



CNX SHR-37D-HSM Surveys 0ft to 18420ft MD Survey Geodetic Report

(Def Survey)

Report Date: March 31, 2020 - 11:06 AM
 Client: CNX
 Field: WV Tyler County (NAD 27)
 Structure / Slot: CNX SHR-37 Pad / SHR-37D-HSM
 Well: SHR-37D-HSM
 Borehole: Original Borehole
 UWI / API#: Unknown / Unknown
 Survey Name: CNX SHR-37D-HSM Surveys 0ft to 18420ft MD
 Survey Date: March 19, 2020
 Tort / AHD / DDI / ERD Ratio: 302.777' / 13600.660 ft / 7.079 / 2.150
 Coordinate Reference System: NAD27 West Virginia State Plane, Northern Zone, US Feet
 Location Lat / Long: N 39° 21' 11.42676", W 80° 50' 44.65139"
 Location Grid N/E Y/X: N 313593.429 ftUS, E 1619463.848 ftUS
 CRS Grid Convergence Angle: -0.8583 °
 Grid Scale Factor: 0.99995202
 Version / Patch: 2.10.810.1

Survey / DLS Computation: Minimum Curvature / Lubinski
 Vertical Section Azimuth: 341.000 ° (Grid North)
 Vertical Section Origin: 0.000 ft, 0.000 ft
 TVD Reference Datum: RKB
 TVD Reference Elevation: 857.000 ft above MSL
 Seabed / Ground Elevation: 828.000 ft above MSL
 Magnetic Declination: -7.727 °
 Total Gravity Field Strength: 999.3376mgn (9.80665 Based)
 Gravity Model: GARM
 Total Magnetic Field Strength: 51729.778 nT
 Magnetic Dip Angle: 66.356 °
 Declination Date: March 19, 2020
 Magnetic Declination Model: HDGM 2020
 North Reference: Grid North
 Grid Convergence Used: -0.8583 °
 Total Corr Mag North->Grid North: -6.8691 °
 Local Coord Referenced To: Well Head

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	TVSS (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	TF (°)	BR (°/100ft)	TR (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (°)	Longitude (°)	Directional Difficulty Index
SHL	0.00	0.00	0.00	0.00	-857.000	0.00	0.00	0.00	N/A	172.53M	N/A	N/A	313593.43	1619463.85	39.35317410	-80.84573650	0.00
	100.00	0.54	172.53	100.00	-757.000	-0.46	-0.47	0.06	0.54	176.85M	0.54	0.00	313592.96	1619463.91	39.35317282	-80.84573626	0.00
	125.00	0.64	176.85	125.00	-732.000	-0.71	-0.72	0.08	0.44	171.43M	0.40	17.28	313592.71	1619463.93	39.35317212	-80.84573616	0.00
	150.00	0.65	171.43	150.00	-707.000	-0.99	-1.00	0.11	0.25	168.57M	0.04	-21.66	313592.43	1619463.96	39.35317135	-80.84573604	0.00
	175.00	0.59	168.57	174.99	-682.01	-1.25	-1.27	0.16	0.27	154.37M	0.04	-11.44	313592.16	1619464.01	39.35317062	-80.84573586	0.00
	200.00	0.58	154.37	199.99	-657.01	-1.51	-1.27	0.16	0.27	145.24M	0.08	-56.80	313591.92	1619464.09	39.35316997	-80.84573557	0.15
	225.00	0.60	149.54	224.99	-632.01	-1.76	-1.74	0.36	0.21	145.24M	0.08	-19.32	313591.69	1619464.21	39.35316935	-80.84573513	0.24
	250.00	0.55	145.24	249.99	-607.01	-2.00	-1.95	0.50	0.26	143.19M	-0.20	-17.20	313591.48	1619464.34	39.35316877	-80.84573464	0.33
	275.00	0.41	143.19	274.99	-582.01	-2.20	-2.12	0.62	0.56	135.63M	-0.56	-8.20	313591.31	1619464.47	39.35316831	-80.84573420	0.43
	300.00	0.32	135.63	299.99	-557.01	-2.35	-2.24	0.72	0.41	161.56M	-0.36	-30.24	313591.19	1619464.57	39.35316798	-80.84573383	0.49
	325.00	0.28	161.56	324.99	-532.01	-2.48	-2.35	0.79	0.56	161.68M	-0.16	103.72	313591.08	1619464.64	39.35316769	-80.84573358	0.56
	350.00	0.12	161.68	349.99	-507.01	-2.56	-2.43	0.81	0.69	264.2M	-0.64	80.48	313591.00	1619464.65	39.35316746	-80.84573351	0.62
	375.00	0.07	264.20	374.99	-482.01	-2.58	-2.46	0.79	0.52	208.36M	-0.20	330.08	313590.97	1619464.64	39.35316738	-80.84573357	0.66
	400.00	0.09	208.36	399.99	-457.01	-2.59	-2.48	0.77	0.31	192.99M	0.08	-223.36	313590.95	1619464.61	39.35316733	-80.84573366	0.69
Final Gyro	419.98	0.06	192.99	419.97	-437.03	-2.61	-2.50	0.76	0.18	66.05M	-0.15	-76.93	313590.93	1619464.60	39.35316726	-80.84573369	0.70
	601.00	1.11	66.05	600.98	-256.02	-2.54	-1.88	2.34	0.63	79.98M	0.58	-70.12	313591.55	1619466.19	39.35316903	-80.84572813	1.12
	695.00	1.34	79.98	694.96	-162.04	-2.63	-1.32	4.25	0.40	340.86M	0.24	14.82	313592.11	1619468.10	39.35317065	-80.84571892	1.34
	780.00	1.38	340.86	789.94	-67.06	-1.66	-0.05	4.97	2.18	304.49M	0.04	-104.34	313593.38	1619468.82	39.35317417	-80.84571892	1.85
	864.00	1.13	304.49	883.92	26.92	0.21	1.55	3.84	0.87	292.79M	-0.27	-38.69	313594.98	1619467.88	39.35317850	-80.84572302	1.80
	979.00	3.00	292.79	978.85	121.85	2.62	3.04	0.77	2.01	281.71M	1.97	-12.32	313596.47	1619464.62	39.35318248	-80.84573393	2.04
	1073.00	4.88	281.71	1072.63	215.63	6.30	4.80	-5.41	2.15	277.49M	2.00	-11.79	313598.23	1619458.44	39.35318707	-80.84575589	2.31
	1168.00	7.55	277.49	1167.06	310.08	11.15	6.44	-15.56	2.85	281.66M	2.00	-11.79	313599.87	1619448.29	39.35319113	-80.84579185	2.59
	1262.00	10.55	281.66	1259.88	402.88	18.30	8.98	-30.11	3.26	1.16L	3.19	4.44	313602.41	1619433.74	39.35319752	-80.84584344	2.86
	1357.00	13.06	281.43	1352.86	495.86	28.17	12.87	-49.15	2.64	43.57L	2.84	-0.24	313606.30	1619414.70	39.35320740	-80.84591097	3.08
	1451.00	14.75	275.40	1444.11	587.11	38.49	16.10	-71.48	2.37	39.06L	1.80	-6.41	313609.53	1619392.37	39.35321536	-80.84599008	3.26
	1546.00	16.44	270.70	1535.61	678.61	48.02	17.40	-96.96	2.22	85.78L	1.78	-4.95	313610.83	1619366.89	39.35321788	-80.84608026	3.41
	1640.00	16.59	266.04	1625.74	768.74	55.99	16.64	-123.65	1.42	47.34L	0.16	-4.96	313610.07	1619340.20	39.35321469	-80.84617458	3.53
	1735.00	16.96	264.68	1716.70	859.70	62.79	14.42	-150.98	0.57	11.7L	0.39	-1.43	313607.84	1619312.88	39.35320747	-80.84627108	3.62
	1829.00	16.07	263.94	1806.34	949.34	69.29	11.61	-170.13	1.20	110.09L	1.18	-0.79	313605.03	1619284.73	39.35319859	-80.84637046	3.71
	1923.00	17.82	261.58	1895.77	1038.77	75.20	7.96	-207.85	0.82	169.78L	-0.27	-2.51	313601.39	1619256.00	39.35318740	-80.84647183	3.78
	2018.00	13.31	258.03	1987.26	1180.26	79.21	3.56	-232.95	4.85	141.6R	-4.75	-3.74	313596.99	1619230.91	39.35317430	-80.84656031	3.90
	2112.00	11.77	264.29	2079.02	1222.02	82.74	0.36	-252.07	2.18	67.73R	-1.64	6.66	313593.79	1619210.79	39.35316469	-80.84663131	3.96
	2207.00	13.09	275.83	2171.81	1314.81	89.48	0.49	-273.42	2.95	33.59R	1.39	12.15	313593.92	1619190.44	39.35316420	-80.84670326	4.03
	2301.00	14.58	279.68	2263.08	1406.08	99.63	3.56	-296.67	1.86	60.4L	1.59	4.10	313596.99	1619168.19	39.35317172	-80.84678210	4.08
	2396.00	15.42	274.51	2354.85	1497.85	110.41	6.57	-320.05	1.66	117.01L	0.88	-5.44	313600.00	1619143.81	39.35317896	-80.84686846	4.13
	2490.00	14.83	269.58	2445.59	1588.59	119.23	7.46	-344.54	1.50	121.71L	-0.63	-5.24	313600.89	1619119.32	39.35318041	-80.84695500	4.18
	2584.00	14.49	267.31	2536.53	1679.53	126.36	6.82	-368.32	0.71	106.82R	-0.36	-2.41	313600.25	1619096.55	39.35317767	-80.84703913	4.21
	2678.00	14.32	269.75	2628.55	1771.55	133.48	6.21	-391.94	0.66	32.01R	-0.18	2.57	313599.64	1619071.93	39.35317503	-80.84712261	4.24
	2773.00	14.62	270.49	2719.57	1862.57	141.17	6.26	-415.43	0.78	32.01R	-0.36	-2.41	313599.69	1619048.44	39.35317420	-80.84720566	4.27
	2868.00	15.50	269.66	2811.30	1954.30	149.23	6.29	-440.11	0.95	14.17L	0.32	0.79	313599.72	1619023.76	39.35317326	-80.84729293	4.31
	2963.00	15.60	268.75	2901.86	2046.86	157.11	5.94	-465.31	0.28	68.15L	0.93	-0.87	313599.37	1618998.57	39.3531726	-80.84738200	4.33
	3057.00	14.78	268.94	2993.54	2139.54	164.73	5.44	-490.19	0.86	134.81R	-0.86	0.20	313598.87	1618973.88	39.35316885	-80.84746997	4.36
	3151.00	14.30	270.93	3084.53	2232.53	172.38	5.40	-513.79	0.74	73.31R	-0.51	2.12	313598.83	1618950.09	39.35316779	-80.84755339	4.39
	3245.00	14.50	273.42	3175.58	2325.58	180.83	6.29	-537.14	0.69	80.35R	0.21	2.65	313599.72	1618926.73	39.35316927	-80.84763801	4.41
	3338.00	14.53	274.10	3265.61	2418.61	189.85	7.82	-560.40	0.19	77.95L	0.03	0.73	313601.25	1618903.47	39.35317251	-80.84771833	4.43
	3433.00	14.60	272.86	3357.56	2500.56	198.98	9.27	-584.25	0.34	171.21L	0.07	-1.31	313602.70	1618879.63	39.35317551	-80.84780272	4.45
	3530.00	14.25	272.64	3445.50	2594.50	207.93	10.43	-608.38	0.37	162.27L	-0.36	-0.23	313603.86	1618855.50	39.35317770	-80.84788812	4.47
	3625.00	13.29	271.30	3534.77	2686.77	216.03	11.22	-630.98	1.06	153.53R	-1.01	-1.41	313604.65	1618832.90	39.35317893	-80.84796805	4.50
	3719.00	12.91	272.15	3623.32	2779.32	223.57	11.86	-652.27	0.45	71.13R	-0.40	0.90	313605.29	1618811.61	39.35317980	-80.84804338	4.52
	3814.00	13.31	276.72	3712.85	2870.85	232.15	13.54	-673.74	1.17	3.51L	0.42	4.81	313606.96	1618790.14	39.35318353	-80.84811937	4.54
	3908.00	14.19	276.50	3819.15	2962.15	241.80	16.11	-695.93	0.94	78.72L	0.94	-0.23	313609.53	1618767.95	39.35318967	-80.84819798	4.56
	4003.00	14.48	271.67	3911.20	3054.20	251.01	17.77	-719.38	1.29	9.81L	0.31	-5.08	313611.20	1618744.51	39.35319327	-80.84828095	4.59
	4097.00	14.79	271.46	4002.15	3145.15	259.35	18.42	-743.12	0.33	38.59R	0.33	-0.22	313611.85	1618720.77	39.35319407	-80.84836492	4.60

WV Department of
 Environmental Protection
 Office of Oil and Gas
 JUL 12 2021

Comments	MD (ft)	Incl (°)	Azim Grid	TVD (ft)	TVDSS (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	TF (°)	BR (°/100ft)	TR (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (°)	Longitude (°)	Directional Difficulty Index
	4192.00	15.00	274.96	4093.74	3236.74	268.98	19.84	-768.28	1.58	26.94R	1.28	3.58	313613.28	1618695.61	39.35316693	-80.84845396	4.63
	4286.00	17.42	277.47	4183.77	3326.77	280.39	22.78	-795.13	1.72	104.85L	1.52	2.78	313618.19	1618668.76	39.35320385	-80.84854906	4.66
	4380.00	17.14	273.35	4273.53	3416.53	291.93	25.40	-822.91	1.34	75.64L	-0.30	-4.38	313618.83	1618640.98	39.35320995	-80.84864743	4.68
	4475.00	17.56	268.58	4364.22	3507.22	301.58	28.86	-851.21	1.56	101.05L	0.44	-5.02	313619.29	1618612.88	39.35321006	-80.84874752	4.71
	4569.00	17.36	264.40	4453.89	3596.89	309.12	24.14	-879.35	1.35	144.1L	-0.21	-4.45	313617.57	1618584.54	39.35320418	-80.84884690	4.73
	4664.00	16.67	262.64	4544.73	3687.73	315.15	21.02	-906.97	0.91	144.01R	-0.73	-1.85	313614.44	1618556.93	39.35319445	-80.84894439	4.75
	4758.00	16.46	263.18	4634.83	3777.83	320.66	17.71	-933.56	0.28	76.78R	-0.22	0.57	313611.14	1618528.33	39.35318427	-80.84903824	4.77
	4852.00	16.59	265.00	4724.95	3867.95	326.74	14.96	-960.15	0.57	30.65R	0.14	1.94	313608.38	1618500.74	39.35317562	-80.84913212	4.78
	4947.00	17.88	267.46	4815.68	3958.68	334.15	13.13	-988.23	1.56	187.56R	1.38	2.59	313606.56	1618475.86	39.35316944	-80.84923131	4.81
	5041.00	17.21	267.96	4905.31	4048.31	342.30	11.99	-1016.55	0.73	20.19R	-0.71	0.53	313605.42	1618447.35	39.35316516	-80.84933136	4.82
	5136.00	17.69	268.54	4995.94	4138.94	350.75	11.13	-1045.02	0.54	164.7L	0.51	0.81	313604.55	1618418.88	39.35316181	-80.84943199	4.84
	5230.00	13.68	263.85	5086.57	4229.57	359.20	10.24	-1073.50	2.12	162.16L	-2.03	-2.37	313601.28	1618390.50	39.35315041	-80.84953254	4.89
	5325.00	12.70	262.41	5176.98	4319.98	366.03	7.28	-1103.18	4.92	8.71L	-4.67	-1.68	313598.66	1618362.05	39.35314885	-80.84963333	4.90
	5420.00	16.00	260.58	5267.41	4410.41	373.88	3.24	-1132.86	3.08	84.87R	3.03	-1.68	313595.19	1618333.54	39.35313729	-80.84973412	4.93
	5515.00	17.28	268.53	5357.84	4500.84	381.73	0.76	-1162.54	2.76	104.06R	1.34	8.46	313592.19	1618304.05	39.35313574	-80.84983491	4.95
	5610.00	17.23	268.94	5448.27	4591.27	389.58	0.14	-1192.22	0.13	132.46L	-0.03	0.43	313589.19	1618274.56	39.35312420	-80.84993570	4.98
	5705.00	17.18	269.08	5538.70	4681.70	397.43	1.21	-1221.90	0.11	38.17R	-0.07	-0.28	313586.19	1618245.07	39.35312265	-80.85003649	4.95
	5800.00	20.98	278.67	5629.13	4772.13	405.28	4.46	-1251.58	4.86	32.04R	4.02	8.41	313583.19	1618215.58	39.35312110	-80.85013728	5.01
	5895.00	26.80	284.45	5719.56	4862.56	413.13	8.46	-1281.26	7.03	13.8R	6.19	8.28	313601.89	1618186.09	39.35314457	-80.85023807	5.06
	5990.00	33.94	287.56	5810.00	4952.99	421.00	21.84	-1310.94	7.70	12.12R	7.52	3.31	313615.27	1618156.60	39.35317939	-80.85033886	5.11
	6085.00	44.28	290.74	5900.43	5043.42	428.85	41.44	-1340.62	11.20	29.82R	11.00	3.35	313634.87	1618126.11	39.35320391	-80.85043965	5.18
	6180.00	48.96	294.25	5990.86	5133.85	436.70	61.84	-1370.30	5.67	22.8R	4.98	3.73	313661.07	1618095.62	39.35330022	-80.85054044	5.22
	6275.00	52.91	296.32	6081.29	5224.28	444.55	98.84	-1400.00	4.54	23.22R	4.20	2.20	313692.27	1618065.13	39.35339653	-80.85064123	5.26
	6370.00	58.09	298.92	6171.72	5314.71	452.40	135.17	-1430.00	5.90	44.84R	5.45	2.74	313728.59	1618034.64	39.35349284	-80.85074202	5.31
	6465.00	62.04	303.28	6262.15	5405.14	460.25	177.28	-1460.00	5.81	42.34R	4.20	4.64	313770.70	1618004.15	39.35358915	-80.85084281	5.35
	6560.00	64.84	306.07	6352.58	5495.57	468.10	225.63	-1490.00	3.95	48.75R	2.95	2.94	313819.05	1617973.66	39.35368546	-80.85094360	5.39
	6655.00	70.29	312.50	6443.01	5586.00	475.95	281.24	-1520.00	8.49	53.61R	5.74	6.77	313874.66	1617943.17	39.35378177	-80.85104439	5.44
	6750.00	75.87	319.83	6533.44	5676.43	483.80	348.06	-1550.00	9.40	54.55R	5.72	7.80	313939.47	1617912.68	39.35387808	-80.85114518	5.49
	6845.00	80.65	326.78	6623.87	5766.86	491.65	420.57	-1580.00	8.87	80.17R	5.24	7.32	314013.98	1617882.19	39.35397439	-80.85124597	5.49
	6940.00	81.23	330.08	6714.30	5857.29	500.00	499.65	-1610.00	3.52	70.49R	0.82	3.51	314089.05	1617851.70	39.35407070	-80.85134676	5.54
	7035.00	84.28	338.49	6804.73	5947.72	507.85	584.48	-1640.00	9.25	2.3R	3.21	8.85	314177.88	1617821.21	39.35416701	-80.85144755	5.57
	7130.00	88.26	338.65	6895.16	6038.15	516.20	671.78	-1670.00	4.34	89.47R	4.23	0.17	314265.17	1617790.72	39.35426332	-80.85154834	5.62
	7225.00	89.78	342.70	6985.59	6128.58	524.55	760.45	-1700.00	4.60	80.65R	1.82	4.31	314352.46	1617760.23	39.35435963	-80.85164913	5.66
	7320.00	90.56	347.44	7076.02	6219.01	532.90	849.19	-1730.00	5.11	95.87L	0.83	5.04	314440.83	1617729.74	39.35445594	-80.85174992	5.72
	7415.00	91.01	339.88	7166.45	6309.44	541.25	938.88	-1760.00	5.81	84.83L	-0.80	-5.78	314528.27	1617699.25	39.35455225	-80.85185071	5.78
	7510.00	90.78	336.72	7256.88	6400.00	549.60	1028.57	-1790.00	2.50	148.67L	1.06	-2.26	314615.64	1617668.76	39.35464856	-80.85195150	5.80
	7605.00	91.07	338.72	7347.31	6490.43	557.95	1118.27	-1820.00	0.29	73.82L	-0.24	-0.15	314703.02	1617638.27	39.35474487	-80.85205229	5.83
	7700.00	90.84	343.20	7437.74	6580.86	566.30	1208.08	-1850.00	1.10	92.9R	0.31	-1.05	314790.39	1617607.78	39.35484118	-80.85215308	5.86
	7795.00	90.90	342.92	7528.17	6671.29	574.65	1297.83	-1880.00	4.72	77.9L	-0.24	4.72	314877.76	1617577.29	39.35493749	-80.85225387	5.88
	7890.00	90.17	340.73	7618.60	6761.72	583.00	1387.58	-1910.00	0.30	108.42L	0.06	-0.30	314965.13	1617546.80	39.35503380	-80.85235466	5.88
	7985.00	90.45	341.45	7709.03	6852.15	591.35	1477.33	-1940.00	2.46	83.84R	-0.78	-2.33	315052.50	1617516.31	39.35513011	-80.85245545	5.90
	8080.00	90.28	341.75	7800.00	6942.58	600.00	1567.08	-1970.00	1.08	80.46L	0.12	1.07	315139.87	1617485.82	39.35522642	-80.85255624	5.92
	8175.00	90.45	341.45	7890.43	7033.01	608.35	1656.83	-2000.00	0.36	104.93R	0.18	-0.32	315227.24	1617455.33	39.35532273	-80.85265703	5.94
	8270.00	90.17	342.50	7980.86	7123.44	616.70	1746.58	-2030.00	1.14	54.16R	-0.28	1.11	315314.61	1617424.84	39.35541904	-80.85275782	5.96
	8365.00	90.56	343.04	8071.29	7213.87	625.05	1836.33	-2060.00	0.71	107.65L	0.41	0.57	315401.98	1617394.35	39.35551535	-80.85285861	5.97
	8460.00	90.28	342.16	8161.72	7304.30	633.40	1926.08	-2090.00	0.98	77.22L	-0.30	-0.94	315489.35	1617363.86	39.35561166	-80.85295940	5.97
	8555.00	90.50	341.19	8252.15	7394.73	641.75	2015.83	-2120.00	0.53	149.04L	0.12	-0.51	315576.72	1617333.37	39.35570797	-80.85306019	5.99
	8650.00	90.45	341.16	8342.58	7485.16	650.10	2105.58	-2150.00	0.03	91.06R	-0.03	-0.02	315664.09	1617302.88	39.35580428	-80.85316098	6.00
	8745.00	90.39	344.37	8433.01	7575.59	658.45	2195.33	-2180.00	3.38	90R	-0.06	3.38	315751.46	1617272.39	39.35590059	-80.85326177	6.03
	8840.00	90.39	344.64	8523.44	7666.02	666.80	2285.08	-2210.00	0.29	139.3L	0.00	0.29	315838.83	1617241.90	39.35600000	-80.85336256	6.06
	8935.00	89.89	344.21	8613.87	7756.45	675.15	2374.83	-2240.00	0.70	86.29L	-0.53	-0.48	315926.20	1617211.41	39.35609531	-80.85346335	6.08
	9030.00	90.08	342.91	8704.30	7846.88	683.50	2464.58	-2270.00	2.78	90.99L	0.18	-2.76	316013.57	1617180.92	39.35619062	-80.85356414	6.11
	9125.00	90.08	338.12	8794.73	7937.31	691.85	2554.33	-2300.00	3.89	36.03L	-0.06	-3.89	316100.94	1617150.43	39.35628593	-80.85366493	6.13
	9220.00	90.11	338.04	8885.16	8027.74	700.20	2644.08	-2330.00	0.14	86.37R	0.12	-0.09	316188.31	1617119.94	39.35638124	-80.85376572	6.15
	9315.00	90.28	340.72	8975.59	8118.17	708.55	2733.93	-2360.00	2.83	93.31R	0.18	2.82	316275.68	1617089.45	39.35647655	-80.85386651	6.16
	9410.00	90.17	342.82	9066.02	8208.60	716.90	2823.68	-2390.00	2.02	30.58R	-0.12	2.02	316363.05	1617058.96	39.35657186	-80.85396730	6.18
	9505.00	90.39	342.75	9156.45	8299.03	725.25	2913.43	-2420.00	0.27	161.28L	0.23	0.14	316450.42	1617028.47	39.35666717	-80.85406809	6.20
	9600.00	89.83	342.56	9246.88	8389.46	733.60	3003.18	-2450.00	0.83	127.33L	-0.60	-0.20	316537.79	1617000.00	39.35676248	-80.85416888	6.21
	9695.00	89.22	341.76	9337.31	8479.89												

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	TVDS (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (ft/100ft)	TF (ft)	BR (ft/100ft)	TR (ft/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (°)	Longitude (°)	Directional Difficulty Index
	12283.00	89.06	340.17	8280.52	5423.52	8392.84	5406.71	-3672.34	0.92	108.24	0.41	0.82	319089.86	1615791.89	39.36811154	-80.85901484	6.55
	12358.00	88.77	339.32	8282.33	5425.33	8487.70	5685.82	-3705.22	0.94	161.57L	-0.20	-0.89	319178.97	1615758.81	39.36835478	-80.85913589	6.56
	12453.00	88.71	339.30	8284.42	5427.42	8582.73	5674.67	-3738.78	0.07	46.64R	-0.06	-0.02	319287.81	1615725.28	39.36859730	-80.8592932	6.57
	12547.00	89.22	339.84	8286.12	5429.12	8676.68	5762.74	-3771.58	0.79	110.36R	0.54	0.57	319355.88	1615692.45	39.36883771	-80.85939005	6.58
	12642.00	88.99	340.46	8287.60	5430.60	8771.66	5852.08	-3803.84	0.70	143.98L	-0.24	0.65	319445.22	1615660.20	39.36908163	-80.85948990	6.59
	12736.00	88.88	340.38	8289.35	5432.35	8865.64	5940.63	-3835.33	0.14	70.87R	-0.12	-0.09	319533.76	1615628.71	39.36932340	-80.85958103	6.60
	12830.00	89.55	342.31	8290.64	5433.64	8959.63	6029.68	-3865.40	2.17	91.34R	0.71	2.05	319622.81	1615596.84	39.36956600	-80.85967261	6.61
	12924.00	89.50	340.16	8291.42	5434.42	7053.62	6118.68	-3895.63	2.29	91.67R	-0.05	-2.29	319711.80	1615565.41	39.36980905	-80.85976381	6.62
	13019.00	89.44	342.23	8292.30	5435.30	7148.61	6208.60	-3926.25	2.18	137.73R	-0.06	2.18	319801.71	1615533.79	39.37005222	-80.85985501	6.63
	13114.00	89.33	342.33	8293.32	5436.32	7243.58	6299.06	-3955.17	0.16	182.15L	-0.12	0.11	319892.20	1615502.88	39.37030241	-80.85994621	6.64
	13208.00	88.43	342.04	8293.15	5438.15	7337.54	6388.56	-3983.92	1.01	56.89R	-0.98	-0.31	319981.67	1615471.39	39.37054884	-80.86003741	6.65
	13303.00	88.66	342.39	8297.57	5440.57	7432.49	6478.99	-4012.93	0.44	108.21L	0.24	0.37	320072.09	1615440.13	39.37079388	-80.86012861	6.66
	13397.00	88.21	341.02	8300.13	5443.13	7528.44	6568.20	-4042.42	1.53	95.08L	-0.48	-1.46	320161.30	1615409.12	39.37103755	-80.86021981	6.67
	13491.00	88.15	340.34	8303.12	5445.12	7620.39	6656.86	-4073.51	0.73	53.57R	0.83	1.13	320250.96	1615378.11	39.37128122	-80.86031101	6.68
	13586.00	88.94	341.41	8305.53	5448.53	7715.39	6746.59	-4104.82	1.40	86.87L	0.93	1.13	320339.88	1615347.10	39.37152489	-80.86040221	6.69
	13680.00	89.10	340.90	8307.09	5450.09	7809.34	6835.54	-4136.26	0.59	149.17L	0.23	-0.54	320428.82	1615316.09	39.37176857	-80.86049341	6.70
	13775.00	88.49	340.50	8309.04	5452.04	7904.32	6925.18	-4166.37	0.82	70.47R	-0.71	-0.42	320518.26	1615285.08	39.37201225	-80.86058461	6.71
	13869.00	88.82	341.43	8311.24	5454.24	7998.30	7014.01	-4197.02	1.05	78.31R	0.35	0.99	320607.09	1615254.07	39.37225593	-80.86067581	6.72
	13964.00	88.68	341.72	8313.15	5456.15	8093.27	7104.13	-4227.04	0.31	69.86R	0.06	0.31	320697.20	1615223.06	39.37250105	-80.86076701	6.73
	14058.00	88.99	342.02	8314.90	5457.94	8187.24	7193.44	-4256.28	0.34	77.07L	0.12	0.32	320786.51	1615192.05	39.37274502	-80.86085821	6.74
	14152.00	89.33	340.54	8316.28	5459.28	8281.23	7282.46	-4286.45	1.62	97.47R	0.36	-1.57	320875.52	1615161.04	39.37298913	-80.86094941	6.75
	14247.00	89.22	341.98	8318.67	5461.67	8370.21	7371.61	-4316.80	0.45	32.105L	-0.06	0.44	320964.53	1615130.03	39.37323324	-80.86104061	6.76
	14341.00	89.38	340.66	8319.83	5463.83	8465.21	7461.10	-4347.98	0.78	91.35R	0.17	-0.74	321053.54	1615100.02	39.37347735	-80.86113181	6.77
	14436.00	89.33	342.82	8320.89	5465.89	8559.19	7550.94	-4378.98	2.28	90.90L	-0.05	2.28	321143.99	1615070.01	39.37372146	-80.86122301	6.78
	14530.00	89.33	341.36	8322.00	5467.00	8654.16	7640.20	-4408.41	1.54	HS	0.00	-1.54	321233.83	1615040.00	39.37396557	-80.86131421	6.79
	14625.00	89.83	341.36	8322.69	5468.69	8749.16	7730.58	-4437.63	0.53	118.22L	0.53	0.00	321323.69	1615010.00	39.37420968	-80.86140541	6.80
	14719.00	89.61	340.05	8323.15	5469.15	8844.16	7819.65	-4467.07	1.03	99.58R	-0.23	-0.43	321412.69	1614980.00	39.37445379	-80.86149661	6.81
	14814.00	89.33	342.61	8324.03	5470.03	8938.14	7909.56	-4496.35	0.49	78.19L	-0.29	1.75	321502.59	1614950.00	39.37469790	-80.86158781	6.82
	14909.00	89.78	340.78	8324.76	5471.76	9032.12	7999.79	-4525.06	1.77	94.7R	0.48	-1.95	321592.82	1614920.00	39.37494201	-80.86167901	6.83
	15003.00	89.72	341.51	8325.17	5473.17	9126.10	8089.02	-4553.78	2.00	66.95R	-0.06	0.78	321682.05	1614890.00	39.37518612	-80.86177021	6.84
	15097.00	89.83	343.57	8325.54	5474.54	9210.08	8177.98	-4582.50	0.78	94.23L	0.12	2.17	321771.00	1614860.00	39.37543023	-80.86186141	6.85
	15192.00	90.45	343.04	8325.31	5475.31	9304.06	8266.96	-4611.22	1.27	102.26L	-0.06	-0.86	321860.00	1614830.00	39.37567434	-80.86195261	6.86
	15286.00	90.39	342.23	8324.62	5476.62	9398.03	8355.93	-4640.45	0.87	71.94R	-0.53	-2.42	321949.00	1614800.00	39.37591845	-80.86204381	6.87
	15380.00	89.89	339.63	8324.39	5477.39	9487.00	8444.34	-4669.68	1.53	125.22R	0.47	1.45	322038.00	1614770.00	39.37616256	-80.86213501	6.88
	15475.00	89.89	341.31	8324.20	5478.20	9576.00	8533.20	-4698.91	2.48	71.94R	-0.53	-2.42	322127.00	1614740.00	39.37640667	-80.86222621	6.89
	15570.00	90.22	341.48	8323.75	5479.75	9625.18	8622.82	-4728.14	1.53	125.22R	0.47	1.45	322216.00	1614710.00	39.37665078	-80.86231741	6.90
	15664.00	90.06	341.03	8323.52	5481.52	9714.16	8711.96	-4757.37	0.22	109.57L	-0.13	0.18	322305.00	1614680.00	39.37689489	-80.86240861	6.91
	15758.00	90.45	339.76	8323.10	5483.10	9803.14	8800.97	-4786.60	0.51	72.93L	-0.17	-0.48	322394.00	1614650.00	39.37713900	-80.86250001	6.92
	15853.00	90.73	340.47	8322.13	5484.13	9892.12	8889.98	-4815.83	1.41	68.47R	0.41	-1.35	322483.00	1614620.00	39.37738311	-80.86259121	6.93
	15947.00	90.39	342.67	8321.55	5485.55	9981.10	8978.99	-4845.06	0.81	76.67R	0.30	0.76	322572.00	1614590.00	39.37762722	-80.86268241	6.94
	16041.00	91.17	342.67	8320.55	5486.55	10070.08	9067.00	-4874.29	2.30	114.38L	0.46	2.32	322661.00	1614560.00	39.37787133	-80.86277361	6.95
	16136.00	90.39	340.95	8319.28	5487.28	10158.99	9156.01	-4903.52	2.01	115.58L	-0.83	-1.83	322750.00	1614530.00	39.37811544	-80.86286481	6.96
	16229.00	90.28	340.72	8318.72	5488.72	10247.97	9245.04	-4932.75	0.27	84.19R	-0.12	-0.24	322839.00	1614500.00	39.37835955	-80.86295601	6.97
	16323.00	90.34	341.31	8318.21	5490.21	10336.95	9334.05	-4961.98	0.63	129.67L	0.06	0.63	322928.00	1614470.00	39.37860366	-80.86304721	6.98
	16417.00	90.00	340.90	8317.93	5491.93	10425.93	9423.06	-4991.21	0.57	65.9R	-0.36	-0.44	323017.00	1614440.00	39.37884777	-80.86313841	6.99
	16512.00	90.34	341.66	8317.85	5493.85	10514.91	9512.07	-5020.44	0.88	103.35L	0.36	0.80	323106.00	1614410.00	39.37909188	-80.86322961	7.00
	16606.00	89.50	340.48	8317.32	5495.32	10603.89	9601.08	-5049.67	1.29	141.84R	-0.30	-1.28	323195.00	1614380.00	39.37933599	-80.86332081	7.01
	16700.00	90.06	340.92	8316.88	5496.88	10692.86	9690.09	-5078.90	0.76	20.46R	-0.60	0.47	323284.00	1614350.00	39.37958010	-80.86341201	7.02
	16794.00	90.17	341.17	8316.96	5498.96	10781.84	9779.10	-5108.13	0.75	59.93R	0.71	0.28	323373.00	1614320.00	39.37982421	-80.86350321	7.03
	16888.00	90.28	341.36	8317.59	5499.59	10870.82	9868.11	-5137.36	0.23	117.25R	0.12	0.20	323462.00	1614290.00	39.37982421	-80.86359441	7.04
	16982.00	90.11	341.89	8317.27	5500.27	10959.80	9957.12	-5166.59	0.39	80.14L	-0.18	0.35	323551.00	1614260.00	39.38006852	-80.86368561	7.05
	17076.00	90.34	341.17	8316.89	5500.89	11048.78	10046.13	-5195.82	0.80	79.93R	0.24	-0.55	323640.00	1614230.00	39.38031263	-80.86377681	7.06
	17170.00	90.56	342.41	8316.16	5501.16	11137.76	10135.14	-5225.05	1.34	64.65L	0.23	1.32	323729.00	1614200.00	39.38055674	-80.86386801	7.07
	17264.00	90.45	341.06	8315.33	5501.33	11226.74	10224.15	-5254.28	0.60	90.0L	-0.12	-1.44	323818.00	1614170.00	39.38080085	-80.86395921	7.08
	17358.00	90.45	341.05	8314.58	5501.58	11315.72	10313.16	-5283.51	0.01	104.04L	0.00	-0.01	323907.00	1614140.00	39.38104496	-80.86405041	7.09
	17452.00	90.39	340.81	8313.89	5501.89	11404.70	10402.17	-5312.74	1.44	90L	-0.12	-1.44	324000.00	1614110.00	39.38128907	-80.86414161	7.10
	17546.00	90.11	339.36	8313.48	5502.48	11493.68	10491.18	-5341.97	0.26	96.51L	-0.06	-0.26	324092.77	1614080.00	39.38153318	-80.86423281	7.11
	17640.00	90.34	339.27	8313.11	5503.11	11582.66	10580.19										

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSS (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	TF (°)	BR (°/100ft)	TR (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (°)	Longitude (°)	Directional Difficulty Index	
		1	29.000	419.980	Act Stns	30.000	30.000	NAL_NSG+MSHOT										
		1	419.980	5138.000	Act Stns	30.000	30.000	NAL_MWD-NON_SLB										
		1	5138.000	18420.000	Act Stns	30.000	30.000	NAL_MWD_1.0_DEG										

Original Borehole / CNX SHR-37D-
HSM Surveys 0ft to 18420ft MD
Original Borehole / CNX SHR-37D-
HSM Surveys 0ft to 18420ft MD
Original Borehole / CNX SHR-37D-
HSM Surveys 0ft to 18420ft MD

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