



Directional Survey

DELAWARE BASIN UNRESTRICTED

Well Name: GREEN WAVE 20-17 FED 3H

Sub-Division DELAWARE BASIN	Region LEA COUNTY CORE	Field Name RATTLESNAKE DBBU	County LEA	State/Province NM						
Surface Legal Location 20-26S-34E	API/UWI 3002546016	Latitude (°) 32° 1' 46.453" N	Longitude (°) 103° 29' 36.007" W	Orig KB Elevation (ft) 3,374.60	Ground Elev MSL (ft) 3,344.60	KB - GL (ft) 30.00				
Wellbores										
Wellbore Name OH	Parent Wellbore	SAP Well ID	Vertical Section Direction (°) 359.50							
Kick Offs & Key Depths										
Date 6/6/2019	Type CURVE	Top Depth (ftKB) 12,321.5								
Date 6/16/2019	Type CURVE	Top Depth (ftKB) 12,290.0								
Actual Deviation Survey COMPOSITE OH, Proposed? No		Definitive? No	Proposed? No	Proposed Deviation Survey COMPOSITE WELL PLAN - OH, Proposed? Yes						
Deviation Survey										
Date 6/2/2019	Description COMPOSITE OH									
MD Tie In (ftKB) 0.00	TVD Tie In (ftKB) 0.00	Inclination Tie In (°) 0.00	Azimuth Tie In (°) 0.00	NS Tie In (ft) 0.00	EW Tie In (ft) 0.00					
Survey Data										
Date	MD (ftKB)	Incl (°)	Azm (°)	TVD (ftKB)	VS (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Survey Tool	Survey Company
6/2/2019	183.00	0.20	300.60	183.00	0.16	0.16	-0.27	0.11	MWD	TOTAL DIRECTIONAL SERV...
6/2/2019	275.00	0.40	316.50	275.00	0.48	0.48	-0.63	0.23	MWD	TOTAL DIRECTIONAL SERV...
6/2/2019	365.00	0.60	320.80	364.99	1.08	1.07	-1.15	0.23	MWD	TOTAL DIRECTIONAL SERV...
6/2/2019	456.00	0.70	319.70	455.99	1.88	1.86	-1.81	0.11	MWD	TOTAL DIRECTIONAL SERV...
6/2/2019	547.00	0.90	320.80	546.98	2.86	2.84	-2.62	0.22	MWD	TOTAL DIRECTIONAL SERV...
6/2/2019	637.00	1.00	326.10	636.97	4.07	4.04	-3.50	0.15	MWD	TOTAL DIRECTIONAL SERV...
6/2/2019	727.00	1.00	321.20	726.95	5.34	5.30	-4.44	0.09	MWD	TOTAL DIRECTIONAL SERV...
6/5/2019	866.00	0.92	330.60	865.93	7.27	7.22	-5.74	0.13	MWD	TOTAL DIRECTIONAL SERV...
6/5/2019	957.00	0.62	233.48	956.93	7.62	7.57	-6.50	1.29	MWD	TOTAL DIRECTIONAL SERV...
6/5/2019	1,047.00	1.10	179.42	1,046.92	6.47	6.41	-6.88	0.99	MWD	TOTAL DIRECTIONAL SERV...
6/5/2019	1,138.00	1.89	193.05	1,137.89	4.14	4.08	-7.21	0.95	MWD	TOTAL DIRECTIONAL SERV...
6/5/2019	1,230.00	2.46	201.75	1,229.82	0.84	0.77	-8.28	0.71	MWD	TOTAL DIRECTIONAL SERV...
6/5/2019	1,324.00	3.74	200.43	1,323.68	-3.89	-3.98	-10.10	1.36	MWD	TOTAL DIRECTIONAL SERV...
6/5/2019	1,419.00	4.26	208.08	1,418.45	-9.89	-10.00	-12.84	0.78	MWD	TOTAL DIRECTIONAL SERV...
6/6/2019	1,513.00	5.19	209.22	1,512.13	-16.64	-16.79	-16.56	0.99	MWD	TOTAL DIRECTIONAL SERV...
6/6/2019	1,607.00	6.07	215.37	1,605.68	-24.36	-24.55	-21.52	1.13	MWD	TOTAL DIRECTIONAL SERV...
6/6/2019	1,707.00	6.99	223.37	1,705.03	-33.04	-33.29	-28.75	1.29	MWD	TOTAL DIRECTIONAL SERV...
6/6/2019	1,796.00	7.34	232.25	1,793.34	-40.38	-40.71	-36.97	1.30	MWD	TOTAL DIRECTIONAL SERV...
6/6/2019	1,890.00	7.78	236.29	1,886.52	-47.50	-47.91	-47.01	0.73	MWD	TOTAL DIRECTIONAL SERV...
6/6/2019	1,984.00	8.53	242.08	1,979.57	-54.19	-54.71	-58.46	1.18	MWD	TOTAL DIRECTIONAL SERV...
6/6/2019	2,078.00	8.79	248.59	2,072.50	-59.97	-60.59	-71.31	1.08	MWD	TOTAL DIRECTIONAL SERV...
6/6/2019	2,173.00	8.70	248.68	2,166.40	-65.11	-65.65	-84.76	0.10	MWD	TOTAL DIRECTIONAL SERV...
6/6/2019	2,267.00	8.53	249.39	2,259.34	-70.04	-70.89	-97.91	0.21	MWD	TOTAL DIRECTIONAL SERV...
6/6/2019	2,361.00	8.35	249.82	2,352.32	-74.73	-75.70	-110.84	0.20	MWD	TOTAL DIRECTIONAL SERV...
6/6/2019	2,455.00	8.26	249.65	2,445.33	-79.32	-80.40	-123.58	0.10	MWD	TOTAL DIRECTIONAL SERV...
6/6/2019	2,550.00	8.40	246.31	2,539.33	-84.37	-85.57	-136.33	0.53	MWD	TOTAL DIRECTIONAL SERV...
6/6/2019	2,644.00	8.26	247.36	2,632.34	-89.62	-90.92	-148.85	0.22	MWD	TOTAL DIRECTIONAL SERV...
6/6/2019	2,738.00	7.78	248.24	2,725.42	-94.47	-95.88	-160.99	0.53	MWD	TOTAL DIRECTIONAL SERV...
6/6/2019	2,832.00	8.48	245.69	2,818.48	-99.58	-101.09	-173.22	0.84	MWD	TOTAL DIRECTIONAL SERV...
6/6/2019	2,927.00	7.91	244.46	2,912.50	-105.17	-106.78	-185.50	0.63	MWD	TOTAL DIRECTIONAL SERV...
6/6/2019	3,021.00	7.74	243.32	3,005.63	-110.70	-112.43	-196.99	0.24	MWD	TOTAL DIRECTIONAL SERV...
6/6/2019	3,115.00	7.91	244.11	3,098.75	-116.27	-118.09	-208.48	0.21	MWD	TOTAL DIRECTIONAL SERV...
6/6/2019	3,209.00	8.40	246.05	3,191.80	-121.77	-123.70	-220.56	0.60	MWD	TOTAL DIRECTIONAL SERV...
6/6/2019	3,304.00	7.96	243.15	3,285.84	-127.46	-129.49	-232.77	0.63	MWD	TOTAL DIRECTIONAL SERV...
6/6/2019	3,398.00	8.66	245.78	3,378.65	-133.19	-135.33	-245.03	0.85	MWD	TOTAL DIRECTIONAL SERV...
6/6/2019	3,492.00	8.35	244.38	3,471.82	-138.94	-141.19	-257.64	0.40	MWD	TOTAL DIRECTIONAL SERV...
6/6/2019	3,586.00	7.91	250.35	3,564.87	-143.95	-146.32	-269.88	1.01	MWD	TOTAL DIRECTIONAL SERV...
6/6/2019	3,680.00	7.78	252.37	3,657.99	-147.95	-150.42	-282.04	0.32	MWD	TOTAL DIRECTIONAL SERV...
6/6/2019	3,775.00	8.09	254.75	3,752.08	-151.55	-154.12	-294.62	0.48	MWD	TOTAL DIRECTIONAL SERV...
6/6/2019	3,869.00	8.66	255.36	3,845.28	-154.60	-157.28	-306.43	1.31	MWD	TOTAL DIRECTIONAL SERV...
6/6/2019	3,963.00	8.65	252.20	3,938.60	-157.66	-160.44	-317.28	0.42	MWD	TOTAL DIRECTIONAL SERV...
6/6/2019	4,057.00	7.30	246.57	4,031.88	-161.68	-164.55	-328.17	0.83	MWD	TOTAL DIRECTIONAL SERV...
6/6/2019	4,151.00	8.09	249.65	4,125.03	-166.26	-169.23	-339.85	0.95	MWD	TOTAL DIRECTIONAL SERV...
6/6/2019	4,245.00	8.09	248.51	4,218.09	-170.87	-173.95	-352.21	0.17	MWD	TOTAL DIRECTIONAL SERV...
6/6/2019	4,340.00	9.01	243.15	4,312.04	-176.57	-179.76	-365.07	1.28	MWD	TOTAL DIRECTIONAL SERV...
6/6/2019	4,434.00	8.97	241.65	4,404.88	-183.26	-186.56	-378.08	0.25	MWD	TOTAL DIRECTIONAL SERV...
6/6/2019	4,529.00	8.18	245.96	4,498.82	-189.42	-192.83	-390.77	1.07	MWD	TOTAL DIRECTIONAL SERV...
6/6/2019	4,623.00	7.08	242.79	4,591.99	-194.69	-198.21	-402.03	1.25	MWD	TOTAL DIRECTIONAL SERV...
6/7/2019	4,717.00	8.99	230.31	4,685.29	-200.91	-204.51	-411.59	1.63	MWD	TOTAL DIRECTIONAL SERV...
6/7/2019	4,811.00	7.52	243.50	4,778.54	-207.22	-210.91	-421.49	1.85	MWD	TOTAL DIRECTIONAL SERV...
6/7/2019	4,905.00	8.26	241.21	4,871.65	-213.12	-216.90	-432.91	0.86	MWD	TOTAL DIRECTIONAL SERV...
6/7/2019	5,000.00	7.38	232.69	4,965.77	-220.01	-223.89	-443.75	1.53	MWD	TOTAL DIRECTIONAL SERV...
6/7/2019	5,094.00	7.47	238.40	5,058.98	-226.78	-230.75	-453.75	0.79	MWD	TOTAL DIRECTIONAL SERV...
6/7/2019	5,188.00	7.60	251.93	5,152.18	-231.81	-235.88	-464.87	1.89	MWD	TOTAL DIRECTIONAL SERV...
6/7/2019	5,282.00	8.66	251.23	5,245.43	-235.45	-239.61	-476.09	0.79	MWD	TOTAL DIRECTIONAL SERV...
6/7/2019	5,376.00	5.80	248.24	5,338.86	-238.93	-243.18	-485.82	1.18	MWD	TOTAL DIRECTIONAL SERV...
6/7/2019	5,470.00	5.45	249.12	5,432.40	-242.21	-246.53	-494.40	0.38	MWD	TOTAL DIRECTIONAL SERV...
6/7/2019	5,564.00	5.23	245.52	5,526.00	-245.51	-249.90	-502.47	0.43	MWD	TOTAL DIRECTIONAL SERV...
6/7/2019	5,658.00	4.70	244.46	5,619.64	-248.88	-253.34	-509.85	0.57	MWD	TOTAL DIRECTIONAL SERV...
6/7/2019	5,753.00	4.35	243.58	5,714.35	-252.10	-256.62	-516.59	0.38	MWD	TOTAL DIRECTIONAL SERV...
6/7/2019	5,847.00	3.47	242.71	5,808.13	-254.94	-259.51	-522.31	0.94	MWD	TOTAL DIRECTIONAL SERV...



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Surface Legal Location 20-26S-34E	API/UWI 3002546016	Latitude (°) 32° 1' 46.453" N	Longitude (°) 103° 29' 36.007" W	Orig KB Elevation (ft) 3,374.60
				Ground Elev MSL (ft) 3,344.60
				KB - GL (ft) 30.00

Survey Data

Date	MD (ft/KB)	Incl (°)	Azm (°)	TVD (ft/KB)	VS (ft)	N/S (ft)	E/W (ft)	DLS (°/100ft)	Survey Tool	Survey Company
6/7/2019	5,941.00	2.81	238.57	5,901.99	-257.41	-262.01	-526.80	0.74	MWD	TOTAL DIRECTIONAL SERV...
6/7/2019	6,035.00	1.85	245.78	5,995.91	-259.20	-263.84	-530.15	1.07	MWD	TOTAL DIRECTIONAL SERV...
6/7/2019	6,129.00	1.05	250.09	6,089.88	-260.10	-264.75	-532.34	0.86	MWD	TOTAL DIRECTIONAL SERV...
6/7/2019	6,223.00	0.26	186.37	6,183.87	-260.59	-265.26	-533.18	1.03	MWD	TOTAL DIRECTIONAL SERV...
6/7/2019	6,318.00	0.35	154.99	6,278.87	-261.07	-265.74	-533.08	0.20	MWD	TOTAL DIRECTIONAL SERV...
6/7/2019	6,412.00	0.48	147.78	6,372.87	-261.67	-266.33	-532.75	0.15	MWD	TOTAL DIRECTIONAL SERV...
6/7/2019	6,506.00	0.57	152.35	6,466.86	-262.42	-267.08	-532.32	0.11	MWD	TOTAL DIRECTIONAL SERV...
6/7/2019	6,600.00	0.48	198.41	6,560.86	-263.21	-267.86	-532.23	0.45	MWD	TOTAL DIRECTIONAL SERV...
6/7/2019	6,695.00	0.40	181.45	6,655.86	-263.92	-268.57	-532.38	0.16	MWD	TOTAL DIRECTIONAL SERV...
6/7/2019	6,788.00	0.70	66.05	6,748.85	-264.01	-268.67	-531.85	1.01	MWD	TOTAL DIRECTIONAL SERV...
6/7/2019	6,882.00	0.97	65.34	6,842.84	-263.46	-268.10	-530.60	0.29	MWD	TOTAL DIRECTIONAL SERV...
6/8/2019	6,977.00	0.97	61.21	6,937.83	-262.75	-267.38	-529.17	0.07	MWD	TOTAL DIRECTIONAL SERV...
6/8/2019	7,071.00	0.31	295.18	7,031.83	-262.26	-266.89	-528.70	1.25	MWD	TOTAL DIRECTIONAL SERV...
6/8/2019	7,165.00	0.22	282.08	7,125.82	-262.11	-266.74	-529.11	0.11	MWD	TOTAL DIRECTIONAL SERV...
6/8/2019	7,259.00	0.35	317.24	7,219.82	-261.86	-266.49	-529.48	0.23	MWD	TOTAL DIRECTIONAL SERV...
6/8/2019	7,354.00	0.26	298.40	7,314.82	-261.54	-266.17	-529.86	0.14	MWD	TOTAL DIRECTIONAL SERV...
6/8/2019	7,448.00	0.31	288.06	7,408.82	-261.35	-265.99	-530.29	0.08	MWD	TOTAL DIRECTIONAL SERV...
6/8/2019	7,542.00	0.53	274.26	7,502.82	-261.24	-265.88	-530.97	0.26	MWD	TOTAL DIRECTIONAL SERV...
6/8/2019	7,636.00	0.57	273.12	7,596.81	-261.17	-265.82	-531.87	0.04	MWD	TOTAL DIRECTIONAL SERV...
6/8/2019	7,731.00	0.97	331.48	7,691.81	-260.43	-265.09	-532.72	0.87	MWD	TOTAL DIRECTIONAL SERV...
6/8/2019	7,826.00	0.97	322.07	7,785.79	-259.10	-263.76	-533.59	0.17	MWD	TOTAL DIRECTIONAL SERV...
6/8/2019	7,919.00	0.79	318.73	7,879.78	-257.97	-262.65	-534.51	0.20	MWD	TOTAL DIRECTIONAL SERV...
6/8/2019	8,013.00	0.66	326.11	7,973.77	-257.03	-261.71	-535.24	0.17	MWD	TOTAL DIRECTIONAL SERV...
6/8/2019	8,107.00	0.57	310.56	8,067.77	-256.27	-260.96	-535.89	0.20	MWD	TOTAL DIRECTIONAL SERV...
6/8/2019	8,201.00	0.48	301.33	8,161.77	-255.76	-260.45	-536.59	0.13	MWD	TOTAL DIRECTIONAL SERV...
6/8/2019	8,295.00	0.70	273.12	8,255.76	-255.51	-260.21	-537.50	0.38	MWD	TOTAL DIRECTIONAL SERV...
6/8/2019	8,390.00	0.53	268.72	8,350.75	-255.48	-260.19	-538.51	0.19	MWD	TOTAL DIRECTIONAL SERV...
6/8/2019	8,484.00	0.53	274.96	8,444.75	-255.45	-260.16	-539.38	0.06	MWD	TOTAL DIRECTIONAL SERV...
6/8/2019	8,578.00	0.53	274.17	8,538.75	-255.37	-260.09	-540.25	0.01	MWD	TOTAL DIRECTIONAL SERV...
6/8/2019	8,672.00	0.40	250.44	8,632.74	-255.44	-260.17	-540.99	0.24	MWD	TOTAL DIRECTIONAL SERV...
6/8/2019	8,766.00	0.53	226.36	8,726.74	-255.85	-260.58	-541.62	0.25	MWD	TOTAL DIRECTIONAL SERV...
6/9/2019	8,861.00	0.62	216.07	8,821.74	-256.56	-261.30	-542.24	0.14	MWD	TOTAL DIRECTIONAL SERV...
6/9/2019	8,955.00	0.70	216.87	8,915.73	-257.42	-262.17	-542.88	0.09	MWD	TOTAL DIRECTIONAL SERV...
6/9/2019	9,049.00	0.79	213.17	9,009.72	-258.42	-263.17	-543.58	0.11	MWD	TOTAL DIRECTIONAL SERV...
6/9/2019	9,143.00	0.75	215.28	9,103.71	-259.46	-264.22	-544.29	0.05	MWD	TOTAL DIRECTIONAL SERV...
6/9/2019	9,237.00	0.88	212.56	9,197.70	-260.56	-265.33	-545.03	0.14	MWD	TOTAL DIRECTIONAL SERV...
6/9/2019	9,331.00	0.31	270.48	9,291.70	-261.16	-265.93	-545.68	0.81	MWD	TOTAL DIRECTIONAL SERV...
6/9/2019	9,425.00	0.31	272.41	9,385.70	-261.15	-265.92	-546.18	0.01	MWD	TOTAL DIRECTIONAL SERV...
6/9/2019	9,520.00	0.40	235.59	9,480.70	-261.32	-266.10	-546.71	0.25	MWD	TOTAL DIRECTIONAL SERV...
6/9/2019	9,614.00	0.57	111.31	9,574.69	-261.67	-266.45	-546.55	0.92	MWD	TOTAL DIRECTIONAL SERV...
6/9/2019	9,708.00	0.75	119.75	9,668.69	-262.16	-266.93	-545.58	0.22	MWD	TOTAL DIRECTIONAL SERV...
6/10/2019	9,801.00	0.57	140.49	9,761.68	-262.82	-267.59	-544.76	0.32	MWD	TOTAL DIRECTIONAL SERV...
6/10/2019	9,895.00	0.40	115.79	9,855.68	-263.33	-268.09	-544.18	0.28	MWD	TOTAL DIRECTIONAL SERV...
6/10/2019	9,989.00	0.40	160.70	9,949.68	-263.79	-268.54	-543.76	0.33	MWD	TOTAL DIRECTIONAL SERV...
6/10/2019	10,084.00	1.14	49.35	10,044.67	-263.49	-268.24	-542.93	1.41	MWD	TOTAL DIRECTIONAL SERV...
6/10/2019	10,178.00	1.54	73.98	10,138.65	-262.55	-267.28	-541.01	0.74	MWD	TOTAL DIRECTIONAL SERV...
6/11/2019	10,272.00	2.15	94.87	10,232.60	-262.38	-267.08	-538.04	0.96	MWD	TOTAL DIRECTIONAL SERV...
6/11/2019	10,366.00	1.93	117.37	10,326.54	-263.28	-267.96	-534.88	0.88	MWD	TOTAL DIRECTIONAL SERV...
6/11/2019	10,460.00	1.76	107.00	10,420.49	-264.46	-269.11	-532.09	0.40	MWD	TOTAL DIRECTIONAL SERV...
6/11/2019	10,555.00	1.19	87.23	10,515.46	-264.86	-269.49	-529.71	0.80	MWD	TOTAL DIRECTIONAL SERV...
6/12/2019	10,649.00	1.32	85.96	10,609.44	-264.77	-269.39	-527.65	0.14	MWD	TOTAL DIRECTIONAL SERV...
6/12/2019	10,743.00	0.66	86.88	10,703.42	-264.70	-269.30	-526.03	0.70	MWD	TOTAL DIRECTIONAL SERV...
6/12/2019	10,837.00	0.40	206.14	10,797.42	-264.97	-269.56	-525.64	0.98	MWD	TOTAL DIRECTIONAL SERV...
6/12/2019	10,931.00	1.76	245.08	10,891.40	-265.86	-270.47	-527.09	1.56	MWD	TOTAL DIRECTIONAL SERV...
6/12/2019	11,025.00	0.97	278.13	10,985.38	-266.33	-270.98	-529.19	1.15	MWD	TOTAL DIRECTIONAL SERV...
6/12/2019	11,120.00	0.62	256.33	11,080.37	-266.33	-270.97	-530.48	0.48	MWD	TOTAL DIRECTIONAL SERV...
6/12/2019	11,214.00	0.66	255.19	11,174.36	-266.58	-271.23	-531.50	0.04	MWD	TOTAL DIRECTIONAL SERV...
6/12/2019	11,308.00	0.48	257.56	11,268.36	-266.80	-271.45	-532.41	0.19	MWD	TOTAL DIRECTIONAL SERV...
6/13/2019	11,403.00	0.92	221.00	11,363.35	-267.45	-272.11	-533.30	0.64	MWD	TOTAL DIRECTIONAL SERV...
6/13/2019	11,497.00	0.75	244.46	11,457.34	-268.27	-272.95	-534.35	0.40	MWD	TOTAL DIRECTIONAL SERV...
6/13/2019	11,591.00	0.82	359.25	11,551.33	-267.78	-272.46	-534.91	1.50	MWD	TOTAL DIRECTIONAL SERV...
6/13/2019	11,685.00	1.49	352.04	11,645.31	-265.81	-270.49	-535.09	0.63	MWD	TOTAL DIRECTIONAL SERV...
6/13/2019	11,779.00	1.80	358.19	11,739.27	-263.13	-267.81	-535.31	0.38	MWD	TOTAL DIRECTIONAL SERV...
6/13/2019	11,873.00	1.76	358.99	11,833.23	-260.21	-264.89	-535.38	0.05	MWD	TOTAL DIRECTIONAL SERV...
6/13/2019	11,968.00	1.23	357.49	11,928.20	-257.73	-262.41	-535.45	0.56	MWD	TOTAL DIRECTIONAL SERV...
6/13/2019	12,062.00	0.88	9.71	12,022.18	-256.01	-260.69	-535.37	0.44	MWD	TOTAL DIRECTIONAL SERV...
6/13/2019	12,156.00	0.62	309.68	12,116.17	-254.97	-259.88	-535.64	0.83	MWD	TOTAL DIRECTIONAL SERV...
6/13/2019	12,250.00	0.75	302.56	12,138.17	-254.82	-259.50	-535.85	0.71	MWD	TOTAL DIRECTIONAL SERV...
6/16/2019	12,247.00	0.70	303.61	12,207.17	-254.33	-259.03	-536.59	0.07	MWD	TOTAL DIRECTIONAL SERV...
6/16/2019	12,292.00	1.27	346.24	12,252.16	-253.69	-258.39	-536.93	1.98	MWD	TOTAL DIRECTIONAL SERV...
6/16/2019	12,341.00	5.27	0.39	12,301.07	-250.91	-255.61	-537.05	8.27	MWD	TOTAL DIRECTIONAL SERV...
6/17/2019	12,388.00	9.19	1.80	12,347.69	-245.00	-249.70	-536.91	8.35	MWD	TOTAL DIRECTIONAL SERV...
6/17/2019	12,435.00	12.84	3.29	12,393.81	-236.04	-240.73	-536.50	7.79	MWD	TOTAL DIRECTIONAL SERV...



Directional Survey

DELAWARE BASIN UNRESTRICTED

Well Name: GREEN WAVE 20-17 FED 3H

Sub-Division DELAWARE BASIN	Region LEA COUNTY CORE	Field Name RATTLESNAKE DBBU	County LEA	State/Province NM
Surface Legal Location 20-26S-34E	AP/UWVI 3002546016	Latitude (°) 32° 1' 46.453" N	Longitude (°) 103° 29' 36.007" W	Orig KB Elevation (ft) 3,374.60
				Ground Elev MSL (ft) 3,344.60
				KB - GL (ft) 30.00

Survey Data

Date	MD (ftKB)	Incl (°)	Azm (°)	TVD (ftKB)	VS (ft)	N/S (ft)	E/W (ft)	OLS (°/100ft)	Survey Tool	Survey Company
6/17/2019	12,482.00	18.90	1.80	12,439.00	-223.21	-227.90	-535.96	12.92	MWD	TOTAL DIRECTIONAL SERV...
6/18/2019	12,529.00	23.87	359.60	12,482.75	-208.08	-210.77	-535.78	10.71	MWD	TOTAL DIRECTIONAL SERV...
6/18/2019	12,624.00	33.93	357.67	12,565.82	-160.24	-164.94	-537.00	10.63	MWD	TOTAL DIRECTIONAL SERV...
6/18/2019	12,718.00	46.46	1.89	12,637.49	-99.73	-104.42	-536.94	13.63	MWD	TOTAL DIRECTIONAL SERV...
6/18/2019	12,812.00	59.56	0.83	12,693.92	-24.85	-29.52	-535.22	13.96	MWD	TOTAL DIRECTIONAL SERV...
6/18/2019	12,906.00	72.48	359.07	12,732.05	60.85	56.18	-535.37	13.85	MWD	TOTAL DIRECTIONAL SERV...
6/18/2019	13,000.00	83.78	359.16	12,751.35	152.69	148.01	-536.78	12.02	MWD	TOTAL DIRECTIONAL SERV...
6/18/2019	13,047.00	89.58	358.46	12,754.07	199.58	194.90	-537.76	12.43	MWD	TOTAL DIRECTIONAL SERV...
6/18/2019	13,094.00	89.49	357.14	12,754.46	246.56	241.86	-539.56	2.81	MWD	TOTAL DIRECTIONAL SERV...
6/18/2019	13,188.00	90.07	356.88	12,754.82	340.47	335.73	-544.46	0.68	MWD	TOTAL DIRECTIONAL SERV...
6/18/2019	13,283.00	89.10	357.05	12,755.50	435.37	430.59	-549.49	1.04	MWD	TOTAL DIRECTIONAL SERV...
6/19/2019	13,311.00	88.84	356.70	12,756.01	463.34	458.55	-551.02	1.58	MWD	TOTAL DIRECTIONAL SERV...
6/19/2019	13,406.00	90.42	358.81	12,756.62	558.29	553.47	-554.74	2.77	MWD	TOTAL DIRECTIONAL SERV...
6/20/2019	13,500.00	90.77	0.57	12,755.65	652.28	647.46	-555.25	1.91	MWD	TOTAL DIRECTIONAL SERV...
6/20/2019	13,594.00	89.54	0.04	12,755.39	746.28	741.45	-554.75	1.42	MWD	TOTAL DIRECTIONAL SERV...
6/20/2019	13,688.00	89.10	0.57	12,756.51	840.25	835.44	-554.25	0.73	MWD	TOTAL DIRECTIONAL SERV...
6/20/2019	13,782.00	90.07	1.01	12,757.19	934.22	929.43	-552.95	1.13	MWD	TOTAL DIRECTIONAL SERV...
6/20/2019	13,877.00	90.99	1.18	12,756.31	1,028.18	1,024.41	-551.14	0.98	MWD	TOTAL DIRECTIONAL SERV...
6/20/2019	13,971.00	90.59	2.24	12,755.01	1,123.10	1,118.36	-549.33	1.21	MWD	TOTAL DIRECTIONAL SERV...
6/20/2019	14,065.00	89.63	2.41	12,754.83	1,216.98	1,212.28	-544.52	1.04	MWD	TOTAL DIRECTIONAL SERV...
6/20/2019	14,159.00	89.76	3.38	12,755.33	1,310.81	1,306.15	-539.77	1.04	MWD	TOTAL DIRECTIONAL SERV...
6/20/2019	14,253.00	88.48	2.32	12,756.78	1,404.64	1,400.02	-535.10	1.77	MWD	TOTAL DIRECTIONAL SERV...
6/20/2019	14,348.00	88.97	1.45	12,758.89	1,499.53	1,494.95	-531.98	1.05	MWD	TOTAL DIRECTIONAL SERV...
6/20/2019	14,442.00	89.32	358.63	12,760.29	1,593.51	1,588.83	-531.91	3.02	MWD	TOTAL DIRECTIONAL SERV...
6/20/2019	14,536.00	90.02	358.46	12,760.83	1,687.49	1,682.89	-534.30	0.77	MWD	TOTAL DIRECTIONAL SERV...
6/20/2019	14,630.00	90.51	358.28	12,760.40	1,781.47	1,776.86	-536.97	0.56	MWD	TOTAL DIRECTIONAL SERV...
6/20/2019	14,724.00	91.38	358.11	12,758.85	1,875.44	1,870.80	-539.93	0.94	MWD	TOTAL DIRECTIONAL SERV...
6/20/2019	14,819.00	90.46	358.72	12,757.32	1,970.40	1,965.75	-542.56	1.16	MWD	TOTAL DIRECTIONAL SERV...
6/20/2019	14,913.00	88.53	359.60	12,758.15	2,064.39	2,059.73	-543.94	2.28	MWD	TOTAL DIRECTIONAL SERV...
6/20/2019	15,007.00	87.56	358.81	12,761.36	2,158.34	2,153.66	-545.24	1.33	MWD	TOTAL DIRECTIONAL SERV...
6/21/2019	15,101.00	89.19	358.99	12,764.02	2,252.29	2,247.60	-547.04	1.74	MWD	TOTAL DIRECTIONAL SERV...
6/21/2019	15,196.00	89.85	359.07	12,764.82	2,347.28	2,342.58	-548.65	0.70	MWD	TOTAL DIRECTIONAL SERV...
6/21/2019	15,290.00	90.68	359.34	12,764.39	2,441.28	2,436.57	-549.96	0.93	MWD	TOTAL DIRECTIONAL SERV...
6/21/2019	15,384.00	90.37	359.69	12,763.52	2,535.28	2,530.57	-550.75	0.50	MWD	TOTAL DIRECTIONAL SERV...
6/21/2019	15,478.00	90.11	359.16	12,763.13	2,629.27	2,624.56	-551.69	0.63	MWD	TOTAL DIRECTIONAL SERV...
6/21/2019	15,573.00	89.23	357.93	12,763.68	2,724.26	2,719.53	-554.11	1.59	MWD	TOTAL DIRECTIONAL SERV...
6/23/2019	15,670.00	89.67	359.60	12,764.61	2,821.24	2,816.49	-556.20	1.78	MWD	TOTAL DIRECTIONAL SERV...
6/23/2019	15,764.00	89.76	0.83	12,765.08	2,915.23	2,910.49	-555.84	1.31	MWD	TOTAL DIRECTIONAL SERV...
6/23/2019	15,858.00	89.93	0.65	12,765.33	3,009.21	3,004.48	-554.63	0.26	MWD	TOTAL DIRECTIONAL SERV...
6/23/2019	15,953.00	90.20	0.39	12,765.22	3,104.19	3,099.48	-553.77	0.39	MWD	TOTAL DIRECTIONAL SERV...
6/24/2019	16,047.00	89.85	359.07	12,765.18	3,198.19	3,193.48	-554.21	1.45	MWD	TOTAL DIRECTIONAL SERV...
6/24/2019	16,141.00	89.89	0.13	12,765.40	3,292.19	3,287.47	-554.87	1.13	MWD	TOTAL DIRECTIONAL SERV...
6/24/2019	16,235.00	90.20	357.93	12,765.32	3,386.18	3,381.45	-556.46	2.36	MWD	TOTAL DIRECTIONAL SERV...
6/24/2019	16,329.00	90.29	359.16	12,764.92	3,480.16	3,475.42	-558.84	1.31	MWD	TOTAL DIRECTIONAL SERV...
6/24/2019	16,423.00	89.93	357.32	12,764.74	3,574.14	3,569.37	-561.73	1.99	MWD	TOTAL DIRECTIONAL SERV...
6/24/2019	16,517.00	89.85	358.19	12,764.92	3,668.09	3,663.30	-565.41	0.93	MWD	TOTAL DIRECTIONAL SERV...
6/24/2019	16,611.00	90.51	357.67	12,764.62	3,762.03	3,757.23	-568.81	0.89	MWD	TOTAL DIRECTIONAL SERV...
6/24/2019	16,705.00	91.03	358.72	12,763.36	3,856.02	3,851.18	-571.77	1.25	MWD	TOTAL DIRECTIONAL SERV...
6/24/2019	16,800.00	90.37	357.67	12,762.20	3,950.99	3,946.12	-574.76	1.31	MWD	TOTAL DIRECTIONAL SERV...
6/24/2019	16,894.00	91.12	357.32	12,760.98	4,044.92	4,040.02	-578.87	0.88	MWD	TOTAL DIRECTIONAL SERV...
6/24/2019	16,988.00	90.77	359.60	12,759.43	4,138.89	4,133.97	-581.40	2.45	MWD	TOTAL DIRECTIONAL SERV...
6/24/2019	17,082.00	90.24	359.51	12,758.60	4,232.88	4,227.96	-582.13	0.57	MWD	TOTAL DIRECTIONAL SERV...
6/24/2019	17,176.00	90.20	358.99	12,758.24	4,326.88	4,321.95	-583.36	0.55	MWD	TOTAL DIRECTIONAL SERV...
6/24/2019	17,271.00	89.85	358.02	12,758.20	4,421.86	4,416.92	-585.83	1.09	MWD	TOTAL DIRECTIONAL SERV...
6/25/2019	17,365.00	91.38	359.69	12,757.19	4,515.85	4,510.89	-587.71	2.41	MWD	TOTAL DIRECTIONAL SERV...
6/25/2019	17,459.00	92.13	2.06	12,754.31	4,609.77	4,604.83	-586.28	2.64	MWD	TOTAL DIRECTIONAL SERV...
6/25/2019	17,554.00	89.19	0.39	12,753.21	4,704.71	4,699.79	-584.25	3.56	MWD	TOTAL DIRECTIONAL SERV...
6/25/2019	17,648.00	89.14	1.18	12,754.58	4,798.67	4,793.77	-582.96	0.84	MWD	TOTAL DIRECTIONAL SERV...
6/25/2019	17,742.00	88.84	359.34	12,756.24	4,892.64	4,887.75	-582.53	1.98	MWD	TOTAL DIRECTIONAL SERV...
6/25/2019	17,836.00	88.75	359.34	12,758.22	4,986.62	4,981.72	-583.82	0.10	MWD	TOTAL DIRECTIONAL SERV...
6/25/2019	17,930.00	90.20	359.16	12,759.08	5,080.62	5,075.70	-584.85	1.55	MWD	TOTAL DIRECTIONAL SERV...
6/25/2019	18,025.00	89.27	359.07	12,759.52	5,175.81	5,170.69	-586.31	0.98	MWD	TOTAL DIRECTIONAL SERV...
6/25/2019	18,119.00	89.23	358.37	12,760.75	5,269.59	5,264.66	-588.41	0.75	MWD	TOTAL DIRECTIONAL SERV...
6/25/2019	18,213.00	90.15	358.78	12,761.26	5,363.59	5,358.64	-589.93	1.79	MWD	TOTAL DIRECTIONAL SERV...
6/25/2019	18,307.00	90.20	358.86	12,760.97	5,457.58	5,452.64	-590.23	0.10	MWD	TOTAL DIRECTIONAL SERV...
6/25/2019	18,401.00	90.73	0.83	12,760.21	5,551.57	5,546.64	-589.66	1.18	MWD	TOTAL DIRECTIONAL SERV...
6/25/2019	18,496.00	89.71	359.16	12,759.85	5,645.56	5,640.63	-589.67	2.08	MWD	TOTAL DIRECTIONAL SERV...
6/25/2019	18,590.00	89.76	359.25	12,760.29	5,740.56	5,735.62	-590.99	0.11	MWD	TOTAL DIRECTIONAL SERV...
6/25/2019	18,684.00	89.63	359.95	12,760.78	5,834.56	5,829.62	-591.64	0.78	MWD	TOTAL DIRECTIONAL SERV...
6/25/2019	18,777.00	89.27	359.95	12,761.68	5,927.55	5,922.61	-591.72	0.39	MWD	TOTAL DIRECTIONAL SERV...
6/25/2019	18,872.00	89.49	0.48	12,762.71	6,022.54	6,017.60	-591.37	0.60	MWD	TOTAL DIRECTIONAL SERV...
6/25/2019	18,966.00	89.98	359.34	12,763.14	6,116.53	6,111.60	-591.52	1.32	MWD	TOTAL DIRECTIONAL SERV...
6/25/2019	19,060.00	89.45	359.78	12,763.61	6,210.53	6,205.60	-592.24	0.73	MWD	TOTAL DIRECTIONAL SERV...



Directional Survey

DELAWARE BASIN UNRESTRICTED

Well Name: GREEN WAVE 20-17 FED 3H

Sub-Division DELAWARE BASIN	Region LEA COUNTY CORE	Field Name RATTLESNAKE DBBU	County LEA	State/Province NM
Surface Legal Location 20-26S-34E	API/UWI 3002546016	Latitude (°) 32° 1' 46.453" N	Longitude (°) 103° 29' 36.007" W	Orig KB Elevation (ft) 3,374.60
				Ground Elev MSL (ft) 3,344.60
				KB - GL (ft) 30.00

Survey Data

Date	MD (ft)	Incl (°)	Azm (°)	TVD (ft)	VS (ft)	N/S (ft)	EW (ft)	DLS (°/100ft)	Survey Tool	Survey Company
6/26/2019	19,154.00	91.12	358.28	12,763.14	6,304.52	6,299.58	-593.83	2.39	MWD	TOTAL DIRECTIONAL SERV...
6/26/2019	19,248.00	90.51	357.75	12,761.81	6,398.48	6,393.51	-597.08	0.86	MWD	TOTAL DIRECTIONAL SERV...
6/26/2019	19,343.00	87.60	356.70	12,763.37	6,493.38	6,488.37	-601.68	3.26	MWD	TOTAL DIRECTIONAL SERV...
6/26/2019	19,437.00	89.89	356.88	12,765.43	6,587.24	6,582.20	-606.94	2.44	MWD	TOTAL DIRECTIONAL SERV...
6/26/2019	19,531.00	93.19	358.99	12,762.90	6,681.16	6,676.08	-610.33	4.17	MWD	TOTAL DIRECTIONAL SERV...
6/26/2019	19,625.00	88.57	358.90	12,761.46	6,775.12	6,770.03	-612.06	4.92	MWD	TOTAL DIRECTIONAL SERV...
6/26/2019	19,719.00	89.14	358.81	12,763.34	6,869.09	6,863.99	-613.94	0.61	MWD	TOTAL DIRECTIONAL SERV...
6/26/2019	19,814.00	91.08	359.86	12,763.16	6,964.08	6,958.98	-615.04	2.32	MWD	TOTAL DIRECTIONAL SERV...
6/26/2019	19,908.00	90.46	359.25	12,761.89	7,058.07	7,052.97	-615.77	0.93	MWD	TOTAL DIRECTIONAL SERV...
6/26/2019	20,002.00	90.51	358.55	12,781.10	7,152.07	7,146.95	-617.58	0.75	MWD	TOTAL DIRECTIONAL SERV...
6/27/2019	20,097.00	90.99	359.16	12,759.85	7,247.05	7,241.92	-619.47	0.82	MWD	TOTAL DIRECTIONAL SERV...
6/27/2019	20,191.00	90.99	359.07	12,758.23	7,341.03	7,335.89	-620.93	0.10	MWD	TOTAL DIRECTIONAL SERV...
6/27/2019	20,285.00	89.58	358.28	12,757.76	7,435.02	7,429.87	-623.10	1.72	MWD	TOTAL DIRECTIONAL SERV...
6/27/2019	20,379.00	93.01	358.81	12,755.64	7,528.97	7,523.80	-625.49	3.69	MWD	TOTAL DIRECTIONAL SERV...
6/27/2019	20,460.00	89.89	358.81	12,753.59	7,609.93	7,604.74	-627.17	3.85	MWD	TOTAL DIRECTIONAL SERV...
6/28/2019	20,506.00	89.89	358.81	12,753.68	7,655.92	7,650.73	-628.12	0.00	BIT	