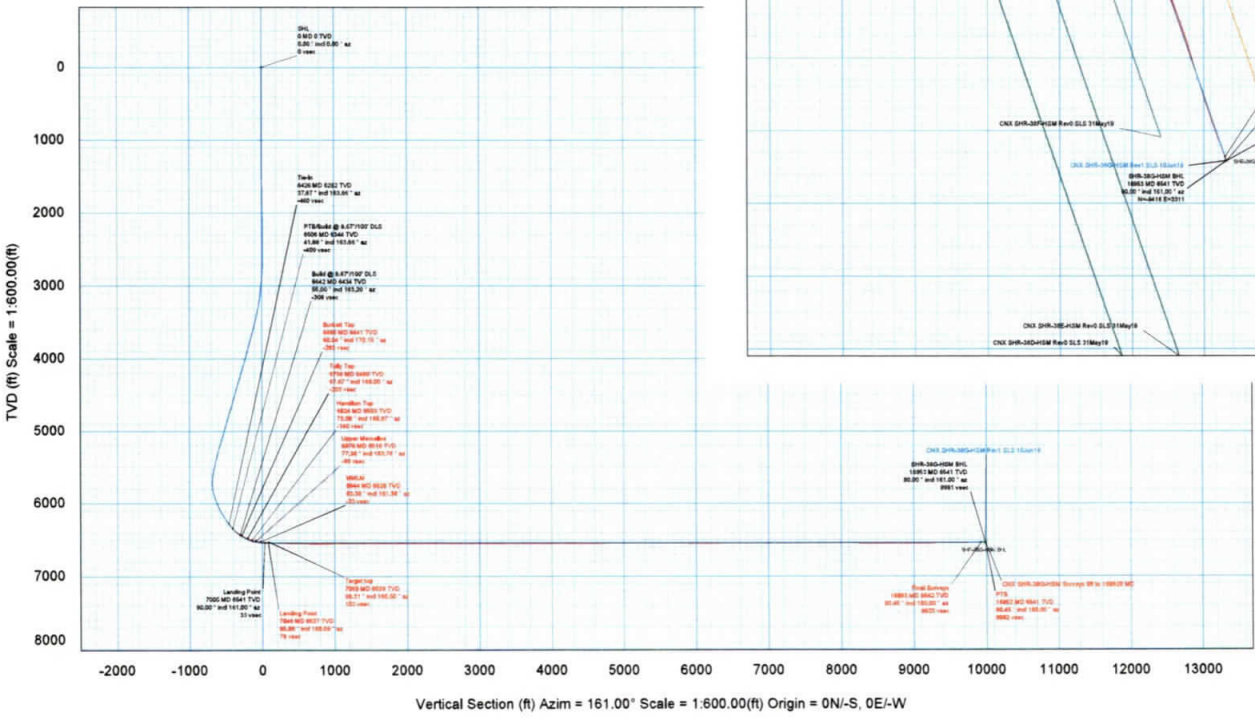
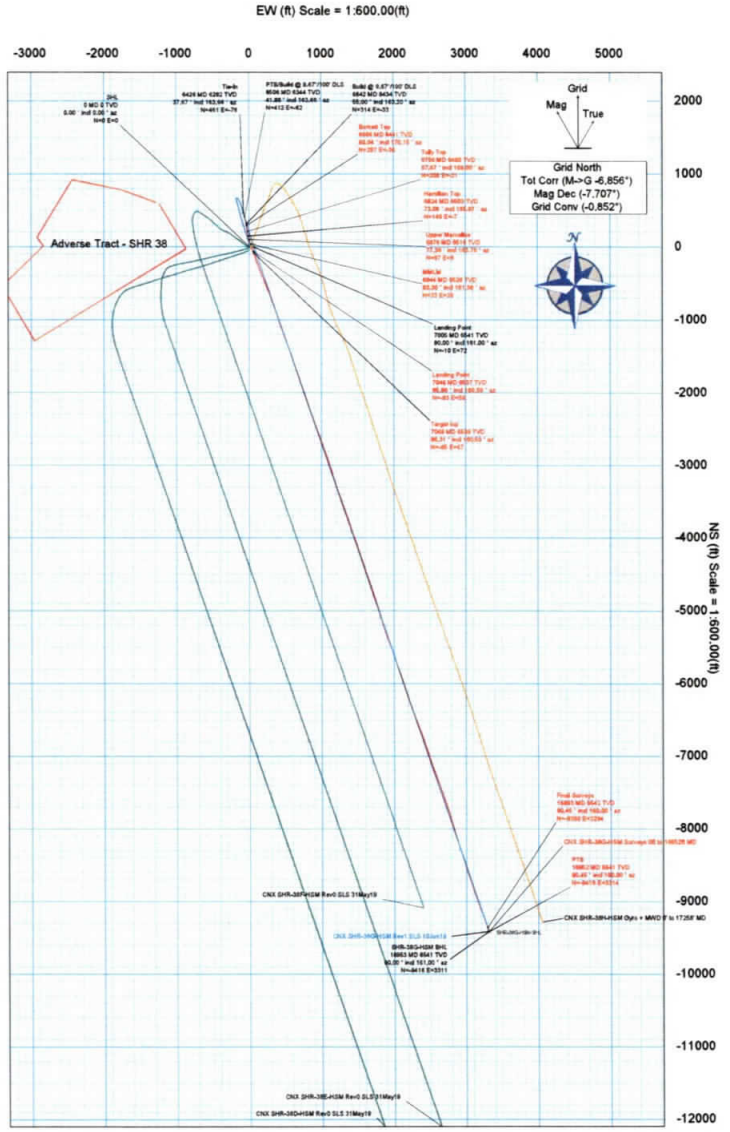


Borehole:	Original Borehole	Well:	SHR-38G-HSM	Field:	WV Tyler County (NAD 27)	Structure:	Patterson 801
Gravity & Magnetic Parameters		Surface Location		NAD27 West Virginia State Plane, Northern Zone, US Feet		Miscellaneous	
Model:	HDDM 2019	Dip:	46.467°	Date:	31-May-2019	Lat:	N 39 22 16.98
MagDec:	-7.707°	FS:	61831.176mT	Gravity FS:	999.321mgm (8.06665 Based)	Lon:	W 80 50 7.44
				Northing:	320191.667US	Grid Conv:	-8.8517'
				Easting:	1622495.267US	Scale Fact:	0.99995056
				Slot:	SHR-38G-HSM	TVD Ref:	KB(1040.67ft above MSL)
				Plan:	CNX SHR-38G-HSM Surveys Off to 16952ft MD		

Critical Point	MD	BHCL	AZIM	TVD	VSEC	N(Y)ft	E(X)ft	DLX
BHL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Burial Top	8666.00	85.04	170.15	6463.73	-263.22	287.30	-38.54	10.33
Tuff Top	8754.00	87.67	168.00	6490.34	-257.38	287.89	-38.54	8.53
Hambro Top	8824.00	73.00	165.87	6503.19	-138.79	145.34	-7.18	8.11
Upper Member	8976.00	77.26	163.70	6514.46	-48.84	96.87	6.00	9.40
Lower	9046.00	82.30	161.26	6527.96	-22.86	33.86	26.06	8.46
Landing Point	7064.00	85.86	160.69	6507.07	78.81	-43.82	16.36	2.86
Target Top	7064.00	85.31	160.50	6508.64	101.86	-44.66	67.00	1.86
Final Surveys	18893.00	85.45	160.00	6541.83	8622.82	-4990.39	3284.23	5.12
PTB	18952.00	85.45	160.00	6541.17	8681.81	-4415.83	3314.40	0.00

SBMT	Seq	Survey Type	Vendor/Tool	Wob. Size (in)	Wob. Size (ft)	Expected (ft)	MD From (ft)	MD To (ft)	Survey Frequency (ft)	SBMT (ft)	SBMT (ft)	Comments/Contingency
1	1	NAL_NGSHOCT-COIL	CMV	30	30	0	28.82	1684.25	1.25	1.25		
1	2	NAL_NGSHOCT-COIL	CMV	30	30	30.00	28.82	1684.25	1.25	1.25		
1	3	NAL_NGSHOCT-COIL	CMV	30	30	30.00	28.82	1684.25	1.25	1.25		
1	4	NAL_NGSHOCT-COIL	CMV	30	30	30.00	28.82	1684.25	1.25	1.25		
1	5	NAL_NGSHOCT-COIL	CMV	30	30	30.00	28.82	1684.25	1.25	1.25		

Surface Location		Northing		Easting		Latitude		Longitude		VSec Azimuth	
Target Name		320191.663		1622495.254		N 39 22 16.98		W 80 50 7.44		161.80	
Target Description	Shape	Dimension	Latitude	Longitude	Northing	Easting	TVD	VSec	N(Y)ft	E(X)ft	Local Count
Target - SHR 38	Point	N/A	N 39 24 52.89	W 80 50 48.70	320006.79	1619638.13	1540.57	-15982.24	15627.81	-2463.27	
SHR-38G-HSM BHL	Point	N/A	N 39 20 44.61	W 80 49 23.52	319765.82	1625786.06	8541.00	8681.17	16412.23	3210.88	
SHR-38G-HSM LP	Point	N/A	N 39 22 17.17	W 80 50 6.64	320198.54	1622547.81	8541.00	3.47	17.87	62.56	



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Environmental Protection

- CNX SHR-38G-HSM Surveys Off to 16952ft MD
- CNX SHR-38G-HSM Surveys Off to 1725ft MD
- CNX SHR-38G-HSM Rev0 SLS 31May19
- CNX SHR-38F-HSM Rev0 SLS 31May19
- CNX SHR-38G-HSM Rev1 SLS 10Jun19
- CNX SHR-38E-HSM Rev0 SLS 31May19
- Adverse Tract - SHR 38
- SHR-38G-HSM BHL
- SHR-38G-HSM LP

CONTROLLED	
Drawn by	J. Starnes
Checked by	
Date	10-Aug-2019
Copy number	1 of 1
Scale	AS SHOWN

CNX SHR-38G-HSM Surveys 0ft to 16952ft MD Survey Geodetic Report

(Def Survey)

Report Date: July 19, 2019 - 11:12 AM
Client: CNX Gas
Field: WV Tyler County (NAD 27)
Structure / Shot: CNX SHR-38 Pad / SHR-38G-HSM
Well: SHR-38G-HSM
Borehole: Original Borehole
UWI / API: Unknown / Unknown
Survey Name: CNX SHR-38G-HSM Surveys 0ft to 16952ft MD
Survey Date: May 31, 2010
Tori AHD / DDI / ERD Ratio: 241.108 / 11401.7078 / 6.852 / 1.740
Coordinate Reference System: NAD27 West Virginia State Plane, Northern Zone, US Feet
Location Lat / Long: N 36° 22' 16.9639" W, 80° 50' 7.4378" W
Location Grid M/E Y/X: N 320181.6006 M/US, E 1022485.254 M/US
CRS Grid Convergence Angle: -0.8517°
Grid Scale Factor: 0.99996056
Version / Patch: 2.10.753.0

Survey / DLS Computation: Minimum Curvature / Lubinski
Vertical Section Azimuth: 161.000° (Grid North)
Vertical Section Origin: 0.000 E, 0.000 N
TVD Reference Datum: KB
TVD Reference Elevation: 1640.570 ft above MSL
Reduced / Ground Elevation: 1011.850 ft above MSL
Magnetic Declination: -7.707°
Total Gravity Field Strength: 960.3213mgn (0.00055 Easd)
Gravity Model: GARM
Total Magnetic Field Strength: 51831.175 nT
Magnetic Dip Angle: 66.453°
Declination Date: May 31, 2019
Magnetic Declination Model: HDGM 2010
North Reference: Grid North
Grid Convergence Used: -0.8517°
Total Corr Mag North-to-Grid North: -0.8517°
Local Coord Referenced To: Well Head

Table with columns: Comments, MD (ft), Incl (°), Azim Grid (ft), TYD (ft), TYD88 (ft), VSEC (ft), NS (ft), EW (ft), DLS (ft), TF (ft), BR (ft), TR (ft), Northing (ft), Easting (ft), Latitude, Longitude, Directional, Density Index. The table contains a large number of rows representing survey data points.

