



**REPORT
of
SUB-SURFACE
DIRECTIONAL
SURVEY**

Doyle Hartman Oil Operator
COMPANY

Bates Well No. 3
WELL NAME

Lea County, New Mexico
LOCATION

JOB NUMBER

WT981-G0006
WT981-G0017

TYPE OF SURVEY

Gyroscopic Multishot
Gyroscopic Multishot

DATE

9-6-81
9-14-81

SURVEY BY
Doug Jeffers
Tim Stephens

OFFICE
West Texas
West Texas

DOYLE HARTMAN CIL OPERATOR

BOYES WELL NO.2

LEA COUNTY, NEW MEXICO BDI-000

SEPTEMBER 16, 1981

EASTMAN WHIPSTOCK INC.

GYROSCOPIC MULTIPLE SHOT SURVEY WT981-00006

SURVEYOR: DOUG JEFFERS (0°-700')

GYROSCOPIC MULTIPLE SHOT SURVEY WT981-00017

SURVEYOR: TIM STEPHENS (700'-3425')

RECORD OF SURVEY

RADIUS OF CURVATURE METHOD

TIME DATE

WELLS NO. 3

16:53:53 16-SEP-81

LEA COUNTY, NEW MEXICO RD1-300

MEASURED DEPTH FEET	DRIFT ANGLE D M	DRIFT DIRECTION D	TRUE VERTICAL DEPTH 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 DG/100FT
0.	0 0	0	0.00	0.00	0.00
100.	0 15	N 5 W	100.00	0.22 N	0.25
200.	0 0	0	200.00	0.43 N	0.25
300.	0 0	0	300.00	0.43 N	0.00
400.	0 0	0	400.00	0.43 N	0.00
500.	0 30	S 3 E	500.00	0.00 S	0.50
600.	0 30	N 39 W	599.99	0.56 S	0.73
700.	0 15	N 64 E	699.99	0.10 S	0.73
800.	3 30	N 42 E	799.93	1.86 N	3.27
900.	4 0	N 42 E	899.71	6.72 N	0.50
1000.	5 30	N 37 E	999.36	13.11 N	1.55
1100.	6 15	N 31 E	1098.84	21.59 N	0.97
1200.	7 15	N 34 E	1193.14	31.50 N	1.06
1300.	8 30	N 34 E	1297.20	42.86 N	1.25
1400.	9 45	N 33 E	1395.93	56.03 N	1.26
1500.	11 0	N 31 E	1494.29	71.36 N	1.30
1600.	12 30	N 33 E	1592.20	83.62 N	1.33
1700.	14 0	N 32 E	1699.53	107.95 N	1.52
1800.	15 15	N 30 E	1786.29	129.60 N	1.35
1900.	17 0	N 30 E	1882.35	153.65 N	1.75
2000.	20 15	N 29 E	1977.10	181.44 N	3.27
2100.	22 0	N 28 E	2070.38	212.11 N	1.79
2200.	23 0	N 28 E	2162.76	243.90 N	1.00
2300.	23 45	N 29 E	2254.56	281.77 N	0.85
2400.	24 15	N 30 E	2345.91	317.17 N	0.64
2500.	25 0	N 27 E	2437.53	350.56 N	3.07
2600.	23 45	N 37 E	2529.32	382.25 N	0.75
2700.	23 0	N 37 E	2621.11	413.93 N	0.75
2800.	23 15	N 39 E	2713.08	444.83 N	0.82
2900.	23 15	N 39 E	2804.96	475.56 N	0.00

MEASURED DEPTH FEET	DRIFT ANGLE D M	DRIFT DIRECTION D	TRUE VERTICAL DEPTH 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 DG/100FT
3000.	23 0	N 39 E	2896.92	506.08 N 338.01 E	0.25
3100.	23 0	N 38 E	2989.97	536.66 N 357.33 E	0.39
3200.	23 15	N 39 E	3080.94	567.40 N 381.78 E	0.47
3300.	23 30	N 38 E	3172.73	598.45 N 406.48 E	0.47
3400.	23 15	N 39 E	3264.52	629.49 N 431.18 E	0.47
3425.	23 0	N 40 E	3287.51	637.07 N 437.42 E	1.86
3482.	23 0	N 40 E	3339.98	654.13 N 451.74 E	0.00

THE FOLLOWING STATION IS A PROJECTION BASED ON PREVIOUS ANGLE AND H.D.

FINAL CLOSURE - DIRECTION: N 34 DEGS 33 MINS E
DISTANCE: 794.96 FEET

WEST-EAST

100

0

100

200

300

400

500

700

600

500

400

300

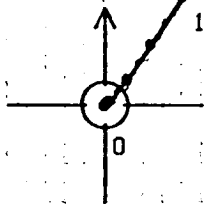
200

100

0

100

NORTH-SOUTH



1400

1800

2000

2200

2400

2600

2800

3000

3200

3400

**NEW MEXICO OIL CONSERVATION COMMISSION
WELL LOCATION AND ACREAGE DEDICATION PLAT**

Form O-102
Supersedes O-124
Effective 1-1-45

All distances must be from the outer boundaries of the Section

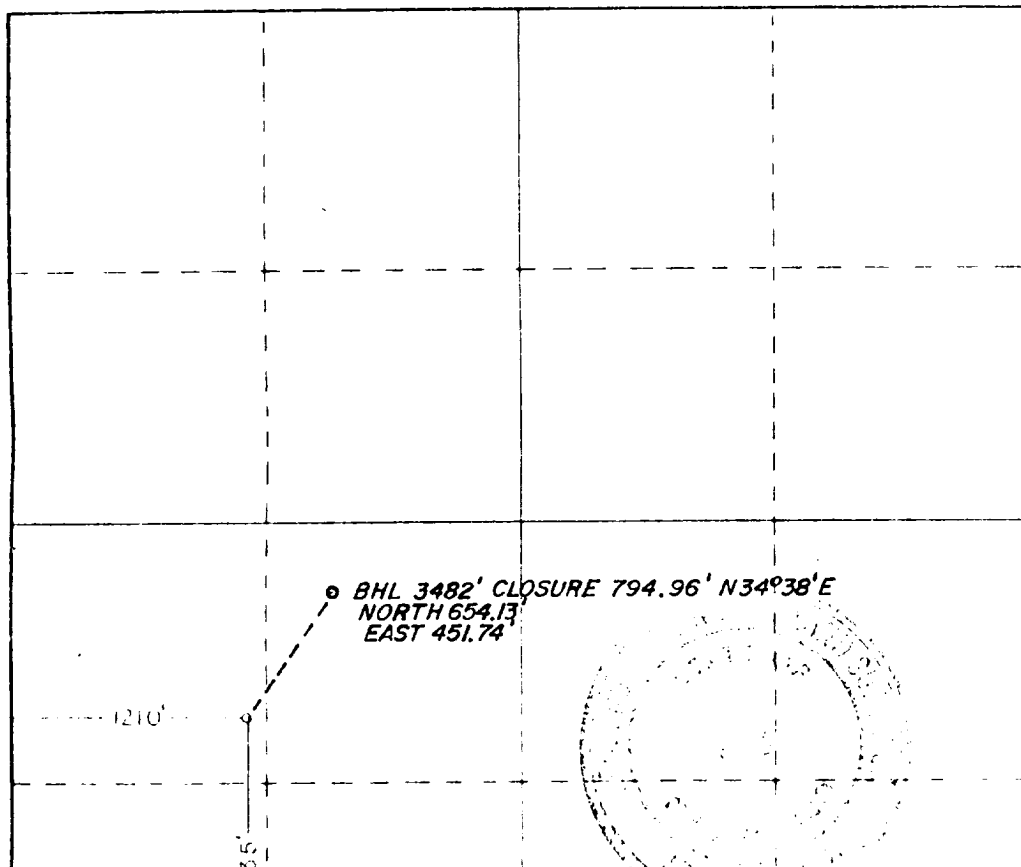
Operator DOYLE HARTMAN			Lease CITY OF JAL		Acres 1
Tract Letter L	Section 20	Township 25 SOUTH	Range 37 EAST	County LEA	
Actual Footage Location of Well: 1635 feet from the SOUTH line and 1210 feet from the WEST line					
Ground Level Elev. 3040.2	Producing Formation		Pool	Estimated Acreage	

1. Outline the acreage dedicated to the subject well by colored pencil or hatchure marks on the plat below.
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).
3. If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling, etc?

☐ Yes ☐ No If answer is "yes," type of consolidation _____

If answer is "no," list the owners and tract descriptions which have actually been consolidated (Use reverse side of this form if necessary.) _____

No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Commission.



CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.

Name _____

Location _____

Company _____

Date _____

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision and that the same is true and correct to the best of my knowledge and belief.

Date Surveyed _____



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, Doug Jeffers, in the employ of Eastman Whipstock, Inc., did on the days of September, 6, 1981 thru September, 6, 1981 conduct or supervise the taking of a Gyroscopic Multishot survey by the method of magnetic orientation from a depth of 0 feet to 700 feet, with recordings of inclination and direction being obtained at approximate intervals of 100 feet.

This survey was conducted at the request of Doyle Hartman Oil Operator for their Bates Well No. 3, 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.

Douglas Jeffers
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.

Tim Stephens

Before me, the undersigned authority, on this day personally appeared Doug Jeffers, 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 17th day of SEPT., 1981.

Ray C. Steinke
Notary Public in and for the County of
Midland, Texas
My commission expires 7/9/85



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, Tim Stephens, in the employ of Eastman Whipstock, Inc., did on the days of September, 14, 1981 thru September, 14, 1981 conduct or supervise the taking of a Gyroscopic Multi Shot survey by the method of magnetic orientation from a depth of 700 feet to 3425 feet, with recordings of inclination and direction being obtained at approximate intervals of 100 feet.

This survey was conducted at the request of Doyle Hartman Oil Operator for their Bates Well No. 3, 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.

Tim Stephens
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.

Walter J. Goff

Before me, the undersigned authority, on this day personally appeared Tim Stephens, 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 17TH day of SEPT., 1981.

Ray C. Steinke
Notary Public in and for the County of
Midland, Texas
My commission expires 7/9/85



**REPORT
of
SUB-SURFACE
DIRECTIONAL
SURVEY**

Doyle Hartman Oil Operator
COMPANY

Bates Well No. 3
WELL NAME

Lea County, New Mexico
LOCATION

JOB NUMBER
WT981-D0007

TYPE OF SURVEY
Magnetic Single Shot

DATE
9-6-81

SURVEY BY
R.B. Vickers

OFFICE
West Texas

ROYAL HARMAN OIL OPERATORS

DATE: WELL NO. 8

LEA COUNTY, NEW MEXICO BDL-020

SEPT. 6 - SEPT. 12, 1981

EASTMAN WHIPSTOCK, INC.

GYROSCOPIC MULTI SHOT SURVEY UT991-500006

SURVEYOR: DOUG JEFFERS (0'-700')

MAGNETIC SINGLE SHOT SURVEY

SURVEYOR: R. B. VICKERS (700'-3482')

VERTICAL SECTION CALCULATED IN PLANE OF PRINCIPAL
DIRECTION: N 38 DEG. 4 MIN. E

RECORD OF SURVEY

RADIUS OF CURVATURE METHOD

JOYLE HARRAN OIL OPERATORS

DATES WELL NO. 3

LEA COUNTY, NEW MEXICO 301-120

COMPUTATION

TIME DATE

08:47:17 09-SEP-81

PAGE NO.

MEASURED DEPTH FEET	DRIFT ANGLE D M	DRIFT DIRECTION D	COURSE LENGTH FEET	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	DOGLEG SEVERITY DG/100FT
0.	0 0	0	0.	0.00	0.00	0.00	0.00
100.	0 15	N 5 W	100.	100.00	0.16	0.22 N	0.25
200.	0 0	0	100.	200.00	0.32	0.43 N	0.25
300.	0 0	0	100.	300.00	0.32	0.43 N	0.00
400.	0 0	0	100.	400.00	0.32	0.43 N	0.00
500.	0 30	S 6 E	100.	500.00	-0.01	0.00 S	0.50
600.	0 30	N 89 W	100.	599.99	-0.79	0.56 S	0.73
700.	0 15	N 64 E	100.	699.99	-0.48	0.10 S	0.73
827.	3 30	N 45 E	127.	826.91	3.49	2.31 N	2.57
858.	4 15	N 42 E	31.	857.84	5.57	3.82 N	2.51
952.	4 45	N 39 E	94.	951.55	12.94	9.43 N	0.59
1046.	5 45	N 36 E	94.	1045.15	21.54	16.26 N	1.10
1140.	6 45	N 34 E	94.	1133.59	31.76	24.64 N	1.09
1234.	7 45	N 33 E	94.	1231.84	43.59	34.53 N	1.07
1328.	8 45	N 33 E	92.	1322.93	56.73	45.63 N	1.09
1422.	10 0	N 36 E	94.	1415.83	71.01	58.12 N	1.09
1512.	11 30	N 32 E	94.	1504.81	89.14	72.55 N	1.02
1605.	12 45	N 33 E	93.	1596.93	109.56	88.92 N	1.06
1699.	13 45	N 32 E	94.	1689.43	130.00	107.09 N	1.09
1794.	15 30	N 32 E	95.	1780.35	153.85	127.43 N	1.84
1887.	17 0	N 32 E	93.	1869.63	179.73	149.50 N	1.61
1981.	20 0	N 28 E	94.	1958.76	209.35	175.32 N	0.66
2044.	21 15	N 28 E	63.	2017.72	231.10	194.91 N	1.93
2113.	22 15	N 27 E	69.	2081.81	256.33	217.59 N	1.55
2210.	23 0	N 27 E	97.	2171.33	292.81	250.99 N	0.77
2306.	23 45	N 27 E	96.	2259.27	333.12	294.73 N	0.73
2359.	24 30	N 26 E	63.	2316.96	355.94	307.92 N	1.86
2456.	26 15	N 34 E	97.	2394.82	395.19	338.29 N	1.90
2510.	28 15	N 36 E	60.	2454.40	415.11	353.65 N	1.25
2603.	28 30	N 37 E	69.	2526.10	450.40	387.04 N	0.53

MEASURED DEPTH FEET	DRIFT ANGLE D M	DRIFT DIRECTION D	COURSE LENGTH FEET	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	BOSLEG SEVERITY DG/100FT
2703.	23 15	N 37 E	95.	2623.30	488.09	417.14 N 259.01 E	0.26
2799.	22 45	N 37 E	96.	2711.67	525.59	447.10 N 281.59 E	0.52
2893.	23 15	N 37 E	94.	2798.20	562.31	476.43 N 303.69 E	0.53
2985.	23 0	N 37 E	92.	2882.00	598.44	505.29 N 325.44 E	0.27
3079.	22 45	N 38 E	94.	2969.41	634.97	534.23 N 347.68 E	0.49
3179.	23 0	N 38 E	100.	3061.55	673.84	564.91 N 371.61 E	0.25
3263.	23 0	N 39 E	84.	3138.87	706.66	590.59 N 392.04 E	0.47
3353.	23 15	N 39 E	95.	3226.24	743.97	619.59 N 415.52 E	0.26
3451.	23 0	N 40 E	93.	3311.76	780.48	647.77 N 438.76 E	0.50
3482.	23 0	N 40 E	31.	3340.30	792.59	657.05 N 446.54 E	0.00

THE FOLLOWING STATION IS A PROJECTION BASED ON PREVIOUS ANGLE AND H.D.

FINAL CLOSURE - DIRECTION: N 34 18 33 12 41 NS E
DISTANCE: 794.46 FEET



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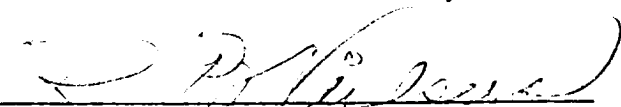
SURVEY CERTIFICATION SHEET

STATE OF TEXAS
COUNTY OF MIDLAND

I, R.B. VICKERS, in the employ of Eastman Whipstock, Inc., did on the days of SEPT. 6, 1981 thru SEPT. 12, 1981 conduct or supervise the taking of a MAGNETIC SINGLE SHOT survey by the method of magnetic orientation from a depth of 700 feet to 3451 feet, with recordings of inclination and direction being obtained at approximate intervals of RANDOM feet.

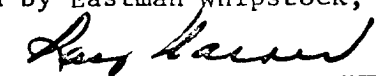
This survey was conducted at the request of DOYLE HARTMAN OIL OPERATOR for their BATES WELL NO. 3, LEA County, State of NEW MEXICO, in the _____ field.

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.



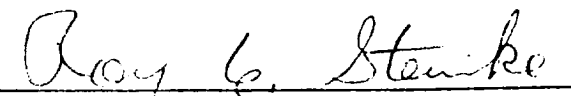
Directional Supervisor/Surveyor

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



Before me, the undersigned authority, on this day personally appeared R.B. VICKERS, 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 17th day of SEPT., 1981.



Notary Public in and for the County of
Midland, Texas
My commission expires 7/9/85