



CNX WDTN19CHSM ST01 Surveys 3037ft to 23606ft MD Survey Geodetic Report (Def Survey)



Report Date: November 30, 2022 - 05:25 PM
Client: CNX
Field: WV Monongalia County (NAD 27)
Structure / Slot: CNX WDTN19 Pad / WDTN19CHSM
Well: WDTN19CHSM
Borehole: ST01
UWI / API#: Unknown / Unknown
Survey Name: CNX WDTN19CHSM ST01 Surveys 3037ft to 23606ft MD
Survey Date: November 23, 2022
Tort / AHD / DDI / ERD Ratio: 345.402' / 17704.419 ft / 7.256 / 2.211
Coordinate Reference System: NAD27 West Virginia State Plane, Northern Zone, US Feet
Location Lat / Long: N 39° 41' 35.70028", W 80° 20' 7.89324"
Location Grid N/E Y/X: N 435702.047 ftUS, E 1764883.505 ftUS
CRS Grid Convergence Angle: -0.5329 °
Grid Scale Factor: 0.99994143
Version / Patch: 2.10.834.0

Survey / DLS Computation: Minimum Curvature / Lubinski
Vertical Section Azimuth: 145.000 ° (Grid North)
Vertical Section Origin: 0.000 ft, 0.000 ft
TVD Reference Datum: RKB
TVD Reference Elevation: 1293.000 ft above MSL
Seabed / Ground Elevation: 1264.000 ft above MSL
Magnetic Declination: -8.913 °
Total Gravity Field Strength: 999.3417mgn (9.80665 Based)
Gravity Model: GARM
Total Magnetic Field Strength: 51785.486 nT
Magnetic Dip Angle: 66.373 °
Declination Date: November 23, 2022
Magnetic Declination Model: HDGM 2022
North Reference: Grid North
Grid Convergence Used: -0.5329 °
Total Corr Mag North->Grid North: -8.3799 °
Local Coord Referenced To: Well Head

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	TVDSS (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS ("/100ft)	BR ("/100ft)	TR ("/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (°)	Longitude (°)
Surface	0.00	0.00	0.00	0.00	-1293.00	0.00	0.00	0.00	N/A	N/A	N/A	435702.05	1764883.51	39.69325008	-80.33552590
	100.00	0.36	78.66	100.00	-1193.00	0.13	0.06	0.31	0.36	0.00	0.00	435702.11	1764883.81	39.69325025	-80.33552481
	200.00	0.32	106.42	200.00	-1093.00	0.47	0.04	0.88	0.17	-0.04	27.76	435702.09	1764884.39	39.69325022	-80.33552276
	300.00	0.26	169.78	300.00	-993.00	0.89	-0.26	1.19	0.31	-0.06	63.36	435701.79	1764884.70	39.69324940	-80.33552166
	400.00	0.49	173.73	399.99	-893.01	1.48	-0.91	1.28	0.23	0.23	3.95	435701.14	1764884.74	39.69324762	-80.33552133
	500.00	0.42	194.03	499.99	-793.01	2.09	-1.69	1.24	0.17	-0.07	20.30	435700.36	1764884.74	39.69324548	-80.33552145
	600.00	0.27	149.76	599.99	-693.01	2.57	-2.25	1.27	0.29	-0.15	-44.27	435699.80	1764884.77	39.69324394	-80.33552133
	700.00	0.46	165.09	699.99	-593.01	3.18	-2.84	1.49	0.21	0.19	15.33	435699.21	1764884.99	39.69324233	-80.33552052
	800.00	0.34	195.42	799.99	-493.01	3.74	-3.51	1.51	0.24	-0.12	30.33	435698.54	1764885.02	39.69324048	-80.33552041
	900.00	0.26	138.11	899.98	-393.02	4.16	-3.97	1.59	0.30	-0.08	-57.31	435698.08	1764885.09	39.69323923	-80.33552014
	1000.00	0.28	186.44	999.98	-293.02	4.57	-4.38	1.71	0.22	0.02	48.33	435697.67	1764885.21	39.69323810	-80.33551968
	1100.00	0.26	201.81	1099.98	-193.02	4.87	-4.83	1.60	0.07	-0.02	15.37	435697.22	1764885.10	39.69323686	-80.33552006
	1142.00	0.13	191.27	1141.98	-151.02	4.96	-4.97	1.55	0.32	-0.31	-25.10	435697.08	1764885.06	39.69323648	-80.33552022
	1348.00	0.14	99.46	1347.98	54.98	5.30	-5.24	1.76	0.09	0.00	-44.57	435696.81	1764885.26	39.69323575	-80.33551949
	1440.00	0.09	240.01	1439.98	146.98	5.37	-5.29	1.80	0.24	-0.05	152.77	435696.76	1764885.31	39.69323580	-80.33551932
	1534.00	0.47	34.57	1533.98	240.98	5.23	-5.01	1.96	0.50	0.40	164.43	435697.04	1764885.46	39.69323637	-80.33551878
	1628.00	0.72	23.33	1627.98	334.98	4.76	-4.15	2.41	0.29	0.27	-11.96	435697.90	1764885.92	39.69323874	-80.33551720
	1721.00	1.02	2.47	1720.96	427.96	3.82	-2.79	2.66	0.46	0.32	-22.43	435699.26	1764886.16	39.69324249	-80.33551629
	1814.00	1.09	9.43	1813.95	520.95	2.53	-1.09	2.86	0.16	0.08	7.48	435700.96	1764886.36	39.69324716	-80.33551571
	1906.00	1.05	3.71	1905.93	612.93	1.26	0.62	3.06	0.12	-0.04	-6.22	435702.66	1764886.56	39.69325185	-80.33551506
	1999.00	0.75	7.11	1998.92	705.92	0.13	2.07	3.19	0.33	-0.32	3.66	435704.12	1764886.69	39.69325584	-80.33551464
	2095.00	1.02	353.65	2094.91	801.91	-1.08	3.54	3.17	0.35	0.28	-14.02	435705.59	1764886.68	39.69325989	-80.33551475
	2189.00	1.28	30.71	2188.89	895.89	-2.25	5.28	3.61	0.82	0.28	39.43	435707.32	1764887.12	39.69326466	-80.33551323
	2282.00	1.51	353.08	2281.87	988.87	-3.76	7.39	4.00	1.00	0.25	-40.46	435709.43	1764887.50	39.69327046	-80.33551194
	2375.00	1.02	283.05	2374.85	1081.85	-5.46	8.79	3.04	1.62	-0.53	-75.30	435710.84	1764886.55	39.69327429	-80.33551538
	2469.00	1.13	228.15	2468.83	1175.83	-5.97	8.36	1.54	1.06	0.12	-58.40	435710.41	1764885.04	39.69327307	-80.33552071
	2562.00	1.32	220.38	2561.81	1268.81	-5.59	6.93	0.16	0.27	0.20	-8.35	435708.98	1764883.67	39.69326911	-80.33552556
	2656.00	1.56	196.96	2655.78	1362.78	-4.53	4.88	-0.91	0.67	0.26	-24.91	435706.93	1764882.59	39.69326346	-80.33552931
	2749.00	1.40	237.19	2748.76	1455.76	-3.79	3.06	-2.24	1.11	-0.17	43.26	435705.10	1764881.27	39.69325841	-80.33553395
	2843.00	1.34	248.06	2842.73	1549.73	-4.08	2.03	-4.22	0.28	-0.06	11.56	435704.07	1764879.28	39.69325553	-80.33554097
	2936.00	1.19	254.59	2935.71	1642.71	-4.65	1.36	-6.16	0.22	-0.16	7.02	435703.41	1764877.34	39.69325366	-80.33554784
	2978.00	0.98	237.93	2977.70	1694.70	-4.82	1.06	-6.89	0.90	-0.50	-39.67	435703.10	1764876.62	39.69325280	-80.33555041
	3073.00	1.04	235.14	3036.69	1743.69	-4.84	0.48	-7.75	0.13	0.10	-4.73	435702.53	1764875.75	39.69325120	-80.33555347
	3131.00	0.77	259.83	3130.68	1837.68	-5.11	-0.12	-9.08	0.50	-0.29	26.27	435701.93	1764874.43	39.69324952	-80.33555815
	3240.00	3.38	256.45	3239.60	1946.60	-6.59	-1.00	-12.92	2.40	2.39	-3.10	435701.05	1764870.58	39.69324700	-80.33557178
	3334.00	6.20	285.50	3333.27	2040.27	-11.52	-0.29	-20.51	3.87	3.00	30.90	435701.75	1764863.00	39.69324475	-80.33559876
	3428.00	10.46	305.90	3426.28	2133.28	-23.51	6.07	-32.32	5.45	4.53	21.70	435708.12	1764851.19	39.69326592	-80.33564094
	3522.00	11.41	291.46	3518.59	2225.59	-39.33	14.48	-47.89	3.07	1.01	-15.36	435716.52	1764835.62	39.69328860	-80.33569654
	3615.00	11.81	273.26	3609.71	2316.71	-52.91	18.40	-65.96	3.92	0.43	-19.46	435720.45	1764817.55	39.69329891	-80.33576087
	3710.00	11.98	261.19	3702.69	2409.69	-63.29	17.46	-85.41	2.64	0.18	-12.81	435719.51	1764798.10	39.69329563	-80.33582995
	3804.00	11.29	256.29	3794.76	2501.76	-70.94	13.79	-103.99	1.28	-0.73	-5.21	435715.83	1764779.52	39.69328527	-80.33589585
	3897.00	11.22	253.76	3885.97	2592.97	-77.15	9.10	-121.52	0.54	-0.08	-2.72	435711.15	1764761.99	39.69327195	-80.33595799

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Comments	MD (ft)	Incl (°)	Azlm Grid (°)	TVD (ft)	TVDSS (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	BR (°/100ft)	TR (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (°)	Longitude (°)
	3992.00	11.21	251.44	3979.16	2686.16	-82.74	3.58	-139.15	0.48	-0.01	-2.44	435705.62	1764744.37	39.69325634	-80.33602044
	4089.00	10.96	253.09	4074.35	2781.35	-88.27	-2.11	-156.91	0.42	-0.26	1.70	435699.94	1764726.61	39.69324028	-80.33608336
	4182.00	12.85	255.41	4165.34	2872.34	-94.62	-7.28	-175.38	2.10	2.03	2.49	435694.76	1764708.14	39.69322560	-80.33614882
	4276.00	14.55	254.83	4256.67	2963.67	-102.28	-13.01	-196.89	1.81	1.81	-0.62	435689.04	1764686.63	39.69320934	-80.33622507
	4370.00	16.02	255.06	4347.34	3054.34	-110.73	-19.44	-220.82	1.57	1.56	0.24	435682.61	1764662.70	39.69319106	-80.33630988
	4464.00	18.14	250.89	4437.19	3144.19	-119.19	-27.58	-247.18	2.60	2.26	-4.44	435674.47	1764636.34	39.69316806	-80.33640329
	4559.00	19.47	251.02	4527.12	3234.12	-127.61	-37.57	-276.13	1.40	1.40	0.14	435664.48	1764607.39	39.69313989	-80.33650581
	4654.00	20.64	246.77	4616.36	3323.36	-135.39	-49.32	-306.49	1.97	1.23	-4.47	435652.73	1764577.03	39.69310685	-80.33661330
	4748.00	21.20	246.14	4704.17	3411.17	-142.06	-62.73	-337.26	0.84	0.60	-0.67	435639.32	1764546.27	39.69306925	-80.33672218
	4843.00	23.23	242.56	4792.11	3499.11	-147.84	-78.32	-369.60	2.57	2.14	-3.77	435623.73	1764513.93	39.69302564	-80.33683659
	4937.00	26.83	239.78	4877.27	3584.27	-152.05	-97.54	-404.39	4.03	3.83	-2.96	435604.51	1764479.14	39.69297197	-80.33695958
	5032.00	29.34	239.16	4961.08	3668.08	-155.52	-120.27	-442.91	2.66	2.64	-0.65	435581.78	1764440.62	39.69290860	-80.33709569
	5127.00	30.80	238.96	5043.29	3750.29	-158.89	-144.74	-483.73	1.54	1.54	-0.21	435557.31	1764399.80	39.69284037	-80.33723994
	5221.00	33.12	241.37	5123.04	3830.04	-163.40	-169.46	-526.90	2.82	2.47	2.56	435532.59	1764356.63	39.69277141	-80.33739250
	5316.00	32.26	243.07	5203.00	3910.00	-169.84	-193.38	-572.29	1.32	-0.91	1.79	435508.68	1764311.25	39.69270458	-80.33755298
	5415.00	31.11	245.93	5287.24	3994.24	-178.40	-215.78	-619.20	1.91	-1.16	2.89	435486.28	1764264.34	39.69264189	-80.33771893
	5509.00	31.68	245.17	5367.48	4074.48	-187.36	-236.05	-663.78	0.74	0.61	-0.81	435466.01	1764219.77	39.69258511	-80.33787664
	5604.00	32.99	244.09	5447.75	4154.75	-195.86	-257.83	-709.68	1.51	1.38	-1.14	435444.23	1764173.87	39.69252415	-80.33803903
	5697.00	31.62	239.77	5526.36	4233.36	-201.88	-281.17	-753.53	2.89	-1.47	-4.65	435420.89	1764130.02	39.69245895	-80.33819405
	5732.00	30.95	236.42	5556.28	4263.28	-202.87	-290.77	-768.95	5.33	-1.91	-9.57	435411.30	1764114.60	39.69243220	-80.33824855
	5827.00	32.53	240.57	5637.08	4344.08	-205.96	-316.84	-811.56	2.84	1.66	4.37	435385.23	1764071.99	39.69235955	-80.33839907
	6016.00	34.01	244.33	5795.11	4502.11	-219.46	-364.71	-903.48	1.34	0.78	1.99	435337.36	1763990.86	39.69222578	-80.33872407
	6110.00	36.55	245.78	5871.84	4578.84	-228.96	-387.58	-952.70	2.85	2.70	1.54	435314.49	1763930.86	39.69216172	-80.33889823
	6204.00	36.60	246.52	5947.33	4654.33	-239.79	-410.23	-1003.93	0.47	0.05	0.79	435291.84	1763879.63	39.69209823	-80.33907951
	6299.00	36.61	246.29	6023.59	4730.59	-250.99	-432.91	-1055.84	0.14	0.01	-0.24	435269.17	1763827.72	39.69203466	-80.33926321
	6394.00	36.75	246.48	6099.78	4806.78	-262.19	-455.64	-1107.84	0.19	0.15	0.20	435246.44	1763775.73	39.69197092	-80.33944720
	6488.00	36.70	246.47	6175.12	4882.12	-273.38	-478.08	-1159.38	0.05	-0.05	-0.01	435224.00	1763724.20	39.69190801	-80.33962958
	6582.00	36.41	245.88	6250.63	4957.63	-284.23	-500.69	-1210.59	0.48	-0.31	-0.63	435201.39	1763672.99	39.69184461	-80.33981081
	6676.00	36.44	247.52	6326.27	5033.27	-295.55	-522.76	-1261.85	1.04	0.03	1.74	435179.31	1763621.73	39.69178270	-80.33999220
	6770.00	36.39	247.64	6401.92	5108.92	-307.70	-544.05	-1313.44	0.09	-0.05	0.13	435158.03	1763570.15	39.69172295	-80.34017478
	6865.00	36.68	248.04	6478.25	5185.25	-320.27	-565.38	-1365.81	0.39	0.31	0.42	435136.70	1763517.78	39.69166305	-80.34036018
	6959.00	36.51	247.94	6553.72	5260.72	-332.86	-586.38	-1417.77	0.19	-0.18	-0.11	435115.70	1763465.82	39.69160406	-80.34054408
	7054.00	36.64	248.22	6630.01	5337.01	-345.68	-607.51	-1470.28	0.22	0.14	0.29	435094.57	1763413.31	39.69154470	-80.34072997
	7149.00	36.44	247.77	6706.34	5413.34	-358.39	-628.70	-1522.72	0.35	-0.21	-0.47	435073.38	1763360.87	39.69148518	-80.34091560
	7243.00	36.58	248.17	6781.89	5488.89	-370.95	-649.68	-1574.57	0.29	0.15	0.43	435052.41	1763309.03	39.69142626	-80.34109911
	7337.00	36.72	248.23	6857.31	5564.31	-383.76	-670.52	-1626.66	0.15	0.15	0.06	435031.57	1763256.94	39.69136772	-80.34128353
	7432.00	36.57	248.01	6933.53	5640.53	-396.63	-691.65	-1679.28	0.21	-0.16	-0.23	435010.44	1763204.33	39.69130836	-80.34146978
	7527.00	36.48	248.09	7009.87	5716.87	-409.40	-713.72	-1731.72	0.11	-0.09	0.08	434989.31	1763151.89	39.69124899	-80.34165541
KOP	7716.00	36.80	247.62	7161.52	5868.52	-434.49	-755.30	-1836.19	0.23	0.17	-0.25	434946.79	1763047.42	39.69112958	-80.34202520
	7810.00	42.51	239.74	7233.91	5940.91	-443.28	-782.07	-1889.74	8.08	6.07	-8.38	434920.03	1762993.88	39.69105474	-80.34221455
	7905.00	49.80	235.55	7299.69	6006.69	-446.28	-818.82	-1947.47	8.30	7.67	-4.41	434883.28	1762936.15	39.69095235	-80.34241846
	8000.00	56.66	234.49	7356.52	6063.52	-446.28	-862.45	-2009.77	7.28	7.22	-1.12	434839.65	1762873.86	39.69083099	-80.34263835
	8095.00	56.06	229.01	7409.18	6116.18	-441.81	-911.37	-2071.85	4.84	-0.63	-5.77	434790.73	1762811.78	39.69069508	-80.34285730
	8189.00	52.66	222.05	7463.99	6170.99	-429.35	-964.75	-2126.37	7.02	-3.62	-7.40	434737.35	1762757.27	39.69054713	-80.34304923
	8284.00	52.91	213.52	7521.51	6228.51	-406.99	-1024.45	-2172.64	7.15	0.26	-8.98	434677.65	1762711.00	39.69038205	-80.34321165
	8379.00	56.19	203.62	7576.70	6283.70	-372.50	-1092.34	-2209.45	9.16	3.45	-10.42	434609.78	1762674.19	39.69019476	-80.34334017
	8473.00	58.82	194.27	7627.27	6334.27	-325.84	-1167.22	-2235.05	8.84	2.80	-9.95	434534.90	1762648.59	39.68998854	-80.34342865
	8567.00	59.30	185.90	7675.66	6382.66	-268.99	-1246.49	-2249.14	7.65	0.51	-8.90	434455.63	1762634.51	39.68977056	-80.34347604
	8662.00	60.77	178.71	7723.16	6430.16	-203.57	-1328.64	-2252.40	6.74	1.55	-7.57	434373.48	1762631.24	39.68954495	-80.34348492
	8757.00	65.87	171.84	7765.84	6472.84	-130.29	-1413.13	-2245.31	8.40	5.37	-7.23	434289.00	1762638.33	39.68931320	-80.34345688
	8851.00	71.29	166.77	7800.18	6507.18	-50.57	-1499.04	-2229.01	7.64	5.77	-5.39	434203.10	1762654.63	39.68907779	-80.34339611
	8946.00	72.42	165.76	7829.76	6536.76	33.56	-1586.73	-2207.57	1.56	1.19	-1.06	434115.42	1762676.07	39.68883762	-80.34331702
	9041.00	77.02	160.01	7854.81	6561.81	120.72	-1674.23	-2180.58	7.58	4.84	-6.05	434027.92	1762703.06	39.68859810	-80.34321818
	9135.00	83.38	152.65	7870.82	6577.82	211.45	-1758.94	-2143.38	10.26	6.77	-7.83	433943.21	1762740.25	39.68836652	-80.34308321
	9230.00	83.24	146.84	7881.90	6588.90	305.43	-1840.40	-2095.86	6.08	-0.15	-6.12	433861.75	1762787.77	39.68814411	-80.34291166
Landing Point	9324.00	89.52	146.41	7887.83	6594.83	399.16	-1918.71	-2044.28	6.70	6.68	-0.46	433783.46	1762839.35	39.68793049	-80.34272578
	9419.00	89.16	146.44	7888.93	6595.93	494.13	-1997.85	-1991.75	0.38	-0.38	-0.93	433704.32	1762891.88	39.68771457	-80.34253649
	9514.00	89.35	146.78	7890.16	6597.16	589.08	-2077.16	-1939.47	0.41	0.20	0.36	433625.01	1762944.15	39.68749819	-80.34234810
	9609.00	89.57	147.19	7891.06	6598.06	684.02	-2156.82	-1887.71	0.49	0.23	0.43	433545.36	1762995.91	39.68728086	-80.34216155
	9703.00	89.16	147.42	7892.10	6599.10	777.94	-2235.92	-1836.94	0.50	-0.44	0.24	433466.26	1763046.68	39.68706502	-80.34197853
	9798.00	89.02	147.34	7893.61	6600.61	872.84	-2315.93	-1785.73	0.17	-0.15	-0.08	433386.26	1763097.88	39.68684671	-80.34179394
	9893.00	89.47	147.39	7894.86	6601.86	967.75	-2395.92	-1734.51	0.48	0.47	0.05	433306.27	1763149.10	39.68662842	-80.34160927
	9988.00	89.02	146.58	7896.11	6603.11	1062.69	-2475.57	-1682.75	0.98	-0.47	-0.85	433226.62	1763200.86	39.68641110	-80.34142273
	10082.00	89.62	147.64	7897.23	6604.23	1156.61	-2554.50	-1631.71	1.30	0.64	1.13	433147.70	1763251.90	39.68619574	-80.34123877
	10177.00	89.24	143.31	7898.17	6605.17	1251.58	-2632.75	-1577.88	4.58	-0.40					

Comments	MD (ft)	Incl (°)	Azlm Grid (°)	TVD (ft)	TVDSS (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	BR (°/100ft)	TR (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (°)	Longitude (°)
	11124.00	89.43	144.07	7899.40	6606.40	2198.45	-3401.16	-1024.47	0.52	-0.40	0.34	432301.10	1763859.10	39.68388711	-80.33905321
	11219.00	89.15	144.84	7900.58	6607.58	2293.44	-3478.45	-969.24	0.86	-0.29	0.81	432223.81	1763914.32	39.68367635	-80.33885445
	11313.00	88.98	144.91	7902.11	6609.11	2387.43	-3555.32	-915.17	0.20	-0.18	0.07	432146.94	1763968.39	39.68346671	-80.33865978
	11408.00	89.34	144.38	7903.51	6610.51	2482.42	-3632.79	-860.20	0.67	0.38	-0.56	432069.47	1764023.35	39.68325545	-80.33846194
	11504.00	89.38	144.11	7904.58	6611.58	2578.40	-3710.69	-804.11	0.28	0.04	-0.28	431991.58	1764079.44	39.68304303	-80.33826008
	11599.00	89.01	145.00	7905.91	6612.91	2673.39	-3788.08	-749.03	1.01	-0.39	0.94	431914.20	1764134.53	39.68283201	-80.33806181
	11694.00	88.72	144.58	7907.79	6614.79	2768.37	-3865.68	-694.26	0.54	-0.31	-0.44	431836.60	1764189.29	39.68262037	-80.33786467
	11788.00	88.37	144.58	7910.18	6617.18	2862.34	-3942.26	-639.80	0.37	-0.37	0.00	431760.03	1764243.74	39.68241155	-80.33766865
	11883.00	88.13	146.12	7913.08	6620.08	2957.29	-4020.37	-585.81	1.64	-0.25	1.62	431681.92	1764297.73	39.68219850	-80.33747427
	11978.00	88.23	145.30	7916.10	6623.10	3052.23	-4098.82	-532.32	0.87	0.11	-0.86	431603.47	1764351.22	39.68198451	-80.33728162
	12073.00	88.19	144.09	7919.07	6626.07	3147.18	-4176.31	-477.44	1.27	-0.04	-1.27	431525.99	1764406.09	39.68177320	-80.33708410
	12168.00	87.31	145.74	7922.80	6629.80	3242.10	-4253.98	-422.88	1.97	-0.93	1.74	431448.32	1764460.65	39.68156136	-80.33688770
	12263.00	87.36	144.25	7927.21	6634.21	3337.00	-4331.71	-368.45	1.57	0.05	-1.57	431370.60	1764515.08	39.68134938	-80.33669173
	12358.00	88.25	143.75	7930.85	6637.85	3431.91	-4408.51	-312.65	1.07	0.94	-0.53	431293.80	1764570.87	39.68113998	-80.33649096
	12453.00	88.31	144.64	7933.70	6640.70	3526.86	-4485.52	-257.10	0.94	0.06	0.94	431216.80	1764626.42	39.68092999	-80.33629106
	12548.00	88.35	145.14	7936.47	6643.47	3621.82	-4563.20	-202.48	0.53	0.04	0.53	431139.12	1764681.04	39.68071813	-80.33609446
	12738.00	87.24	146.65	7943.78	6650.78	3811.65	-4720.40	-96.03	0.99	-0.58	0.79	430981.93	1764787.48	39.68028932	-80.33571108
	12834.00	87.03	145.00	7948.58	6655.58	3907.51	-4799.72	-42.17	1.73	-0.22	-1.72	430902.61	1764841.33	39.68007294	-80.33551714
	12929.00	87.00	144.06	7953.53	6660.53	4002.38	-4876.99	12.88	0.99	-0.03	-0.99	430825.35	1764896.38	39.67986224	-80.33531901
	13024.00	86.73	141.73	7958.73	6665.73	4097.17	-4952.63	70.10	2.47	-0.28	-2.45	430749.71	1764953.60	39.67965604	-80.33511323
	13119.00	86.19	138.92	7964.59	6671.59	4191.66	-5025.61	130.63	3.01	-0.57	-2.96	430676.74	1765014.12	39.67945726	-80.33489579
	13214.00	87.24	143.47	7970.04	6677.04	4286.27	-5099.50	190.05	4.91	1.11	4.79	430602.86	1765073.54	39.67925593	-80.33468227
	13309.00	87.02	142.34	7974.80	6681.80	4381.09	-5175.18	247.27	1.21	-0.23	-1.19	430527.18	1765130.76	39.67904964	-80.33447647
	13404.00	86.96	141.23	7979.78	6686.78	4475.80	-5249.71	305.96	1.17	-0.06	-0.97	430452.65	1765189.44	39.67884652	-80.33426553
	13499.00	87.05	145.96	7984.75	6691.75	4570.62	-5326.05	362.25	4.97	0.09	4.98	430376.32	1765245.73	39.67863841	-80.33406305
	13594.00	87.31	144.70	7989.42	6696.42	4665.50	-5404.08	416.22	1.35	0.27	-1.33	430298.29	1765299.70	39.67842556	-80.33386873
	13688.00	87.24	147.30	7993.89	6700.89	4759.37	-5481.92	468.72	2.76	-0.07	2.77	430220.46	1765352.20	39.67821323	-80.33367966
	13782.00	87.05	146.50	7998.58	6705.58	4853.20	-5560.57	519.99	0.87	-0.20	-0.85	430141.82	1765403.46	39.67799863	-80.33349493
	13971.00	89.15	146.26	8004.84	6711.84	5042.03	-5717.86	624.57	1.12	1.11	-0.85	429984.54	1765508.04	39.67756951	-80.33311823
	14066.00	89.46	145.51	8006.00	6713.00	5137.01	-5796.50	677.85	0.85	0.33	-0.79	429905.90	1765561.31	39.67735497	-80.33292637
	14160.00	89.56	145.55	8006.80	6713.80	5231.01	-5873.99	731.05	0.11	0.11	0.04	429828.41	1765614.51	39.67714359	-80.33273483
	14254.00	89.12	146.12	8007.88	6714.88	5324.99	-5951.77	783.83	0.77	-0.47	0.61	429750.64	1765667.29	39.67693144	-80.33254476
	14348.00	90.35	146.48	8008.32	6715.32	5418.96	-6029.97	835.99	1.36	1.31	0.38	429672.44	1765719.44	39.67671809	-80.33235691
	14442.00	90.23	146.38	8007.84	6714.84	5512.93	-6108.29	887.96	0.17	-0.13	-0.11	429594.13	1765771.41	39.67650440	-80.33216969
	14537.00	90.23	147.17	8007.46	6714.46	5607.88	-6187.76	940.02	0.83	0.00	0.83	429514.66	1765823.46	39.67628757	-80.33198217
	14632.00	90.54	145.59	8006.82	6713.82	5702.85	-6266.86	992.61	1.69	0.33	-1.66	429435.56	1765876.06	39.67607175	-80.33179272
	14726.00	90.26	145.05	8006.16	6713.16	5796.85	-6344.16	1046.10	0.65	-0.30	-0.57	429358.27	1765929.54	39.67586092	-80.33160018
	14821.00	90.08	146.01	8005.88	6712.88	5891.84	-6422.48	1099.86	1.03	-0.19	1.01	429279.96	1765983.30	39.67564728	-80.33140661
	14915.00	91.12	146.18	8004.90	6711.90	5985.82	-6500.49	1152.29	1.12	1.11	0.18	429201.95	1766035.73	39.67543446	-80.33121779
	15010.00	90.95	145.86	8003.18	6710.18	6080.79	-6579.25	1205.38	0.38	-0.18	-0.34	429123.19	1766088.81	39.67521959	-80.33102662
	15199.00	91.28	146.35	7999.50	6706.50	6269.72	-6736.10	1310.76	0.31	0.17	0.26	428966.35	1766194.19	39.67479168	-80.33064713
	15293.00	91.37	144.55	7997.33	6704.33	6363.68	-6813.50	1364.05	1.92	0.10	-1.91	428888.96	1766247.48	39.67458056	-80.33045527
	15388.00	91.45	144.65	7994.99	6701.99	6458.65	-6890.92	1419.07	0.13	0.08	0.11	428811.55	1766302.49	39.67436944	-80.33025730
	15482.00	91.20	144.37	7992.82	6699.82	6552.62	-6967.43	1473.63	0.40	-0.27	-0.30	428735.04	1766357.04	39.67416078	-80.33006098
	15577.00	91.27	144.77	7990.77	6697.77	6647.60	-7044.82	1528.69	0.43	0.07	0.42	428657.65	1766412.10	39.67394972	-80.32986286
	15671.00	91.50	144.96	7988.50	6695.50	6741.57	-7121.67	1582.77	0.32	0.24	0.20	428580.81	1766466.18	39.67374013	-80.32966822
	15766.00	91.40	145.26	7986.10	6693.10	6836.54	-7199.57	1637.09	0.33	-0.11	0.32	428502.91	1766520.50	39.67352766	-80.32947270
	15860.00	91.33	144.77	7983.86	6690.86	6930.51	-7276.56	1690.97	0.53	-0.07	-0.52	428425.92	1766574.37	39.67331766	-80.32927878
	15955.00	91.21	144.95	7981.75	6688.75	7025.49	-7354.23	1745.64	0.23	-0.13	0.19	428348.26	1766629.04	39.67310584	-80.32908205
	16049.00	91.30	144.49	7979.69	6686.69	7119.47	-7430.95	1799.92	0.50	0.10	-0.49	428271.55	1766683.31	39.67289661	-80.32888672
	16143.00	91.20	144.41	7977.64	6684.64	7213.44	-7507.41	1854.56	0.14	-0.09	-0.22	428195.09	1766737.95	39.67268810	-80.32869012
	16238.00	91.12	144.20	7975.72	6682.72	7308.41	-7584.55	1909.98	0.24	-0.08	-0.22	428117.96	1766793.36	39.67247775	-80.32849074
	16333.00	92.49	144.73	7972.73	6679.73	7403.36	-7661.81	1965.16	1.55	1.44	0.56	428040.70	1766848.55	39.67226703	-80.32829218
	16428.00	92.63	145.53	7968.48	6675.48	7498.26	-7739.68	2019.42	0.85	0.15	0.84	427962.84	1766902.80	39.67205465	-80.32809690
	16522.00	92.19	145.05	7964.53	6671.53	7592.18	-7816.88	2072.90	0.69	-0.47	-0.51	427885.64	1766956.28	39.67184407	-80.32790441
	16617.00	92.37	145.70	7960.75	6667.75	7687.10	-7894.99	2126.83	0.71	0.19	0.68	427807.53	1767010.21	39.67163100	-80.32771026
	16712.00	92.35	144.50	7956.84	6663.84	7782.02	-7972.84	2181.14	1.26	-0.02	-1.26	427729.69	1767064.51	39.67141867	-80.32751481
	16806.00	92.50	145.05	7952.86	6659.86	7875.93	-8049.56	2235.31	0.61	0.16	0.59	427652.98	1767118.68	39.67120943	-80.32731988
	16901.00	92.26	144.70	7948.92	6655.92	7970.85	-8127.19	2289.92	0.45	-0.25	-0.37	427575.35	1767173.29	39.67099770	-80.32712335
	16996.00	92.11	142.25	7945.29	6652.29	8065.74	-8203.47	2346.42	2.58	-0.16	-2.58	427499.07	1767229.78	39.67078972	-80.32692018
	17091.00	92.53	144.50	7941.45	6648.45	8160.62	-8279.65	2403.04	2.41	0.44	2.37	427422.90	1767286.40	39.67058204	-80.32671655
	17186.00	92.45	143.71	7937.32	6644.32	8255.52	-8356.53	2458.69	0.84	-0.08	-0.83	427346.02	1767342.04	39.67037238	-80.32651638
	17281.00	92.33	146.17	7933.36	6640.36	8350.43	-8434.22	2513.21	2.59	-0.13	2.59	427268.34	1767396.56	39.67016049	-80.32632018
	17376.00	92.49	147.79	7929.36	6636.36	8445.28	-8513.80	2564.93	1.71	0.17	1.71	427188.76	1		

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	TVDSS (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	BR (°/100ft)	TR (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (°)	Longitude (°)
	1842.20	90.85	144.90	7909.20	6616.20	9490.90	-9375.02	3157.97	0.55	0.03	0.55	426327.59	1768041.28	39.66759407	-80.32399931
	1851.70	90.57	144.00	7908.03	6615.03	9585.89	-9452.31	3213.19	0.99	-0.29	-0.95	426250.31	1768096.50	39.66738330	-80.32380082
	1861.20	90.62	145.57	7907.04	6614.04	9680.88	-9529.92	3267.97	1.65	0.05	1.65	426172.71	1768151.28	39.66717163	-80.32360353
	1870.70	90.48	145.66	7906.13	6613.13	9775.87	-9608.31	3321.62	0.18	-0.15	0.09	426094.32	1768204.92	39.66695777	-80.32341042
	1889.70	90.66	145.07	7904.24	6611.24	9965.86	-9764.63	3429.60	0.32	0.09	-0.31	425938.00	1768312.90	39.66653135	-80.32302180
	1899.10	90.67	144.58	7903.15	6610.15	10059.85	-9841.46	3483.75	0.52	0.01	-0.52	425861.18	1768367.04	39.66632180	-80.32282697
	1908.60	90.42	144.62	7902.24	6609.24	10154.84	-9918.90	3538.78	0.27	-0.26	0.04	425783.75	1768422.07	39.66611061	-80.32262900
	1918.10	90.55	143.97	7901.44	6608.44	10249.83	-9996.04	3594.22	0.70	0.14	-0.68	425706.61	1768477.50	39.66590025	-80.32242957
	1927.60	90.52	143.70	7900.55	6607.55	10344.81	-10072.73	3650.28	0.29	-0.03	-0.28	425629.93	1768533.56	39.66569112	-80.32222797
	1937.00	90.50	145.74	7899.71	6606.71	10438.80	-10149.46	3704.56	2.17	-0.02	2.17	425553.20	1768587.84	39.66548185	-80.32203266
	1946.40	90.21	145.75	7899.13	6606.13	10532.79	-10227.15	3757.47	0.31	-0.31	0.01	425475.51	1768640.75	39.66526990	-80.32184221
	1955.90	90.45	144.89	7898.59	6605.59	10627.79	-10305.27	3811.52	0.94	0.25	-0.91	425397.40	1768694.93	39.66505680	-80.32164768
	1965.40	89.80	144.15	7898.38	6605.38	10722.78	-10382.63	3866.66	1.04	-0.68	-0.78	425320.04	1768749.83	39.66484582	-80.32144933
	1974.80	89.89	144.39	7898.63	6605.63	10816.77	-10458.94	3921.56	0.27	0.10	0.26	425243.74	1768804.82	39.66463772	-80.32125188
	1984.20	89.75	145.00	7898.93	6605.93	10910.77	-10535.65	3975.88	0.67	-0.15	0.65	425167.04	1768859.15	39.66442849	-80.32105644
	1993.70	90.08	144.66	7899.07	6606.07	11005.77	-10613.31	4030.60	0.50	-0.36	-0.36	425089.38	1768913.86	39.66421668	-80.32085957
	2003.20	90.10	146.43	7898.77	6605.77	11194.75	-10769.14	4137.53	0.94	0.01	0.94	424933.55	1769020.78	39.66379156	-80.32047474
	2012.60	90.13	144.70	7898.58	6605.58	11288.75	-10846.67	4190.68	1.84	0.03	-1.84	424856.03	1769073.93	39.66358007	-80.32028345
	2022.00	90.23	144.71	7898.28	6605.28	11383.74	-10924.21	4245.57	0.11	0.11	0.01	424778.50	1769128.81	39.66336860	-80.32008598
	2031.50	89.78	146.21	7898.28	6605.28	11478.74	-11002.46	4299.43	1.65	-0.47	1.58	424700.25	1769182.67	39.66315513	-80.31989214
	2041.00	90.12	145.70	7898.36	6605.36	11573.72	-11081.18	4352.61	0.65	0.36	-0.54	424621.54	1769235.85	39.66294037	-80.31970069
	2050.50	90.44	145.57	7897.89	6604.89	11668.72	-11159.59	4406.24	0.36	0.34	-0.14	424543.13	1769289.47	39.66272644	-80.31950770
	2060.00	90.43	145.52	7897.18	6604.18	11762.71	-11237.10	4459.42	0.05	-0.01	-0.05	424465.63	1769342.65	39.66251500	-80.31931631
	2070.00	90.55	143.80	7896.36	6603.36	11858.70	-11315.40	4514.94	1.80	0.13	-1.79	424387.33	1769398.17	39.66230143	-80.31911657
	2080.00	90.65	144.59	7895.37	6602.37	11953.69	-11392.45	4570.52	0.84	0.11	0.83	424310.29	1769453.74	39.66209133	-80.31891669
	2090.00	90.57	145.29	7894.35	6601.35	12048.68	-11470.20	4625.08	0.74	-0.08	0.74	424232.54	1769508.31	39.66187923	-80.31872037
	2100.00	90.22	146.35	7893.70	6600.70	12143.67	-11548.79	4678.45	1.18	-0.37	1.12	424153.95	1769561.67	39.66166483	-80.31852828
	2110.00	90.18	145.13	7893.37	6600.37	12238.66	-11627.31	4731.93	1.28	-0.04	-1.28	424075.44	1769615.15	39.66145063	-80.31833580
	2120.00	89.38	144.32	7893.73	6600.73	12333.65	-11704.86	4786.79	1.20	-0.84	-0.85	423997.89	1769670.01	39.66123910	-80.31813845
	2130.00	90.03	142.16	7894.22	6601.22	12427.60	-11780.16	4843.04	2.40	0.69	-2.30	423922.60	1769726.25	39.66103379	-80.31793623
	2140.00	90.19	143.36	7894.03	6601.03	12522.53	-11855.79	4900.53	1.27	0.17	1.26	423846.97	1769783.74	39.66082761	-80.31772961
	2150.00	89.89	143.16	7893.97	6600.97	12616.48	-11931.12	4956.76	0.38	-0.32	-0.21	423771.65	1769839.97	39.66062222	-80.31752747
	2160.00	90.32	144.88	7893.79	6600.79	12711.46	-12007.99	5012.57	1.87	0.45	1.81	423694.78	1769895.77	39.66041259	-80.31732677
	2170.00	90.27	145.82	7893.31	6600.31	12805.46	-12085.32	5066.01	1.00	-0.05	1.00	423617.46	1769949.21	39.66020165	-80.31713446
	2180.00	90.05	147.37	7893.04	6600.04	12900.42	-12164.62	5118.32	1.65	-0.23	1.63	423538.16	1770001.51	39.65998525	-80.31694615
	2190.00	90.02	144.19	7892.99	6599.99	12995.40	-12243.17	5171.73	3.35	-0.03	-3.35	423459.62	1770054.93	39.65977097	-80.31675390
	2200.00	89.84	143.13	7893.10	6600.10	13090.37	-12319.69	5228.03	1.13	-0.19	-1.12	423383.10	1770111.22	39.65956230	-80.31655150
	2210.00	89.83	139.49	7893.37	6600.37	13183.16	-12392.27	5286.15	3.91	-0.01	-3.91	423305.53	1770169.34	39.65936451	-80.31634272
	2220.00	89.54	139.25	7893.89	6600.89	13276.71	-12463.61	5347.36	0.40	-0.31	-0.26	423229.20	1770230.54	39.65917020	-80.31612303
	2230.00	90.05	139.13	7894.22	6601.22	13370.22	-12534.75	5408.80	0.56	-0.13	-0.13	423158.06	1770291.97	39.65897642	-80.31590256
	2240.00	89.55	139.56	7894.55	6601.55	13463.77	-12606.06	5470.04	0.70	-0.53	0.46	423086.75	1770353.21	39.65878219	-80.31568276
	2250.00	89.18	140.83	7895.59	6602.59	13557.43	-12678.27	5530.21	1.41	-0.39	1.35	423024.54	1770413.38	39.65858546	-80.31546674
	2260.00	89.30	140.71	7896.85	6603.85	13652.16	-12751.85	5590.28	0.18	0.13	-0.13	422950.97	1770473.45	39.65838496	-80.31525101
	2270.00	89.40	140.66	7897.92	6604.92	13745.89	-12824.57	5649.84	0.12	0.11	-0.05	422878.25	1770533.00	39.65818681	-80.31503716
	2280.00	89.25	140.94	7899.04	6606.04	13840.63	-12898.19	5709.87	0.33	-0.16	0.29	422804.64	1770593.03	39.65798622	-80.31482157
	2290.00	89.30	140.09	7900.23	6607.23	13934.33	-12970.73	5769.64	0.91	0.05	-0.90	422732.10	1770652.80	39.65778857	-80.31460697
	2300.00	89.42	139.49	7901.24	6608.24	14028.93	-13043.27	5830.97	0.66	0.19	-0.63	422659.56	1770714.12	39.65759095	-80.31438683
	2310.00	89.18	140.71	7902.39	6609.39	14122.58	-13115.38	5891.26	1.35	-0.38	1.30	422587.46	1770774.41	39.65739450	-80.31417040
	2320.00	89.43	140.39	7903.59	6610.59	14217.29	-13188.73	5951.62	0.47	0.33	-0.34	422514.11	1770834.76	39.65719464	-80.31395368
	2330.00	89.58	140.84	7904.41	6611.41	14312.00	-13262.15	6011.90	0.50	0.16	0.47	422440.70	1770895.04	39.65699458	-80.31373724
	2340.00	89.64	140.76	7905.06	6612.06	14406.75	-13335.77	6071.94	0.11	0.06	-0.08	422367.08	1770955.07	39.65679398	-80.31352165
	2350.00	90.74	140.22	7904.74	6611.74	14501.45	-13409.06	6132.38	1.29	1.16	-0.57	422293.79	1771015.51	39.65659428	-80.31330465
	2360.00	90.94	138.65	7903.35	6610.35	14595.99	-13481.22	6194.15	1.67	0.21	-1.65	422221.64	1771077.28	39.65639772	-80.31308296
Final Surveys	23579.00	90.32	139.78	7902.84	6609.84	14641.75	-13516.05	6224.19	2.80	-1.35	2.46	422186.82	1771107.32	39.65630286	-80.31297513
PTB	23606.00	90.32	139.78	7902.69	6609.69	14668.64	-13536.67	6241.63	0.00	0.00	0.00	422166.20	1771124.75	39.65624670	-80.31291256

Survey Type: Def Survey

Survey Error Model: ISCWSA Rev 3 *** 3-D 95.000% Confidence 2.7955 sigma
 Survey Program:

Description	Part	MD From (ft)	MD To (ft)	EOU Freq (ft)	Hole Size (in)	Casing Diameter (in)	Survey Tool Type	Borehole / Survey
	1	0.000	29.000	1/98.425	17.500	13.375	A020Ga_GYRO-NS-Depth Only	Original Borehole / CNX WDTN19CHSM Surveys 0ft to 21308ft MD
	1	29.000	29.000	Act Stns	17.500	13.375	A020Ga_GYRO-NS-Depth Only	Original Borehole / CNX WDTN19CHSM Surveys 0ft to 21308ft MD

...CNX WDTN19 Pad\WDTN19CHSM\ST01\CNX WDTN19CHSM ST01 Surveys 3037ft to 23606ft MD

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	TVDSS (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	BR (°/100ft)	TR (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (°)	Longitude (°)	
		1	29.000	1142.000	Act Stns	17.500	13.375	A020Ga_GYRO-NS								
		1	1142.000	3037.000	Act Stns	12.250	9.625	A001Mb_MWD								
		1	3037.000	5732.000	Act Stns	8.750	5.500	A001Mb_MWD								
		1	5732.000	23606.000	Act Stns	8.500	5.500	A001Mb_MWD								

Original Borehole / CNX
WDTN19CHSM Surveys 0ft to
Original Borehole / CNX
WDTN19CHSM Surveys 0ft to
ST01 / CNX WDTN19CHSM ST01
Surveys 3037ft to 23606ft MD
ST01 / CNX WDTN19CHSM ST01
Surveys 3037ft to 23606ft MD

