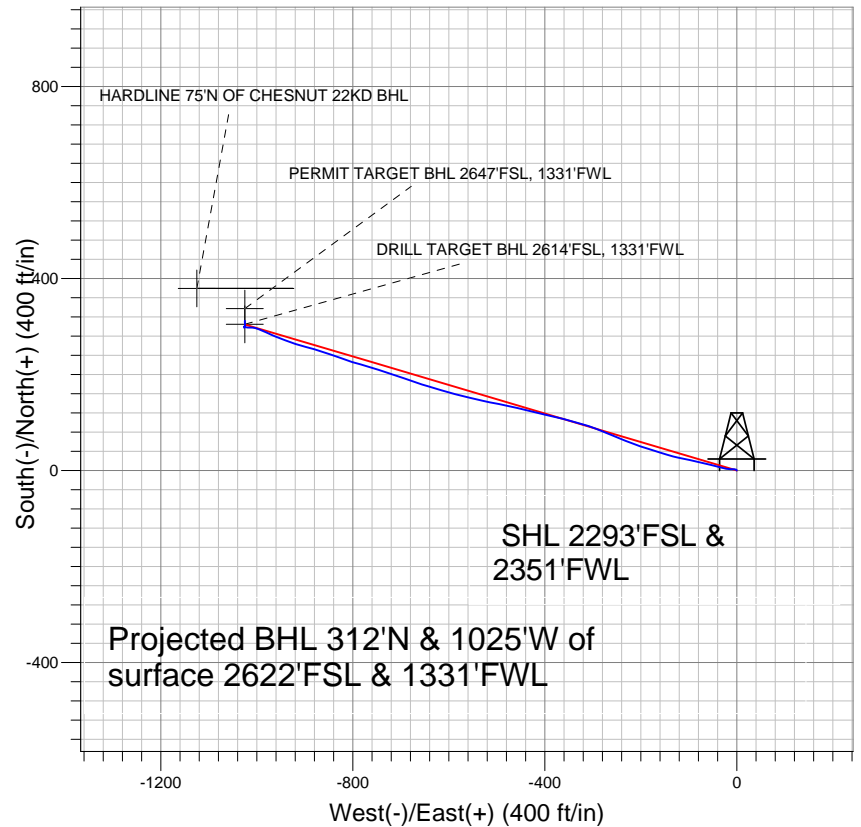


PETROLEUM DEVELOPMENT CORP Weld County CO



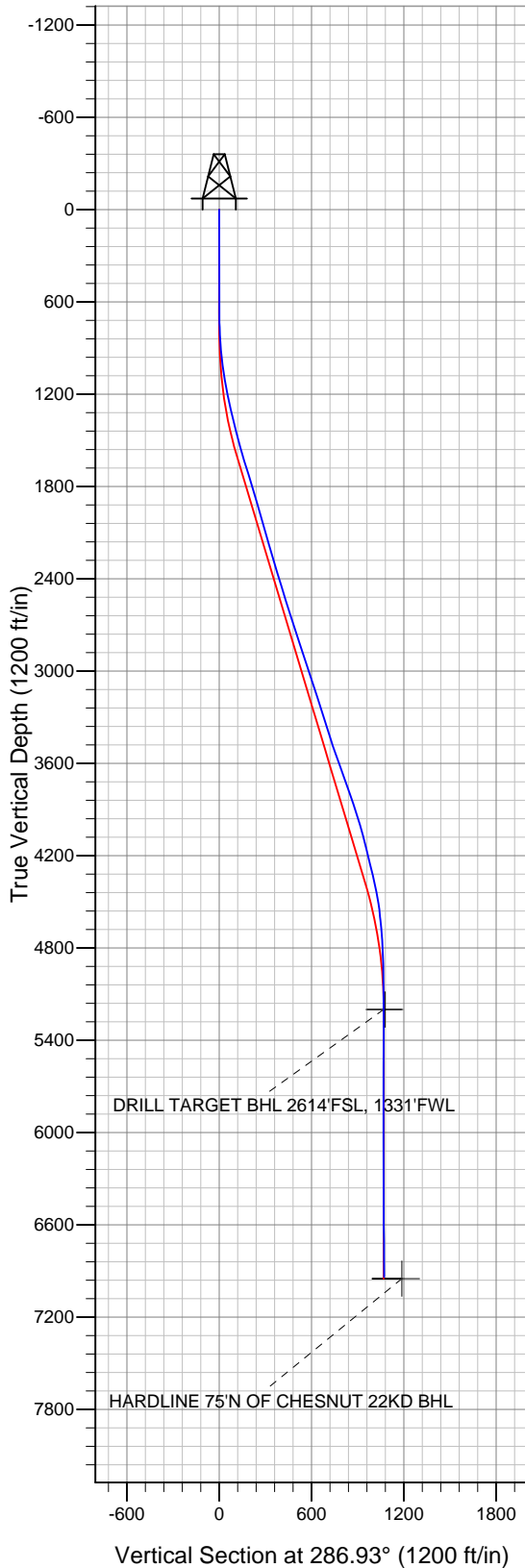
LEGEND

- Chesnut 22KD, Wellbore #1, Plan #1 (5-24-10) V0
- Wellbore #1

Final Survey Plot

Projected Final Survey -
 7090'MD & 6939'TVD @ 1071' VS
 0.9 deg Inc 11.2 deg AZ

Project: SEC.22-T5N-R64W
 Site: Chesnut 22KD Pad Sec.22-T5N-R64W
 Well: Chesnut 22KD
 Plan: Wellbore #1





Directional

PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.22-T5N-R64W

Chesnut 22KD Pad Sec.22-T5N-R64W

Chesnut 22KD

Wellbore #1

Design: Wellbore #1

Standard Survey Report

22 December, 2010

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Site Chesnut 22KD Pad Sec.22-T5N-R64W
Project:	SEC.22-T5N-R64W	TVD Reference:	WELL @ 4613.0ft (Original Well Elev)
Site:	Chesnut 22KD Pad Sec.22-T5N-R64W	MD Reference:	WELL @ 4613.0ft (Original Well Elev)
Well:	Chesnut 22KD	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Landmark

Project	SEC.22-T5N-R64W, 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	Chesnut 22KD Pad Sec.22-T5N-R64W				
Site Position:		Northing:	1,384,126.67 ft	Latitude:	40° 23' 1.788 N
From:	Lat/Long	Easting:	3,268,289.24 ft	Longitude:	104° 32' 12.876 W
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.62 °

Well	Chesnut 22KD					
Well Position	+N-S	0.0 ft	Northing:	1,384,126.66 ft	Latitude:	40° 23' 1.788 N
	+E-W	0.0 ft	Easting:	3,268,289.24 ft	Longitude:	104° 32' 12.876 W
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,600.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	11/23/2010	8.82	67.09	53,208

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	0.0	0.0	286.93	

Survey Program	Date	12/22/2010			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
701.0	7,090.0	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	
701.0	0.30	330.90	701.0	1.6	-0.9	1.3	0.04	0.04	0.00	
796.0	2.60	280.40	796.0	2.2	-3.1	3.6	2.55	2.42	-53.16	
891.0	4.60	269.50	890.8	2.6	-9.1	9.4	2.22	2.11	-11.47	
986.0	6.70	277.00	985.3	3.2	-18.4	18.5	2.34	2.21	7.89	
1,080.0	8.80	283.30	1,078.4	5.5	-30.8	31.1	2.41	2.23	6.70	
1,175.0	10.90	284.30	1,172.0	9.4	-46.6	47.3	2.22	2.21	1.05	
1,270.0	12.90	285.00	1,265.0	14.4	-65.5	66.9	2.11	2.11	0.74	
1,365.0	14.00	281.70	1,357.4	19.5	-87.0	88.9	1.41	1.16	-3.47	
1,460.0	14.20	280.90	1,449.5	24.0	-109.7	112.0	0.29	0.21	-0.84	
1,555.0	15.20	285.30	1,541.4	29.5	-133.2	136.0	1.58	1.05	4.63	
1,650.0	17.10	286.40	1,632.7	36.7	-158.6	162.4	2.03	2.00	1.16	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Site Chesnut 22KD Pad Sec.22-T5N-R64W
Project:	SEC.22-T5N-R64W	TVD Reference:	WELL @ 4613.0ft (Original Well Elev)
Site:	Chesnut 22KD Pad Sec.22-T5N-R64W	MD Reference:	WELL @ 4613.0ft (Original Well Elev)
Well:	Chesnut 22KD	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)
1,745.0	17.10	288.90	1,723.5	45.2	-185.2	190.3	0.77	0.00	2.63
1,838.0	16.50	289.30	1,812.5	54.0	-210.6	217.2	0.66	-0.65	0.43
1,933.0	16.50	291.70	1,903.6	63.4	-235.9	244.1	0.72	0.00	2.53
2,026.0	16.10	293.70	1,992.8	73.5	-260.0	270.1	0.74	-0.43	2.15
2,122.0	15.80	291.10	2,085.2	83.5	-284.3	296.3	0.81	-0.31	-2.71
2,217.0	16.40	287.90	2,176.4	92.3	-309.2	322.7	1.13	0.63	-3.37
2,312.0	16.30	286.10	2,267.6	100.1	-334.7	349.4	0.54	-0.11	-1.89
2,408.0	16.50	284.80	2,359.7	107.4	-360.9	376.5	0.44	0.21	-1.35
2,503.0	17.10	282.60	2,450.6	113.8	-387.5	403.9	0.92	0.63	-2.32
2,597.0	17.40	283.30	2,540.4	120.1	-414.7	431.7	0.39	0.32	0.74
2,692.0	18.20	282.80	2,630.8	126.6	-443.0	460.7	0.86	0.84	-0.53
2,787.0	17.50	283.30	2,721.3	133.2	-471.4	489.7	0.75	-0.74	0.53
2,882.0	18.30	280.70	2,811.7	139.3	-499.9	518.8	1.19	0.84	-2.74
2,976.0	19.10	282.70	2,900.7	145.4	-529.4	548.8	1.09	0.85	2.13
3,070.0	17.80	283.00	2,989.9	152.0	-558.4	578.5	1.39	-1.38	0.32
3,165.0	18.10	284.80	3,080.3	159.0	-586.8	607.7	0.66	0.32	1.89
3,260.0	17.80	286.80	3,170.6	167.0	-615.0	637.0	0.72	-0.32	2.11
3,355.0	17.50	286.30	3,261.2	175.2	-642.6	665.8	0.35	-0.32	-0.53
3,449.0	18.10	289.70	3,350.7	184.1	-669.9	694.5	1.28	0.64	3.62
3,544.0	17.70	288.30	3,441.1	193.6	-697.5	723.7	0.62	-0.42	-1.47
3,639.0	19.30	288.30	3,531.2	203.1	-726.2	753.8	1.68	1.68	0.00
3,733.0	19.90	287.40	3,619.7	212.7	-756.2	785.4	0.71	0.64	-0.96
3,827.0	19.20	285.30	3,708.3	221.6	-786.4	816.8	1.06	-0.74	-2.23
3,922.0	20.10	289.80	3,797.8	231.3	-816.8	848.7	1.85	0.95	4.74
4,018.0	18.10	288.40	3,888.5	241.6	-846.5	880.1	2.14	-2.08	-1.46
4,110.0	16.70	287.60	3,976.3	250.1	-872.6	907.6	1.54	-1.52	-0.87
4,205.0	14.70	285.20	4,067.7	257.4	-897.3	933.3	2.21	-2.11	-2.53
4,299.0	14.00	287.10	4,158.8	263.8	-919.6	956.6	0.90	-0.74	2.02
4,394.0	13.70	291.00	4,251.0	271.2	-941.1	979.3	1.03	-0.32	4.11
4,487.0	13.40	292.60	4,341.4	279.3	-961.4	1,001.0	0.52	-0.32	1.72
4,581.0	11.20	294.30	4,433.3	287.3	-979.7	1,020.9	2.37	-2.34	1.81
4,676.0	8.20	292.90	4,526.9	293.7	-994.4	1,036.8	3.17	-3.16	-1.47
4,771.0	5.50	279.10	4,621.2	297.1	-1,005.1	1,048.1	3.31	-2.84	-14.53
4,866.0	4.00	272.40	4,715.9	297.9	-1,012.9	1,055.8	1.68	-1.58	-7.05
4,962.0	3.30	268.10	4,811.7	298.0	-1,019.0	1,061.6	0.78	-0.73	-4.48
5,056.0	2.00	287.30	4,905.6	298.4	-1,023.3	1,065.8	1.66	-1.38	20.43
5,151.0	0.70	347.90	5,000.6	299.4	-1,025.0	1,067.8	1.86	-1.37	63.79
5,246.0	0.30	351.80	5,095.6	300.2	-1,025.2	1,068.2	0.42	-0.42	4.11
5,342.0	0.00	47.70	5,191.6	300.5	-1,025.2	1,068.3	0.31	-0.31	0.00
5,350.3	0.07	233.90	5,199.8	300.5	-1,025.2	1,068.3	0.84	0.84	0.00
PERMIT TARGET BHL 2647'FSL, 1331'FWL									
5,350.4	0.07	233.90	5,200.0	300.5	-1,025.2	1,068.3	0.00	0.00	0.00
DRILL TARGET BHL 2614'FSL, 1331'FWL									
5,437.0	0.80	233.90	5,286.6	300.1	-1,025.7	1,068.7	0.84	0.84	0.00
5,532.0	0.90	192.80	5,381.6	299.0	-1,026.4	1,069.0	0.64	0.11	-43.26
5,722.0	0.30	94.20	5,571.5	297.5	-1,026.3	1,068.4	0.52	-0.32	-51.89
5,911.0	0.30	27.40	5,760.5	297.9	-1,025.6	1,067.9	0.17	0.00	-35.34
6,005.0	0.30	3.10	5,854.5	298.4	-1,025.4	1,067.9	0.13	0.00	-25.85
6,100.0	0.40	11.50	5,949.5	298.9	-1,025.4	1,068.0	0.12	0.11	8.84
6,195.0	0.30	334.40	6,044.5	299.5	-1,025.4	1,068.2	0.25	-0.11	-39.05
6,290.0	0.60	15.10	6,139.5	300.2	-1,025.4	1,068.3	0.44	0.32	42.84
6,385.0	0.70	14.40	6,234.5	301.2	-1,025.1	1,068.4	0.11	0.11	-0.74
6,480.0	0.70	14.70	6,329.5	302.3	-1,024.8	1,068.4	0.00	0.00	0.32

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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)
6,574.0	1.00	354.80	6,423.5	303.7	-1,024.7	1,068.8	0.44	0.32	-21.17
6,669.0	0.90	3.50	6,518.5	305.3	-1,024.8	1,069.3	0.18	-0.11	9.16
6,762.0	1.00	356.00	6,611.5	306.8	-1,024.8	1,069.7	0.17	0.11	-8.06
6,858.0	0.90	350.20	6,707.5	308.4	-1,025.0	1,070.4	0.14	-0.10	-6.04
6,952.0	0.90	0.20	6,801.5	309.9	-1,025.1	1,070.9	0.17	0.00	10.64
7,090.0	0.90	11.20	6,939.4	312.0	-1,024.9	1,071.3	0.13	0.00	7.97
HARDLINE 75'N OF CHESNUT 22KD BHL									

Checked By: _____	Approved By: _____	Date: _____
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