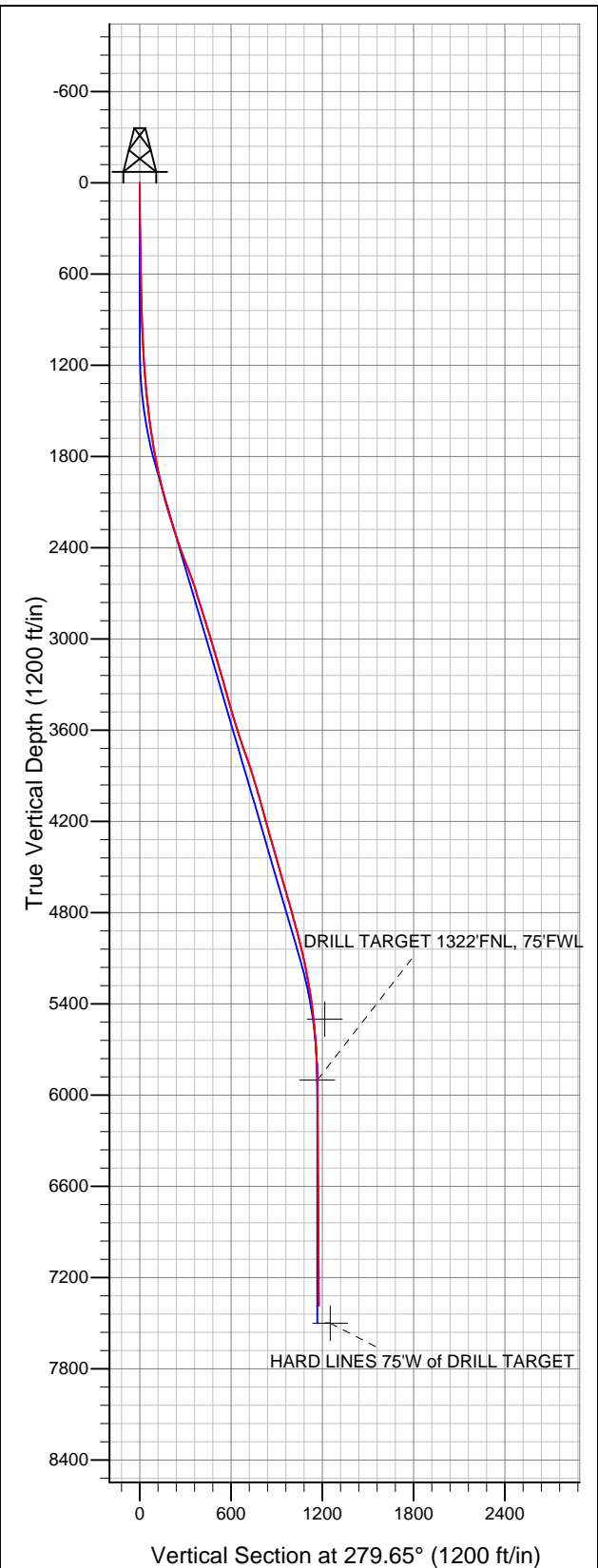




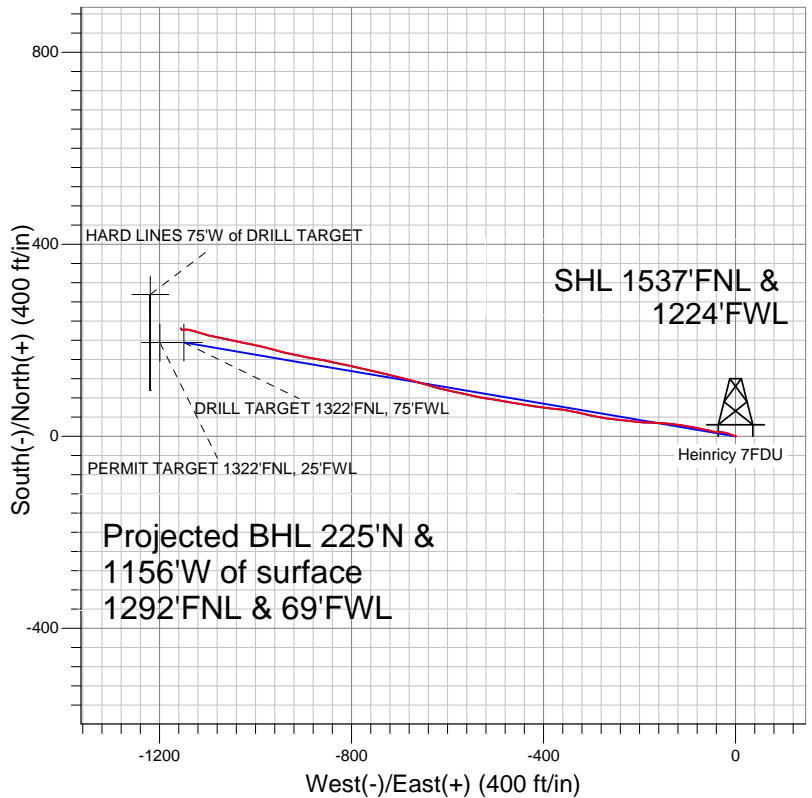
Well Name: Heinricy 7FDU

Surface Location: Heinricy Pad Sec.7-T5N-R67W
North American Datum 1983 US State Plane 1983Colorado Northern Zone
Ground Elevation: 4980.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1395340.50	3155925.05	40.417260	-104.940000	
Original Well EleWELL @ 4993.0ft (Original Well Elev)						



PETROLEUM DEVELOPMENT CORP Weld County CO



LEGEND

- Heinricy 7FDU, Wellbore #1, Plan #1 (10-05-10) V0
- Wellbore #1
- Survey #1

Final Survey Plot

Projected Final Survey -
7539'MD & 7384'TVD @ 1177' VS
0.4 deg Inc 326.2 deg AZ

Project: SEC.7-T5N-R67W
Site: Heinricy Pad Sec.7-T5N-R67W
Well: Heinricy 7FDU
Plan: Wellbore #1



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.7-T5N-R67W

Heinricy Pad Sec.7-T5N-R67W

Heinricy 7FDU

Wellbore #1

Survey: Survey #1

Standard Survey Report

03 October, 2011

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Heinrich 7FDU
Project:	SEC.7-T5N-R67W	TVD Reference:	WELL @ 4993.0ft (Original Well Elev)
Site:	Heinrich Pad Sec.7-T5N-R67W	MD Reference:	WELL @ 4993.0ft (Original Well Elev)
Well:	Heinrich 7FDU	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Landmark

Project	SEC.7-T5N-R67W, 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		Heinricy Pad Sec.7-T5N-R67W			
Site Position:		Northing:	1,395,340.92 ft	Latitude:	40.417260
From:	Lat/Long	Easting:	3,155,989.09 ft	Longitude:	-104.939770
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.36 °

Well	Heinricy 7FDU					
Well Position	+N-S	0.0 ft	Northing:	1,395,340.50 ft	Latitude:	40.417260
	+E-W	0.0 ft	Easting:	3,155,925.05 ft	Longitude:	-104.940000
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,980.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	9/22/2011	8.92	67.03	53,092

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 (°)	
	5,900.0	0.0	0.0	279.65	

Survey Program	Date	10/3/2011			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
222.0	7,539.0	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
222.0	0.50	289.00	222.0	0.3	-0.9	1.0	0.23	0.23	0.00
556.0	1.00	289.00	556.0	1.7	-5.0	5.3	0.15	0.15	0.00
711.0	1.00	289.00	710.9	2.6	-7.6	7.9	0.00	0.00	0.00
959.0	2.80	289.00	958.8	5.3	-15.4	16.1	0.73	0.73	0.00
1,054.0	3.10	289.40	1,053.7	6.9	-20.0	20.9	0.32	0.32	0.42
1,149.0	3.30	278.30	1,148.5	8.2	-25.1	26.1	0.68	0.21	-11.68
1,244.0	3.70	273.60	1,243.3	8.7	-30.9	31.9	0.52	0.42	-4.95
1,339.0	5.00	268.00	1,338.1	8.8	-38.1	39.0	1.44	1.37	-5.89
1,434.0	5.30	286.60	1,432.7	9.9	-46.4	47.4	1.78	0.32	19.58
1,528.0	6.90	280.70	1,526.2	12.2	-56.1	57.4	1.83	1.70	-6.28
1,623.0	8.70	283.20	1,620.3	14.9	-68.7	70.3	1.93	1.89	2.63

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Heinrich 7FDU
Project:	SEC.7-T5N-R67W	TVD Reference:	WELL @ 4993.0ft (Original Well Elev)
Site:	Heinricy Pad Sec.7-T5N-R67W	MD Reference:	WELL @ 4993.0ft (Original Well Elev)
Well:	Heinricy 7FDU	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)
1,718.0	9.80	280.10	1,714.0	17.9	-83.7	85.5	1.27	1.16	-3.26
1,813.0	10.80	279.50	1,807.5	20.8	-100.4	102.5	1.06	1.05	-0.63
1,908.0	12.60	278.70	1,900.5	23.9	-119.5	121.8	1.90	1.89	-0.84
2,003.0	14.20	275.80	1,992.9	26.6	-141.3	143.8	1.83	1.68	-3.05
2,098.0	15.10	271.00	2,084.9	28.0	-165.3	167.6	1.59	0.95	-5.05
2,193.0	16.30	273.50	2,176.3	29.0	-190.9	193.1	1.45	1.26	2.63
2,288.0	17.50	277.30	2,267.2	31.7	-218.4	220.6	1.72	1.26	4.00
2,383.0	18.40	276.00	2,357.6	35.0	-247.5	249.9	1.04	0.95	-1.37
2,476.0	20.90	278.90	2,445.2	39.1	-278.5	281.1	2.88	2.69	3.12
2,573.0	21.70	283.30	2,535.5	46.0	-313.0	316.3	1.84	0.82	4.54
2,667.0	18.50	281.50	2,623.8	52.9	-344.6	348.6	3.47	-3.40	-1.91
2,762.0	16.50	273.60	2,714.4	56.8	-372.8	377.1	3.26	-2.11	-8.32
2,857.0	17.90	279.70	2,805.2	60.1	-400.7	405.1	2.40	1.47	6.42
2,952.0	17.70	278.70	2,895.6	64.7	-429.3	434.1	0.38	-0.21	-1.05
3,046.0	16.60	277.70	2,985.4	68.7	-456.8	461.8	1.21	-1.17	-1.06
3,141.0	16.90	281.10	3,076.4	73.2	-483.8	489.2	1.08	0.32	3.58
3,236.0	16.00	277.70	3,167.5	77.6	-510.3	516.1	1.39	-0.95	-3.58
3,331.0	15.70	281.70	3,258.9	81.9	-535.9	542.0	1.19	-0.32	4.21
3,426.0	15.60	282.40	3,350.4	87.3	-560.9	567.6	0.22	-0.11	0.74
3,521.0	16.20	281.90	3,441.8	92.8	-586.4	593.6	0.65	0.63	-0.53
3,616.0	16.60	284.00	3,532.9	98.8	-612.5	620.4	0.75	0.42	2.21
3,710.0	18.60	287.30	3,622.5	106.5	-639.8	648.6	2.38	2.13	3.51
3,805.0	19.30	283.80	3,712.4	114.7	-669.6	679.3	1.40	0.74	-3.68
3,900.0	19.00	284.60	3,802.1	122.4	-699.8	710.4	0.42	-0.32	0.84
3,995.0	17.90	283.50	3,892.2	129.7	-728.9	740.4	1.21	-1.16	-1.16
4,090.0	16.10	282.70	3,983.1	136.0	-756.0	768.1	1.91	-1.89	-0.84
4,185.0	15.50	282.70	4,074.5	141.7	-781.2	793.9	0.63	-0.63	0.00
4,280.0	15.80	282.60	4,165.9	147.3	-806.2	819.5	0.32	0.32	-0.11
4,374.0	15.80	282.00	4,256.4	152.7	-831.2	845.1	0.17	0.00	-0.64
4,469.0	16.00	281.70	4,347.8	158.1	-856.7	871.1	0.23	0.21	-0.32
4,564.0	15.30	279.10	4,439.2	162.7	-881.9	896.7	1.04	-0.74	-2.74
4,659.0	16.20	283.10	4,530.7	167.7	-907.2	922.5	1.48	0.95	4.21
4,754.0	15.70	280.90	4,622.0	173.1	-932.7	948.5	0.83	-0.53	-2.32
4,849.0	16.60	285.70	4,713.3	179.3	-958.4	974.9	1.69	0.95	5.05
4,944.0	15.60	283.80	4,804.5	186.0	-983.9	1,001.1	1.19	-1.05	-2.00
5,039.0	15.20	281.60	4,896.1	191.5	-1,008.5	1,026.3	0.75	-0.42	-2.32
5,133.0	14.10	281.50	4,987.1	196.3	-1,031.8	1,050.1	1.17	-1.17	-0.11
5,228.0	12.90	282.20	5,079.5	200.8	-1,053.5	1,072.2	1.27	-1.26	0.74
5,323.0	10.90	281.60	5,172.4	204.9	-1,072.6	1,091.8	2.11	-2.11	-0.63
5,418.0	10.20	283.80	5,265.8	208.7	-1,089.6	1,109.2	0.85	-0.74	2.32
5,513.0	8.40	284.30	5,359.5	212.4	-1,104.5	1,124.5	1.90	-1.89	0.53
5,608.0	6.50	285.10	5,453.7	215.5	-1,116.4	1,136.7	2.00	-2.00	0.84
5,661.5	5.76	287.08	5,506.9	217.1	-1,121.9	1,142.4	1.43	-1.37	3.70
PERMIT TARGET 1322°FNL, 25°FNL									
5,703.0	5.20	289.00	5,548.2	218.3	-1,125.7	1,146.3	1.43	-1.36	4.62
5,798.0	4.70	285.50	5,642.9	220.8	-1,133.5	1,154.5	0.61	-0.53	-3.68
5,892.0	3.20	278.90	5,736.7	222.2	-1,139.8	1,160.9	1.66	-1.60	-7.02
5,987.0	1.50	273.20	5,831.6	222.7	-1,143.7	1,164.8	1.80	-1.79	-6.00
6,055.5	0.75	257.76	5,900.1	222.6	-1,145.0	1,166.1	1.18	-1.10	-22.53
DRILL TARGET 1322°FNL, 75°FNL									
6,082.0	0.50	239.80	5,926.6	222.5	-1,145.3	1,166.4	1.18	-0.93	-67.88
6,177.0	0.50	257.20	6,021.6	222.2	-1,146.0	1,167.1	0.16	0.00	18.32
6,272.0	0.40	269.50	6,116.6	222.1	-1,146.8	1,167.8	0.15	-0.11	12.95

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Heinrich 7FDU
Project:	SEC.7-T5N-R67W	TVD Reference:	WELL @ 4993.0ft (Original Well Elev)
Site:	Heinricy Pad Sec.7-T5N-R67W	MD Reference:	WELL @ 4993.0ft (Original Well Elev)
Well:	Heinricy 7FDU	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)
6,367.0	0.50	268.00	6,211.6	222.1	-1,147.5	1,168.5	0.11	0.11	-1.58
6,462.0	0.50	257.50	6,306.6	222.0	-1,148.3	1,169.3	0.10	0.00	-11.05
6,558.0	0.60	272.20	6,402.5	222.0	-1,149.2	1,170.2	0.18	0.10	15.31
6,653.0	0.60	272.70	6,497.5	222.0	-1,150.2	1,171.2	0.01	0.00	0.53
6,748.0	0.50	252.90	6,592.5	221.9	-1,151.1	1,172.0	0.22	-0.11	-20.84
6,843.0	0.50	253.80	6,687.5	221.7	-1,151.9	1,172.8	0.01	0.00	0.95
6,938.0	0.30	258.00	6,782.5	221.5	-1,152.6	1,173.4	0.21	-0.21	4.42
7,033.0	0.40	277.00	6,877.5	221.5	-1,153.1	1,173.9	0.16	0.11	20.00
7,127.0	0.30	292.20	6,971.5	221.6	-1,153.7	1,174.5	0.14	-0.11	16.17
7,222.0	0.50	342.40	7,066.5	222.1	-1,154.0	1,174.9	0.40	0.21	52.84
7,317.0	0.70	326.20	7,161.5	223.0	-1,154.5	1,175.5	0.27	0.21	-17.05
7,413.0	0.60	330.70	7,257.5	223.9	-1,155.1	1,176.2	0.12	-0.10	4.69
7,539.0	0.40	326.20	7,383.5	224.9	-1,155.6	1,177.0	0.16	-0.16	-3.57
HARD LINES 75'W of DRILL TARGET									

Checked By: _____ Approved By: _____ Date: _____