



**REPORT
of
SUB-SURFACE
DIRECTIONAL
SURVEY**

AMOCO PRODUCTION COMPANY
COMPANY

SOUTH HOBBS UNIT WELL NO. 186
WELL NAME

LEA COUNTY, NEW MEXICO BD2-120
LOCATION

<u>JOB NUMBER</u>	<u>TYPE OF SURVEY</u>	<u>DATE</u>
WT1084-S0048	MAGNETIC MULTI SHOT SURVEY	16-OCT-84
WT1084-S0057	MAGNETIC MULTI SHOT SURVEY	21-OCT-84
OD-MA-40094	MAGNETIC MULTI SHOT SURVEY	26-OCT-84

SURVEY BY
STEVE COVINGTON
TROY ONEY
THOMAS P. GALLEY

OFFICE
WEST TEXAS

AMOCO PRODUCTION COMPANY
SOUTH HOBBS UNIT WELL NO. 186
LEA COUNTY, NEW MEXICO BD2-120
OCTOBER 16, 1984

EASTMAN WHIPSTOCK, INC.
MAGNETIC MULTI SHOT SURVEY
SURVEYOR: STEVE COVINGTON
MAGNETIC MULTI SHOT SURVEY
SURVEYOR: TROY ONEY

WT1084-S0048
(0'-1471')
WT1084-S0057
(1471'-3181')

SPERRY-SUN
MAGNETIC MULTI SHOT SURVEY
SURVEYOR: THOMAS P. GALLEY



VERTICAL SECTION CALCULATED IN PLANE OF POOL
DIRECTION: S

RECORD OF SURVEY

RADIUS OF CURVATURE METHOD

IMOCO PRODUCTION COMPANY
SOUTH HOBBS UNIT WELL NO. 186
LEA COUNTY, NEW MEXICO BD2-120

COMPUTATION PAGE NO. 1
TIME DATE
10:37:26 02-NOV-84

MEASURED DEPTH FEET	DRIFT ANGLE D M	DRIFT DIRECTION D	TRUE VERTICAL DEPTH FEET	VERTICAL SECTION FEET	RECTANGULAR COORDINATES FEET	DOG LEG SEVERITY DG/100FT
0.	0 0	0	0.00	0.00	0.00	0.00
98.	0 30	S 57 E	98.00	0.38	0.23 S	0.51
191.	0 30	S 5 E	191.00	1.16	0.90 S	0.47
284.	0 15	S 34 W	283.99	1.60	1.48 S	0.37
377.	0 15	S 46 W	376.99	1.75	1.79 S	0.06
470.	0 15	S 48 W	469.99	1.85	2.07 S	0.01
563.	0 15	S 26 E	562.99	2.14	2.44 S	0.32
656.	0 0	0	655.99	2.35	2.62 S	0.27
749.	0 0	0	748.99	2.35	2.62 S	0.00
842.	0 15	N 25 W	841.99	2.23	2.61 S	0.27
935.	0 30	2 E	934.99	1.70	2.47 S	0.59
1028.	0 45	3 W	1027.99	0.72	1.17 S	0.48
1121.	0 30	3 W	1120.99	0.72	0.76 S	0.29
1214.	0 45	N 8 W	1213.99	1.27	0.48 N	0.49
1307.	0 30	N 48 W	1306.97	-2.26	1.37 N	0.54
1400.	0 0	0	1399.96	-2.64	1.64 N	0.54
1429.	0 15	N 46 E	1428.96	-2.66	1.68 N	0.86
1471.	0 15	N 45 W	1470.96	-2.81	1.85 N	0.85
1542.	0 30	S 67 W	1541.96	-3.08	1.93 N	0.66
1573.	0 30	S 62 W	1572.96	-3.10	1.81 N	0.14
1665.	0 45	N 37 W	1664.96	-3.70	2.01 N	0.91
1758.	1 0	N 53 W	1757.94	-5.05	3.01 N	0.37
1850.	0 15	S 61 W	1849.94	-5.56	3.08 N	1.01
1943.	0 45	N 58 W	1942.93	-5.94	3.10 N	0.72
2035.	0 15	S 56 W	2034.93	-6.29	3.09 N	0.75
2128.	0 30	N 84 W	2127.93	-6.44	2.94 N	0.37
2220.	0 30	N 21 W	2219.93	-7.13	3.41 N	0.57
2313.	1 30	N 46 E	2312.91	-8.29	4.90 N	1.49
2405.	2 0	N 60 E	2404.87	-8.72	6.59 N	0.71
2498.	3 0	N 44 E	2497.78	-9.40	9.08 N	1.30

MEASURED DEPTH FEET	DRIFT ANGLE D M	DRIFT DIRECTION D	TRUE VERTICAL DEPTH FEET	VERTICAL SECTION FEET	RECTANGULAR COORDINATES FEET	DOG LEG SEVERITY DG/100FT
2590.	3 0	N 51 E	2589.65	-10.59	12.33 N 0.58 E	0.40
2683.	2 15	N 55 E	2682.55	-11.23	14.89 N 3.98 E	0.83
2775.	2 30	N 54 E	2774.47	-11.71	17.11 N 7.08 E	0.28
2868.	2 15	N 61 E	2867.39	-12.00	19.17 N 10.33 E	0.41
2960.	2 15	N 50 E	2959.32	-12.39	21.22 N 13.30 E	0.47
3053.	2 15	N 57 E	3052.25	-12.91	23.39 N 16.23 E	0.30
3145.	2 45	N 47 E	3144.16	-13.59	25.85 N 19.39 E	0.72
3181.	2 0	N 46 E	3180.13	-13.98	26.88 N 20.47 E	2.09
3181' TO 4310', SURVEYED BY SPERRY-SUN						
3243.	3 0	S 8 E	3242.89	13.22	22.98 E 4.59	
3336.	4 10	S 8 E	3334.88	-7.96	27.21 E 2.89	
3428.	5 0	S 8 W	3426.59	6.44	28.47 E 3.19	
3521.	5 55	S 9 W	3519.17	6.09	27.16 E 0.99	
3612.	6 0	S 4 W	3609.68	13.85	26.09 E 0.58	
3706.	6 25	S 4 W	3703.13	22.45	25.38 E 0.44	
3798.	6 55	S 2 W	3794.51	31.57	24.82 E 0.60	
3893.	7 50	S 1 E	3888.72	42.26	24.72 E 1.05	
3987.	8 45	S 5 E	3981.74	54.52	25.43 E 1.15	
4078.	9 50	S 6 E	4071.54	68.07	26.84 E 1.20	
4173.	11 30	S 7 E	4164.90	84.40	28.83 E 1.77	
4266.	12 55	S 9 E	4255.79	102.84	31.56 E 1.59	
4310.	12 55	S 9 E	4298.68	112.13	33.10 E 0.00	

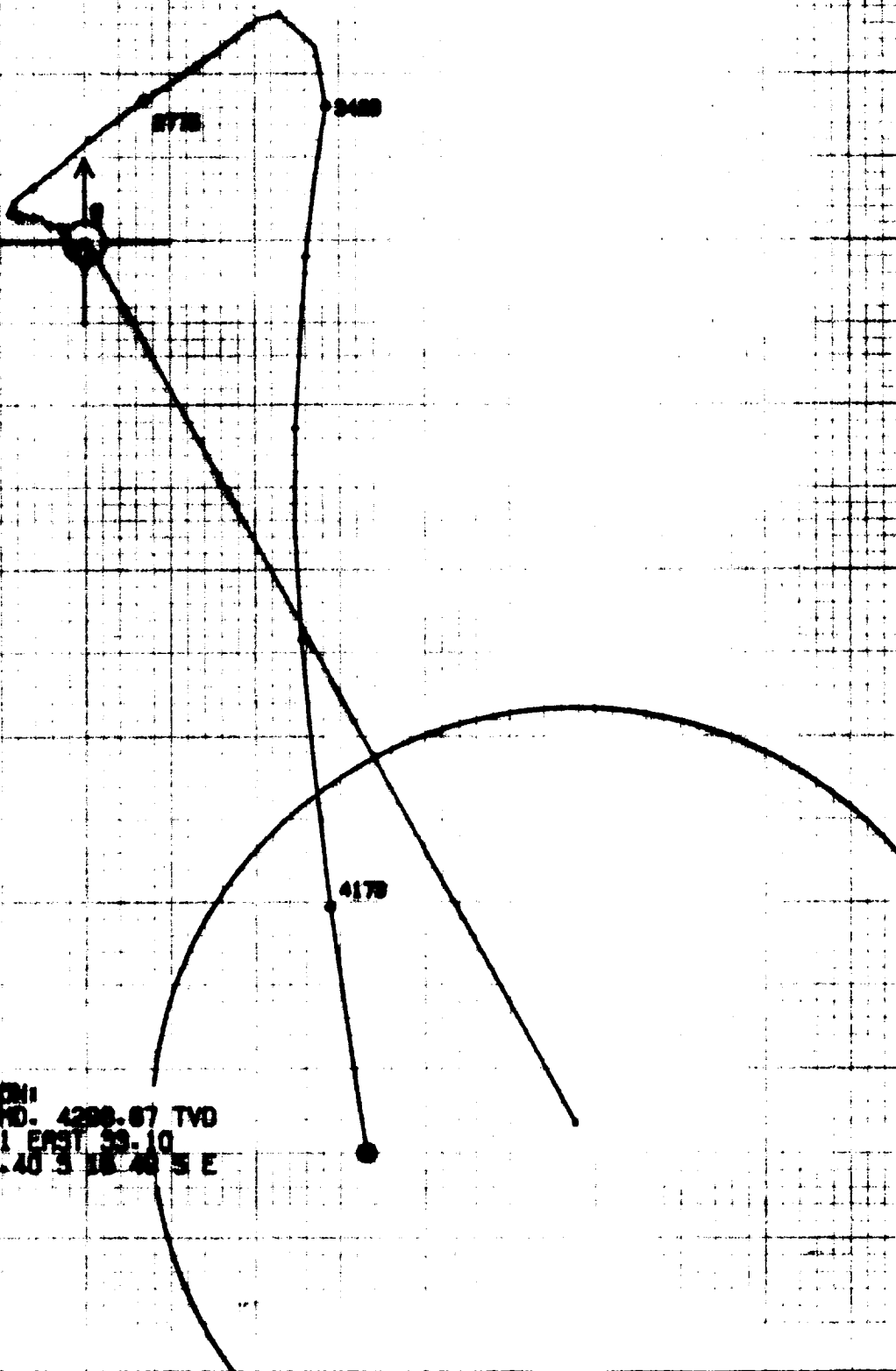
FINAL CLOSURE - DIRECTION: S 16 DEGS 49 MINS E
DISTANCE: 114.40 FEET

PRODUCTION COMPANY
SOUTH LUGGS UNIT WELL NO. 186
LEA COUNTY, NEW MEXICO 802-120

BRISTOL ARISTOTEL, INC.

HORIZONTAL PROJECTION

SCALE 1 IN. = 20 FEET
DEPTH INDICATED IN



FINAL SECTION:
DEPTH 4200 MD. 4200.67 TVD
SOUTH 108-51 EAST 33-10
CORNER 114.40 S 18 40 S E



SURVEY CERTIFICATION SHEET

STATE OF TEXAS
COUNTY OF MIDLAND

I, STEVE COVINGTON, in the employ of Eastman Whipstock, Inc., did on the days of OCTOBER 15, 1984 thru OCTOBER 16, 1984 conduct or supervise the taking of a MAGNETIC MULTI SHOT survey by the method of magnetic orientation from a depth of 0 feet to 1471 feet, with recordings of inclination and direction being obtained at approximate intervals of 93 feet.


This survey was conducted at the request of AMOCO PRODUCTION CO. for their SOUTH HORRS UNIT #186, LEA County, State of NEW MEXICO, in the _____ field.

This data for this survey and the calculation 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

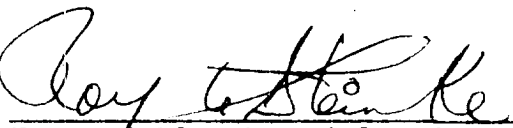
The data for this survey has been examined by me and confirms to principles and procedures set forth by Eastman Whipstock, Inc.



Tim Stephens

Before me, the undersigned authority, on this day personally appeared STEVE COVINGTON, 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 information is a true statement of facts therein recited.

Subscribed and sworn to before me on this 14TH day of NOV., 1984.



Notary Public in and for the
County of Midland, Texas



ROY L. STENKE
Notary Public, State of Texas
My Commission Expires July 8, 1985



P.O. Box 6341/Midland, Texas 79711-0341/(915) 563-0511

SURVEY CERTIFICATION SHEET

STATE OF TEXAS
COUNTY OF MIDLAND

I, Troy Oney, in the employ of Eastman Whipstock, Inc., did on the days of 10-21, 19 84 thru 10-21, 19 84 conduct or supervise the taking of a Magnetic Multi Shot survey by the method of magnetic orientation from a depth of 1471 feet to 3181 feet, with recordings of inclination and direction being obtained at approximate intervals of 93 feet.

This survey was conducted at the request of Amoco Production Company for their South Hobbs Unit Well No. 186, Lea County, State of New Mexico, in the _____ field.

This data for this survey and the calculation 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.

Troy Oney
Directional Supervisor/Surveyor

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

Jim Stephens

Before me, the undersigned authority, on this day personally appeared Troy Oney, 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 information is a true statement of facts therein recited.

Subscribed and sworn to before me on this 14TH day of NOV., 19 84.

Roy L. Stenke
Notary Public in and for the
County of Midland, Texas



ROY L. STENKE
Notary Public, State of Texas
My Commission Expires July 8, 1985

STATE OF New Mexico
COUNTY/PARISH OF Lea

I/We, Jimmy Breaux

Tom Galley

_____, in the employ of the Directional Surveying Department of
Sperry-Sun Well Surveying Company, did on the 26 day of October 1984
and the _____ day of _____ 19____
and the _____ day of _____ 19____
and the _____ day of _____ 19____

respectively conduct or supervise the taking of a Multi-shot/Single Shot Directional survey by method in-
dicated:

from a depth of 3181 feet to 4310 feet by Gyroscopic/Magnetic/Oriented Survey
depth of _____ feet to _____ feet by Gyroscopic/Magnetic/Oriented Survey
depth of _____ feet to _____ feet by Gyroscopic/Magnetic/Oriented Survey
depth of _____ feet to _____ feet by Gyroscopic/Magnetic/Oriented Survey

with records of inclination and direction of inclination being taken at approximately every 893 feet.

This survey was conducted at the request of Amoco Production Company

for their South Hobbs Unit Well No. 186

Magnetic Multishot Survey, Lea County/Parish

State of New Mexico, in the _____ Field

I/We certify that this is a true and correct report of such survey and that it affords a true and correct repre-
sentation of our findings as to the nature and conditions of the well at the time the survey was/surveys were
made.

Thomas P. Galley

STATE OF Texas
COUNTY/PARISH OF Midland

Before me the undersigned authority/authorities, on this day personally appeared _____
Thomas P. Galley

known to me to be the person/persons whose name is/names are subscribed to this instrument, who after being
by me duly sworn on oath, states that he has/they have knowledge of all the facts stated above and that the same
is a true and correct statement of the facts therein recited.

Subscribed and sworn to before me this the 13th day of November 1984



NINA I. JONES
Notary Public, State of Texas
My Commission Expires Nov 30, 1984

Notary Public in and for Midland County, TX