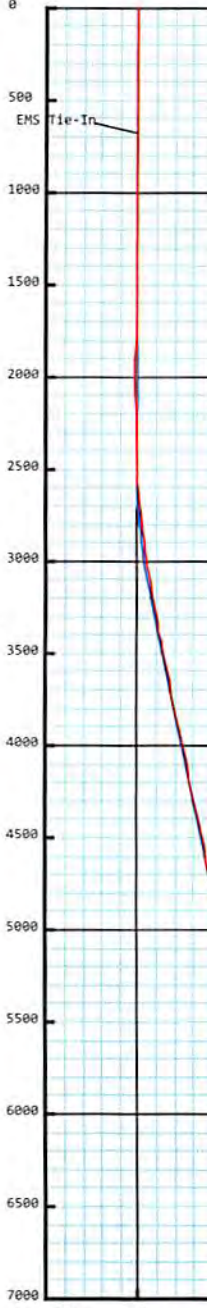




Deborah Craig OHI 5H
Ohio County, WV
SDC 40
Plan vs Actual

KB: 1355.3'

GL: 1329.3'



Plan Data for Deborah Craig OHI 5H

Plan Point Information:
Dogleg Severity Unit: °/100.00ft

MD (USft)	Inc (°)	Az (°)	TVD (+/-S) (USft)	+E/-W (USft)	Northing (USft)	Easting (USft)	Lat (°)	Long (°)	Toolface Comments
0.00	0.00	0.00	-0.00	0.00	0.00	0.00	0.00	0.00	0.0
36.88	0.37	58.60	36.88	0.06	0.10	0.02	1.00		58.6 Assume Drift
2200.00	0.37	58.60	2199.95	7.32	11.98	2.54	0.00		0.0
2500.00	0.37	58.60	2499.95	8.32	13.63	2.89	0.00		0.0 Nudge KOP
3215.26	14.57	14.51	3207.38	97.07	38.26	76.93	2.00		314.9 Hold
5970.89	14.57	14.51	5874.42	768.09	211.86	641.28	0.00		0.0 Curve KOP 7° DLS
6619.92	60.00	14.51	6377.40	1138.82	307.78	953.08	7.00		0.0 Build/Turn 9° DLS
7195.69	90.38	330.36	6530.00	1666.89	221.92	1476.87	9.00		297.6 LP DC5H
12538.74	90.38	330.36	6495.00	6310.71	-2420.42	6758.96	0.00		0.0 PBHL DC5H

Target Set Information:
Name: Deborah Craig OHI 5H

Position offsets from Slot centre

Name	TVD (USft)	+N/-S (USft)	+E/-W (USft)	Northing (USft)	Easting (USft)	Lat (°)	Long (°)
LP DC5H	6530.00	1666.89	221.92	14546091.88	1756897.50	40.052414	-80.583755
PBHL DC5H	6495.00	6310.71	-2420.42	14550735.70	1754255.16	40.065200	-80.593121

Plan Data for Deborah Craig OHI 5H

Field: SOUTHWESTERN_OHIO CO, WV UTM NAD 83 (17N)
Map Unit: USft Vertical Reference Datum (VRD): Mean Sea Level
Projected Coordinate System: NAD83 / UTM zone 17N

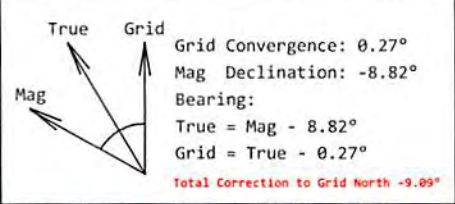
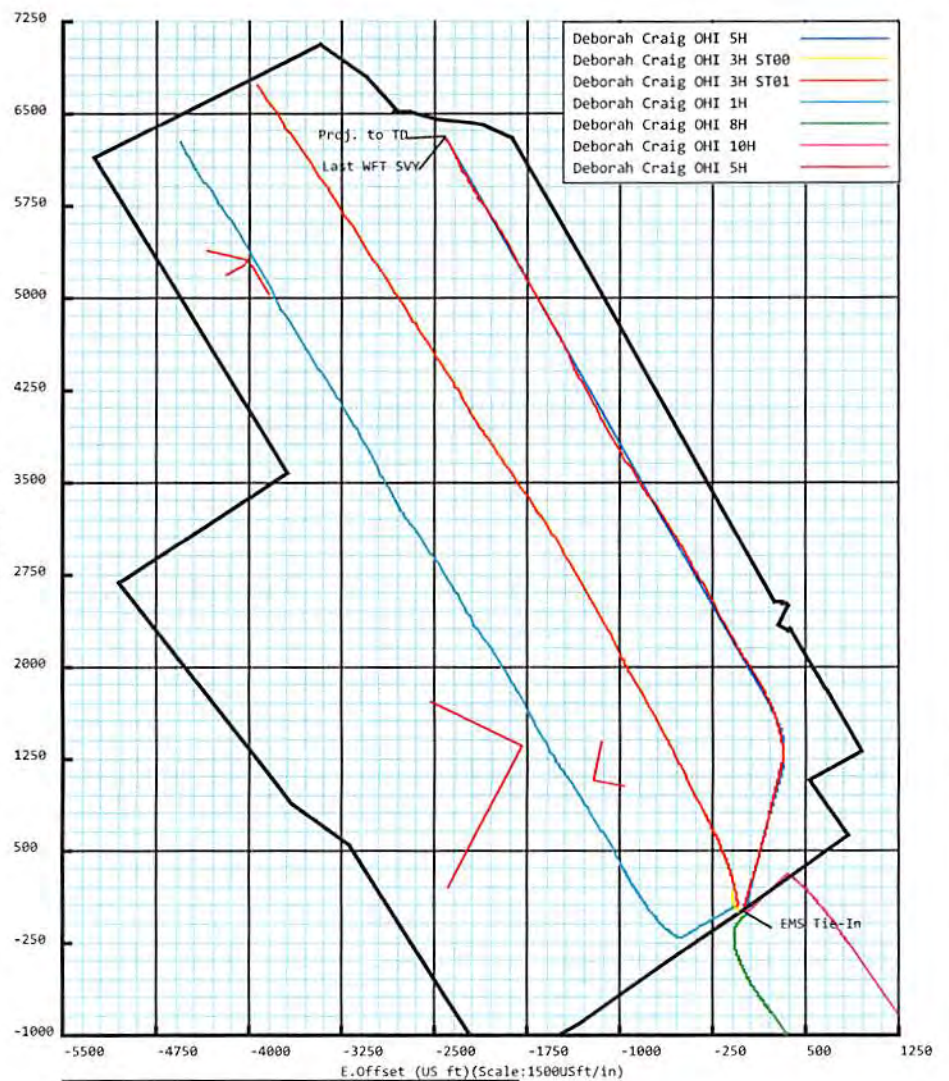
Site: Deborah Craig Pad
Unit: USFeet TVD Reference:
Company Name: SOUTHWESTERN ENERGY
Position: Northing: 14544424.86USft Latitude: 40.047840°
Easting: 1756629.10USft Longitude: -80.584742°
North Reference: Grid Grid Convergence: 0.27°
Elevation Above VRD: 1329.30USft

Slot: Deborah Craig OHI 5H
Position:
Offset is from Site centre
+N/-S: 0.13USft Northing: 14544424.99USft Latitude: 40.047839°
+E/-W: 46.48USft Easting: 1756675.58USft Longitude: -80.584576°
Elevation Above VRD: 1329.30USft

Well: Deborah Craig OHI 5H
Type: Main-Well
File Number:

Plan Folder: P1 Plan: P1:V2
Vertical Section: Position offset of origin from Slot centre:
+N/-S: 0.00USft Azimuth: 339.02°
+E/-W: 0.00USft
Magnetic Parameters:
Model: Field Strength: Declination: Dip: Date:
Mag2017 52375.0 -8.82° 67.15° 2017-05-22

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Drawing By: GWR Date: 06/14/2017
Weatherford Drilling Services
7725 W. Reno, Ste. #220
Oklahoma City, OK 73127
+1.405.773.1100 Main
+1.405.773.1887 Fax

VS (US ft) (Bearing: 339.02° Scale: 1000USft/in)



Weatherford[®]

SURVEY REPORT

Report Date: 6/27/2017
 Customer: SWN Production Co., LLC Field: Panhandle
 Job Name: NE-12532419 Rig: SDC 40
 Well Name: Deborah Craig OHI 5H Rig Loc: Ohio Co., WV

Survey Calculation Method: Minimum Curvature						
Magnetic Reference	Target Direction	Total Magnetic Field	Magnetic Dip Angle	Magnetic Declination	Grid Convergence	Total Correction
Grid North	339.02 deg	52375 nT	67.15 deg	-8.82 deg	0.27 deg	-9.09 deg
Survey Tie-On	Depth	INC	AZ	TVD	NS	EW
	0.00 ft	0.00 deg	0.00 deg	0.00 ft	0.00 ft	0.00 ft

Depth (ft)	Inc (deg)	Azm (deg)	TVD (ft)	Well Head			Vsect (ft)	Dogleg (deg/100ft)
				NS (ft)	EW (ft)			
175.00	0.80	284.55	174.99	0.31	-1.18	0.71	0.46	
236.00	0.60	294.05	235.99	0.54	-1.89	1.18	0.38	
328.00	0.60	299.65	327.98	0.98	-2.74	1.90	0.06	
419.00	0.70	263.85	418.98	1.15	-3.71	2.41	0.45	
500.00	0.40	268.75	499.98	1.10	-4.49	2.63	0.37	
589.00	0.40	290.65	588.97	1.20	-5.09	2.94	0.17	
682.00	0.50	297.65	681.97	1.50	-5.75	3.46	0.12	
781.00	0.15	257.32	780.97	1.67	-6.26	3.80	0.40	
873.00	0.20	140.46	872.97	1.52	-6.28	3.67	0.33	
966.00	0.25	136.73	965.97	1.25	-6.03	3.33	0.06	
1059.00	0.23	151.81	1058.97	0.94	-5.81	2.95	0.07	
1152.00	0.33	148.40	1151.97	0.55	-5.58	2.51	0.11	
1245.00	0.32	119.85	1244.96	0.19	-5.21	2.04	0.17	
1337.00	0.25	118.01	1336.96	-0.03	-4.81	1.69	0.08	
1427.00	0.34	77.48	1426.96	-0.07	-4.38	1.50	0.25	
1520.00	0.25	118.62	1519.96	-0.11	-3.93	1.31	0.24	
1612.00	0.32	115.03	1611.96	-0.31	-3.52	0.97	0.08	
1705.00	0.41	110.90	1704.96	-0.54	-2.97	0.56	0.10	
1798.00	0.33	112.95	1797.96	-0.76	-2.42	0.15	0.09	
1891.00	0.40	101.93	1890.95	-0.93	-1.85	-0.21	0.11	
1984.00	0.37	85.72	1983.95	-0.98	-1.24	-0.47	0.12	
2076.00	0.26	65.28	2075.95	-0.87	-0.75	-0.54	0.17	
2203.00	0.49	352.81	2202.95	-0.21	-0.56	0.00	0.38	
2293.00	0.67	5.88	2292.94	0.70	-0.55	0.85	0.25	
2382.00	1.34	8.39	2381.93	2.24	-0.35	2.22	0.75	
2472.00	3.14	22.37	2471.86	5.56	0.75	4.93	2.08	
2565.00	4.78	20.69	2564.63	11.54	3.08	9.67	1.77	
2658.00	5.95	16.09	2657.22	19.80	5.79	16.41	1.34	
2750.00	7.11	13.36	2748.63	29.92	8.43	24.92	1.30	
2840.00	8.29	14.61	2837.81	41.62	11.35	34.80	1.32	
2930.00	9.64	15.60	2926.71	55.16	15.01	46.12	1.51	
3023.00	10.82	13.87	3018.23	71.13	19.20	59.54	1.31	
3115.00	11.56	15.75	3108.48	88.39	23.77	74.02	0.90	
3205.00	11.93	15.45	3196.60	106.03	28.70	88.73	0.42	
3298.00	12.67	15.86	3287.46	125.11	34.05	104.63	0.80	

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Depth (ft)	Inc (deg)	Azm (deg)	TVD (ft)	Well Head		VSect (ft)	Dogleg (deg/100ft)
				NS (ft)	EW (ft)		
3391.00	14.31	15.75	3377.89	145.98	39.95	122.00	1.76
3484.00	15.53	18.24	3467.76	168.87	46.97	140.86	1.48
3576.00	15.23	18.88	3556.46	192.00	54.74	159.68	0.37
3666.00	14.77	18.37	3643.39	214.08	62.18	177.62	0.53
3759.00	14.64	16.85	3733.35	236.57	69.32	196.07	0.44
3852.00	14.18	15.33	3823.42	258.81	75.74	214.53	0.64
3944.00	14.57	12.29	3912.54	280.98	81.18	233.29	0.92
4037.00	14.60	11.78	4002.55	303.89	86.06	252.93	0.14
4130.00	14.57	13.45	4092.55	326.74	91.18	272.43	0.45
4223.00	15.04	18.46	4182.47	349.56	97.72	291.40	1.47
4316.00	14.11	18.50	4272.47	371.76	105.14	309.47	1.00
4408.00	14.30	17.02	4361.66	393.26	112.02	327.08	0.45
4501.00	15.38	16.67	4451.56	416.05	118.92	345.89	1.17
4594.00	15.04	15.74	4541.30	439.48	125.73	365.33	0.45
4686.00	15.14	14.31	4630.13	462.61	131.94	384.70	0.42
4779.00	14.33	13.09	4720.07	485.59	137.55	404.15	0.93
4872.00	14.57	15.57	4810.13	508.07	143.29	423.08	0.71
4965.00	13.86	14.86	4900.28	530.11	149.29	441.51	0.79
5058.00	14.51	12.47	4990.44	552.25	154.66	460.26	0.94
5151.00	15.17	14.03	5080.34	575.43	160.13	479.95	0.83
5243.00	14.74	13.32	5169.22	598.50	165.74	499.48	0.51
5336.00	15.11	16.70	5259.09	621.62	171.95	518.84	1.02
5429.00	14.66	15.82	5348.97	644.55	178.65	537.86	0.54
5522.00	13.60	13.92	5439.15	666.49	184.48	556.25	1.24
5612.00	13.46	14.90	5526.66	686.88	189.72	573.42	0.30
5704.00	15.55	13.71	5615.72	709.21	195.40	592.23	2.29
5797.00	16.07	10.49	5705.20	733.98	200.70	613.46	1.10
5890.00	16.35	11.68	5794.51	759.46	205.69	635.46	0.47
5936.00	16.70	11.44	5838.60	772.27	208.31	646.49	0.78
5983.00	18.51	12.74	5883.40	786.17	211.30	658.40	3.94
6029.00	20.86	13.51	5926.71	801.26	214.82	671.22	5.14
6075.00	23.19	13.92	5969.35	818.02	218.91	685.41	5.08
6141.00	26.00	11.19	6029.36	844.83	224.85	708.31	4.59
6188.00	28.17	10.79	6071.20	865.83	228.93	726.47	4.63
6234.00	31.74	12.99	6111.05	888.30	233.68	745.74	8.12
6281.00	34.90	14.74	6150.32	913.35	239.88	766.91	7.03
6327.00	38.41	15.46	6187.22	939.86	247.04	789.10	7.69
6373.00	42.38	14.48	6222.25	968.65	254.73	813.23	8.74
6420.00	45.29	13.33	6256.15	1000.25	262.54	839.94	6.42
6466.00	48.54	12.89	6287.56	1032.97	270.16	867.76	7.10
6512.00	53.01	13.34	6316.65	1067.66	278.25	897.26	9.75
6559.00	57.08	13.75	6343.57	1105.10	287.27	928.99	8.69
6605.00	60.48	14.18	6367.41	1143.27	296.76	961.23	7.43
6652.00	62.58	13.90	6389.81	1183.35	306.79	995.06	4.50
6698.00	63.94	8.80	6410.52	1223.61	314.86	1029.76	10.33
6744.00	66.36	2.41	6429.86	1265.12	318.91	1067.07	13.66
6791.00	69.10	357.03	6447.69	1308.59	318.67	1107.74	12.09
6837.00	70.66	353.89	6463.51	1351.64	315.25	1149.16	7.25
6884.00	72.41	350.87	6478.40	1395.82	309.33	1192.53	7.14
6930.00	75.04	348.59	6491.29	1439.26	301.46	1235.91	7.44

Depth (ft)	Inc (deg)	Azimuth (deg)	TVD (ft)	Well Head		VSection (ft)	Dogleg (deg/100ft)
				NS (ft)	EW (ft)		
6976.00	77.90	346.31	6502.05	1482.91	291.74	1280.14	7.87
7023.00	79.78	343.95	6511.15	1527.47	279.90	1325.99	6.35
7069.00	81.15	342.48	6518.77	1570.90	266.80	1371.23	4.34
7116.00	82.95	340.20	6525.27	1614.99	251.91	1417.73	6.14
7162.00	86.85	337.58	6529.36	1657.72	235.41	1463.54	10.20
7208.00	90.00	335.18	6530.63	1699.84	216.99	1509.46	8.61
7301.00	89.20	331.18	6531.28	1782.82	175.04	1601.96	4.39
7394.00	88.95	331.27	6532.78	1864.32	130.27	1694.09	0.29
7487.00	89.32	330.96	6534.18	1945.75	85.35	1786.19	0.52
7580.00	89.51	328.28	6535.13	2025.96	38.33	1877.93	2.89
7672.00	90.74	326.21	6534.93	2103.33	-11.44	1967.99	2.62
7765.00	90.80	332.46	6533.68	2183.28	-58.85	2059.61	6.72
7858.00	90.25	329.59	6532.83	2264.62	-103.89	2151.69	3.14
7951.00	90.80	332.52	6531.98	2345.99	-148.90	2243.78	3.21
8043.00	90.92	334.31	6530.59	2428.26	-190.06	2335.33	1.95
8136.00	90.68	334.38	6529.30	2512.08	-230.32	2428.01	0.27
8229.00	90.62	328.31	6528.24	2593.64	-274.90	2520.12	6.53
8322.00	90.68	326.91	6527.18	2672.17	-324.71	2611.28	1.51
8414.00	90.74	329.02	6526.04	2750.15	-373.50	2701.56	2.29
8507.00	90.86	332.65	6524.75	2831.34	-418.81	2793.59	3.90
8600.00	90.62	333.27	6523.54	2914.16	-461.09	2886.06	0.71
8693.00	90.99	330.33	6522.24	2996.11	-505.02	2978.30	3.19
8786.00	90.43	327.90	6521.09	3075.91	-552.76	3069.90	2.68
8878.00	90.93	327.21	6519.99	3153.54	-602.11	3160.06	0.93
8968.00	90.99	326.61	6518.49	3228.93	-651.24	3248.04	0.67
9058.00	90.37	325.04	6517.42	3303.38	-701.79	3335.66	1.88
9150.00	90.43	323.80	6516.77	3378.21	-755.31	3424.68	1.35
9240.00	90.88	328.34	6515.75	3452.86	-805.53	3512.37	5.07
9332.00	90.68	328.32	6514.49	3531.15	-853.83	3602.76	0.22
9425.00	90.68	326.92	6513.39	3609.68	-903.63	3693.92	1.51
9517.00	90.43	327.10	6512.50	3686.84	-953.72	3783.90	0.33
9610.00	90.43	329.04	6511.80	3765.77	-1002.91	3875.20	2.09
9703.00	90.55	329.90	6511.00	3845.87	-1050.15	3966.91	0.93
9796.00	90.37	330.14	6510.26	3926.42	-1096.62	4058.76	0.32
9888.00	90.74	332.39	6509.37	4007.08	-1140.84	4149.91	2.48
9981.00	90.68	332.11	6508.21	4089.38	-1184.14	4242.25	0.31
10074.00	90.74	328.65	6507.06	4170.21	-1230.09	4334.17	3.72
10167.00	90.86	330.26	6505.76	4250.29	-1277.35	4425.87	1.74
10259.00	90.62	331.18	6504.57	4330.53	-1322.34	4516.90	1.03
10352.00	90.80	336.42	6503.42	4413.94	-1363.39	4609.47	5.64
10444.00	91.17	336.60	6501.84	4498.31	-1400.05	4701.37	0.45
10537.00	90.92	334.58	6500.14	4582.97	-1438.48	4794.18	2.19
10630.00	89.88	331.02	6499.49	4665.67	-1480.98	4886.62	3.99
10722.00	90.12	331.66	6499.49	4746.40	-1525.10	4977.79	0.74
10815.00	89.94	330.04	6499.45	4827.62	-1570.40	5069.84	1.75
10907.00	90.43	330.87	6499.15	4907.65	-1615.76	5160.82	1.05
11000.00	89.88	329.47	6498.90	4988.33	-1662.02	5252.71	1.62
11093.00	90.31	329.45	6498.74	5068.43	-1709.28	5344.41	0.46
11185.00	90.43	332.23	6498.15	5148.76	-1754.10	5435.47	3.02
11275.00	90.43	332.81	6497.47	5228.60	-1795.63	5524.89	0.64

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Depth (ft)	Inc (deg)	Azm (deg)	TVD (ft)	Well Head		VSect (ft)	Dogleg (deg/100ft)
				NS (ft)	EW (ft)		
11368.00	90.49	331.49	6496.73	5310.83	-1839.07	5617.21	1.42
11461.00	90.62	332.13	6495.83	5392.79	-1883.00	5709.47	0.70
11553.00	90.19	331.03	6495.18	5473.70	-1926.79	5800.69	1.28
11646.00	90.06	328.33	6494.97	5553.97	-1973.73	5892.45	2.91
11739.00	90.49	327.16	6494.53	5632.62	-2023.36	5983.65	1.34
11832.00	90.06	325.48	6494.08	5710.00	-2074.94	6074.38	1.86
11928.00	90.62	327.14	6493.51	5789.88	-2128.18	6168.02	1.82
12017.00	90.49	330.59	6492.65	5866.04	-2174.19	6255.61	3.88
12110.00	89.63	328.27	6492.55	5946.11	-2221.49	6347.30	2.66
12203.00	90.37	332.27	6492.55	6026.85	-2267.60	6439.20	4.37
12296.00	91.05	334.51	6491.40	6109.99	-2309.25	6531.74	2.52
12389.00	90.80	331.32	6489.90	6192.76	-2351.58	6624.18	3.44
12481.00	90.74	328.77	6488.66	6272.46	-2397.51	6715.04	2.77
12501.00	90.62	328.21	6488.42	6289.51	-2407.96	6734.70	2.86
Projected to Total Depth:							
12524.00	90.62	328.21	6488.17	6309.06	-2420.08	6757.29	0.00

- * SWN surveys from 175.00 ft MD to 682.00 ft MD *
- * Weatherford surveys from 781.00 ft MD to 12501.00 ft MD *
- * TD at 12524 ft MD *
- * The total correction is -9.09 deg relative to Grid North *

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