

PETROLEUM DEVELOPMENT CORP Weld County CO

Well Name: **Harvesters Resources 15U-443**

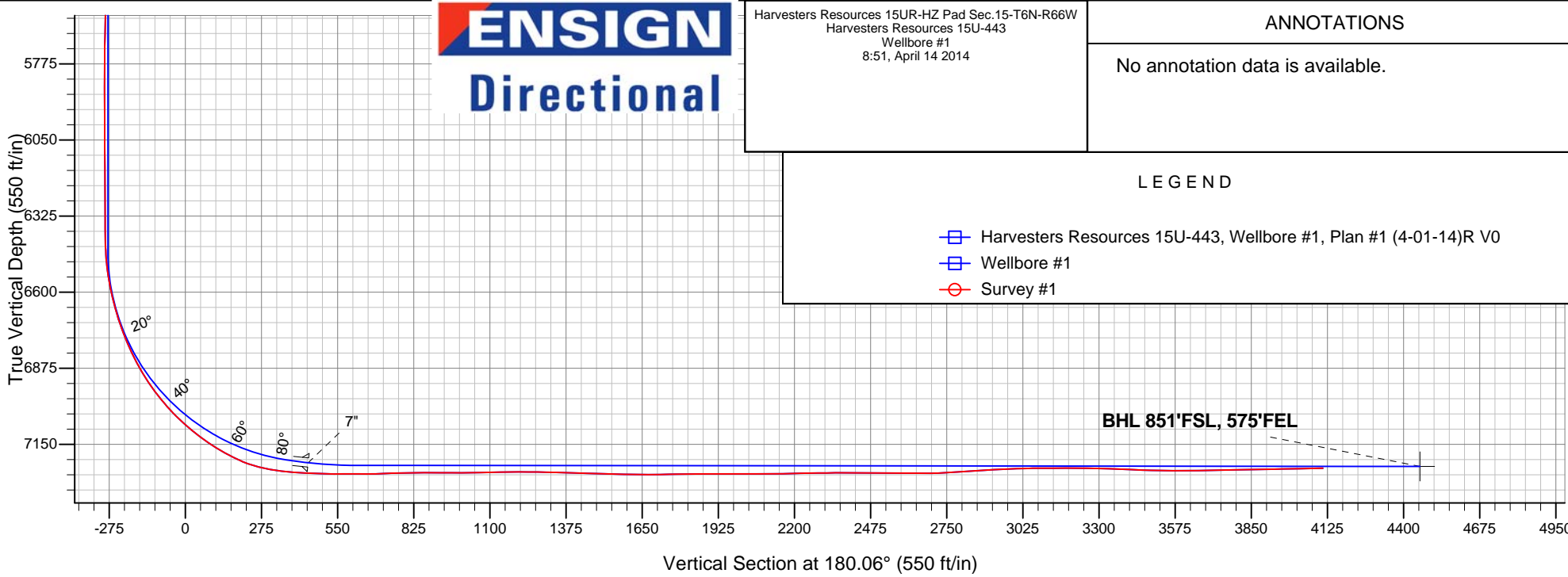
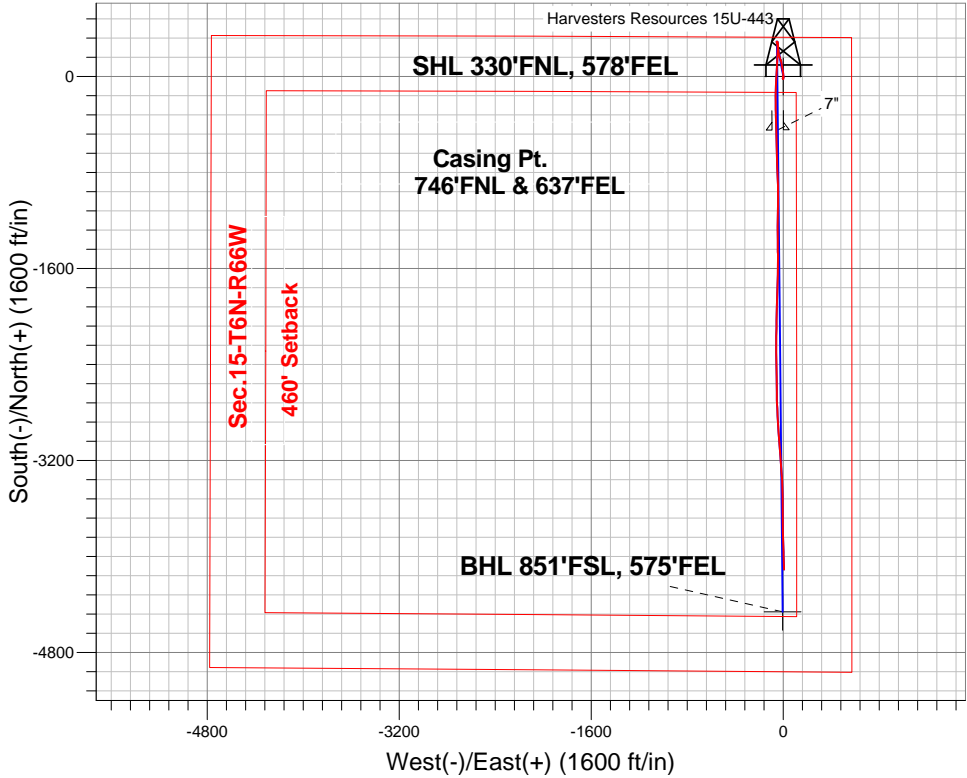
Surface Location: Harvesters Resources 15UR-HZ Pad Sec.15-T6N-R66W
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone

Ground Elevation: 4815.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1423919.97	3206864.26	40.494680	-104.756200	
RKB - 15' WELL @ 4830.0ft (RKB - 15')						

FINAL SURVEY

Projected Bottom Hole Location
11331'MD 7236'TVD 4109'S & 5'E of SHL
91.2 degree Incl @ 178.7 degree AZM



Harvesters Resources 15UR-HZ Pad Sec.15-T6N-R66W Harvesters Resources 15U-443 Wellbore #1 8:51, April 14 2014	ANNOTATIONS
	No annotation data is available.
LEGEND	
Harvesters Resources 15U-443, Wellbore #1, Plan #1 (4-01-14)R V0	
Wellbore #1	
Survey #1	



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.15-T6N-R66W

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

Harvesters Resources 15U-443

Wellbore #1

Survey: Survey #1

Standard Survey Report

14 April, 2014

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Harvesters Resources 15U-443
Project:	SEC.15-T6N-R66W	TVD Reference:	WELL @ 4830.0ft (RKB - 15')
Site:	Harvesters Resources 15UR-HZ Pad Sec.15-T6N-R66W	MD Reference:	WELL @ 4830.0ft (RKB - 15')
Well:	Harvesters Resources 15U-443	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 15UR-HZ Pad Sec.15-T6N-R66W				
Site Position:		Northing:	1,423,919.73 ft	Latitude:	40.494680
From:	Lat/Long	Easting:	3,206,833.67 ft	Longitude:	-104.756310
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.48 °

Well	Harvesters Resources 15U-443					
Well Position	+N-S	0.0 ft	Northing:	1,423,919.97 ft	Latitude:	40.494680
	+E-W	0.0 ft	Easting:	3,206,864.26 ft	Longitude:	-104.756200
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,815.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	4/1/2014	8.49	67.03	52,887

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	180.06	

Survey Program	Date 4/14/2014				
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
146.0	11,331.0	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	
1.0	0.01	186.80	1.0	0.0	0.0	0.0	0.68	0.68	0.00	
SHL 330°FNL, 578°FEL										
146.0	1.00	186.80	146.0	-1.3	-0.2	1.3	0.68	0.68	0.00	
238.0	1.50	187.30	238.0	-3.3	-0.4	3.3	0.54	0.54	0.54	
329.0	1.70	182.40	328.9	-5.8	-0.6	5.8	0.27	0.22	-5.38	
421.0	1.50	190.80	420.9	-8.3	-0.9	8.3	0.33	-0.22	9.13	
512.0	1.10	199.10	511.9	-10.3	-1.4	10.3	0.48	-0.44	9.12	
603.0	1.00	197.50	602.9	-11.9	-1.9	11.9	0.11	-0.11	-1.76	
695.0	1.00	196.60	694.8	-13.4	-2.4	13.4	0.02	0.00	-0.98	
786.0	0.90	203.60	785.8	-14.9	-2.9	14.9	0.17	-0.11	7.69	

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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)
846.0	1.10	193.00	845.8	-15.9	-3.2	15.9	0.45	0.33	-17.67
939.0	1.60	169.30	938.8	-18.0	-3.2	18.0	0.80	0.54	-25.48
1,032.0	1.80	143.80	1,031.8	-20.5	-2.1	20.5	0.83	0.22	-27.42
1,124.0	0.90	128.20	1,123.7	-22.1	-0.7	22.1	1.05	-0.98	-16.96
1,221.0	0.40	342.00	1,220.7	-22.2	-0.2	22.2	1.29	-0.52	-150.72
1,316.0	1.40	354.30	1,315.7	-20.7	-0.4	20.7	1.07	1.05	12.95
1,411.0	2.30	8.80	1,410.7	-17.7	-0.2	17.7	1.06	0.95	15.26
1,506.0	3.50	10.90	1,505.5	-13.0	0.6	13.0	1.27	1.26	2.21
1,602.0	3.80	6.10	1,601.3	-6.9	1.5	6.9	0.45	0.31	-5.00
1,696.0	4.00	2.40	1,695.1	-0.6	2.0	0.6	0.34	0.21	-3.94
1,791.0	3.40	354.40	1,789.9	5.6	1.9	-5.6	0.83	-0.63	-8.42
1,886.0	3.00	352.70	1,884.8	10.8	1.3	-10.8	0.43	-0.42	-1.79
1,981.0	4.10	344.70	1,979.6	16.6	0.1	-16.6	1.27	1.16	-8.42
2,076.0	4.80	354.40	2,074.3	23.8	-1.2	-23.8	1.08	0.74	10.21
2,171.0	5.80	352.70	2,168.9	32.5	-2.2	-32.5	1.07	1.05	-1.79
2,266.0	5.90	350.10	2,263.4	42.1	-3.7	-42.1	0.30	0.11	-2.74
2,361.0	5.30	354.90	2,358.0	51.3	-4.9	-51.3	0.80	-0.63	5.05
2,456.0	5.30	354.60	2,452.6	60.0	-5.7	-60.0	0.03	0.00	-0.32
2,551.0	5.50	346.90	2,547.1	68.8	-7.2	-68.8	0.79	0.21	-8.11
2,646.0	5.60	351.50	2,641.7	77.8	-8.9	-77.8	0.48	0.11	4.84
2,741.0	5.40	351.00	2,736.3	86.8	-10.3	-86.8	0.22	-0.21	-0.53
2,836.0	5.40	352.20	2,830.8	95.7	-11.6	-95.7	0.12	0.00	1.26
2,931.0	5.70	345.80	2,925.4	104.7	-13.3	-104.7	0.72	0.32	-6.74
3,026.0	4.60	350.00	3,020.0	113.0	-15.1	-113.0	1.22	-1.16	4.42
3,121.0	4.80	348.00	3,114.7	120.6	-16.6	-120.6	0.27	0.21	-2.11
3,216.0	5.20	345.80	3,209.3	128.7	-18.5	-128.7	0.47	0.42	-2.32
3,311.0	4.20	341.60	3,304.0	136.2	-20.7	-136.1	1.11	-1.05	-4.42
3,406.0	4.20	335.90	3,398.7	142.6	-23.2	-142.6	0.44	0.00	-6.00
3,501.0	5.20	338.40	3,493.4	149.8	-26.2	-149.8	1.07	1.05	2.63
3,596.0	5.10	339.90	3,588.0	157.8	-29.2	-157.8	0.18	-0.11	1.58
3,691.0	5.30	346.40	3,682.7	166.0	-31.7	-166.0	0.65	0.21	6.84
3,786.0	5.30	342.40	3,777.2	174.5	-34.1	-174.4	0.39	0.00	-4.21
3,881.0	5.40	349.00	3,871.8	183.0	-36.2	-183.0	0.66	0.11	6.95
3,976.0	5.60	348.60	3,966.4	192.0	-38.0	-191.9	0.21	0.21	-0.42
4,071.0	5.80	353.80	4,060.9	201.3	-39.5	-201.2	0.58	0.21	5.47
4,166.0	5.50	355.50	4,155.5	210.6	-40.3	-210.6	0.36	-0.32	1.79
4,260.0	5.50	353.50	4,249.0	219.6	-41.2	-219.5	0.20	0.00	-2.13
4,355.0	4.70	348.70	4,343.7	227.9	-42.5	-227.9	0.95	-0.84	-5.05
4,451.0	5.00	349.50	4,439.3	235.9	-44.0	-235.8	0.32	0.31	0.83
4,545.0	4.60	352.90	4,533.0	243.6	-45.2	-243.6	0.52	-0.43	3.62
4,640.0	4.40	356.60	4,627.7	251.1	-45.9	-251.0	0.37	-0.21	3.89
4,735.0	4.30	351.10	4,722.4	258.2	-46.7	-258.2	0.45	-0.11	-5.79
4,830.0	4.50	350.10	4,817.1	265.4	-47.9	-265.4	0.23	0.21	-1.05
4,925.0	3.70	339.10	4,911.9	271.9	-49.6	-271.9	1.18	-0.84	-11.58
5,020.0	3.10	343.90	5,006.7	277.3	-51.4	-277.2	0.70	-0.63	5.05
5,115.0	2.20	351.90	5,101.6	281.5	-52.4	-281.5	1.02	-0.95	8.42
5,210.0	1.10	329.40	5,196.6	284.1	-53.1	-284.1	1.32	-1.16	-23.68
5,305.0	0.80	316.30	5,291.6	285.4	-54.0	-285.3	0.39	-0.32	-13.79
5,401.0	0.60	332.60	5,387.6	286.3	-54.7	-286.3	0.29	-0.21	16.98
5,496.0	0.80	352.60	5,482.6	287.4	-55.0	-287.4	0.33	0.21	21.05
5,591.0	0.90	355.70	5,577.5	288.8	-55.2	-288.8	0.12	0.11	3.26
5,686.0	1.20	353.10	5,672.5	290.6	-55.3	-290.5	0.32	0.32	-2.74
5,781.0	0.20	61.90	5,767.5	291.6	-55.3	-291.6	1.20	-1.05	72.42

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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)
5,876.0	0.30	82.10	5,862.5	291.7	-54.9	-291.7	0.14	0.11	21.26
5,972.0	0.50	121.10	5,958.5	291.6	-54.3	-291.5	0.34	0.21	40.63
6,067.0	0.60	110.40	6,053.5	291.2	-53.5	-291.1	0.15	0.11	-11.26
6,162.0	0.70	115.20	6,148.5	290.8	-52.5	-290.7	0.12	0.11	5.05
6,257.0	0.80	109.40	6,243.5	290.3	-51.4	-290.2	0.13	0.11	-6.11
6,352.0	1.30	106.20	6,338.5	289.8	-49.7	-289.7	0.53	0.53	-3.37
6,384.0	1.40	113.50	6,370.5	289.5	-49.0	-289.5	0.62	0.31	22.81
6,416.0	1.30	120.80	6,402.5	289.2	-48.3	-289.1	0.62	-0.31	22.81
6,447.0	2.20	147.70	6,433.5	288.5	-47.7	-288.4	3.86	2.90	86.77
6,479.0	4.00	163.10	6,465.4	286.9	-47.0	-286.8	6.15	5.63	48.13
6,510.0	5.90	169.60	6,496.3	284.3	-46.4	-284.2	6.38	6.13	20.97
6,542.0	7.90	174.00	6,528.1	280.5	-45.9	-280.4	6.46	6.25	13.75
6,574.0	9.80	177.30	6,559.7	275.6	-45.6	-275.5	6.14	5.94	10.31
6,605.0	11.70	180.70	6,590.1	269.8	-45.5	-269.8	6.46	6.13	10.97
6,637.0	13.50	183.00	6,621.4	262.8	-45.7	-262.8	5.84	5.63	7.19
6,668.0	15.00	183.60	6,651.4	255.2	-46.1	-255.2	4.86	4.84	1.94
6,700.0	16.90	182.20	6,682.2	246.4	-46.6	-246.4	6.06	5.94	-4.38
6,732.0	18.80	180.60	6,712.6	236.6	-46.8	-236.6	6.13	5.94	-5.00
6,763.0	20.70	180.60	6,741.8	226.1	-46.9	-226.1	6.13	6.13	0.00
6,795.0	22.30	182.20	6,771.6	214.4	-47.2	-214.4	5.32	5.00	5.00
6,826.0	24.00	182.30	6,800.1	202.2	-47.7	-202.2	5.49	5.48	0.32
6,858.0	25.70	182.30	6,829.1	188.8	-48.2	-188.8	5.31	5.31	0.00
6,890.0	28.00	181.60	6,857.7	174.4	-48.7	-174.3	7.25	7.19	-2.19
6,921.0	30.30	181.80	6,884.7	159.3	-49.2	-159.2	7.43	7.42	0.65
6,953.0	32.70	182.10	6,912.0	142.6	-49.7	-142.5	7.52	7.50	0.94
6,985.0	34.70	182.90	6,938.6	124.8	-50.5	-124.8	6.40	6.25	2.50
7,016.0	37.00	183.30	6,963.8	106.7	-51.5	-106.6	7.46	7.42	1.29
7,048.0	39.30	183.50	6,988.9	87.0	-52.7	-86.9	7.20	7.19	0.63
7,080.0	41.70	183.40	7,013.3	66.2	-53.9	-66.2	7.50	7.50	-0.31
7,112.0	44.30	183.10	7,036.7	44.4	-55.2	-44.4	8.15	8.13	-0.94
7,143.0	46.30	183.50	7,058.5	22.4	-56.4	-22.4	6.52	6.45	1.29
7,175.0	48.30	183.50	7,080.2	-1.0	-57.9	1.1	6.25	6.25	0.00
7,206.0	50.20	182.90	7,100.4	-24.5	-59.2	24.5	6.30	6.13	-1.94
7,238.0	52.80	182.30	7,120.3	-49.5	-60.3	49.6	8.26	8.13	-1.88
7,270.0	55.50	182.10	7,139.1	-75.4	-61.3	75.5	8.45	8.44	-0.63
7,301.0	57.60	181.30	7,156.1	-101.3	-62.1	101.3	7.11	6.77	-2.58
7,333.0	59.10	181.50	7,172.9	-128.5	-62.7	128.6	4.72	4.69	0.63
7,365.0	61.70	180.90	7,188.7	-156.3	-63.3	156.4	8.29	8.13	-1.88
7,396.0	65.10	180.20	7,202.6	-184.0	-63.6	184.1	11.15	10.97	-2.26
7,428.0	68.70	179.60	7,215.2	-213.4	-63.5	213.5	11.38	11.25	-1.88
7,459.0	72.50	179.10	7,225.5	-242.7	-63.2	242.8	12.35	12.26	-1.61
7,491.0	76.00	178.80	7,234.1	-273.5	-62.6	273.5	10.97	10.94	-0.94
7,523.0	79.70	178.50	7,240.9	-304.7	-61.9	304.8	11.60	11.56	-0.94
7,554.0	83.30	178.50	7,245.5	-335.4	-61.1	335.4	11.61	11.61	0.00
7,635.0	86.80	178.70	7,252.5	-416.0	-59.1	416.1	4.33	4.32	0.25
7,665.0	86.70	178.70	7,254.2	-446.0	-58.4	446.1	0.33	-0.33	0.00
7,695.0	86.90	178.90	7,255.8	-475.9	-57.8	476.0	0.94	0.67	0.67
7,726.0	88.70	178.80	7,257.0	-506.9	-57.2	507.0	5.82	5.81	-0.32
7,756.0	90.30	178.40	7,257.3	-536.9	-56.5	537.0	5.50	5.33	-1.33
7,786.0	90.90	178.80	7,257.0	-566.9	-55.7	566.9	2.40	2.00	1.33
7,816.0	90.20	178.70	7,256.7	-596.9	-55.1	596.9	2.36	-2.33	-0.33
7,847.0	89.10	178.20	7,256.9	-627.9	-54.2	627.9	3.90	-3.55	-1.61

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7,877.0	89.80	177.90	7,257.2	-657.8	-53.2	657.9	2.54	2.33	-1.00
7,907.0	91.10	178.20	7,256.9	-687.8	-52.2	687.9	4.45	4.33	1.00
7,938.0	92.30	178.70	7,256.0	-718.8	-51.4	718.9	4.19	3.87	1.61
7,968.0	92.50	178.80	7,254.7	-748.8	-50.7	748.8	0.75	0.67	0.33
7,999.0	91.60	178.70	7,253.6	-779.7	-50.0	779.8	2.92	-2.90	-0.32
8,029.0	90.60	177.70	7,253.1	-809.7	-49.1	809.8	4.71	-3.33	-3.33
8,060.0	90.00	176.10	7,252.9	-840.7	-47.4	840.7	5.51	-1.94	-5.16
8,091.0	89.80	176.90	7,253.0	-871.6	-45.5	871.7	2.66	-0.65	2.58
8,121.0	89.40	177.40	7,253.2	-901.6	-44.0	901.6	2.13	-1.33	1.67
8,151.0	90.70	179.00	7,253.1	-931.6	-43.1	931.6	6.87	4.33	5.33
8,182.0	90.70	180.60	7,252.8	-962.6	-43.0	962.6	5.16	0.00	5.16
8,212.0	89.70	181.20	7,252.7	-992.5	-43.4	992.6	3.89	-3.33	2.00
8,242.0	90.10	181.30	7,252.7	-1,022.5	-44.1	1,022.6	1.37	1.33	0.33
8,273.0	90.20	180.80	7,252.6	-1,053.5	-44.7	1,053.6	1.64	0.32	-1.61
8,303.0	91.20	180.60	7,252.3	-1,083.5	-45.0	1,083.6	3.40	3.33	-0.67
8,334.0	91.60	180.40	7,251.5	-1,114.5	-45.3	1,114.6	1.44	1.29	-0.65
8,366.0	91.80	180.50	7,250.5	-1,146.5	-45.6	1,146.6	0.70	0.63	0.31
8,397.0	91.20	180.50	7,249.7	-1,177.5	-45.8	1,177.5	1.94	-1.94	0.00
8,428.0	89.30	180.10	7,249.6	-1,208.5	-46.0	1,208.5	6.26	-6.13	-1.29
8,459.0	89.10	180.40	7,250.0	-1,239.5	-46.1	1,239.5	1.16	-0.65	0.97
8,491.0	89.30	180.20	7,250.5	-1,271.5	-46.3	1,271.5	0.88	0.63	-0.63
8,523.0	89.10	180.20	7,250.9	-1,303.5	-46.4	1,303.5	0.63	-0.63	0.00
8,554.0	88.70	179.80	7,251.5	-1,334.5	-46.4	1,334.5	1.82	-1.29	-1.29
8,586.0	88.70	179.80	7,252.2	-1,366.5	-46.3	1,366.5	0.00	0.00	0.00
8,618.0	88.10	179.50	7,253.1	-1,398.5	-46.1	1,398.5	2.10	-1.88	-0.94
8,650.0	88.00	179.10	7,254.2	-1,430.4	-45.7	1,430.5	1.29	-0.31	-1.25
8,682.0	87.70	178.30	7,255.4	-1,462.4	-45.0	1,462.4	2.67	-0.94	-2.50
8,714.0	88.30	179.40	7,256.5	-1,494.4	-44.3	1,494.4	3.91	1.88	3.44
8,745.0	88.50	179.50	7,257.4	-1,525.4	-44.0	1,525.4	0.72	0.65	0.32
8,777.0	89.10	180.50	7,258.1	-1,557.4	-44.0	1,557.4	3.64	1.88	3.13
8,809.0	89.30	181.30	7,258.5	-1,589.3	-44.5	1,589.4	2.58	0.63	2.50
8,840.0	89.20	180.90	7,258.9	-1,620.3	-45.1	1,620.4	1.33	-0.32	-1.29
8,872.0	89.70	181.10	7,259.2	-1,652.3	-45.7	1,652.4	1.68	1.56	0.63
8,903.0	90.00	181.40	7,259.3	-1,683.3	-46.4	1,683.4	1.37	0.97	0.97
8,935.0	90.60	181.60	7,259.2	-1,715.3	-47.2	1,715.4	1.98	1.88	0.63
8,967.0	91.00	182.10	7,258.7	-1,747.3	-48.2	1,747.3	2.00	1.25	1.56
8,998.0	90.90	181.90	7,258.2	-1,778.3	-49.3	1,778.3	0.72	-0.32	-0.65
9,030.0	90.70	181.80	7,257.8	-1,810.2	-50.4	1,810.3	0.70	-0.63	-0.31
9,061.0	90.60	181.60	7,257.4	-1,841.2	-51.3	1,841.3	0.72	-0.32	-0.65
9,093.0	90.50	181.90	7,257.1	-1,873.2	-52.2	1,873.3	0.99	-0.31	0.94
9,125.0	90.30	181.70	7,256.9	-1,905.2	-53.3	1,905.3	0.88	-0.63	-0.63
9,157.0	90.10	181.60	7,256.8	-1,937.2	-54.2	1,937.2	0.70	-0.63	-0.31
9,188.0	89.90	181.50	7,256.8	-1,968.2	-55.0	1,968.2	0.72	-0.65	-0.32
9,220.0	89.80	181.30	7,256.8	-2,000.2	-55.8	2,000.2	0.70	-0.31	-0.63
9,252.0	90.00	181.10	7,256.9	-2,032.2	-56.5	2,032.2	0.88	0.63	-0.63
9,283.0	90.30	180.80	7,256.8	-2,063.2	-57.0	2,063.2	1.37	0.97	-0.97
9,315.0	90.20	181.10	7,256.7	-2,095.1	-57.5	2,095.2	0.99	-0.31	0.94
9,347.0	90.20	181.10	7,256.6	-2,127.1	-58.1	2,127.2	0.00	0.00	0.00
9,378.0	90.90	180.90	7,256.3	-2,158.1	-58.7	2,158.2	2.35	2.26	-0.65
9,410.0	91.30	180.40	7,255.7	-2,190.1	-59.0	2,190.2	2.00	1.25	-1.56
9,442.0	91.50	180.30	7,254.9	-2,222.1	-59.2	2,222.2	0.70	0.63	-0.31
9,474.0	91.30	180.30	7,254.1	-2,254.1	-59.4	2,254.2	0.63	-0.63	0.00
9,505.0	90.60	179.40	7,253.6	-2,285.1	-59.3	2,285.2	3.68	-2.26	-2.90

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Harvesters Resources 15U-443
Project:	SEC.15-T6N-R66W	TVD Reference:	WELL @ 4830.0ft (RKB - 15')
Site:	Harvesters Resources 15UR-HZ Pad Sec.15-T6N-R66W	MD Reference:	WELL @ 4830.0ft (RKB - 15')
Well:	Harvesters Resources 15U-443	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)	
9,536.0	90.20	178.90	7,253.4	-2,316.1	-58.9	2,316.2	2.07	-1.29	-1.61	
9,568.0	90.20	178.80	7,253.2	-2,348.1	-58.2	2,348.2	0.31	0.00	-0.31	
9,600.0	90.00	179.00	7,253.2	-2,380.1	-57.6	2,380.1	0.88	-0.63	0.63	
9,632.0	89.90	179.00	7,253.2	-2,412.1	-57.0	2,412.1	0.31	-0.31	0.00	
9,664.0	89.80	179.10	7,253.3	-2,444.1	-56.5	2,444.1	0.44	-0.31	0.31	
9,696.0	89.60	179.50	7,253.5	-2,476.1	-56.1	2,476.1	1.40	-0.63	1.25	
9,727.0	89.80	179.20	7,253.6	-2,507.1	-55.8	2,507.1	1.16	0.65	-0.97	
9,759.0	89.60	179.40	7,253.8	-2,539.1	-55.4	2,539.1	0.88	-0.63	0.63	
9,790.0	89.70	179.10	7,254.0	-2,570.1	-55.0	2,570.1	1.02	0.32	-0.97	
9,822.0	89.80	179.20	7,254.1	-2,602.1	-54.5	2,602.1	0.44	0.31	0.31	
9,854.0	89.70	179.20	7,254.3	-2,634.1	-54.0	2,634.1	0.31	-0.31	0.00	
9,885.0	89.60	179.10	7,254.5	-2,665.1	-53.6	2,665.1	0.46	-0.32	-0.32	
9,917.0	90.50	178.40	7,254.4	-2,697.0	-52.9	2,697.1	3.56	2.81	-2.19	
9,949.0	92.40	177.70	7,253.6	-2,729.0	-51.8	2,729.1	6.33	5.94	-2.19	
9,981.0	93.90	177.40	7,251.9	-2,760.9	-50.4	2,761.0	4.78	4.69	-0.94	
10,012.0	94.20	177.00	7,249.7	-2,791.8	-48.9	2,791.9	1.61	0.97	-1.29	
10,044.0	94.20	177.30	7,247.3	-2,823.7	-47.3	2,823.7	0.93	0.00	0.94	
10,076.0	93.40	177.20	7,245.2	-2,855.6	-45.8	2,855.6	2.52	-2.50	-0.31	
10,107.0	92.90	176.50	7,243.5	-2,886.5	-44.1	2,886.5	2.77	-1.61	-2.26	
10,139.0	92.90	176.90	7,241.9	-2,918.4	-42.3	2,918.4	1.25	0.00	1.25	
10,170.0	92.90	176.60	7,240.3	-2,949.3	-40.5	2,949.4	0.97	0.00	-0.97	
10,202.0	92.40	176.10	7,238.8	-2,981.2	-38.5	2,981.3	2.21	-1.56	-1.56	
10,233.0	91.90	175.70	7,237.7	-3,012.1	-36.3	3,012.1	2.06	-1.61	-1.29	
10,265.0	91.10	175.50	7,236.8	-3,044.0	-33.8	3,044.0	2.58	-2.50	-0.63	
10,297.0	90.00	175.30	7,236.5	-3,075.9	-31.2	3,075.9	3.49	-3.44	-0.63	
10,328.0	89.70	175.50	7,236.6	-3,106.8	-28.8	3,106.8	1.16	-0.97	0.65	
10,360.0	89.70	175.10	7,236.8	-3,138.7	-26.1	3,138.7	1.25	0.00	-1.25	
10,392.0	90.40	175.50	7,236.8	-3,170.6	-23.5	3,170.6	2.52	2.19	1.25	
10,424.0	90.10	175.40	7,236.6	-3,202.5	-21.0	3,202.5	0.99	-0.94	-0.31	
10,454.0	90.20	176.20	7,236.5	-3,232.4	-18.8	3,232.4	2.69	0.33	2.67	
10,486.0	89.70	175.80	7,236.6	-3,264.3	-16.5	3,264.3	2.00	-1.56	-1.25	
10,518.0	89.00	176.30	7,236.9	-3,296.2	-14.3	3,296.3	2.69	-2.19	1.56	
10,549.0	87.60	176.60	7,237.8	-3,327.2	-12.4	3,327.2	4.62	-4.52	0.97	
10,581.0	87.30	176.90	7,239.3	-3,359.1	-10.6	3,359.1	1.33	-0.94	0.94	
10,613.0	87.60	177.40	7,240.7	-3,391.0	-9.0	3,391.0	1.82	0.94	1.56	
10,645.0	87.60	178.20	7,242.0	-3,423.0	-7.8	3,423.0	2.50	0.00	2.50	
10,676.0	87.70	178.40	7,243.3	-3,453.9	-6.9	3,453.9	0.72	0.32	0.65	
10,708.0	88.70	179.00	7,244.3	-3,485.9	-6.1	3,485.9	3.64	3.13	1.88	
10,740.0	89.20	178.90	7,244.9	-3,517.9	-5.6	3,517.9	1.59	1.56	-0.31	
10,771.0	89.40	179.10	7,245.3	-3,548.9	-5.0	3,548.9	0.91	0.65	0.65	
10,803.0	90.00	179.50	7,245.4	-3,580.9	-4.6	3,580.9	2.25	1.88	1.25	
10,835.0	90.50	179.90	7,245.3	-3,612.9	-4.5	3,612.9	2.00	1.56	1.25	
10,866.0	90.50	179.80	7,245.0	-3,643.9	-4.4	3,643.9	0.32	0.00	-0.32	
10,898.0	90.80	179.90	7,244.7	-3,675.9	-4.3	3,675.9	0.99	0.94	0.31	
10,930.0	91.00	179.20	7,244.2	-3,707.9	-4.0	3,707.9	2.27	0.63	-2.19	
10,962.0	91.20	179.40	7,243.5	-3,739.9	-3.7	3,739.9	0.88	0.63	0.63	
10,993.0	91.30	179.40	7,242.9	-3,770.9	-3.3	3,770.9	0.32	0.32	0.00	
11,025.0	91.30	178.80	7,242.1	-3,802.8	-2.8	3,802.8	1.87	0.00	-1.88	
11,057.0	91.30	178.60	7,241.4	-3,834.8	-2.1	3,834.8	0.62	0.00	-0.63	
11,088.0	90.80	178.10	7,240.9	-3,865.8	-1.2	3,865.8	2.28	-1.61	-1.61	
11,120.0	90.70	177.90	7,240.4	-3,897.8	-0.1	3,897.8	0.70	-0.31	-0.63	
11,152.0	91.00	178.20	7,240.0	-3,929.8	1.0	3,929.8	1.33	0.94	0.94	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Harvesters Resources 15U-443
Project:	SEC.15-T6N-R66W	TVD Reference:	WELL @ 4830.0ft (RKB - 15')
Site:	Harvesters Resources 15UR-HZ Pad Sec.15-T6N-R66W	MD Reference:	WELL @ 4830.0ft (RKB - 15')
Well:	Harvesters Resources 15U-443	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)
11,183.0	91.10	178.60	7,239.4	-3,960.7	1.9	3,960.7	1.33	0.32	1.29
11,215.0	91.30	178.70	7,238.7	-3,992.7	2.6	3,992.7	0.70	0.63	0.31
11,247.0	91.20	178.70	7,238.0	-4,024.7	3.3	4,024.7	0.31	-0.31	0.00
11,331.0	91.20	178.70	7,236.3	-4,108.7	5.3	4,108.7	0.00	0.00	0.00
BHL 500'FSL, 585'FEL									

Checked By: _____	Approved By: _____	Date: _____
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