

HALLIBURTON ENERGY SERVICES - Drilling Systems

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Survey Report

Date: 6/9/94
Time: 3:39 pm
Wellpath ID: SURVEY
Date Created: 5/16/94
Last Revision: 6/9/94

Calculated using the Minimum Curvature Method
Computed using WIN-CADDS REV2.0.0
Vertical Section Plane: 172.56 deg.

RECEIVED
SEP - 1 1994
OIL CON. DIV.
DIST. 3

Survey Reference: WELLHEAD
Vertical Section Reference: WELLHEAD
Closure Reference: WELLHEAD
TVD Reference: WELLHEAD

CONOCO
HUGHES #B-18R
SEC 21-T29N-R08W
SAN JUAN CO., NEW MEXICO

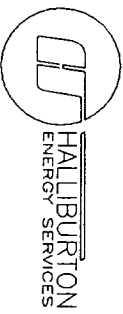
Measured Depth (ft)	Incl (deg.)	Drift Dir. (deg.)	Course Length (ft)	TVD (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets (ft)		Closure Dist. Dir. (ft) (deg.)	Build Rate (dg/100ft)	Walk Rate (dg/100ft)	DLS (dg/100ft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00 N	0.00 E	0.00@ 0.00	0.00	0.00	0.00
255.00	0.00	0.00	255.00	255.00	0.00	0.00 N	0.00 E	0.00@ 0.00	0.00	0.00	0.00
377.00	0.66	211.80	122.00	377.00	0.54	0.60 S	0.37W	0.70@ 211.80	0.54	0.00	0.54
753.00	1.00	236.40	376.00	752.96	3.67	4.25 S	4.24W	6.01@ 224.94	0.09	6.54	0.13
1280.00	0.75	186.60	527.00	1279.90	9.04	10.22 S	8.47W	13.28@ 219.64	-0.05	-9.45	0.15
1779.00	0.50	206.00	499.00	1778.87	14.03	15.43 S	9.80W	18.28@ 212.43	-0.05	3.89	0.06
2278.00	0.75	186.40	499.00	2277.84	19.01	20.63 S	11.12W	23.43@ 208.33	0.05	-3.93	0.07
2530.00	1.00	167.90	252.00	2529.82	22.81	24.42 S	10.84W	26.72@ 203.94	0.10	-7.34	0.15
2559.00	0.90	167.90	29.00	2558.81	23.29	24.89 S	10.74W	27.11@ 203.35	-0.34	0.00	0.34
BHA #1 in @ 2588'											
2591.00	2.60	172.70	32.00	2590.80	24.26	25.85 S	10.60W	27.94@ 202.29	5.31	15.00	5.33
2622.00	6.10	175.20	31.00	2621.70	26.61	28.19 S	10.37W	30.04@ 200.19	11.29	8.06	11.30
2653.00	9.50	174.90	31.00	2652.41	30.82	32.38 S	10.00W	33.89@ 197.17	10.97	-0.97	10.97
2684.00	13.10	173.70	31.00	2682.80	36.89	38.43 S	9.39W	39.56@ 193.73	11.61	-3.87	11.64
2715.00	16.60	172.50	31.00	2712.76	44.83	46.31 S	8.43W	47.07@ 190.31	11.29	-3.87	11.33
2747.00	20.00	172.50	32.00	2743.14	54.88	56.27 S	7.12W	56.72@ 187.21	10.62	0.00	10.62
2780.00	23.70	173.70	33.00	2773.77	67.15	68.46 S	5.65W	68.69@ 184.72	11.21	3.64	11.29
BHA #2 in @ 2797'											
2811.00	28.00	175.10	31.00	2801.66	80.66	81.91 S	4.35W	82.03@ 183.04	13.87	4.52	14.01
2842.00	33.00	175.30	31.00	2828.36	96.37	97.58 S	3.03W	97.63@ 181.78	16.13	0.65	16.13
2874.00	37.90	175.00	32.00	2854.42	114.91	116.07 S	1.46W	116.08@ 180.72	15.31	-0.94	15.32
2905.00	42.60	174.60	31.00	2878.07	134.91	136.01 S	0.36 E	136.01@ 179.85	15.16	-1.29	15.18
2968.00	48.80	173.00	63.00	2922.05	179.97	180.81 S	5.26 E	180.89@ 178.33	9.84	-2.54	10.01
3000.00	53.20	172.20	32.00	2942.19	204.83	205.46 S	8.47 E	205.64@ 177.64	13.75	-2.50	13.89
3031.00	57.50	171.90	31.00	2959.81	230.33	230.72 S	11.99 E	231.03@ 177.02	13.87	-0.97	13.89
3062.00	59.20	172.00	31.00	2976.07	256.71	256.84 S	15.69 E	257.32@ 176.50	5.48	0.32	5.49
3093.00	58.90	172.30	31.00	2992.02	283.30	283.18 S	19.32 E	283.84@ 176.10	-0.97	0.97	1.27
3125.00	61.40	172.90	32.00	3007.94	311.05	310.70 S	22.89 E	311.54@ 175.79	7.81	1.87	7.98
3155.00	65.50	173.20	30.00	3021.35	337.88	337.34 S	26.14 E	338.35@ 175.57	13.67	1.00	13.70
3186.00	70.20	173.90	31.00	3033.04	366.58	365.86 S	29.36 E	367.03@ 175.41	15.16	2.26	15.30
3218.00	74.50	171.60	32.00	3042.74	397.06	396.10 S	33.21 E	397.49@ 175.21	13.44	-7.19	15.08
3248.00	79.70	175.30	30.00	3049.43	426.29	425.13 S	36.54 E	426.70@ 175.09	17.33	12.33	21.09
3280.00	81.00	176.00	32.00	3054.80	457.79	456.59 S	38.93 E	458.25@ 175.13	4.06	2.19	4.60
3311.00	80.00	177.10	31.00	3059.91	488.29	487.11 S	40.77 E	488.81@ 175.22	-3.23	3.55	4.76
3342.00	80.30	175.10	31.00	3065.22	518.77	517.58 S	42.85 E	519.35@ 175.27	0.97	-6.45	6.43
3373.00	81.40	174.40	31.00	3070.15	549.35	548.06 S	45.65 E	549.95@ 175.24	3.55	-2.26	4.19
3403.00	82.60	173.90	30.00	3074.32	579.05	577.61 S	48.68 E	579.66@ 175.18	4.00	-1.67	4.33
3434.00	85.40	174.00	31.00	3077.56	609.87	608.26 S	51.93 E	610.48@ 175.12	9.03	0.32	9.04
BHA #3 in @ 3481' - BHA #4 in @ 3494'											
3494.00	87.25	174.00	60.00	3081.41	669.72	667.81 S	58.19 E	670.34@ 175.02	3.08	0.00	3.08
3525.00	86.75	174.00	31.00	3083.03	700.67	698.60 S	61.42 E	701.29@ 174.98	-1.61	0.00	1.61
3587.00	87.56	173.40	62.00	3086.11	762.58	760.15 S	68.22 E	763.20@ 174.87	1.31	-0.97	1.63

HALLIBURTON ENERGY SERVICES - Drilling Systems

Survey Report

Measured Depth (ft)	Incl (deg.)	Drift Dir. (deg.)	Course Length (ft)	TVD (ft)	Vertical Section (ft)	T O T A L Rectangular Offsets (ft)		Closure Dist. Dir. (ft) (deg.)	Build Rate (dg/100ft)	Walk Rate (dg/100ft)	DLS (dg/100ft)
3618.00	87.94	173.40	31.00	3087.33	793.55	790.92 S	71.78 E	794.17@174.81	1.23	0.00	1.23
3687.00	88.56	173.50	69.00	3089.43	862.51	859.43 S	79.64 E	863.12@174.71	0.90	0.14	0.91
3719.00	88.25	173.40	32.00	3090.32	894.50	891.21 S	83.29 E	895.10@174.66	-0.97	-0.31	1.02
3750.00	89.31	173.00	31.00	3090.98	925.49	921.99 S	86.96 E	926.08@174.61	3.42	-1.29	3.65
3782.00	90.25	173.00	32.00	3091.11	957.48	953.75 S	90.86 E	958.07@174.56	2.94	0.00	2.94
3813.00	89.13	172.20	31.00	3091.27	988.48	984.49 S	94.85 E	989.05@174.50	-3.61	-2.58	4.44
3844.00	88.19	172.00	31.00	3092.00	1019.47	1015.19 S	99.11 E	1020.01@174.42	-3.03	-0.65	3.10
3875.00	88.31	171.90	31.00	3092.95	1050.46	1045.87 S	103.45 E	1050.97@174.35	0.39	-0.32	0.50
3999.00	88.81	171.50	124.00	3096.06	1174.40	1168.53 S	121.35 E	1174.81@174.07	0.40	-0.32	0.52
4030.00	87.81	171.50	31.00	3096.98	1205.38	1199.17 S	125.93 E	1205.77@174.01	-3.23	0.00	3.23
4062.00	88.63	171.60	32.00	3097.97	1237.36	1230.81 S	130.63 E	1237.72@173.94	2.56	0.31	2.58
4093.00	89.81	171.70	31.00	3098.39	1268.36	1261.48 S	135.13 E	1268.70@173.89	3.81	0.32	3.82
4125.00	91.00	171.60	32.00	3098.17	1300.35	1293.14 S	139.78 E	1300.67@173.83	3.72	-0.31	3.73
4156.00	91.00	171.60	31.00	3097.63	1331.34	1323.80 S	144.30 E	1331.64@173.78	0.00	0.00	0.00
4186.00	92.00	171.40	30.00	3096.84	1361.33	1353.46 S	148.74 E	1361.61@173.73	3.33	-0.67	3.40
4217.00	92.06	171.20	31.00	3095.74	1392.30	1384.09 S	153.42 E	1392.56@173.67	0.19	-0.65	0.67
4248.00	91.81	171.40	31.00	3094.69	1423.27	1414.71 S	158.11 E	1423.52@173.62	-0.81	0.65	1.03
4310.00	89.56	172.00	62.00	3093.95	1485.26	1476.05 S	167.06 E	1485.48@173.54	-3.63	0.97	3.76
4341.00	89.13	171.60	31.00	3094.31	1516.25	1506.73 S	171.48 E	1516.46@173.51	-1.39	-1.29	1.89
4371.00	89.63	171.50	30.00	3094.63	1546.25	1536.41 S	175.89 E	1546.44@173.47	1.67	-0.33	1.70
4402.00	90.44	171.40	31.00	3094.61	1577.24	1567.06 S	180.50 E	1577.42@173.43	2.61	-0.32	2.63
4433.00	91.13	171.50	31.00	3094.19	1608.23	1597.71 S	185.10 E	1608.40@173.39	2.23	0.32	2.25
4463.00	91.69	171.70	30.00	3093.45	1638.22	1627.38 S	189.49 E	1638.38@173.36	1.87	0.67	1.98
4494.00	90.63	171.20	31.00	3092.82	1669.21	1658.03 S	194.09 E	1669.35@173.32	-3.42	-1.61	3.78
4523.00	90.69	171.00	29.00	3092.49	1698.19	1686.68 S	198.58 E	1698.33@173.29	0.21	-0.69	0.72
4554.00	91.30	170.70	31.00	3091.95	1729.18	1717.28 S	203.51 E	1729.30@173.24	1.97	-0.97	2.19
4585.00	91.25	170.20	31.00	3091.26	1760.15	1747.84 S	208.65 E	1760.25@173.19	-0.16	-1.61	1.62
4606.00	91.00	170.10	21.00	3090.85	1781.12	1768.53 S	212.24 E	1781.22@173.16	-1.19	-0.48	1.28
4693.00	90.80	170.20	87.00	3089.48	1868.04	1854.24 S	227.12 E	1868.10@173.02	-0.23	0.11	0.26
4798.00	90.20	170.80	105.00	3088.57	1972.96	1957.79 S	244.45 E	1972.99@172.88	-0.57	0.57	0.81
4825.00	91.30	171.20	27.00	3088.21	1999.95	1984.46 S	248.68 E	1999.98@172.86	4.07	1.48	4.34
BHA #5 in @ 4828' - BHA #6 in @ 4838'											
4919.00	94.80	172.00	94.00	3083.21	2093.79	2077.30 S	262.39 E	2093.81@172.80	3.72	0.85	3.82
4950.00	95.00	173.30	31.00	3080.56	2124.68	2107.93 S	266.34 E	2124.69@172.80	0.65	4.19	4.23
5043.00	93.50	172.80	93.00	3073.67	2217.41	2199.99 S	277.56 E	2217.43@172.81	-1.61	-0.54	1.70
5138.00	88.30	173.20	95.00	3072.18	2312.37	2294.24 S	289.13 E	2312.39@172.82	-5.47	0.42	5.49
5231.00	88.70	173.20	93.00	3074.61	2405.33	2386.56 S	300.14 E	2405.35@172.83	0.43	0.00	0.43
THE FOLLOWING SURVEY IS PROJECTED TO T.D. ONLY!											
5363.00	91.00	173.20	132.00	3074.96	2537.31	2517.62 S	315.77 E	2537.34@172.85	1.74	0.00	1.74

CONOCO HUGHES #B-18R SEC 21-T29N-R08W SAN JUAN CO., NEW MEXICO



Drilling Systems

VERTICAL VIEW
SCALE 200 ft. / DIVISION
TVD REF: WELLHEAD
VERTICAL SECTION REF: WELLHEAD

HORIZONTAL VIEW
SCALE 200 ft. / DIVISION
SURVEY REF: WELLHEAD

