

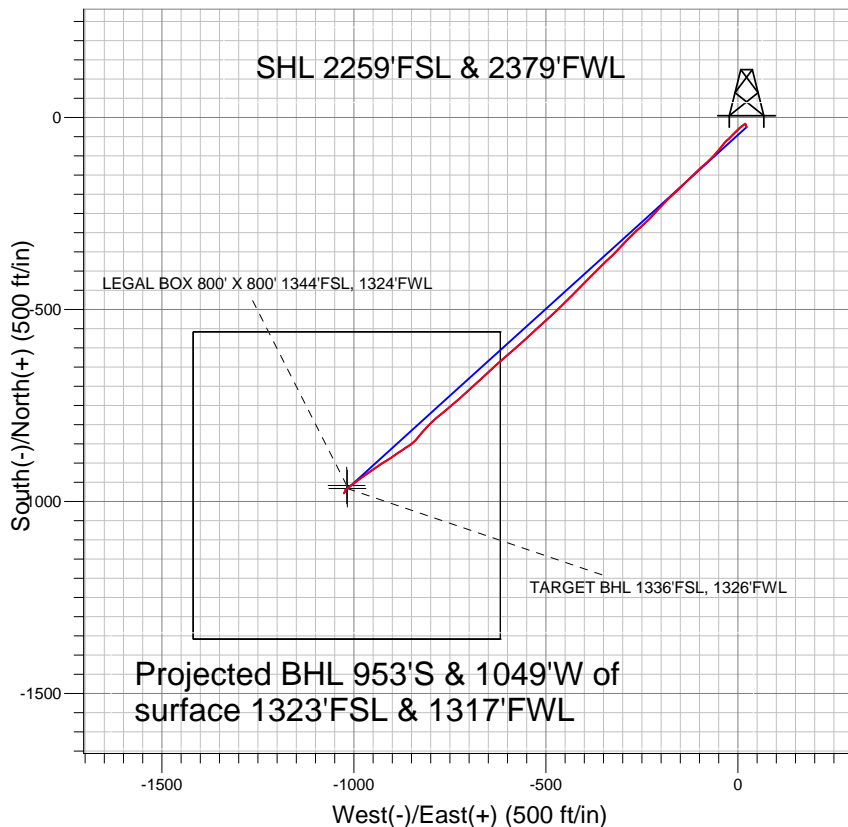
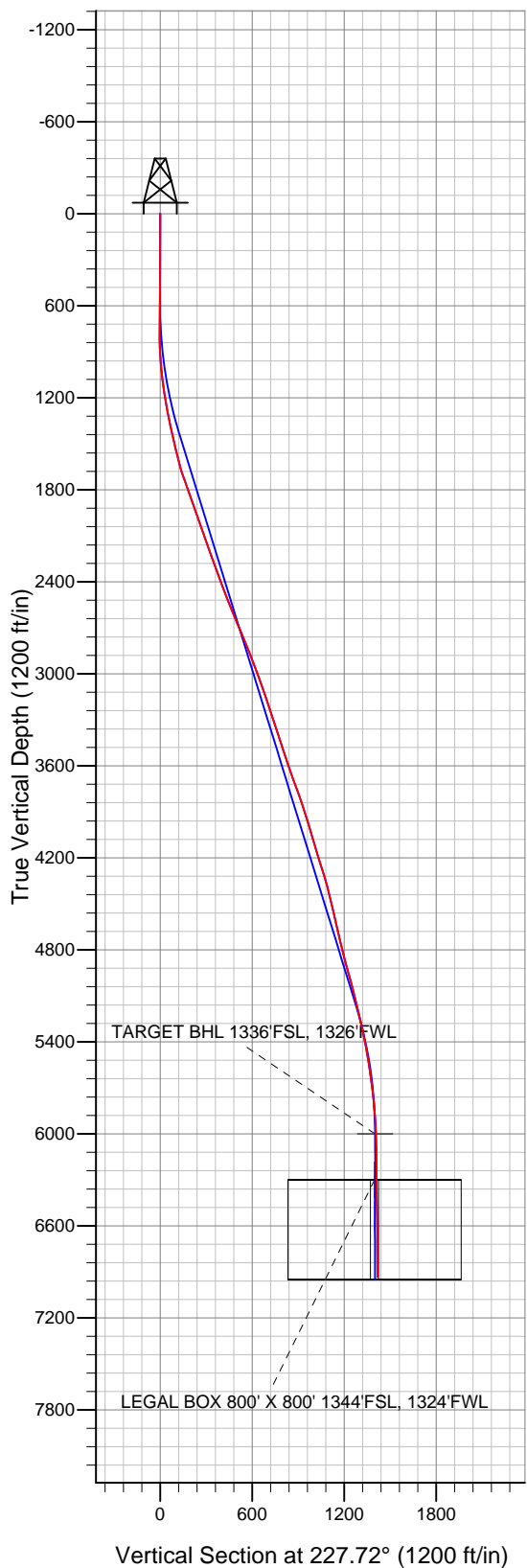
Well Name: **Chesnut 22BD**

Surface Location: Chesnut 22KD Pad Sec.22-T5N-R64W
 North American Datum 1983 US State Plane 1983 Colorado Northern Zone

Ground Elevation: 4600.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
-25.5	22.3	1384101.40	3268311.80	40° 23' 1.536 N	104° 32' 12.588 W	
Original Well Elev WELL @ 4613.0ft (Original Well Elev)						

PETROLEUM DEVELOPMENT CORP Weld County CO



LEGEND

- ◆ Chesnut 22BD, Wellbore #1, Plan #1 (5-24-10) V0
- Wellbore #1
- Survey #1

Final Survey Plot

Projected Final Survey -
 7145'MD & 6932'TVD @ 1417' VS
 0.2 deg Inc 172.1 deg AZ

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



Directional

PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.22-T5N-R64W

Chesnut 22KD Pad Sec.22-T5N-R64W

Chesnut 22BD

Wellbore #1

Survey: Survey #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 22BD	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 22BD					
Well Position	+N-S	-25.5 ft	Northing:	1,384,101.40 ft	Latitude:	40° 23' 1.536 N
	+E-W	22.3 ft	Easting:	3,268,311.80 ft	Longitude:	104° 32' 12.588 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	12/2/2010	8.81	67.09	53,206

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	-25.5	22.3	227.72	

Survey Program	Date	12/22/2010			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
797.0	7,145.0	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	-25.5	22.3	0.0	0.00	0.00	0.00
797.0	1.30	340.60	796.9	-17.0	19.3	-3.5	0.16	0.16	0.00
892.0	2.80	228.40	891.9	-17.5	17.2	-1.6	3.69	1.58	-118.11
986.0	4.80	233.30	985.7	-21.4	12.3	4.6	2.15	2.13	5.21
1,081.0	6.90	231.70	1,080.2	-27.3	4.7	14.2	2.22	2.21	-1.68
1,175.0	8.80	224.10	1,173.3	-36.0	-4.8	27.1	2.30	2.02	-8.09
1,270.0	11.10	224.40	1,266.9	-47.7	-16.2	43.4	2.42	2.42	0.32
1,365.0	12.20	226.70	1,359.9	-61.1	-29.9	62.6	1.26	1.16	2.42
1,461.0	12.10	216.90	1,453.8	-76.1	-43.4	82.6	2.15	-0.10	-10.21
1,556.0	13.20	219.30	1,546.5	-92.5	-56.2	103.1	1.28	1.16	2.53
1,651.0	16.00	229.10	1,638.4	-109.5	-73.0	127.0	3.92	2.95	10.32
1,746.0	18.80	227.10	1,729.0	-128.5	-94.1	155.4	3.01	2.95	-2.11

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 22BD	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	19.60	225.80	1,815.9	-149.3	-116.0	185.6	0.99	0.87	-1.41
1,933.0	19.70	225.20	1,905.4	-171.7	-138.8	217.5	0.24	0.11	-0.63
2,027.0	19.90	227.50	1,993.8	-193.7	-161.8	249.4	0.86	0.21	2.45
2,123.0	19.90	225.90	2,084.1	-216.1	-185.6	282.0	0.57	0.00	-1.67
2,218.0	18.90	220.70	2,173.7	-239.0	-207.3	313.5	2.10	-1.05	-5.47
2,313.0	19.80	224.50	2,263.4	-262.1	-228.6	344.8	1.63	0.95	4.00
2,408.0	20.20	229.20	2,352.6	-284.3	-252.3	377.3	1.74	0.42	4.95
2,503.0	20.80	225.60	2,441.6	-306.9	-276.7	410.5	1.47	0.63	-3.79
2,597.0	21.60	222.60	2,529.3	-331.3	-300.4	444.4	1.43	0.85	-3.19
2,692.0	22.20	224.40	2,617.4	-357.0	-324.8	479.8	0.95	0.63	1.89
2,787.0	23.40	226.90	2,705.0	-382.7	-351.1	516.6	1.62	1.26	2.63
2,882.0	21.90	225.80	2,792.6	-407.9	-377.6	553.1	1.64	-1.58	-1.16
2,977.0	22.20	224.20	2,880.7	-433.1	-402.8	588.7	0.71	0.32	-1.68
3,071.0	20.60	224.70	2,968.2	-457.6	-426.8	623.0	1.71	-1.70	0.53
3,165.0	18.80	223.90	3,056.7	-480.3	-449.0	654.6	1.94	-1.91	-0.85
3,261.0	19.00	227.40	3,147.5	-502.0	-471.2	685.7	1.20	0.21	3.65
3,355.0	18.80	227.40	3,236.5	-522.6	-493.6	716.1	0.21	-0.21	0.00
3,450.0	18.40	227.50	3,326.5	-543.1	-515.9	746.4	0.42	-0.42	0.11
3,545.0	17.70	226.70	3,416.8	-563.2	-537.5	775.9	0.78	-0.74	-0.84
3,639.0	18.10	229.40	3,506.3	-582.5	-559.0	804.7	0.98	0.43	2.87
3,734.0	19.00	228.90	3,596.3	-602.2	-581.8	835.0	0.96	0.95	-0.53
3,828.0	19.80	228.90	3,685.0	-622.8	-605.4	866.2	0.85	0.85	0.00
3,923.0	20.10	228.10	3,774.3	-644.2	-629.6	898.6	0.43	0.32	-0.84
4,018.0	18.50	226.70	3,864.0	-665.5	-652.8	930.0	1.75	-1.68	-1.47
4,116.0	17.10	227.00	3,957.3	-686.0	-674.6	959.9	1.43	-1.43	0.31
4,206.0	16.90	226.60	4,043.3	-704.0	-693.8	986.2	0.26	-0.22	-0.44
4,300.0	16.40	228.00	4,133.4	-722.2	-713.6	1,013.2	0.68	-0.53	1.49
4,395.0	16.70	231.00	4,224.5	-739.8	-734.2	1,040.2	0.95	0.32	3.16
4,488.0	18.00	229.60	4,313.2	-757.5	-755.5	1,067.9	1.47	1.40	-1.51
4,582.0	14.10	230.60	4,403.6	-774.2	-775.4	1,093.9	4.16	-4.15	1.06
4,677.0	13.10	225.50	4,495.9	-789.1	-792.0	1,116.2	1.64	-1.05	-5.37
4,772.0	13.50	227.10	4,588.3	-804.2	-807.8	1,138.0	0.57	0.42	1.68
4,866.0	12.70	218.20	4,679.9	-819.8	-822.2	1,159.2	2.31	-0.85	-9.47
4,962.0	13.90	220.90	4,773.3	-836.8	-836.3	1,181.1	1.41	1.25	2.81
5,057.0	14.40	234.80	4,865.5	-852.2	-853.5	1,204.1	3.61	0.53	14.63
5,152.0	16.30	236.80	4,957.1	-866.4	-874.3	1,229.0	2.08	2.00	2.11
5,247.0	14.40	235.00	5,048.7	-880.4	-895.1	1,253.9	2.06	-2.00	-1.89
5,343.0	13.50	237.60	5,141.9	-893.3	-914.3	1,276.8	1.14	-0.94	2.71
5,438.0	14.40	238.10	5,234.1	-905.5	-933.7	1,299.3	0.96	0.95	0.53
5,533.0	11.60	234.20	5,326.6	-917.3	-951.5	1,320.4	3.09	-2.95	-4.11
5,627.0	11.10	233.90	5,418.8	-928.2	-966.5	1,338.8	0.54	-0.53	-0.32
5,722.0	9.50	234.50	5,512.2	-938.1	-980.3	1,355.7	1.69	-1.68	0.63
5,817.0	7.90	232.60	5,606.1	-946.6	-991.8	1,370.0	1.71	-1.68	-2.00
5,911.0	7.20	233.60	5,699.3	-954.0	-1,001.7	1,382.3	0.76	-0.74	1.06
6,006.0	5.50	234.50	5,793.7	-960.2	-1,010.2	1,392.7	1.79	-1.79	0.95
6,101.0	4.40	231.20	5,888.4	-965.1	-1,016.7	1,400.9	1.20	-1.16	-3.47
6,195.0	2.80	226.40	5,982.2	-969.0	-1,021.2	1,406.8	1.73	-1.70	-5.11
6,212.7	2.37	222.90	5,999.8	-969.5	-1,021.8	1,407.6	2.60	-2.45	-19.83
TARGET BHL 1336'FSL, 1326'FWL									
6,290.0	0.90	166.60	6,077.1	-971.3	-1,022.7	1,409.5	2.60	-1.90	-72.80
6,387.0	0.60	185.10	6,174.1	-972.6	-1,022.6	1,410.2	0.39	-0.31	19.07
6,480.0	0.70	201.80	6,267.1	-973.6	-1,022.8	1,411.1	0.23	0.11	17.96
6,512.7	0.69	209.93	6,299.8	-973.9	-1,023.0	1,411.4	0.30	-0.04	24.86

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Well:	Chesnut 22BD	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)	
LEGAL BOX 800' X 800' 1344'FSL, 1324'FWL										
6,574.0	0.70	225.30	6,361.1	-974.5	-1,023.5	1,412.2	0.30	0.02	25.08	
6,669.0	0.70	205.20	6,456.1	-975.4	-1,024.1	1,413.3	0.26	0.00	-21.16	
6,763.0	0.70	216.90	6,550.1	-976.4	-1,024.7	1,414.4	0.15	0.00	12.45	
6,858.0	0.60	212.50	6,645.1	-977.3	-1,025.3	1,415.4	0.12	-0.11	-4.63	
6,953.0	0.50	223.90	6,740.1	-978.0	-1,025.9	1,416.3	0.16	-0.11	12.00	
7,101.0	0.20	172.10	6,888.1	-978.7	-1,026.3	1,417.1	0.28	-0.20	-35.00	
7,145.0	0.20	172.10	6,932.1	-978.9	-1,026.3	1,417.2	0.00	0.00	0.00	

Checked By: _____	Approved By: _____	Date: _____
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