

# Tug Hill Operating LLC

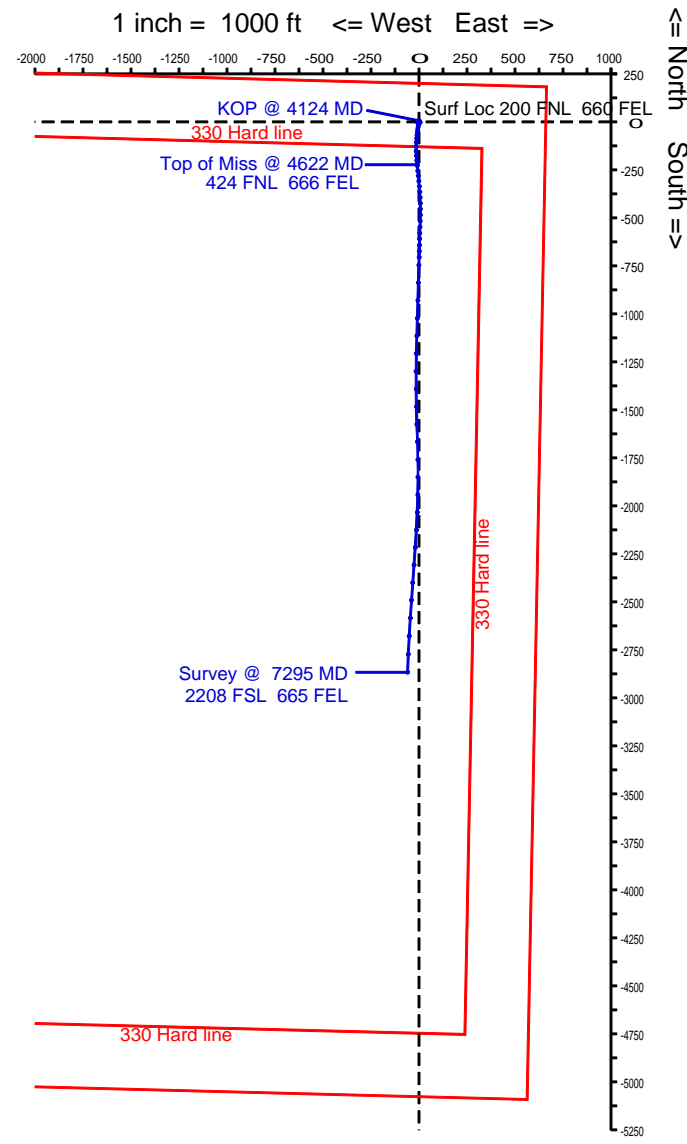
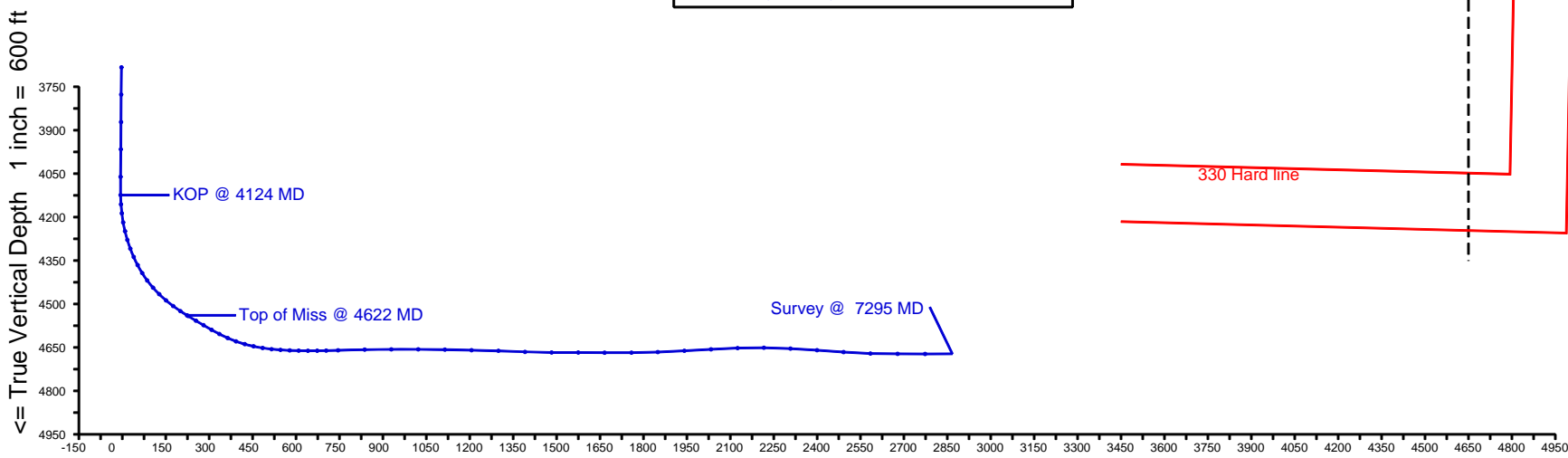
Stallings Unit 1-33H

Hodgeman County, Kansas

WELL PROFILE DATA							svys
MD	Inc.	Azi.	TVD	N/S	E/W	DLS	Comment
4124	0.80	151.40	4124	6	-1	1.98	KOP @ 4124 MD
4622	58.79	174.31	4539	-223	-10	8.33	Top of Miss @ 4622 MD
7295	91.10	182.40	4672	-2866	-60	1.73	Survey @ 7295 MD



Surface Location	NAD27 Tx North
Lat: N 38° 06' 06.26"	Long: W 99° 50' 46.61"
x: 924957.16	y: 1837675.26
Model IGRF2011 Date: 30-Nov-2012	
Declination (MN to TN): 5.68° East	
Dip: 65.85	
Field Strength: 5220.8	
Total Corr. (MN to GN): 6.51° East	



Vertical Section on 181.1 deg azimuth with reference 0.00 N, 0.00 E

## N-Zone Guidance

Company: Tug Hill Operating LLC  
 Well: Stallings Unit 1-33H  
 Location: Hodgeman County, Kansas

Date: 6-Mar-2013  
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 Job# : 6938

MD (feet)	Inclination (degrees)	Azimuth (degrees)	TVD RKB (feet)	N/S (feet)	E/W (feet)	DLS (deg/100')	VS @ 181.10° Az (feet)	Grid Y	Grid X	Comments
<b>Surface Location</b>								<b>1837675.26</b>	<b>924957.16</b>	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1837675.26	924957.16	Gyro
100.00	0.50	109.78	100.00	-0.15	0.41	0.50	0.14	1837675.11	924957.57	
200.00	0.48	110.25	200.00	-0.44	1.21	0.02	0.42	1837674.82	924958.37	
300.00	0.48	116.63	299.99	-0.77	1.98	0.05	0.73	1837674.49	924959.14	
400.00	0.53	106.44	399.99	-1.09	2.80	0.10	1.04	1837674.17	924959.96	
500.00	0.35	122.26	499.98	-1.39	3.50	0.22	1.32	1837673.87	924960.66	
600.00	0.27	134.29	599.98	-1.71	3.93	0.10	1.64	1837673.55	924961.09	
700.00	0.21	137.57	699.98	-2.01	4.22	0.06	1.93	1837673.25	924961.38	
800.00	0.35	233.84	799.98	-2.33	4.10	0.43	2.25	1837672.93	924961.26	
850.00	0.33	208.22	849.98	-2.55	3.91	0.30	2.47	1837672.71	924961.07	
971.00	0.62	325.90	970.98	-2.31	3.37	0.68	2.25	1837672.95	924960.53	MWD surveys
1064.00	0.60	351.70	1063.97	-1.41	3.02	0.29	1.35	1837673.85	924960.18	
1155.00	0.70	317.60	1154.97	-0.53	2.58	0.43	0.48	1837674.73	924959.74	
1247.00	0.79	322.21	1246.96	0.39	1.81	0.12	-0.42	1837675.65	924958.97	
1339.00	0.80	346.20	1338.95	1.51	1.27	0.36	-1.54	1837676.77	924958.43	
1431.00	0.90	341.10	1430.94	2.82	0.88	0.14	-2.83	1837678.08	924958.04	
1522.00	0.60	274.40	1521.94	3.53	0.18	0.95	-3.53	1837678.79	924957.34	
1614.00	0.90	202.60	1613.93	2.90	-0.58	0.99	-2.89	1837678.16	924956.58	
1706.00	1.00	208.80	1705.92	1.53	-1.25	0.16	-1.51	1837676.79	924955.91	
1798.00	0.80	199.40	1797.91	0.22	-1.85	0.27	-0.19	1837675.48	924955.31	
1891.00	0.90	222.10	1890.90	-0.93	-2.55	0.37	0.98	1837674.33	924954.61	
1985.00	0.50	203.40	1984.89	-1.86	-3.21	0.48	1.92	1837673.40	924953.95	
2080.00	0.50	171.10	2079.88	-2.65	-3.31	0.29	2.71	1837672.61	924953.85	
2174.00	0.40	164.20	2173.88	-3.37	-3.16	0.12	3.43	1837671.89	924954.00	
2268.00	0.30	199.30	2267.88	-3.92	-3.15	0.25	3.98	1837671.34	924954.01	
2363.00	0.20	35.70	2362.88	-4.02	-3.14	0.52	4.08	1837671.24	924954.02	
2457.00	0.20	21.50	2456.88	-3.73	-2.98	0.05	3.79	1837671.53	924954.18	
2551.00	0.30	257.70	2550.88	-3.63	-3.16	0.47	3.69	1837671.63	924954.00	
2646.00	1.00	268.80	2645.87	-3.70	-4.23	0.75	3.78	1837671.56	924952.93	
2740.00	0.40	320.00	2739.87	-3.47	-5.26	0.86	3.57	1837671.79	924951.90	

## N-Zone Guidance

Company: Tug Hill Operating LLC  
 Well: Stallings Unit 1-33H  
 Location: Hodgeman County, Kansas

Date: 6-Mar-2013  
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 Job# : 6938

MD (feet)	Inclination (degrees)	Azimuth (degrees)	TVD RKB (feet)	N/S (feet)	E/W (feet)	DLS (deg/100')	VS @ 181.10° Az (feet)	Grid Y	Grid X	Comments
2834.00	0.30	284.99	2833.86	-3.15	-5.71	0.25	3.26	1837672.11	924951.45	
2928.00	0.70	276.00	2927.86	-3.03	-6.52	0.43	3.15	1837672.23	924950.64	
3023.00	0.20	316.00	3022.86	-2.85	-7.21	0.59	2.99	1837672.41	924949.95	
3117.00	0.60	35.20	3116.85	-2.33	-7.04	0.63	2.46	1837672.93	924950.12	
3211.00	0.70	37.60	3210.85	-1.47	-6.41	0.11	1.59	1837673.79	924950.75	
3305.00	0.70	42.10	3304.84	-0.59	-5.67	0.06	0.70	1837674.67	924951.49	
3400.00	0.50	51.70	3399.84	0.10	-4.96	0.23	0.00	1837675.36	924952.20	
3494.00	0.80	54.40	3493.83	0.73	-4.10	0.32	-0.66	1837675.99	924953.06	
3589.00	0.62	48.52	3588.82	1.46	-3.18	0.20	-1.40	1837676.72	924953.98	
3683.00	1.00	0.30	3682.81	2.62	-2.79	0.79	-2.56	1837677.88	924954.37	
3777.00	0.30	41.40	3776.81	3.62	-2.63	0.85	-3.57	1837678.88	924954.53	
3872.00	0.48	50.19	3871.81	4.06	-2.16	0.20	-4.02	1837679.32	924955.00	
3966.00	0.70	25.60	3965.80	4.83	-1.61	0.35	-4.80	1837680.09	924955.55	
4061.00	0.70	39.30	4060.79	5.81	-0.99	0.18	-5.79	1837681.07	924956.17	
4124.00	0.80	151.40	4123.79	5.72	-0.53	1.98	-5.71	1837680.98	924956.63	KOP @ 4124 MD
4156.00	3.90	180.40	4155.76	4.43	-0.43	10.07	-4.42	1837679.69	924956.73	
4187.00	7.10	184.30	4186.61	1.47	-0.59	10.39	-1.46	1837676.73	924956.57	
4219.00	9.90	188.80	4218.26	-3.22	-1.15	8.99	3.25	1837672.04	924956.01	
4250.00	13.60	188.50	4248.60	-9.46	-2.10	11.94	9.50	1837665.80	924955.06	
4281.00	17.10	189.70	4278.49	-17.56	-3.41	11.34	17.63	1837657.70	924953.75	
4313.00	20.70	188.40	4308.76	-27.80	-5.03	11.33	27.89	1837647.46	924952.13	
4344.00	24.10	189.30	4337.42	-39.47	-6.85	11.02	39.59	1837635.79	924950.31	
4375.00	27.80	188.80	4365.29	-52.86	-8.98	11.96	53.03	1837622.40	924948.18	
4407.00	31.90	186.40	4393.04	-68.65	-11.07	13.34	68.85	1837606.61	924946.09	
4438.00	36.60	184.80	4418.66	-86.01	-12.75	15.44	86.24	1837589.25	924944.41	
4470.00	41.50	183.20	4443.50	-106.11	-14.14	15.63	106.36	1837569.15	924943.02	
4501.00	45.80	181.70	4465.93	-127.48	-15.05	14.27	127.75	1837547.78	924942.11	
4533.00	49.60	178.90	4487.46	-151.14	-15.15	13.52	151.41	1837524.12	924942.01	
4564.00	53.40	176.40	4506.76	-175.37	-14.15	13.79	175.61	1837499.89	924943.01	
4595.00	56.60	174.90	4524.54	-200.69	-12.21	11.06	200.89	1837474.57	924944.95	

## N-Zone Guidance

Company: Tug Hill Operating LLC  
 Well: Stallings Unit 1-33H  
 Location: Hodgeman County, Kansas

Date: 6-Mar-2013  
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 Job# : 6938

MD (feet)	Inclination (degrees)	Azimuth (degrees)	TVD RKB (feet)	N/-S (feet)	E/-W (feet)	DLS (deg/100')	VS @ 181.10° Az (feet)	Grid Y	NAD83 Ks South gr elev=2323 RKB=2346 Grid X	Comments
4622.00	58.79	174.31	4538.97	-223.41	-10.07	8.33	223.56	1837451.85	924947.09	Top of Miss @ 4622 MD
4627.00	59.20	174.20	4541.54	-227.67	-9.64	8.33	227.82	1837447.59	924947.52	
4658.00	59.70	174.20	4557.30	-254.23	-6.94	1.61	254.32	1837421.03	924950.22	
4689.00	60.00	173.80	4572.87	-280.89	-4.14	1.48	280.92	1837394.37	924953.02	
4721.00	60.40	173.90	4588.77	-308.50	-1.16	1.28	308.47	1837366.76	924956.00	
4752.00	62.60	175.00	4603.56	-335.61	1.47	7.75	335.52	1837339.65	924958.63	
4784.00	66.20	176.30	4617.39	-364.38	3.65	11.83	364.25	1837310.88	924960.81	
4815.00	70.10	177.70	4628.92	-393.11	5.15	13.26	392.94	1837282.15	924962.31	
4847.00	75.00	179.00	4638.52	-423.62	6.03	15.79	423.42	1837251.64	924963.19	
4878.00	78.00	179.70	4645.75	-453.75	6.37	9.92	453.55	1837221.51	924963.53	
4910.00	80.60	180.50	4651.69	-485.19	6.31	8.49	484.98	1837190.07	924963.47	
4941.00	84.20	181.70	4655.79	-515.91	5.72	12.23	515.71	1837159.35	924962.88	
4972.00	86.10	182.20	4658.42	-546.78	4.67	6.34	546.59	1837128.48	924961.83	
5004.00	87.70	181.80	4660.15	-578.71	3.56	5.15	578.54	1837096.55	924960.72	
5035.00	89.10	181.60	4661.01	-609.69	2.64	4.56	609.52	1837065.57	924959.80	
5067.00	89.90	181.50	4661.29	-641.67	1.77	2.52	641.52	1837033.59	924958.93	
5099.00	90.50	181.40	4661.18	-673.66	0.96	1.90	673.52	1837001.60	924958.12	
5130.00	91.10	181.30	4660.75	-704.65	0.23	1.96	704.52	1836970.61	924957.39	
5171.00	91.80	182.20	4659.71	-745.62	-1.02	2.78	745.50	1836929.64	924956.14	
5263.00	91.10	181.20	4657.38	-837.55	-3.75	1.33	837.46	1836837.71	924953.41	
5355.00	89.90	181.90	4656.58	-929.51	-6.24	1.51	929.46	1836745.75	924950.92	
5448.00	90.40	181.60	4656.33	-1022.46	-9.08	0.63	1022.45	1836652.80	924948.08	
5540.00	88.20	181.80	4657.46	-1114.41	-11.81	2.40	1114.43	1836560.85	924945.35	
5632.00	89.50	181.90	4659.30	-1206.34	-14.78	1.42	1206.40	1836468.92	924942.38	
5725.00	87.80	179.40	4661.50	-1299.30	-15.83	3.25	1299.36	1836375.96	924941.33	
5817.00	87.30	178.90	4665.43	-1391.20	-14.47	0.77	1391.23	1836284.06	924942.69	
5909.00	90.40	179.70	4667.27	-1483.17	-13.34	3.48	1483.15	1836192.09	924943.82	
6001.00	89.30	178.50	4667.52	-1575.15	-11.90	1.77	1575.09	1836100.11	924945.26	
6092.00	89.90	177.80	4668.15	-1666.10	-8.96	1.01	1665.97	1836009.16	924948.20	
6185.00	90.40	179.10	4667.91	-1759.06	-6.45	1.50	1758.86	1835916.20	924950.71	

## N-Zone Guidance

Company: Tug Hill Operating LLC  
 Well: Stallings Unit 1-33H  
 Location: Hodgeman County, Kansas

Date: 6-Mar-2013  
 Surveys  
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 Job# : 6938

MD (feet)	Inclination (degrees)	Azimuth (degrees)	TVD RKB (feet)	N/-S (feet)	E/-W (feet)	DLS (deg/100')	VS @ 181.10° Az (feet)	Grid Y	NAD83 Ks South gr elev=2323 RKB=2346 Grid X	Comments
6276.00	92.10	180.50	4665.92	-1850.04	-6.13	2.42	1849.81	1835825.22	924951.03	
6368.00	93.40	180.10	4661.51	-1941.93	-6.61	1.48	1941.70	1835733.33	924950.55	
6460.00	93.10	182.70	4656.29	-2033.74	-8.85	2.84	2033.54	1835641.52	924948.31	
6552.00	92.10	183.50	4652.12	-2125.51	-13.82	1.39	2125.39	1835549.75	924943.34	
6643.00	89.30	183.90	4651.01	-2216.31	-19.70	3.11	2216.28	1835458.95	924937.46	
6735.00	86.90	184.30	4654.06	-2308.01	-26.27	2.64	2308.09	1835367.25	924930.89	
6827.00	86.40	184.70	4659.43	-2399.57	-33.47	0.70	2399.77	1835275.69	924923.69	
6919.00	85.50	183.10	4665.93	-2491.13	-39.72	1.99	2491.43	1835184.13	924917.44	
7012.00	88.30	184.20	4670.96	-2583.79	-45.63	3.23	2584.19	1835091.47	924911.53	
7106.00	90.30	183.10	4672.11	-2677.59	-51.61	2.43	2678.09	1834997.67	924905.55	
7201.00	89.50	182.10	4672.27	-2772.49	-55.92	1.35	2773.05	1834902.77	924901.24	
7295.00	91.10	182.40	4671.78	-2866.41	-59.61	1.73	2867.03	1834808.85	924897.55	Survey @ 7295 MD