

Well Name: **Schaefer 34-7D**

Surface Location: Schaefer 43-7D Pad Sec.7-T6N-R66W
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone

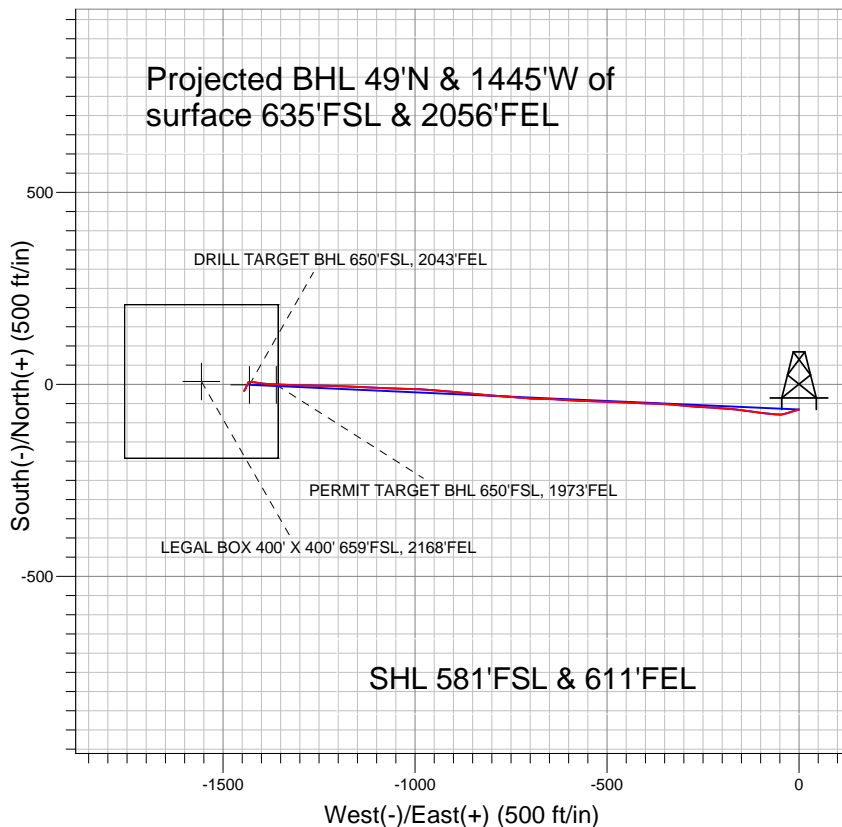
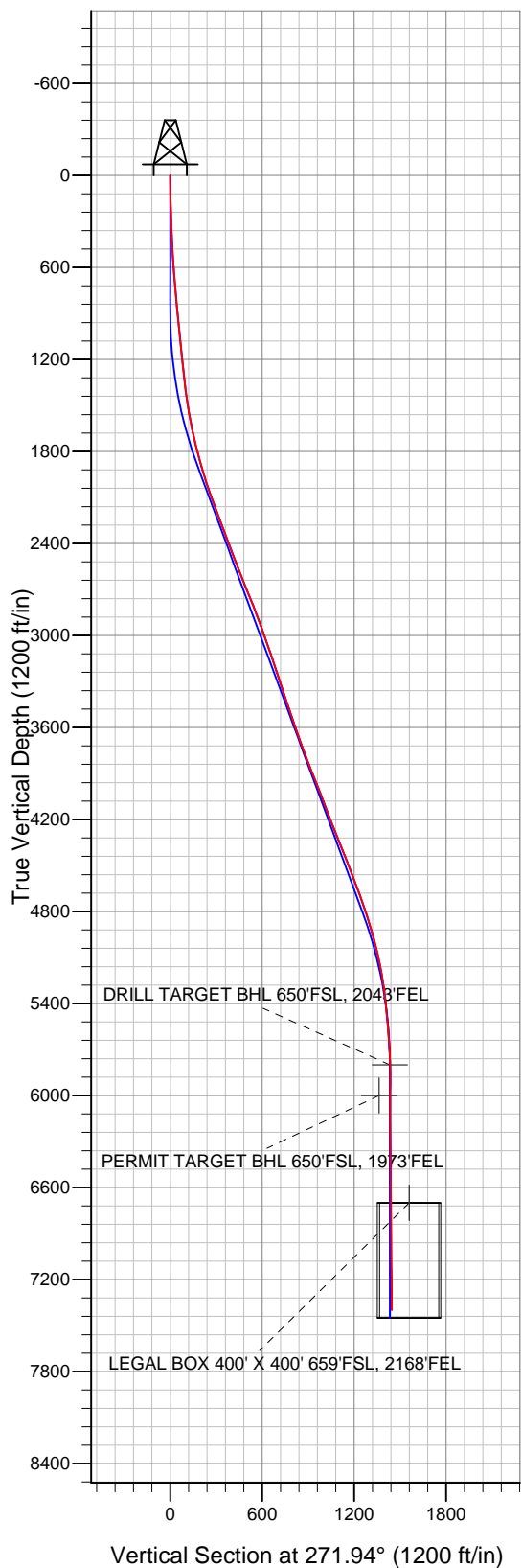
Ground Elevation: 4830.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
-65.6	0.0	1424435.74	3190856.69	40° 29' 47.220 N	104° 48' 49.464 W

Original Well Elev WELL @ 4843.0ft (Original Well Elev)

Slot

PETROLEUM DEVELOPMENT CORP Weld County CO



LEGEND

- ◆ Schaefer 34-7D, Wellbore #1, Plan #2 (7-10-10) V0
- Wellbore #1
- Survey #1

Final Survey Plot

Projected Final Survey -
7623'MD & 7398'TVD @ 1446' VS
1.5 deg Inc 216.2 deg AZ

Project: SEC.7-T6N-R66W
Site: Schaefer 43-7D Pad Sec.7-T6N-R66W
Well: Schaefer 34-7D
Plan: Wellbore #1



Directional

PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.7-T6N-R66W

Schaefer 43-7D Pad Sec.7-T6N-R66W

Schaefer 34-7D

Wellbore #1

Survey: Survey #1

Standard Survey Report

06 January, 2011

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Site Schaefer 43-7D Pad Sec.7-T6N-R66W
Project:	SEC.7-T6N-R66W	TVD Reference:	WELL @ 4843.0ft (Original Well Elev)
Site:	Schaefer 43-7D Pad Sec.7-T6N-R66W	MD Reference:	WELL @ 4843.0ft (Original Well Elev)
Well:	Schaefer 34-7D	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 43-7D Pad Sec.7-T6N-R66W				
Site Position:		Northing:	1,424,501.32 ft	Latitude:	40° 29' 47.868 N
From:	Lat/Long	Easting:	3,190,856.18 ft	Longitude:	104° 48' 49.464 W
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.44 °

Well	Schaefer 34-7D					
Well Position	+N-S	-65.6 ft	Northing:	1,424,435.74 ft	Latitude:	40° 29' 47.220 N
	+E-W	0.0 ft	Easting:	3,190,856.69 ft	Longitude:	104° 48' 49.464 W
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,830.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	6/1/2010	9.04	67.16	53,286

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 (°)	
	0.0	-65.6	0.0	271.94	

Survey Program	Date	1/6/2011			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
796.0	7,623.0	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	-65.6	0.0	0.0	0.00	0.00	0.00
796.0	5.70	253.30	794.7	-77.0	-37.9	37.5	0.72	0.72	0.00
891.0	5.60	265.00	889.2	-78.7	-47.0	46.6	1.21	-0.11	12.32
986.0	5.90	275.10	983.8	-78.7	-56.5	56.0	1.11	0.32	10.63
1,080.0	5.90	275.30	1,077.3	-77.8	-66.1	65.7	0.02	0.00	0.21
1,175.0	5.50	276.20	1,171.8	-76.9	-75.5	75.1	0.43	-0.42	0.95
1,270.0	5.50	275.30	1,266.3	-76.0	-84.6	84.2	0.09	0.00	-0.95
1,366.0	7.20	279.00	1,361.8	-74.6	-95.1	94.7	1.82	1.77	3.85
1,461.0	8.60	277.80	1,455.9	-72.7	-108.0	107.7	1.48	1.47	-1.26
1,555.0	9.80	276.50	1,548.6	-70.8	-122.9	122.7	1.30	1.28	-1.38
1,650.0	11.60	277.30	1,642.0	-68.7	-140.4	140.3	1.90	1.89	0.84
1,745.0	13.10	277.50	1,734.8	-66.1	-160.6	160.5	1.58	1.58	0.21

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Site Schaefer 43-7D Pad Sec.7-T6N-R66W
Project:	SEC.7-T6N-R66W	TVD Reference:	WELL @ 4843.0ft (Original Well Elev)
Site:	Schaefer 43-7D Pad Sec.7-T6N-R66W	MD Reference:	WELL @ 4843.0ft (Original Well Elev)
Well:	Schaefer 34-7D	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)
1,838.0	15.00	274.30	1,825.0	-63.8	-183.0	183.0	2.21	2.04	-3.44
1,933.0	16.50	275.00	1,916.4	-61.7	-208.7	208.8	1.59	1.58	0.74
2,027.0	17.90	272.10	2,006.2	-60.0	-236.5	236.5	1.75	1.49	-3.09
2,123.0	20.10	274.50	2,097.0	-58.2	-267.7	267.8	2.43	2.29	2.50
2,218.0	20.50	275.80	2,186.1	-55.2	-300.5	300.7	0.63	0.42	1.37
2,313.0	20.70	273.90	2,275.0	-52.4	-333.8	334.1	0.73	0.21	-2.00
2,408.0	20.50	272.20	2,363.9	-50.6	-367.2	367.5	0.66	-0.21	-1.79
2,503.0	21.10	271.80	2,452.8	-49.4	-400.9	401.2	0.65	0.63	-0.42
2,598.0	21.10	272.70	2,541.4	-48.1	-435.1	435.4	0.34	0.00	0.95
2,692.0	21.50	272.40	2,629.0	-46.6	-469.2	469.5	0.44	0.43	-0.32
2,787.0	22.70	272.20	2,717.0	-45.1	-504.9	505.3	1.27	1.26	-0.21
2,882.0	20.90	271.70	2,805.2	-43.9	-540.1	540.6	1.90	-1.89	-0.53
2,977.0	19.50	272.80	2,894.3	-42.7	-572.9	573.4	1.53	-1.47	1.16
3,071.0	20.20	273.90	2,982.8	-40.8	-604.8	605.3	0.84	0.74	1.17
3,165.0	20.30	272.80	3,070.9	-38.9	-637.3	637.8	0.42	0.11	-1.17
3,261.0	18.50	271.00	3,161.5	-37.8	-669.1	669.7	1.98	-1.88	-1.88
3,355.0	18.60	273.40	3,250.6	-36.7	-699.0	699.6	0.82	0.11	2.55
3,450.0	17.90	275.90	3,340.8	-34.3	-728.6	729.3	1.11	-0.74	2.63
3,545.0	17.90	273.50	3,431.2	-31.9	-757.7	758.4	0.78	0.00	-2.53
3,639.0	18.90	274.40	3,520.4	-29.8	-787.3	788.1	1.11	1.06	0.96
3,734.0	19.20	275.30	3,610.2	-27.2	-818.2	819.1	0.44	0.32	0.95
3,828.0	20.10	275.20	3,698.7	-24.3	-849.7	850.6	0.96	0.96	-0.11
3,923.0	20.70	275.10	3,787.8	-21.3	-882.7	883.7	0.63	0.63	-0.11
4,018.0	21.40	275.30	3,876.4	-18.2	-916.7	917.7	0.74	0.74	0.21
4,111.0	22.10	274.40	3,962.8	-15.3	-951.0	952.2	0.83	0.75	-0.97
4,206.0	21.50	273.20	4,051.0	-13.0	-986.2	987.4	0.79	-0.63	-1.26
4,300.0	20.40	271.30	4,138.8	-11.7	-1,019.8	1,021.0	1.38	-1.17	-2.02
4,395.0	21.40	271.90	4,227.6	-10.7	-1,053.7	1,054.9	1.08	1.05	0.63
4,488.0	21.40	272.90	4,314.2	-9.3	-1,087.6	1,088.8	0.39	0.00	1.08
4,582.0	22.40	271.80	4,401.4	-7.9	-1,122.6	1,123.9	1.15	1.06	-1.17
4,677.0	22.30	272.70	4,489.2	-6.4	-1,158.7	1,160.0	0.38	-0.11	0.95
4,772.0	20.20	272.60	4,577.8	-4.8	-1,193.1	1,194.5	2.21	-2.21	-0.11
4,866.0	19.40	271.50	4,666.2	-3.7	-1,224.9	1,226.3	0.94	-0.85	-1.17
4,962.0	19.30	270.20	4,756.8	-3.2	-1,256.7	1,258.1	0.46	-0.10	-1.35
5,057.0	18.00	271.60	4,846.8	-2.8	-1,287.1	1,288.5	1.45	-1.37	1.47
5,152.0	16.70	272.00	4,937.5	-1.9	-1,315.4	1,316.8	1.37	-1.37	0.42
5,247.0	14.20	272.20	5,029.0	-0.9	-1,340.7	1,342.1	2.63	-2.63	0.21
5,343.0	11.60	272.10	5,122.6	-0.1	-1,362.1	1,363.5	2.71	-2.71	-0.10
5,438.0	9.40	273.50	5,216.0	0.7	-1,379.4	1,380.8	2.33	-2.32	1.47
5,533.0	7.60	275.80	5,310.0	1.8	-1,393.4	1,394.9	1.93	-1.89	2.42
5,627.0	6.20	279.40	5,403.3	3.2	-1,404.6	1,406.1	1.56	-1.49	3.83
5,723.0	5.40	279.80	5,498.8	4.9	-1,414.1	1,415.7	0.83	-0.83	0.42
5,817.0	4.20	272.50	5,592.5	5.8	-1,421.9	1,423.5	1.43	-1.28	-7.77
5,911.0	3.40	274.60	5,686.3	6.1	-1,428.2	1,429.8	0.86	-0.85	2.23
6,006.0	2.20	260.60	5,781.1	6.1	-1,432.8	1,434.4	1.44	-1.26	-14.74
6,024.9	1.82	252.50	5,800.1	5.9	-1,433.4	1,435.0	2.51	-2.01	-42.77
DRILL TARGET BHL 650'FSL, 2043'FEL									
6,101.0	1.30	179.30	5,876.1	4.7	-1,434.6	1,436.1	2.51	-0.68	-96.24
6,195.0	0.70	113.70	5,970.1	3.4	-1,434.0	1,435.5	1.27	-0.64	-69.79
6,225.3	0.47	117.39	6,000.4	3.3	-1,433.7	1,435.2	0.78	-0.77	12.17
PERMIT TARGET BHL 650'FSL, 1973'FEL									
6,290.0	0.10	223.30	6,065.1	3.1	-1,433.5	1,435.0	0.78	-0.57	163.66
6,386.0	0.40	252.80	6,161.1	2.9	-1,433.9	1,435.4	0.33	0.31	30.73

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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)	
6,481.0	0.50	230.70	6,256.1	2.6	-1,434.6	1,436.0	0.21	0.11	-23.26	
6,574.0	0.60	228.20	6,349.1	2.0	-1,435.2	1,436.7	0.11	0.11	-2.69	
6,669.0	0.70	216.90	6,444.1	1.2	-1,435.9	1,437.4	0.17	0.11	-11.89	
6,763.0	1.00	208.50	6,538.1	0.0	-1,436.7	1,438.1	0.34	0.32	-8.94	
6,858.0	1.00	207.60	6,633.0	-1.4	-1,437.5	1,438.8	0.02	0.00	-0.95	
6,925.8	1.07	206.50	6,700.8	-2.5	-1,438.0	1,439.3	0.11	0.11	-1.62	
LEGAL BOX 400' X 400' 659'FSL, 2168'FEL										
6,953.0	1.10	206.10	6,728.0	-3.0	-1,438.3	1,439.5	0.11	0.11	-1.47	
7,049.0	1.20	197.80	6,824.0	-4.8	-1,439.0	1,440.2	0.20	0.10	-8.65	
7,143.0	1.30	201.50	6,918.0	-6.7	-1,439.7	1,440.8	0.14	0.11	3.94	
7,239.0	1.20	202.90	7,014.0	-8.6	-1,440.4	1,441.5	0.11	-0.10	1.46	
7,333.0	1.40	203.30	7,107.9	-10.6	-1,441.3	1,442.3	0.21	0.21	0.43	
7,428.0	1.30	207.50	7,202.9	-12.6	-1,442.2	1,443.2	0.15	-0.11	4.42	
7,524.0	1.50	214.40	7,298.9	-14.6	-1,443.5	1,444.3	0.27	0.21	7.19	
7,581.0	1.50	215.30	7,355.9	-15.9	-1,444.3	1,445.2	0.04	0.00	1.58	
7,623.0	1.50	216.20	7,397.9	-16.8	-1,444.9	1,445.8	0.06	0.00	2.14	

Checked By: _____	Approved By: _____	Date: _____
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