

PETROLEUM DEVELOPMENT CORP Weld County CO

Well Name: **Harvesters Resources 15M-423**

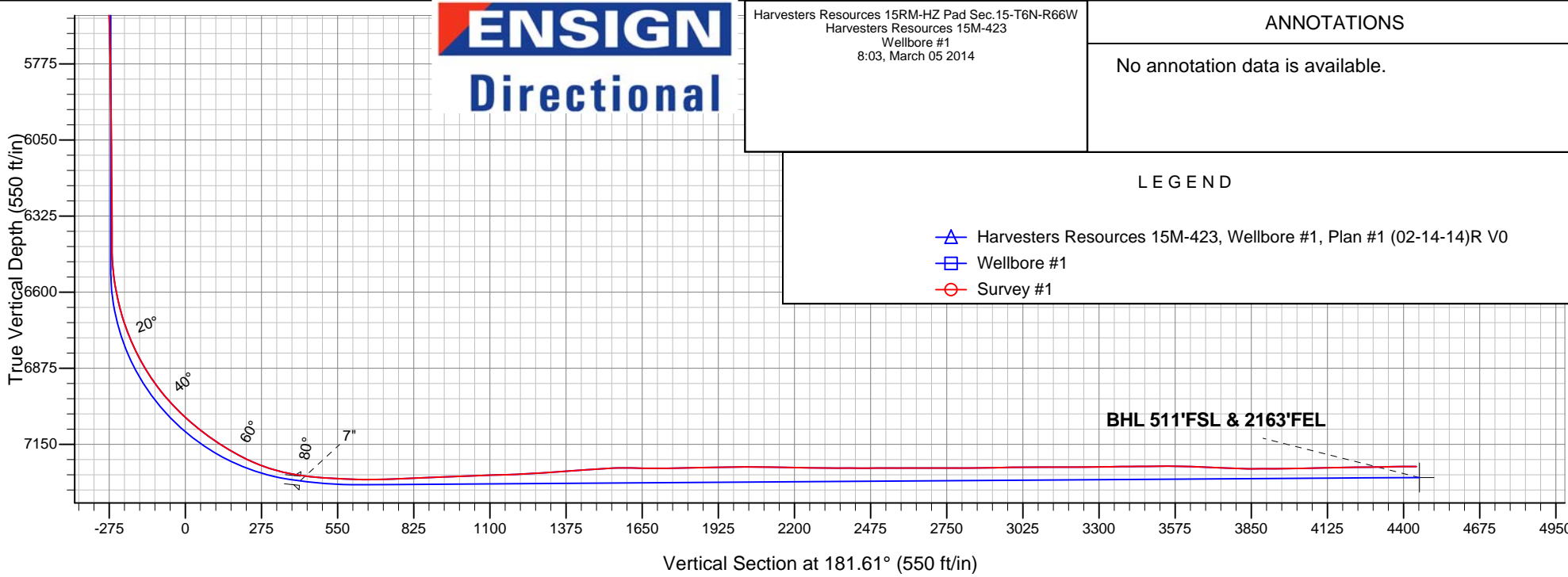
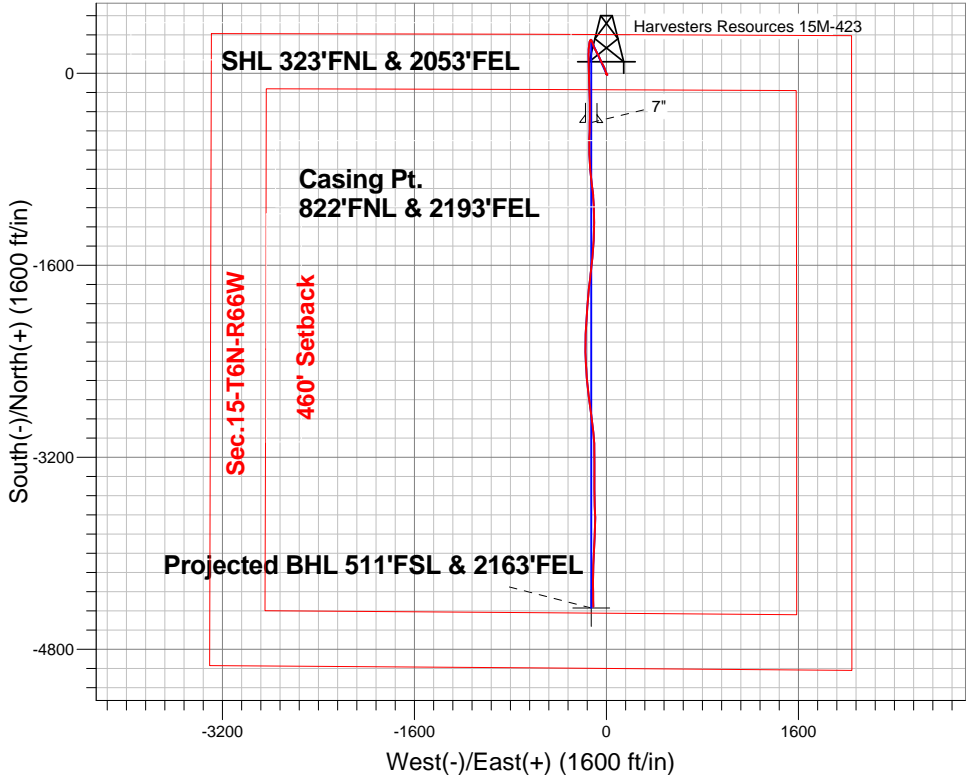
Surface Location: Harvesters Resources 15RM-HZ Pad Sec.15-T6N-R66W
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone

Ground Elevation: 4820.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1423918.58	3205390.18	40.494710	-104.761500	
RKB-15' WELL @ 4835.0ft (RKB-15')						

FINAL SURVEY

Projected Bottom Hole Location
11662'MD 7231'TVD 4444'S & 108'W of SHL
89.9 degree Incl @ 178.2 degree AZM





PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.15-T6N-R66W

Harvesters Resources 15RM-HZ Pad Sec.15-T6N-R66W

Harvesters Resources 15M-423

Wellbore #1

Survey: Survey #1

Standard Survey Report

05 March, 2014

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Harvesters Resources 15M-423
Project:	SEC.15-T6N-R66W	TVD Reference:	WELL @ 4835.0ft (RKB-15')
Site:	Harvesters Resources 15RM-HZ Pad Sec.15-T6N-R66W	MD Reference:	WELL @ 4835.0ft (RKB-15')
Well:	Harvesters Resources 15M-423	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Landmark

Project	SEC.15-T6N-R66W, Weld County, CO		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		Using geodetic scale factor

Site	Harvesters Resources 15RM-HZ Pad Sec.15-T6N-R66W				
Site Position:		Northing:	1,423,918.59 ft	Latitude:	40.494710
From:	Lat/Long	Easting:	3,205,390.18 ft	Longitude:	-104.761500
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.48 °

Well	Harvesters Resources 15M-423					
Well Position	+N-S	0.0 ft	Northing:	1,423,918.58 ft	Latitude:	40.494710
	+E-W	0.0 ft	Easting:	3,205,390.18 ft	Longitude:	-104.761500
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,820.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	3/3/2014	8.50	67.03	52,895

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	181.61	

Survey Program	Date	3/5/2014			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
146.0	11,662.0	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
146.0	0.40	128.40	146.0	-0.3	0.4	0.3	0.27	0.27	0.00
238.0	0.60	160.10	238.0	-1.0	0.8	0.9	0.36	0.22	34.46
330.0	0.90	241.20	330.0	-1.8	0.3	1.8	1.09	0.33	88.15
422.0	0.70	196.20	422.0	-2.7	-0.4	2.7	0.70	-0.22	-48.91
513.0	0.90	169.50	513.0	-3.9	-0.5	3.9	0.46	0.22	-29.34
605.0	0.60	167.80	605.0	-5.1	-0.2	5.1	0.33	-0.33	-1.85
697.0	0.80	152.10	697.0	-6.1	0.2	6.1	0.30	0.22	-17.07
788.0	1.00	160.00	787.9	-7.4	0.7	7.4	0.26	0.22	8.68
886.0	0.90	150.50	885.9	-8.9	1.4	8.9	0.19	-0.10	-9.69
971.0	1.10	133.70	970.9	-10.0	2.3	10.0	0.42	0.24	-19.76

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Harvesters Resources 15M-423
Project:	SEC.15-T6N-R66W	TVD Reference:	WELL @ 4835.0ft (RKB-15')
Site:	Harvesters Resources 15RM-HZ Pad Sec.15-T6N-R66W	MD Reference:	WELL @ 4835.0ft (RKB-15')
Well:	Harvesters Resources 15M-423	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)
1,062.0	0.60	116.60	1,061.9	-10.9	3.4	10.8	0.61	-0.55	-18.79
1,157.0	0.40	113.70	1,156.9	-11.2	4.1	11.1	0.21	-0.21	-3.05
1,252.0	0.50	112.90	1,251.9	-11.5	4.8	11.4	0.11	0.11	-0.84
1,347.0	0.40	134.70	1,346.9	-11.9	5.4	11.7	0.21	-0.11	22.95
1,442.0	0.40	87.30	1,441.9	-12.1	6.0	11.9	0.34	0.00	-49.89
1,537.0	0.40	88.70	1,536.9	-12.1	6.7	11.9	0.01	0.00	1.47
1,632.0	0.50	86.20	1,631.9	-12.1	7.4	11.8	0.11	0.11	-2.63
1,727.0	0.30	96.00	1,726.9	-12.1	8.1	11.8	0.22	-0.21	10.32
1,822.0	0.60	125.40	1,821.9	-12.4	8.7	12.1	0.39	0.32	30.95
1,917.0	0.50	311.20	1,916.9	-12.4	8.8	12.1	1.16	-0.11	-183.37
2,012.0	1.50	315.00	2,011.9	-11.2	7.6	11.0	1.05	1.05	4.00
2,107.0	2.60	323.50	2,106.8	-8.6	5.5	8.5	1.20	1.16	8.95
2,202.0	3.70	332.60	2,201.7	-4.2	2.8	4.1	1.27	1.16	9.58
2,297.0	4.10	338.10	2,296.4	1.7	0.1	-1.7	0.58	0.42	5.79
2,392.0	4.60	341.00	2,391.2	8.5	-2.4	-8.4	0.57	0.53	3.05
2,487.0	5.20	336.50	2,485.8	16.0	-5.4	-15.8	0.75	0.63	-4.74
2,582.0	5.70	339.30	2,580.4	24.4	-8.8	-24.1	0.60	0.53	2.95
2,677.0	6.20	339.90	2,674.9	33.6	-12.2	-33.2	0.53	0.53	0.63
2,773.0	7.10	338.70	2,770.2	44.0	-16.1	-43.5	0.95	0.94	-1.25
2,868.0	7.10	336.80	2,864.5	54.9	-20.6	-54.3	0.25	0.00	-2.00
2,963.0	6.60	335.20	2,958.8	65.2	-25.2	-64.5	0.56	-0.53	-1.68
3,058.0	6.90	331.30	3,053.2	75.2	-30.2	-74.3	0.58	0.32	-4.11
3,153.0	6.80	330.50	3,147.5	85.1	-35.7	-84.0	0.15	-0.11	-0.84
3,248.0	6.20	331.50	3,241.9	94.5	-40.9	-93.3	0.64	-0.63	1.05
3,343.0	6.20	335.60	3,336.3	103.7	-45.5	-102.3	0.47	0.00	4.32
3,438.0	6.50	335.70	3,430.7	113.2	-49.8	-111.8	0.32	0.32	0.11
3,533.0	6.50	337.80	3,525.1	123.1	-54.1	-121.5	0.25	0.00	2.21
3,628.0	6.50	336.30	3,619.5	133.0	-58.3	-131.3	0.18	0.00	-1.58
3,723.0	6.60	332.60	3,713.9	142.8	-62.9	-141.0	0.46	0.11	-3.89
3,818.0	6.40	332.30	3,808.3	152.3	-67.9	-150.3	0.21	-0.21	-0.32
3,913.0	7.40	330.50	3,902.6	162.3	-73.4	-160.2	1.08	1.05	-1.89
4,008.0	7.60	330.10	3,996.8	173.1	-79.5	-170.8	0.22	0.21	-0.42
4,103.0	8.00	331.50	4,090.9	184.4	-85.8	-181.9	0.47	0.42	1.47
4,198.0	7.50	335.40	4,185.0	195.8	-91.6	-193.2	0.76	-0.53	4.11
4,293.0	7.20	333.60	4,279.3	206.8	-96.8	-204.0	0.40	-0.32	-1.89
4,388.0	6.80	333.80	4,373.6	217.2	-101.9	-214.2	0.42	-0.42	0.21
4,483.0	6.50	340.50	4,467.9	227.3	-106.2	-224.2	0.88	-0.32	7.05
4,578.0	6.50	340.00	4,562.3	237.4	-109.8	-234.2	0.06	0.00	-0.53
4,673.0	6.10	342.60	4,656.7	247.3	-113.2	-244.0	0.52	-0.42	2.74
4,767.0	5.10	338.90	4,750.3	255.9	-116.2	-252.6	1.13	-1.06	-3.94
4,862.0	4.30	339.10	4,845.0	263.2	-119.0	-259.7	0.84	-0.84	0.21
4,957.0	3.60	332.60	4,939.7	269.2	-121.6	-265.6	0.87	-0.74	-6.84
5,052.0	2.40	334.90	5,034.6	273.6	-123.8	-270.0	1.27	-1.26	2.42
5,147.0	1.10	355.90	5,129.6	276.3	-124.7	-272.7	1.50	-1.37	22.11
5,243.0	0.80	337.50	5,225.5	277.9	-125.0	-274.2	0.44	-0.31	-19.17
5,338.0	0.70	308.30	5,320.5	278.8	-125.8	-275.2	0.41	-0.11	-30.74
5,433.0	1.00	278.60	5,415.5	279.3	-127.0	-275.6	0.55	0.32	-31.26
5,528.0	1.50	269.40	5,510.5	279.4	-129.1	-275.7	0.57	0.53	-9.68
5,624.0	1.30	199.00	5,606.5	278.4	-130.7	-274.6	1.69	-0.21	-73.33
5,719.0	1.30	185.00	5,701.5	276.3	-131.2	-272.5	0.33	0.00	-14.74
5,813.0	1.00	185.30	5,795.4	274.4	-131.3	-270.6	0.32	-0.32	0.32
5,909.0	0.70	194.30	5,891.4	273.0	-131.5	-269.2	0.34	-0.31	9.38
6,003.0	0.60	213.80	5,985.4	272.0	-132.0	-268.2	0.26	-0.11	20.74

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Harvesters Resources 15M-423
Project:	SEC.15-T6N-R66W	TVD Reference:	WELL @ 4835.0ft (RKB-15')
Site:	Harvesters Resources 15RM-HZ Pad Sec.15-T6N-R66W	MD Reference:	WELL @ 4835.0ft (RKB-15')
Well:	Harvesters Resources 15M-423	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)
6,098.0	0.60	219.40	6,080.4	271.2	-132.6	-267.4	0.06	0.00	5.89
6,193.0	0.70	218.00	6,175.4	270.4	-133.2	-266.6	0.11	0.11	-1.47
6,288.0	0.70	229.20	6,270.4	269.6	-134.0	-265.7	0.14	0.00	11.79
6,382.0	0.80	265.30	6,364.4	269.1	-135.1	-265.2	0.50	0.11	38.40
6,413.0	0.70	263.00	6,395.4	269.1	-135.5	-265.2	0.34	-0.32	-7.42
6,445.0	0.70	265.40	6,427.4	269.1	-135.9	-265.1	0.09	0.00	7.50
6,477.0	1.70	214.00	6,459.4	268.7	-136.4	-264.7	4.30	3.13	-160.63
6,509.0	3.70	199.30	6,491.3	267.3	-137.0	-263.3	6.56	6.25	-45.94
6,541.0	6.00	196.30	6,523.2	264.7	-137.8	-260.7	7.23	7.19	-9.38
6,572.0	8.10	194.60	6,554.0	261.0	-138.8	-257.0	6.81	6.77	-5.48
6,604.0	10.20	192.60	6,585.6	256.1	-140.0	-252.1	6.64	6.56	-6.25
6,635.0	12.10	189.90	6,616.0	250.2	-141.1	-246.1	6.35	6.13	-8.71
6,667.0	14.10	187.80	6,647.2	243.0	-142.2	-239.0	6.42	6.25	-6.56
6,698.0	16.10	186.50	6,677.1	235.0	-143.2	-230.9	6.54	6.45	-4.19
6,730.0	18.10	185.60	6,707.7	225.7	-144.2	-221.5	6.30	6.25	-2.81
6,761.0	20.20	185.20	6,737.0	215.5	-145.2	-211.4	6.79	6.77	-1.29
6,793.0	22.30	183.70	6,766.8	204.0	-146.1	-199.8	6.78	6.56	-4.69
6,825.0	24.50	182.70	6,796.2	191.3	-146.8	-187.1	6.99	6.88	-3.13
6,857.0	26.70	181.80	6,825.0	177.5	-147.3	-173.3	6.98	6.88	-2.81
6,889.0	29.20	180.80	6,853.3	162.5	-147.6	-158.3	7.95	7.81	-3.13
6,920.0	31.30	179.30	6,880.1	146.9	-147.7	-142.7	7.20	6.77	-4.84
6,952.0	33.50	178.90	6,907.1	129.7	-147.4	-125.5	6.91	6.88	-1.25
6,982.0	36.00	180.00	6,931.7	112.6	-147.2	-108.5	8.59	8.33	3.67
7,013.0	38.40	180.20	6,956.4	93.9	-147.3	-89.7	7.75	7.74	0.65
7,045.0	40.80	179.30	6,981.1	73.5	-147.2	-69.3	7.71	7.50	-2.81
7,077.0	42.70	178.70	7,004.9	52.2	-146.8	-48.1	6.07	5.94	-1.88
7,109.0	44.70	178.50	7,028.1	30.1	-146.2	-26.0	6.26	6.25	-0.63
7,140.0	47.00	178.30	7,049.7	7.9	-145.6	-3.8	7.43	7.42	-0.65
7,172.0	49.40	177.70	7,071.0	-16.0	-144.8	20.0	7.63	7.50	-1.88
7,204.0	51.50	177.70	7,091.4	-40.6	-143.8	44.7	6.56	6.56	0.00
7,236.0	53.50	178.00	7,110.8	-66.0	-142.9	70.0	6.29	6.25	0.94
7,267.0	55.10	178.30	7,128.9	-91.2	-142.0	95.1	5.22	5.16	0.97
7,299.0	56.70	178.10	7,146.9	-117.6	-141.2	121.6	5.03	5.00	-0.63
7,331.0	58.40	178.40	7,164.0	-144.6	-140.4	148.5	5.37	5.31	0.94
7,362.0	60.40	178.70	7,179.8	-171.3	-139.7	175.2	6.51	6.45	0.97
7,394.0	62.60	179.00	7,195.1	-199.4	-139.1	203.3	6.92	6.88	0.94
7,426.0	65.50	179.00	7,209.1	-228.2	-138.6	232.0	9.06	9.06	0.00
7,457.0	68.40	179.00	7,221.2	-256.7	-138.1	260.5	9.35	9.35	0.00
7,489.0	70.80	179.20	7,232.4	-286.7	-137.7	290.4	7.52	7.50	0.63
7,521.0	73.40	179.80	7,242.2	-317.1	-137.4	320.9	8.32	8.13	1.88
7,552.0	76.30	180.20	7,250.3	-347.1	-137.4	350.8	9.44	9.35	1.29
7,584.0	79.30	180.50	7,257.1	-378.3	-137.6	382.0	9.42	9.38	0.94
7,615.0	82.00	180.50	7,262.1	-408.9	-137.9	412.6	8.71	8.71	0.00
7,639.0	83.70	181.00	7,265.1	-432.7	-138.2	436.4	7.38	7.08	2.08
7,706.0	86.10	182.20	7,271.1	-499.4	-140.0	503.2	4.00	3.58	1.79
7,736.0	86.10	182.10	7,273.1	-529.3	-141.2	533.1	0.33	0.00	-0.33
7,767.0	87.00	181.40	7,275.0	-560.3	-142.1	564.0	3.68	2.90	-2.26
7,797.0	88.00	180.50	7,276.3	-590.2	-142.6	594.0	4.48	3.33	-3.00
7,828.0	88.50	179.90	7,277.2	-621.2	-142.7	625.0	2.52	1.61	-1.94
7,858.0	90.00	179.30	7,277.6	-651.2	-142.5	655.0	5.39	5.00	-2.00
7,889.0	91.20	177.60	7,277.3	-682.2	-141.7	685.9	6.71	3.87	-5.48
7,919.0	91.60	175.90	7,276.6	-712.1	-140.0	715.8	5.82	1.33	-5.67

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Harvesters Resources 15M-423
Project:	SEC.15-T6N-R66W	TVD Reference:	WELL @ 4835.0ft (RKB-15')
Site:	Harvesters Resources 15RM-HZ Pad Sec.15-T6N-R66W	MD Reference:	WELL @ 4835.0ft (RKB-15')
Well:	Harvesters Resources 15M-423	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)
7,950.0	92.00	175.80	7,275.6	-743.0	-137.7	746.6	1.33	1.29	-0.32
7,980.0	92.40	175.70	7,274.4	-772.9	-135.5	776.4	1.37	1.33	-0.33
8,011.0	92.70	175.50	7,273.0	-803.8	-133.1	807.2	1.16	0.97	-0.65
8,042.0	91.90	174.30	7,271.8	-834.7	-130.4	838.0	4.65	-2.58	-3.87
8,072.0	91.70	173.50	7,270.9	-864.5	-127.2	867.7	2.75	-0.67	-2.67
8,103.0	92.20	173.70	7,269.8	-895.3	-123.7	898.4	1.74	1.61	0.65
8,133.0	92.90	173.80	7,268.5	-925.1	-120.5	928.1	2.36	2.33	0.33
8,164.0	93.30	174.10	7,266.8	-955.8	-117.2	958.8	1.61	1.29	0.97
8,194.0	91.70	173.00	7,265.5	-985.6	-113.8	988.4	6.47	-5.33	-3.67
8,223.0	91.60	174.20	7,264.6	-1,014.4	-110.6	1,017.1	4.15	-0.34	4.14
8,254.0	91.80	175.40	7,263.7	-1,045.3	-107.8	1,047.9	3.92	0.65	3.87
8,284.0	92.40	176.60	7,262.6	-1,075.2	-105.7	1,077.7	4.47	2.00	4.00
8,316.0	91.80	178.10	7,261.5	-1,107.1	-104.2	1,109.6	5.05	-1.88	4.69
8,345.0	91.40	179.20	7,260.6	-1,136.1	-103.6	1,138.6	4.03	-1.38	3.79
8,375.0	91.90	179.40	7,259.8	-1,166.1	-103.2	1,168.5	1.79	1.67	0.67
8,406.0	92.40	179.30	7,258.6	-1,197.1	-102.8	1,199.5	1.64	1.61	-0.32
8,438.0	93.00	179.50	7,257.1	-1,229.0	-102.5	1,231.4	1.98	1.88	0.63
8,469.0	93.50	180.30	7,255.4	-1,260.0	-102.4	1,262.4	3.04	1.61	2.58
8,501.0	93.90	181.20	7,253.3	-1,291.9	-102.9	1,294.3	3.07	1.25	2.81
8,533.0	94.10	181.80	7,251.1	-1,323.8	-103.7	1,326.2	1.97	0.63	1.88
8,564.0	94.10	181.50	7,248.8	-1,354.7	-104.6	1,357.1	0.97	0.00	-0.97
8,596.0	94.20	182.00	7,246.5	-1,386.6	-105.6	1,389.1	1.59	0.31	1.56
8,628.0	94.40	182.50	7,244.1	-1,418.5	-106.8	1,421.0	1.68	0.63	1.56
8,659.0	94.20	183.50	7,241.8	-1,449.4	-108.4	1,451.9	3.28	-0.65	3.23
8,691.0	93.70	184.60	7,239.6	-1,481.2	-110.7	1,483.8	3.77	-1.56	3.44
8,723.0	93.10	185.70	7,237.7	-1,513.1	-113.6	1,515.7	3.91	-1.88	3.44
8,754.0	92.40	186.40	7,236.2	-1,543.9	-116.8	1,546.5	3.19	-2.26	2.26
8,786.0	90.50	186.20	7,235.4	-1,575.6	-120.3	1,578.4	5.97	-5.94	-0.63
8,818.0	89.00	186.10	7,235.5	-1,607.5	-123.8	1,610.3	4.70	-4.69	-0.31
8,849.0	88.80	186.30	7,236.1	-1,638.3	-127.1	1,641.2	0.91	-0.65	0.65
8,881.0	89.10	186.30	7,236.7	-1,670.1	-130.6	1,673.1	0.94	0.94	0.00
8,913.0	90.00	186.40	7,237.0	-1,701.9	-134.2	1,705.0	2.83	2.81	0.31
8,945.0	90.30	186.30	7,236.9	-1,733.7	-137.7	1,736.9	0.99	0.94	-0.31
8,976.0	91.00	186.20	7,236.5	-1,764.5	-141.1	1,767.8	2.28	2.26	-0.32
9,008.0	91.50	185.70	7,235.8	-1,796.3	-144.4	1,799.7	2.21	1.56	-1.56
9,039.0	91.40	185.20	7,235.1	-1,827.2	-147.3	1,830.6	1.64	-0.32	-1.61
9,071.0	91.60	185.00	7,234.2	-1,859.0	-150.2	1,862.5	0.88	0.63	-0.63
9,103.0	90.50	184.90	7,233.6	-1,890.9	-152.9	1,894.5	3.45	-3.44	-0.31
9,134.0	90.50	184.90	7,233.4	-1,921.8	-155.6	1,925.4	0.00	0.00	0.00
9,166.0	91.00	184.50	7,232.9	-1,953.7	-158.2	1,957.3	2.00	1.56	-1.25
9,198.0	91.50	184.40	7,232.2	-1,985.6	-160.7	1,989.3	1.59	1.56	-0.31
9,231.0	90.80	184.40	7,231.6	-2,018.5	-163.2	2,022.3	2.12	-2.12	0.00
9,262.0	89.40	183.90	7,231.5	-2,049.4	-165.5	2,053.2	4.80	-4.52	-1.61
9,293.0	89.00	183.80	7,232.0	-2,080.3	-167.5	2,084.2	1.33	-1.29	-0.32
9,325.0	88.80	183.50	7,232.6	-2,112.2	-169.6	2,116.2	1.13	-0.63	-0.94
9,357.0	89.00	183.00	7,233.2	-2,144.2	-171.4	2,148.2	1.68	0.63	-1.56
9,389.0	88.80	181.60	7,233.8	-2,176.2	-172.7	2,180.1	4.42	-0.63	-4.38
9,420.0	88.60	180.50	7,234.5	-2,207.1	-173.2	2,211.1	3.61	-0.65	-3.55
9,451.0	89.00	180.30	7,235.2	-2,238.1	-173.5	2,242.1	1.44	1.29	-0.65
9,483.0	89.90	180.80	7,235.5	-2,270.1	-173.8	2,274.1	3.22	2.81	1.56
9,515.0	89.80	179.70	7,235.5	-2,302.1	-173.9	2,306.1	3.45	-0.31	-3.44
9,547.0	89.30	178.40	7,235.8	-2,334.1	-173.4	2,338.1	4.35	-1.56	-4.06
9,578.0	89.80	178.20	7,236.0	-2,365.1	-172.5	2,369.0	1.74	1.61	-0.65

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Harvesters Resources 15M-423
Project:	SEC.15-T6N-R66W	TVD Reference:	WELL @ 4835.0ft (RKB-15')
Site:	Harvesters Resources 15RM-HZ Pad Sec.15-T6N-R66W	MD Reference:	WELL @ 4835.0ft (RKB-15')
Well:	Harvesters Resources 15M-423	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)
9,610.0	89.70	177.30	7,236.2	-2,397.1	-171.2	2,400.9	2.83	-0.31	-2.81
9,642.0	89.90	177.10	7,236.3	-2,429.0	-169.6	2,432.8	0.88	0.63	-0.63
9,674.0	90.10	176.50	7,236.3	-2,461.0	-167.9	2,464.7	1.98	0.63	-1.88
9,706.0	90.10	175.80	7,236.2	-2,492.9	-165.7	2,496.6	2.19	0.00	-2.19
9,737.0	90.30	175.90	7,236.1	-2,523.8	-163.5	2,527.4	0.72	0.65	0.32
9,769.0	90.10	174.70	7,236.0	-2,555.7	-160.8	2,559.2	3.80	-0.63	-3.75
9,800.0	90.00	174.40	7,236.0	-2,586.6	-157.9	2,590.0	1.02	-0.32	-0.97
9,833.0	90.30	174.50	7,235.9	-2,619.4	-154.7	2,622.7	0.96	0.91	0.30
9,865.0	90.00	173.10	7,235.8	-2,651.2	-151.2	2,654.4	4.47	-0.94	-4.38
9,896.0	89.90	172.70	7,235.8	-2,682.0	-147.4	2,685.1	1.33	-0.32	-1.29
9,929.0	89.70	172.50	7,236.0	-2,714.7	-143.2	2,717.7	0.86	-0.61	-0.61
9,961.0	90.20	172.70	7,236.0	-2,746.5	-139.0	2,749.3	1.68	1.56	0.63
9,992.0	90.20	172.30	7,235.9	-2,777.2	-135.0	2,779.9	1.29	0.00	-1.29
10,024.0	89.80	171.90	7,235.9	-2,808.9	-130.6	2,811.5	1.77	-1.25	-1.25
10,056.0	90.60	172.60	7,235.8	-2,840.6	-126.3	2,843.0	3.32	2.50	2.19
10,088.0	90.50	172.20	7,235.5	-2,872.3	-122.1	2,874.6	1.29	-0.31	-1.25
10,119.0	91.20	172.80	7,235.0	-2,903.1	-118.0	2,905.2	2.97	2.26	1.94
10,151.0	91.20	174.10	7,234.3	-2,934.8	-114.4	2,936.9	4.06	0.00	4.06
10,183.0	91.30	174.60	7,233.6	-2,966.7	-111.2	2,968.6	1.59	0.31	1.56
10,214.0	90.10	173.80	7,233.3	-2,997.5	-108.1	2,999.4	4.65	-3.87	-2.58
10,246.0	90.90	175.00	7,233.0	-3,029.4	-105.0	3,031.1	4.51	2.50	3.75
10,278.0	90.00	175.20	7,232.7	-3,061.2	-102.2	3,062.9	2.88	-2.81	0.63
10,310.0	89.90	177.30	7,232.8	-3,093.2	-100.1	3,094.8	6.57	-0.31	6.56
10,341.0	90.80	180.60	7,232.6	-3,124.2	-99.6	3,125.7	11.03	2.90	10.65
10,373.0	89.80	179.50	7,232.4	-3,156.2	-99.6	3,157.7	4.65	-3.13	-3.44
10,405.0	89.90	179.70	7,232.5	-3,188.2	-99.4	3,189.7	0.70	0.31	0.63
10,436.0	90.30	179.60	7,232.4	-3,219.2	-99.2	3,220.7	1.33	1.29	-0.32
10,468.0	90.40	179.90	7,232.2	-3,251.2	-99.0	3,252.7	0.99	0.31	0.94
10,500.0	90.70	180.10	7,231.9	-3,283.2	-99.0	3,284.6	1.13	0.94	0.63
10,531.0	90.70	179.30	7,231.5	-3,314.1	-98.9	3,315.6	2.58	0.00	-2.58
10,563.0	90.90	180.70	7,231.1	-3,346.1	-98.9	3,347.6	4.42	0.63	4.38
10,595.0	90.80	181.00	7,230.6	-3,378.1	-99.3	3,379.6	0.99	-0.31	0.94
10,627.0	90.20	179.40	7,230.3	-3,410.1	-99.5	3,411.6	5.34	-1.88	-5.00
10,658.0	90.50	179.50	7,230.2	-3,441.1	-99.2	3,442.6	1.02	0.97	0.32
10,690.0	90.40	179.20	7,229.9	-3,473.1	-98.8	3,474.5	0.99	-0.31	-0.94
10,722.0	91.20	179.90	7,229.5	-3,505.1	-98.5	3,506.5	3.32	2.50	2.19
10,753.0	90.40	178.70	7,229.0	-3,536.1	-98.2	3,537.5	4.65	-2.58	-3.87
10,785.0	88.90	177.80	7,229.2	-3,568.1	-97.2	3,569.4	5.47	-4.69	-2.81
10,817.0	89.10	178.40	7,229.8	-3,600.1	-96.1	3,601.4	1.98	0.63	1.88
10,849.0	88.60	177.80	7,230.4	-3,632.1	-95.1	3,633.3	2.44	-1.56	-1.88
10,880.0	87.70	177.50	7,231.4	-3,663.0	-93.8	3,664.2	3.06	-2.90	-0.97
10,912.0	87.30	178.70	7,232.8	-3,695.0	-92.7	3,696.1	3.95	-1.25	3.75
10,944.0	87.20	180.00	7,234.4	-3,726.9	-92.4	3,728.0	4.07	-0.31	4.06
10,975.0	87.40	181.70	7,235.8	-3,757.9	-92.8	3,759.0	5.52	0.65	5.48
11,007.0	87.80	182.40	7,237.2	-3,789.8	-94.0	3,791.0	2.52	1.25	2.19
11,039.0	88.60	182.40	7,238.2	-3,821.8	-95.3	3,823.0	2.50	2.50	0.00
11,071.0	89.90	182.70	7,238.6	-3,853.8	-96.7	3,855.0	4.17	4.06	0.94
11,102.0	90.70	183.70	7,238.4	-3,884.7	-98.5	3,885.9	4.13	2.58	3.23
11,133.0	90.90	183.50	7,238.0	-3,915.6	-100.4	3,916.9	0.91	0.65	-0.65
11,165.0	90.40	182.40	7,237.6	-3,947.6	-102.1	3,948.9	3.78	-1.56	-3.44
11,197.0	90.40	182.30	7,237.4	-3,979.6	-103.4	3,980.9	0.31	0.00	-0.31
11,228.0	90.40	182.00	7,237.2	-4,010.5	-104.5	4,011.9	0.97	0.00	-0.97

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Harvesters Resources 15M-423
Project:	SEC.15-T6N-R66W	TVD Reference:	WELL @ 4835.0ft (RKB-15')
Site:	Harvesters Resources 15RM-HZ Pad Sec.15-T6N-R66W	MD Reference:	WELL @ 4835.0ft (RKB-15')
Well:	Harvesters Resources 15M-423	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)
11,260.0	90.80	182.20	7,236.8	-4,042.5	-105.7	4,043.9	1.40	1.25	0.63
11,291.0	91.30	182.50	7,236.3	-4,073.5	-107.0	4,074.9	1.88	1.61	0.97
11,323.0	91.40	182.00	7,235.5	-4,105.5	-108.2	4,106.9	1.59	0.31	-1.56
11,355.0	91.60	182.10	7,234.7	-4,137.4	-109.4	4,138.9	0.70	0.63	0.31
11,386.0	91.50	181.30	7,233.8	-4,168.4	-110.3	4,169.9	2.60	-0.32	-2.58
11,418.0	90.80	180.60	7,233.2	-4,200.4	-110.8	4,201.8	3.09	-2.19	-2.19
11,450.0	90.20	179.20	7,232.9	-4,232.4	-110.8	4,233.8	4.76	-1.88	-4.38
11,481.0	90.50	179.10	7,232.7	-4,263.4	-110.3	4,264.8	1.02	0.97	-0.32
11,513.0	91.50	180.10	7,232.2	-4,295.4	-110.1	4,296.8	4.42	3.13	3.13
11,545.0	91.40	180.20	7,231.4	-4,327.4	-110.2	4,328.8	0.44	-0.31	0.31
11,577.0	90.80	179.60	7,230.8	-4,359.4	-110.1	4,360.7	2.65	-1.88	-1.88
11,608.0	89.90	178.20	7,230.6	-4,390.4	-109.5	4,391.7	5.37	-2.90	-4.52
11,662.0	89.90	178.20	7,230.7	-4,444.3	-107.8	4,445.6	0.00	0.00	0.00
BHL 500'FSL & 2180'FEL									

Checked By: _____	Approved By: _____	Date: _____
-------------------	--------------------	-------------