



REPORT
of
SUB-SURFACE
DIRECTIONAL
SURVEY

HILLIARD OIL AND GAS, INC.
COMPANY

BONDS WELL NO. 1
WELL NAME

LEA COUNTY, NEW MEXICO
LOCATION

20-9-35

JOB NUMBER	TYPE OF SURVEY	DATE
WT-879 G-2120	Gyroscopic Multi Shot	8-29-79
WT-879 S-2121	Magnetic Multi Shot	8-31-79

SURVEY BY
Larry Massey
Mike Teaff

OFFICE
West Texas

20-9-35

HILLIARD OIL & GAS
BONDS WELL NO. 1
LEA COUNTY, NEW MEXICO

GYROSCOPIC MULTIPLE SHOT
MAGNETIC MULTIPLE SHOT

WT-879 G-2120
WT-879 S-2121

PLANE OF PROPOSED DIRECTION IS N 3 DEG. 31 MIN. W

RECORD OF SURVEY

RADIUS OF CURVATURE METHOD

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
0.	0 0	0	0.00	0.00	0.00	0.0
100.	0 15	N 30 E	100.00	0.18	0.19 N	0.2
200.	0 15	N 68 W	200.00	0.55	0.55 N	0.4
300.	0 45	N 12 W	299.99	1.23	1.20 N	0.6
400.	0 45	N 9 W	399.99	2.53	2.48 N	0.0
500.	0 45	N 3 W	499.98	3.83	3.78 N	0.1
600.	0 30	N 25 W	599.97	4.90	4.83 N	0.3
700.	0 30	N 12 W	699.97	5.74	5.66 N	0.1
800.	0 30	N 10 W	799.96	6.60	6.52 N	0.0
900.	0 30	N 6 E	899.96	7.47	7.39 N	0.1
1000.	0 30	N 1 W	999.96	8.34	8.26 N	0.1
1100.	0 30	N 46 E	1099.95	9.10	9.04 N	0.4
1200.	0 15	N 53 E	1199.95	9.50	9.46 N	0.3
1300.	0 30	N 57 E	1299.95	9.84	9.84 N	0.3
1400.	0 15	N 85 E	1399.94	10.01	10.05 N	0.3
1500.	0 15	N 64 E	1499.94	10.10	10.17 N	0.1
1600.	0 15	N 80 W	1599.94	10.43	10.49 N	0.5
1700.	0 15	N 32 W	1699.94	10.69	10.73 N	0.2
1800.	0 30	N 6 W	1799.94	11.32	11.35 N	0.3
1900.	0 45	N 7 E	1899.93	12.40	12.44 N	0.3
2000.	0 30	N 55 E	1999.93	13.27	13.34 N	0.6
2100.	0 45	N 55 E	2099.92	13.85	13.97 N	0.2
2200.	0 30	N 78 E	2199.91	14.21	14.40 N	0.3
2300.	0 30	N 69 E	2299.91	14.41	14.65 N	0.1
2400.	0 15	N 80 E	2399.91	14.55	14.82 N	0.3
2500.	0 0	0	2499.91	14.57	14.86 N	0.2
2600.	0 30	N 32 W	2599.91	14.95	15.23 N	0.5
2700.	0 30	N 28 W	2699.90	15.74	15.99 N	0.0
2800.	0 30	N 28 W	2799.90	16.53	16.76 N	0.0
2900.	0 15	N 36 W	2899.90	17.10	17.31 N	0.3

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
3000.	0 15	N 1 W	2999.89	17.52	17.72 N	0.2
3100.	0 15	N 29 E	3099.89	17.93	18.14 N	0.1
3200.	0 15	N 18 E	3199.89	18.32	18.54 N	0.0
3300.	0 15	S 15 E	3299.89	18.29	18.53 N	0.5
3400.	0 15	S 8 W	3399.89	17.86	18.09 N	0.1
3500.	0 30	S 5 E	3499.89	17.20	17.44 N	0.3
3600.	0 30	S 27 W	3599.88	16.37	16.59 N	0.3
3700.	0 30	S 28 W	3699.88	15.62	15.82 N	0.0
3800.	0 30	S 26 W	3799.88	14.87	15.04 N	0.0
3900.	0 30	S 54 W	3899.87	14.24	14.38 N	0.2
4000.	0 15	S 26 W	3999.87	13.77	13.89 N	0.3
4119.	0 30	N 79 W	4118.87	13.49	13.56 N	0.4
4213.	0 15	N 14 W	4212.86	13.92	13.96 N	0.5
4308.	0 30	N 66 W	4307.86	14.40	14.42 N	0.4
4402.	0 15	N 84 W	4401.86	14.59	14.58 N	0.3
4497.	0 30	N 15 W	4496.85	15.00	14.96 N	0.5
4591.	0 15	N 38 E	4590.85	15.57	15.54 N	0.4
4686.	0 15	N 64 E	4685.85	15.81	15.80 N	0.1
4780.	0 30	N 40 E	4779.85	16.16	16.18 N	0.3
4875.	0 15	N 33 E	4874.84	16.64	16.68 N	0.3
4969.	0 30	N 4 W	4968.84	17.21	17.26 N	0.4
5064.	0 15	N 41 E	5063.84	17.77	17.84 N	0.4
5158.	0 15	N 36 W	5157.84	18.15	18.22 N	0.3
5253.	0 0	0	5252.84	18.32	18.38 N	0.3
5347.	0 15	N 39 E	5346.84	18.47	18.54 N	0.3
5442.	0 15	N 1 E	5441.83	18.85	18.93 N	0.2
5536.	0 15	N 75 E	5535.83	19.13	19.23 N	0.3
5631.	1 0	N 79 E	5630.83	19.30	19.46 N	0.8
5725.	1 0	N 44 E	5724.81	19.99	20.23 N	0.6
5820.	1 15	N 47 E	5819.79	21.21	21.54 N	0.3

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
5914.	1 30	N 44 E	5913.77	22.69	23.12 N	0.3
6009.	1 30	N 51 E	6008.73	24.25	24.80 N	0.2
6103.	1 30	N 55 E	6102.70	25.61	26.28 N	0.1
6198.	1 0	N 34 E	6197.68	26.99	27.75 N	0.7
6292.	1 0	N 50 E	6291.66	28.14	28.96 N	0.3
6387.	1 0	N 45 E	6386.65	29.18	30.08 N	0.1
6481.	1 15	N 64 E	6480.63	30.15	31.15 N	0.5
6576.	1 0	N 60 E	6575.61	30.92	32.03 N	0.3
6670.	0 45	N 19 E	6669.60	31.95	33.11 N	0.7
6765.	0 30	N 79 E	6764.59	32.55	33.76 N	0.7
6859.	0 45	N 31 E	6858.59	33.07	34.33 N	0.6
6954.	1 0	N 62 E	6953.58	33.99	35.32 N	0.6
7048.	0 45	N 83 E	7047.56	34.34	35.75 N	0.4
7143.	0 45	N 89 E	7142.55	34.35	35.83 N	0.1
7237.	0 15	N 80 E	7236.55	34.38	35.91 N	0.5
7332.	0 30	N 84 E	7331.55	34.43	36.00 N	0.3
7426.	0 15	S 61 E	7425.54	34.27	35.88 N	0.3
7521.	0 15	N 80 E	7520.54	34.18	35.81 N	0.2
7615.	0 15	N 56 E	7614.54	34.31	35.96 N	0.1
7710.	0 30	N 80 E	7709.54	34.50	36.20 N	0.3
7804.	0 30	N 79 E	7803.54	34.60	36.35 N	0.0
7899.	0 15	N 89 E	7898.53	34.63	36.41 N	0.3
7993.	0 15	N 60 E	7992.53	34.71	36.52 N	0.1
8088.	0 0	0	8087.53	34.81	36.62 N	0.3
8182.	0 15	N 24 E	8181.53	34.99	36.81 N	0.3
8277.	0 15	S 15 E	8276.53	34.94	36.78 N	0.5
8371.	0 15	S 47 W	8370.53	34.58	36.41 N	0.3
8466.	0 30	S 23 E	8465.52	34.01	35.83 N	0.5
8560.	0 45	S 16 W	8559.52	33.00	34.83 N	0.5
8655.	0 45	S 1 W	8654.51	31.79	33.60 N	0.2

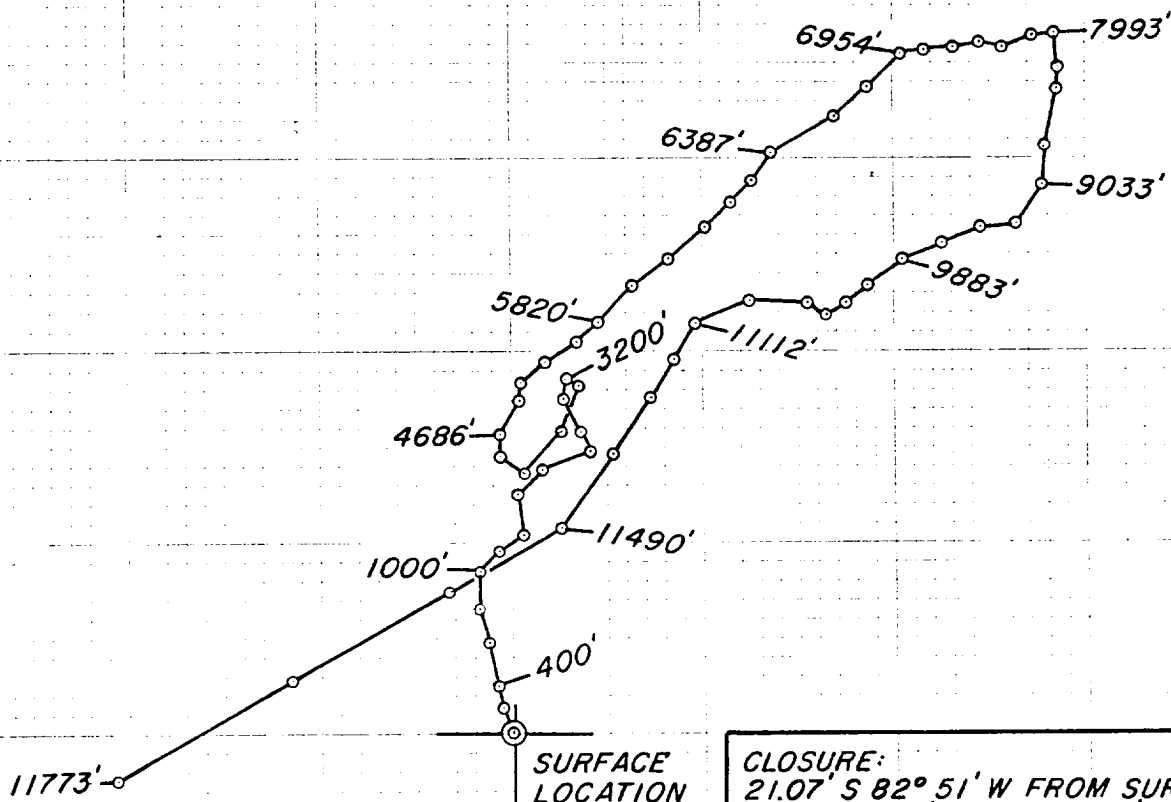
MEASURED DEPTH FEET	DRIFT ANGLE D M	DRIFT DIRECTION D	TRUE VERTICAL DEPTH FEET	VERTICAL SECTION FEET	R E C T A N G U L A R C O O R D I N A T E S FEET	DOG LEG SEVERITY DEG/100FT
8749.	1 0	S 14 W	8748.49	30.38	32.18 N 28.32 E	0.3
8844.	1 0	S 10 W	8843.48	28.79	30.56 N 27.98 E	0.1
8938.	0 30	S 2 W	8937.47	27.58	29.34 N 27.85 E	0.5
9033.	0 15	S 1 W	9032.46	26.96	28.72 N 27.83 E	0.3
9127.	0 30	S 34 W	9126.46	26.39	28.14 N 27.65 E	0.3
9222.	0 45	S 23 W	9221.46	25.51	27.23 N 27.16 E	0.3
9316.	0 45	S 81 W	9315.45	24.84	26.50 N 26.23 E	0.8
9411.	0 15	S 76 W	9410.44	24.73	26.34 N 25.42 E	0.5
9505.	0 45	S 83 W	9504.43	24.63	26.19 N 24.61 E	0.5
9600.	0 45	S 78 W	9599.42	24.50	25.98 N 23.38 E	0.1
9694.	0 30	S 51 W	9693.42	24.12	25.55 N 22.47 E	0.4
9789.	0 45	S 84 W	9788.41	23.79	25.15 N 21.52 E	0.5
9883.	0 45	S 58 W	9882.40	23.46	24.76 N 20.37 E	0.4
9978.	0 45	S 43 W	9977.39	22.73	23.97 N 19.41 E	0.2
10072.	0 30	S 32 W	10071.39	21.96	23.16 N 18.79 E	0.3
10167.	0 30	S 57 W	10166.38	21.41	22.57 N 18.21 E	0.2
10261.	0 30	S 71 W	10260.38	21.10	22.21 N 17.48 E	0.1
10356.	0 15	S 79 W	10355.38	20.97	22.05 N 16.88 E	0.3
10450.	0 15	S 60 W	10449.37	20.85	21.91 N 16.50 E	0.1
10545.	0 15	N 52 W	10544.37	20.91	21.94 N 16.11 E	0.3
10639.	0 45	N 49 W	10638.37	21.47	22.46 N 15.47 E	0.5
10734.	0 30	S 84 W	10733.36	21.83	22.76 N 14.51 E	0.6
10828.	0 45	S 81 W	10827.35	21.76	22.63 N 13.50 E	0.3
10923.	0 30	S 86 W	10922.35	21.70	22.51 N 12.47 E	0.3
11017.	1 0	S 80 W	11016.34	21.63	22.36 N 11.25 E	0.5
11112.	1 15	S 35 W	11111.32	20.75	21.38 N 9.71 E	0.9
11206.	1 15	S 32 W	11205.29	19.11	19.67 N 8.58 E	0.1
11301.	1 45	S 40 W	11300.26	17.19	17.66 N 7.12 E	0.6
11395.	2 30	S 21 W	11394.20	14.31	14.67 N 5.36 E	1.1
11490.	3 15	S 51 W	11489.07	10.68	10.86 N 2.59 E	1.7

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
11584.	5 0	S 65 W	11582.83	7.46	7.29 N 3.13 W	2.1
11679.	6 30	S 61 W	11677.34	3.67	2.97 N 11.61 W	1.6
11773.	6 45	S 57 W	11770.71	-1.33	2.62 S 20.90 W	0.6

FINAL CLOSURE - DIRECTION: S 82 DEGS 51 MINS 31 SECS W
DISTANCE: 21.07 FEET

HILLARD OIL AND GAS, INC.
BONDS WELL NO. 1
LEA COUNTY, NEW MEXICO

SCALE: 1" = 10'



SURFACE
LOCATION

CLOSURE:
21.07' S 82° 51' W FROM SUR. LOC.
SOUTH 2.62' WEST 20.90'
11773 MD 11770.71 TVD



P. O. Box 5577/Midland, Texas 79701/(915) 563-0511
TWX 910-881-5066/Cable: EASTCO

SURVEY CERTIFICATION SHEET

STATE OF TEXAS
COUNTY OF MIDLAND

I, Larry Massey, in the employ of Eastman Whipstock, Inc., did on the days of August 29, 1979 thru August 29, 1979 conduct or supervise the taking of a Gyroscopic Multi Shot survey by the method of magnetic orientation from a depth of 0 feet to 4000 feet, with recordings of inclination and direction being obtained at approximate intervals of 100 feet.

This survey was conducted at the request of Hillard Oil and Gas, Inc. for their Bonds Well No.1, Lea County, State of New Mexico, in the field.

The data for this survey and the calculations were obtained and performed by me according to standards and procedures as set forth by Eastman Whipstock, Inc. and is true and correct to the best of my knowledge.

Larry Massey
Directional Supervisor/Surveyor

The data for this survey has been examined by me and conforms to principles and procedures set forth by Eastman Whipstock, Inc.

Mike Zeig

Before me, the undersigned authority, on this day personally appeared Larry Massey, known to me to be the person whose name is subscribed to this instrument, who after being by me duly sworn on oath, states that he has knowledge of all the facts stated above and that this instrument is a true statement of facts therein recited.

Subscribed and sworn to before me on this 31st. day of October, 1979.

Anna M. Smith
Notary Public in and for the County of
Midland, Texas
My commission expires 5-24-80



P. O. Box 5577 / Midland, Texas 79701 / (915) 563-0511
TWX 910-881-5066 / Cable: EASTCO

SURVEY CERTIFICATION SHEET

STATE OF TEXAS
COUNTY OF MIDLAND

I, Mike Teaff, in the employ of Eastman Whipstock, Inc., did on the days of August 31, 19 79 thru August 31, 19 79 conduct or supervise the taking of a Magnetic Multi Shot survey by the method of magnetic orientation from a depth of 4000 feet to 11773 feet, with recordings of inclination and direction being obtained at approximate intervals of 94 feet.

This survey was conducted at the request of Hillard Oil and Gas, Inc. for their Bonds Well No. 1, Lea County, State of New Mexico, in the _____ field.

The data for this survey and the calculations were obtained and performed by me according to standards and procedures as set forth by Eastman Whipstock, Inc. and is true and correct to the best of my knowledge.

[Signature]
Directional Supervisor / Surveyor

The data for this survey has been examined by me and conforms to principles and procedures set forth by Eastman Whipstock, Inc.

Larry Massey

Before me, the undersigned authority, on this day personally appeared Mike Teaff, known to me to be the person whose name is subscribed to this instrument, who after being by me duly sworn on oath, states that he has knowledge of all the facts stated above and that this instrument is a true statement of facts therein recited.

Subscribed and sworn to before me on this 31st. day of October, 19 79.

Anna M. Smith
Notary Public in and for the County of
Midland, Texas
My commission expires 5-24-80