	0.25	-0.24	2.14

Checked By: _____	Approved By: _____	Date: _____
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