

Schlumberger

CNX SHL-1B-HS Surveys Off to 12964ft MD Survey Report

(Def Survey)

Report Date: August 29, 2011 - 10:15 AM
Client: CNX
Field: WV Marshall County (NAD 27)
Structure / Slot: CNX SHL-1B-HS / CNX SHL-1B-HS
Well: SHL-1B-HS
Borehole: Original Borehole
UWI / API#: Unknown / Unknown
Survey Name: CNX SHL-1B-HS Surveys Off to 12964ft MD
Survey Date: July 25, 2011
Tort / AHD / DDI / ERD Ratio: 201.286 * / 6831.655 ft / 6.434 / 1.042
Coordinate Reference System: NAD27 West Virginia State Plane, Northern Zone, US Feet
Location Lat / Long: N 39° 58' 23.88632", W 80° 34' 28.95639"
Location Grid W/E Y/X: N 538400.199 RUS, E 1698722.267 RUS
CRS Grid Convergence Angle: -0.88559823 *
Grid Scale Factor: 0.99995907

Survey / DLS Computation: Minimum Curvature / Lubinski
Vertical Section Azimuth: 143.934 * (Grid North)
Vertical Section Origin: 0.000 ft, 0.000 ft
TVD Reference Datum: KB
TVD Reference Elevation: 1185.856 ft above Unknown
Seabed / Ground Elevation: 1162.585 ft above Unknown
Magnetic Declination: -8.730 *
Total Field Strength: 52937.739 nT
Magnetic Dip Angle: 87.601 *
Declination Date: July 25, 2011
Magnetic Declination Model: BGM 2011
North Reference: Grid North
Grid Convergence Used: -0.886 *
Total Corr Mag North->Grid North: -9.044 *
Local Coord Referenced To: Well Head

Table with columns: Comments, MD (ft), Incl (°), Azim (°), TVD (ft), TVDSS (ft), VSEC (ft), NS (ft), EW (ft), DLS (ft/100m), Northing (RUS), Easting (RUS), Latitude (N/S), Longitude (E/W). Rows include SHL survey data and Final Gyro data.

03/30/2012

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	TVDSS (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (1/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
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Survey Error Model: ISCWSA Rev 0 *** 3-D 95.000% Confidence 2.7855 sigma
 Survey Program:

Description	MD From (ft)	MD To (ft)	EOU Freq (ft)	Survey Tool Type	Borehole / Survey
	0.000	23.273	Act Stns	SLB_NSG+MSHOT-Depth Only	Original Borehole / CNX SHL-1B-HS Surveys Dft to 12964ft MD
	23.273	5541.000	Act Stns	SLB_NSG+MSHOT	Original Borehole / CNX SHL-1B-HS Surveys Dft to 12964ft MD
	5541.000	12878.000	Act Stns	SLB_MWD-STD	Original Borehole / CNX SHL-1B-HS Surveys Dft to 12964ft MD
	12878.000	12964.000	Act Stns	SLB_BLIND+TREND	Original Borehole / CNX SHL-1B-HS Surveys Dft to 12964ft MD

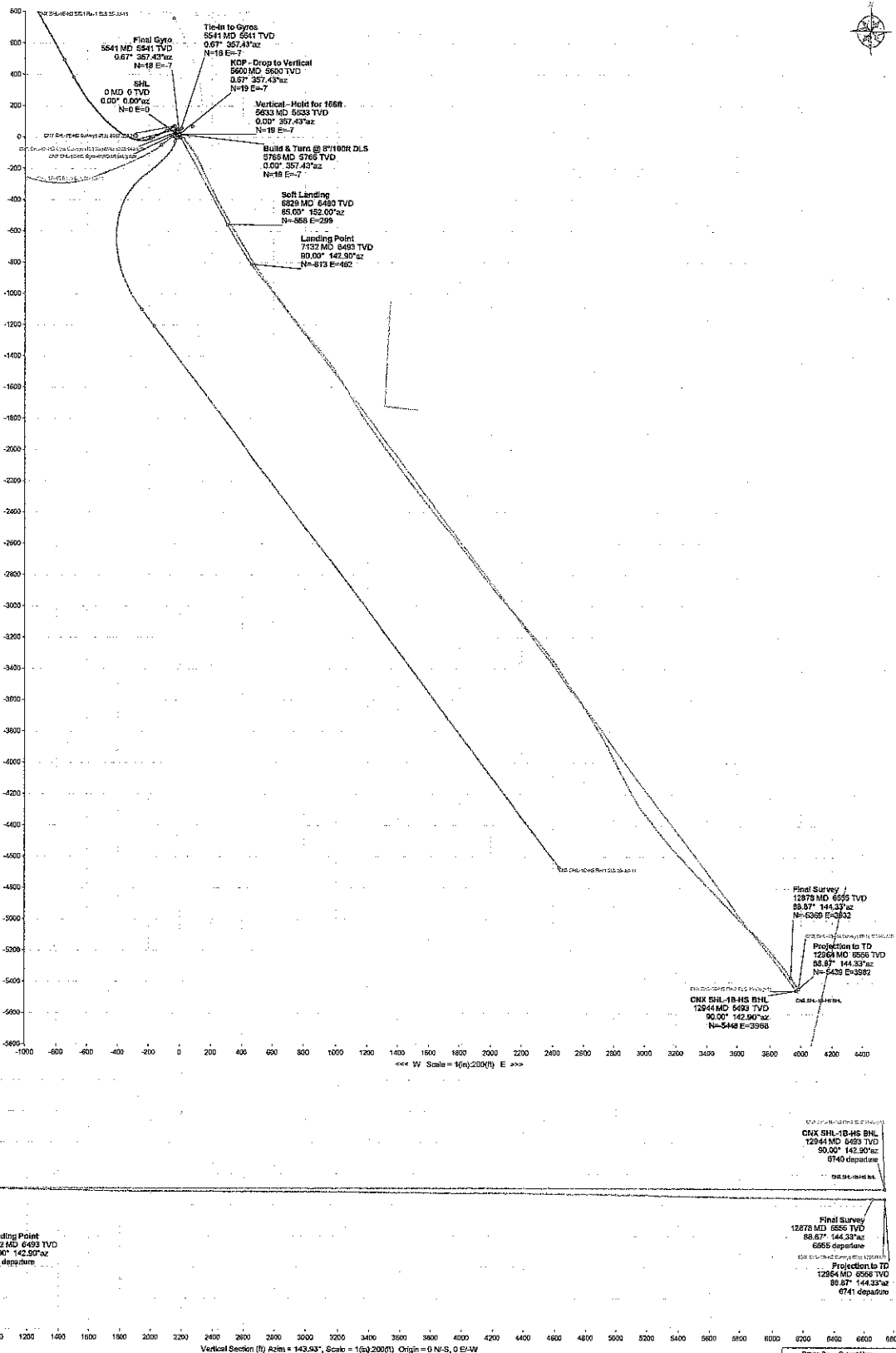


CNX



WELL: SHL-1B-HS				FIELD: VV Marshall County (NAD 27)				STRUCTURE: Nabors M59							
Magnetic Parameters		Date		Surface Location		NAAD27 West Virginia State Plane, Nabors 2 Zone, 45° Pole		Name/Structure		TVD Ref					
Model:	BGM 2011	Dip:	67.687° Mag Dec: -4.750°	Date:	July 25, 2011	Surface Location:	N 59.9823.489° E 69.3122.895°	Northing:	528486.26 NAD 27	Grid Cont:	416359231'	Name/Structure:	CNX SHL-1B-HS	TVD Ref:	K21181802 (above Markings)
				Easting:		1489733.17 NAD 27		Scale Factor:		0.9999397'		Name/Structure:	N/VD Bankys	TVD Ref:	July 25, 2011

Critical Point	MD	INCL	AZIM	Critical Points					
				TVD	VSFC	N(±) / S(±)	E(±) / W(±)	DLS	
SHL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Final Gyro	5541.00	0.67°	357.43°	5540.81	-19.06	18.19	-7.40	0.55	
Final Survey	12878.00	88.87°	144.33°	6554.78	6554.97	-5368.97	3932.31	2.36	
Projection to TD	12958.00	88.87°	144.33°	6556.48	6740.95	-5438.82	3982.43	0.00	



03/30/2012

Drawn By: Client User
 Checked By: User
 Approved By:
 Approved Date: