



AMAX EXPLORATION, INC. --- AMAX NO: 1 --- EASTMAN SINGLE SHOT SURVEY
LIVERMORE, CA.

DECL: 18 0 E

DATES: 31 AUGUST & 27 OCTOBER 1978

JOB NO: P-1178-S0181

SURVEY BY: EASTMAN WHIPSTOCK, INC.

FILE: F20-10

PHIPPS

VERTICAL SECTION IS IN
PLANE OF BOTTOM HOLE CLOSURE.

RECORD OF SURVEY

Eastman Whipstock
TANGENTIAL METHOD

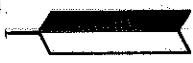
MEASURED DEPTH FEET	DRIFT ANGLE D M	DRIFT DIRECTION D	TRUE VERTICAL DEPTH FEET	VERTICAL SECTION FEET	RECTANGULAR COORDINATES FEET	DOG LEG SEVERITY DEG/100FT
0.	0 0	0	0.00	0.00	0.00 0.00	0.0
336.	1 0	S 24 E	335.95	2.09	5.36 S 2.39 E	0.3
372.	1 30	S 24 E	371.94	2.43	6.22 S 2.77 E	1.4
466.	1 15	S 12 E	465.91	2.74	8.22 S 3.19 E	0.4
561.	2 15	S 15 E	560.84	3.51	11.83 S 4.16 E	1.1
655.	2 0	S 35 E	654.78	5.25	14.51 S 6.04 E	0.8
750.	2 30	S 25 E	749.69	6.79	18.27 S 7.79 E	0.7
844.	2 30	S 35 E	843.60	8.96	21.63 S 10.14 E	0.5
875.	2 30	S 36 E	874.57	9.69	22.72 S 10.94 E	0.1
970.	2 45	S 46 E	969.46	12.79	25.89 S 14.22 E	0.5
1064.	3 15	S 54 E	1063.31	16.93	29.02 S 18.53 E	0.7
1159.	3 0	S 63 E	1158.18	21.23	31.28 S 22.96 E	0.6
1253.	2 45	S 76 E	1252.08	25.54	32.37 S 27.34 E	0.7
1348.	3 30	S 61 E	1346.90	30.45	35.18 S 32.41 E	1.2
1442.	3 0	S 52 E	1440.77	34.16	38.21 S 36.28 E	0.8
1537.	3 30	S 50 E	1535.59	38.40	41.94 S 40.73 E	0.5
1631.	3 45	S 40 E	1629.39	42.09	46.65 S 44.68 E	0.7
1726.	4 15	S 37 E	1724.13	46.01	52.27 S 48.92 E	0.6
1820.	4 0	S 35 E	1817.90	49.48	57.64 S 52.68 E	0.3
1915.	4 0	S 34 E	1912.67	52.88	63.13 S 56.38 E	0.1
2009.	4 45	S 32 E	2006.35	56.64	69.74 S 60.51 E	0.8
2104.	4 45	S 27 E	2101.02	59.83	76.75 S 64.08 E	0.4
2198.	5 0	S 26 E	2194.66	63.01	84.11 S 67.67 E	0.3
2293.	4 15	S 36 E	2289.40	66.84	89.60 S 71.81 E	1.2
2387.	4 15	S 46 E	2383.14	71.58	94.64 S 76.82 E	0.8
2482.	4 30	S 50 E	2477.85	77.02	99.43 S 82.53 E	0.4
2499.	4 30	S 55 E	2494.80	78.07	100.20 S 83.62 E	2.3
2554.	4 0	S 53 E	2549.66	81.00	102.51 S 86.69 E	0.9
2648.	3 30	S 52 E	2643.49	85.33	106.04 S 91.21 E	0.5
2744.	3 15	S 48 E	2739.33	89.17	109.68 S 95.25 E	0.4
2839.	3 45	S 41 E	2834.13	92.99	114.37 S 99.33 E	0.7
2933.	3 15	S 44 E	2927.98	96.47	119.21 S 103.03 E	0.6
3028.	2 45	S 39 E	3022.87	99.15	121.75 S 105.90 E	0.6
3122.	2 45	S 40 E	3116.76	101.85	125.20 S 108.90 E	0.1
3217.	2 45	S 50 E	3211.65	105.18	128.13 S 112.29 E	0.5
3311.	2 45	S 49 E	3305.54	108.42	131.09 S 115.69 E	0.1
3406.	2 45	S 49 E	3400.43	111.69	134.08 S 119.13 E	0.0
3500.	3 15	S 61 E	3494.28	116.21	136.67 S 123.79 E	0.9

MEASURED DEPTH FEET	DRIFT ANGLE D N	DRIFT DIRECTION	TRUE VERTICAL DEPTH FEET	VERTICAL SECTION FEET	R E C T A N G U L A R C O O R D I N A T E S	D O G L E G S E V E R I T Y D E G / 1 0 0 F T
3595.	4 15	S 64 E	3589.02	122.36	139.75 S 130.12 E	1.1
3691.	4 15	S 70 E	3684.76	126.90	142.18 S 136.81 E	0.5
3785.	5 0	S 75 E	3778.40	136.69	144.31 S 144.72 E	0.9
3880.	5 15	S 77 E	3873.00	145.04	146.26 S 153.19 E	0.3
3974.	5 0	S 76 E	3966.64	152.87	148.24 S 161.14 E	0.3
4069.	4 45	S 79 E	4061.32	160.50	149.74 S 168.86 E	0.4
4163.	4 30	S 89 E	4155.03	167.86	149.87 S 176.24 E	0.9
4258.	5 0	N 84 E	4249.67	176.13	149.01 S 184.47 E	0.8
4352.	5 30	N 81 E	4343.23	185.09	147.60 S 193.37 E	0.6
4447.	6 0	N 77 E	4437.71	194.87	145.36 S 203.05 E	0.7
4543.	6 45	N 75 E	4533.05	205.91	142.44 S 213.94 E	0.8
4637.	6 45	N 75 E	4626.40	216.72	139.58 S 224.62 E	0.0
4732.	6 45	N 74 E	4720.74	227.61	136.51 S 235.35 E	0.1
4862.	7 0	N 72 E	4849.77	242.92	131.61 S 250.42 E	0.3
4921.	7 15	N 66 E	4908.30	249.87	128.58 S 257.22 E	1.3
5015.	8 0	N 65 E	5001.38	262.01	123.05 S 269.08 E	0.8
5110.	8 30	N 66 E	5095.34	275.13	117.34 S 281.90 E	0.5
5204.	8 15	N 69 E	5188.37	287.97	112.51 S 294.50 E	0.5
5299.	8 30	N 69 E	5282.32	301.33	107.48 S 307.61 E	0.3
5393.	8 15	N 70 E	5375.35	314.24	102.86 S 320.28 E	0.3
5489.	7 45	N 72 E	5470.47	326.75	98.86 S 332.59 E	0.6
5584.	8 15	N 75 E	5564.49	340.09	95.33 S 345.76 E	0.7
5678.	8 45	N 79 E	5657.40	354.25	92.61 S 359.80 E	0.8
5773.	8 45	N 81 E	5751.29	368.63	90.34 S 374.07 E	0.3
5867.	8 45	N 79 E	5844.20	382.79	87.62 S 388.11 E	0.3
5962.	9 15	N 77 E	5937.96	397.83	84.18 S 402.99 E	0.6
6056.	10 0	N 79 E	6030.53	414.00	81.07 S 419.01 E	0.9
6151.	10 30	N 80 E	6123.94	431.19	78.06 S 436.06 E	0.6
6245.	11 15	N 81 E	6216.14	449.43	75.19 S 454.17 E	0.8
6340.	11 30	N 82 E	6309.23	468.30	72.56 S 472.93 E	0.3
6436.	12 15	N 83 E	6403.04	488.62	70.07 S 493.14 E	0.8
6530.	12 45	N 82 E	6494.73	509.29	67.19 S 513.69 E	0.6
6625.	13 15	N 82 E	6587.20	530.99	64.16 S 535.25 E	0.5
6719.	13 45	N 81 E	6678.50	553.21	60.66 S 557.32 E	0.6
6814.	14 30	N 82 E	6770.48	576.91	57.35 S 580.87 E	0.8
6908.	14 45	N 80 E	6861.38	600.67	53.19 S 604.44 E	0.6
7003.	15 0	N 81 E	6953.14	625.13	49.35 S 628.73 E	0.4
7097.	14 30	N 79 E	7044.15	648.44	44.86 S 651.83 E	0.8

MEASURED DEPTH FEET	DRIFT ANGLE D M	DRIFT DIRECTION D	TRUE VERTICAL DEPTH FEET	VERTICAL SECTION FEET	R E C T A N G U L A R C O O R D I N A T E S FEET	DOG LEG SEVERITY DEG/100FT
7192.	14 30	N 78 E	7136.12	671.94	39.91 S 675.10 E	0.3
7286.	15 30	N 78 E	7226.70	696.76	34.69 S 699.67 E	1.1
7382.	15 30	N 79 E	7319.21	722.17	29.79 S 724.85 E	0.3
7477.	15 15	N 79 E	7410.87	746.92	25.03 S 749.38 E	0.3
7571.	15 0	N 77 E	7501.66	770.89	19.55 S 773.09 E	0.6
7666.	14 45	N 75 E	7593.53	794.56	13.29 S 796.45 E	0.6
7760.	15 0	N 76 E	7684.33	818.45	7.41 S 820.05 E	0.4
7855.	15 15	N 77 E	7775.98	843.07	1.77 S 844.40 E	0.4
7949.	14 45	N 76 E	7866.89	866.57	4.00 N 867.62 E	0.6
8044.	14 0	N 74 E	7959.07	888.97	10.34 N 889.72 E	0.9
8138.	14 15	N 75 E	8050.17	911.61	16.33 N 912.07 E	0.4
8243.	14 30	N 75 E	8151.83	937.34	23.13 N 937.46 E	0.2
8354.	13 30	N 75 E	8259.76	962.69	29.84 N 962.49 E	0.9
8443.	15 30	N 75 E	8538.25	1038.27	49.83 N 1037.09 E	0.7
8760.	15 30	N 75 E	8651.00	1068.86	57.92 N 1067.29 E	0.0

STA 8354 & 8643. DIR PROJECTED: STA 8760 DRIFT & DIR PROJECTED

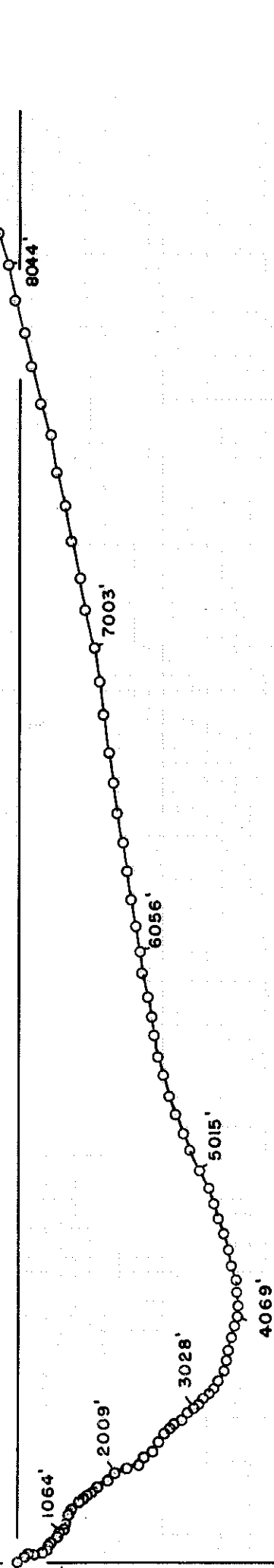
FINAL CLOSURE - DIRECTION: N 86 DEGS 53 MINS 37 SECS E
 DISTANCE: 1068.86 FEET



SCALE

1"=100'

DEPTH-8760'
NORTH-57.92'
EAST -1067.29'
CLOSURE-1068.86' N 86° 53' 37' E



WELL: AMAX Nº 1

JOB Nº P-1178-S0181

Contact your nearest **Eastman Whipstock** representative

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Cable: WHIPSTOCK
Telex: (790) AA51152

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Equipo Petrolero Ltda.
Casilla 1359
Phone: 10977
Cable: EQUIPETROL
Telex: 3560060 (ITT)

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**Eastman Whipstock**
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