



# Scientific Drilling

## Gyroscopic Survey Report for CNX Gas

Well Location	Hazlett Frederick S
Well Name	SHL-1E-HS
Rig Name	Les Wilson 27
Survey Date	4/4/2011
Latitude	39.97 deg
North Reference	True North
Grid Correction	0.00 deg
Depth Reference	RKB
Calculation Method	Minimum Curvature
Section (VS) Ref	0.00N (ft), 0.00E (ft), 0.00Azim (deg)
Definitive Survey	TRUE NORTH OUTFRAN
Operator	TAYLOR/SCHMADER

### Comments

47-51-1407



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Survey:		TRUE NORTH OUTFRAN									
Survey Date:		4/4/2011									
	MD	Inc	Azim	TVD	VS	Northing	Easting	DLS	Closure Distance	Closure Angle	
	ft	deg	deg	ft	ft	ft	ft	deg/100ft	ft	deg	
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Invalid	0.00	0.00	
	100.00	0.37	92.44	100.00	-0.01	-0.01	0.32	0.37	0.32	92.44	
	200.00	0.25	96.71	200.00	-0.05	-0.05	0.85	0.12	0.86	93.52	
	300.00	0.35	92.12	300.00	-0.09	-0.09	1.38	0.11	1.38	93.71	
	400.00	0.28	79.94	399.99	-0.06	-0.06	1.93	0.10	1.93	91.71	
	500.00	0.26	83.52	499.99	0.01	0.01	2.39	0.03	2.39	89.74	
	600.00	0.22	79.41	599.99	0.07	0.07	2.80	0.04	2.80	88.55	
	700.00	0.14	18.06	699.99	0.22	0.22	3.02	0.19	3.03	85.83	
	800.00	0.10	325.24	799.99	0.41	0.41	3.01	0.11	3.04	82.30	
	900.00	0.10	274.96	899.99	0.49	0.49	2.87	0.09	2.91	80.37	
	1000.00	0.13	314.34	999.99	0.58	0.58	2.70	0.08	2.76	77.93	
	1100.00	0.36	304.71	1099.99	0.84	0.84	2.35	0.23	2.50	70.37	
	1200.00	0.49	297.74	1199.99	1.22	1.22	1.71	0.14	2.10	54.53	
	1300.00	0.53	304.22	1299.98	1.68	1.68	0.95	0.07	1.93	29.38	
	1400.00	0.58	308.63	1399.98	2.26	2.26	0.17	0.06	2.26	4.23	
	1500.00	0.64	311.95	1499.97	2.94	2.94	-0.64	0.07	3.01	347.74	
	1600.00	0.50	314.11	1599.97	3.62	3.62	-1.37	0.14	3.87	339.32	
	1700.00	0.32	311.33	1699.97	4.11	4.11	-1.89	0.18	4.52	335.29	
	1800.00	0.26	314.18	1799.97	4.45	4.45	-2.26	0.06	4.99	333.04	
	1900.00	0.41	5.73	1899.96	4.96	4.96	-2.39	0.32	5.51	334.26	
	2000.00	0.28	15.72	1999.96	5.55	5.55	-2.29	0.13	6.01	337.59	
	2100.00	0.41	11.46	2099.96	6.14	6.14	-2.15	0.13	6.51	340.70	
	2200.00	0.35	359.16	2199.96	6.80	6.80	-2.08	0.10	7.12	342.97	
	2300.00	0.50	1.04	2299.95	7.55	7.55	-2.08	0.15	7.83	344.59	
	2400.00	0.44	5.17	2399.95	8.36	8.36	-2.04	0.07	8.60	346.30	
	2500.00	0.44	354.40	2499.95	9.12	9.12	-2.04	0.08	9.34	347.38	
	2600.00	0.39	2.06	2599.95	9.84	9.84	-2.07	0.07	10.05	348.14	
	2700.00	0.34	346.15	2699.94	10.47	10.47	-2.13	0.11	10.68	348.52	
	2800.00	0.23	327.14	2799.94	10.92	10.92	-2.31	0.15	11.16	348.08	
	2900.00	0.19	304.64	2899.94	11.19	11.19	-2.55	0.09	11.47	347.15	
	3000.00	0.35	283.85	2999.94	11.35	11.35	-2.98	0.18	11.74	345.28	
	3100.00	0.34	287.65	3099.94	11.52	11.52	-3.56	0.02	12.06	342.82	
	3200.00	0.46	300.56	3199.94	11.81	11.81	-4.19	0.15	12.53	340.47	
	3300.00	0.44	309.83	3299.93	12.26	12.26	-4.83	0.08	13.18	338.49	
	3400.00	0.32	306.22	3399.93	12.67	12.67	-5.35	0.12	13.76	337.11	
	3500.00	0.37	317.48	3499.93	13.08	13.08	-5.80	0.08	14.30	336.10	
	3600.00	0.32	321.42	3599.93	13.53	13.53	-6.19	0.05	14.88	335.42	
	3700.00	0.32	332.14	3699.93	14.00	14.00	-6.50	0.06	15.44	335.11	
	3800.00	0.54	23.70	3799.92	14.68	14.68	-6.44	0.42	16.03	336.32	



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	ft	deg	deg	ft	ft	ft	ft	deg/100ft	ft	deg	
	3900.00	0.76	19.79	3899.92	15.74	15.74	-6.03	0.23	16.85	339.04	
	4000.00	0.80	16.74	3999.91	17.03	17.03	-5.80	0.06	17.93	341.79	
	4100.00	0.77	21.88	4099.90	18.32	18.32	-5.15	0.08	19.03	344.30	
	4200.00	0.70	15.85	4199.89	19.54	19.54	-4.73	0.10	20.11	346.39	
	4300.00	0.76	13.85	4299.88	20.78	20.78	-4.40	0.06	21.24	348.03	
	4400.00	0.76	6.02	4399.87	22.08	22.08	-4.18	0.10	22.47	349.29	
	4500.00	0.82	353.59	4499.86	23.44	23.44	-4.19	0.18	23.81	349.88	
	4600.00	0.94	348.95	4599.85	24.96	24.96	-4.42	0.14	25.35	349.95	
	4700.00	0.91	343.67	4699.84	26.52	26.52	-4.80	0.09	26.96	349.74	
	4800.00	1.03	340.32	4799.82	28.13	28.13	-5.33	0.14	28.63	349.27	
	4900.00	0.83	339.56	4899.81	29.66	29.66	-5.88	0.21	30.24	348.78	
	5000.00	0.92	342.08	4999.80	31.10	31.10	-6.38	0.10	31.74	348.40	
	5100.00	0.83	339.47	5099.79	32.54	32.54	-6.88	0.10	33.26	348.06	
	5200.00	0.75	339.63	5199.78	33.83	33.83	-7.36	0.07	34.62	347.72	
	5300.00	0.62	346.60	5299.77	34.97	34.97	-7.72	0.15	35.81	347.55	
	5400.00	0.48	338.28	5399.77	35.89	35.89	-8.00	0.17	36.77	347.43	
	5500.00	0.43	336.29	5499.76	36.62	36.62	-8.31	0.05	37.55	347.22	
	5600.00	0.20	292.45	5599.76	37.04	37.04	-8.62	0.32	38.03	346.90	
	5700.00	0.27	273.95	5699.76	37.12	37.12	-9.01	0.10	38.20	346.36	
	5800.00	0.31	279.89	5799.76	37.18	37.18	-9.51	0.05	38.38	345.65	
	5900.00	0.36	274.38	5899.76	37.25	37.25	-10.09	0.05	38.59	344.84	
	6000.00	0.22	298.60	5999.76	37.37	37.37	-10.57	0.18	38.83	344.20	
	6100.00	0.19	317.83	6099.76	37.58	37.58	-10.85	0.08	39.11	343.90	
	6200.00	0.32	259.14	6199.76	37.65	37.65	-11.23	0.28	39.29	343.39	
	6300.00	0.63	240.21	6299.75	37.32	37.32	-11.98	0.34	39.20	342.20	
	6357.53	0.76	229.23	6357.28	36.91	36.91	-12.55	0.32	38.99	341.23	