



**REPORT
of
SUB-SURFACE
DIRECTIONAL
SURVEY**

AMOCO PRODUCTION COMPANY

COMPANY

SOUTH HOBBS UNIT WELL NO. 133

WELL NAME

LEA COUNTY, NEW MEXICO

LOCATION

JOB NUMBER

WT1183-S0134
WT1183-S0142
MS-1322

TYPE OF SURVEY

MAGNETIC MULTI-SHOT SURVEY
MAGNETIC MULTI-SHOT SURVEY
MAGNETIC MULTI-SHOT SURVEY

DATE

11/11/83
11/15/83
11/20/83

SURVEY BY

TROY ONEY, TROY ONEY
EASTMAN WHIPSTOCK

RALPH RICE
D.I.G.

OFFICE

WEST TEXAS

AMOCO PRODUCTION COMPANY
SOUTH HOBBS UNIT WELL NO. 133
LEA COUNTY, NEW MEXICO BDI-18
NOVEMBER 11, 1983

EASTMAN WHIPSTOCK, INC.	
MAGNETIC MULTI SHOT SURVEY	WT1183-S0134
SURVEYOR: TROY ONEY	(0'-1566')
MAGNETIC MULTI SHOT SURVEY	WT1183-S0142
SURVEYOR: TROY ONEY	(1566'-3241')
MAGNETIC MULTI-SHOT SURVEY	MS-1322
SURVEYOR: RALPH RICE	(3241'-4399')

VERTICAL SECTION CALCULATED IN PLANE OF PROPOSAL
DIRECTION: N 47 DEG. 47 MIN. E

RECORD OF SURVEY

RADIUS OF CURVATURE METHOD

TIME DATE
11:01:27 15-DEC-83

MEASURED DEPTH FEET	DRIFT		DRIFT DIRECTION	COURSE LENGTH FEET	TRUE		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		DOGLEG SEVERITY DG/100FT
	ANGLE D M				DEPTH FEET					
0.	0	0	0	0.	0.00		0.00	0.00	0.00	0.00
85.	0 15		S 22 E	85.	85.00		-0.06	0.17 S	0.07 E	0.29
146.	0 30		S 14 W	61.	146.00		-0.31	0.56 S	0.10 E	0.54
208.	0 30		S 16 W	62.	208.00		-0.76	1.09 S	0.04 W	0.03
269.	0 45		S 39 E	61.	268.99		-1.09	1.71 S	0.08 E	1.01
330.	0 30		S 7 W	61.	329.99		-1.37	2.34 S	0.26 E	0.89
391.	0 45		S 32 E	61.	390.99		-1.70	2.97 S	0.40 E	0.79
453.	0 30		S 6 E	62.	452.98		-1.96	3.61 S	0.62 E	0.60
514.	0 15		N 85 E	61.	513.98		-1.91	3.84 S	0.90 E	0.91
575.	0 15		S 20 E	61.	574.98		-1.84	3.97 S	1.11 E	0.50
636.	0 30		N 77 E	61.	635.98		-1.72	4.14 S	1.43 E	0.87
698.	0 15		N 43 W	62.	697.98		-1.44	3.82 S	1.53 E	1.07
759.	0 30		S 89 E	61.	758.98		-1.15	3.53 S	1.66 E	1.14
820.	0 15		S 72 W	61.	819.97		-1.30	3.81 S	1.70 E	1.21
881.	0 45		S 25 W	61.	880.97		-1.82	4.15 S	1.31 E	1.00
943.	0 45		S 39 W	62.	942.97		-2.60	4.84 S	0.88 E	0.29
1004.	1 0		S 74 W	61.	1003.96		-3.51	5.35 S	0.12 E	0.95
1065.	1 0		N 90 W	61.	1064.95		-4.38	5.49 S	0.93 W	0.46
1126.	0 45		S 83 W	61.	1125.94		-5.11	5.55 S	1.86 W	0.44
1188.	0 45		N 76 W	62.	1187.94		-5.67	5.50 S	2.67 W	0.44
1249.	1 0		N 79 W	61.	1248.93		-6.21	5.30 S	3.58 W	0.42
1310.	1 0		S 73 W	61.	1309.92		-7.03	5.36 S	4.63 W	0.79
1371.	0 45		S 64 W	61.	1370.91		-7.90	5.70 S	5.49 W	0.47
1433.	1 0		S 80 W	62.	1432.91		-8.76	5.99 S	6.39 W	0.56
1494.	0 30		S 60 W	61.	1493.90		-9.49	6.26 S	7.14 W	0.91
1555.	1 15		S 48 W	61.	1554.89		-10.42	6.81 S	7.89 W	1.26
1566.	0 45		S 71 W	11.	1565.89		-10.60	6.90 S	8.05 W	5.74
1594.	1 0		S 49 W	28.	1593.89		-11.02	7.11 S	8.42 W	1.48
1655.	1 0		S 45 W	61.	1654.88		-12.08	7.84 S	9.20 W	0.11
1717.	1 0		S 49 W	62.	1716.87		-13.16	8.58 S	9.99 W	0.11

TIME DATE
11:01:27 15-DEC-83

MEASURED DEPTH FEET	DRIFT ANGLE D M	DRIFT DIRECTION D	COURSE LENGTH FEET	TRUE		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
				VERTICAL DEPTH FEET					
1779.	1 15	S 35 W	62.	1778.86		-14.37	9.48 S	10.80 W	0.60
1840.	1 15	N 8 E	61.	1839.84		-14.80	9.13 S	11.70 W	3.99
1902.	4 0	N 45 E	62.	1901.77		-12.20	6.63 S	10.46 W	4.99
1964.	6 45	N 54 E	62.	1963.49		-6.40	2.86 S	6.05 W	4.63
2025.	8 0	N 50 E	61.	2023.99		1.40	1.96 N	0.12 E	2.21
2087.	9 0	N 49 E	62.	2085.31		10.56	7.91 N	7.09 E	1.63
2149.	10 0	N 49 E	62.	2146.45		20.80	14.62 N	14.81 E	1.61
2210.	11 30	N 49 E	61.	2206.38		32.17	22.09 N	23.40 E	2.46
2272.	13 0	N 50 E	62.	2266.97		45.32	30.63 N	33.40 E	2.44
2334.	13 45	N 48 E	62.	2327.29		59.66	40.04 N	44.22 E	1.42
2395.	15 15	N 48 E	61.	2386.34		74.93	50.26 N	55.57 E	2.46
2457.	16 15	N 44 E	62.	2446.01		109.87	61.74 N	67.88 E	1.84
2519.	17 45	N 43 E	62.	2505.30		109.87	74.44 N	80.81 E	2.46
2580.	19 0	N 46 E	61.	2563.19		109.87	87.92 N	94.53 E	2.11
2642.	19 45	N 46 E	62.	2621.68		109.87	102.21 N	109.32 E	1.21
2704.	20 0	N 45 E	62.	2679.99		170.70	116.98 N	124.35 E	0.68
2765.	20 30	N 45 E	61.	2737.22		191.79	131.91 N	139.28 E	0.82
2827.	21 0	N 45 E	62.	2795.20		213.73	147.44 N	154.82 E	0.81
2889.	21 0	N 44 E	62.	2853.08		235.91	163.29 N	170.39 E	0.58
2950.	21 30	N 43 E	61.	2909.93		257.96	179.33 N	185.61 E	1.01
3012.	21 30	N 43 E	62.	2967.62		280.60	195.94 N	201.10 E	0.00
3074.	21 45	N 42 E	62.	3025.25		303.35	212.79 N	216.54 E	0.72
3135.	22 0	N 41 E	61.	3081.86		325.94	229.81 N	231.60 E	0.74
3197.	22 0	N 40 E	62.	3139.35		348.98	247.47 N	246.68 E	0.60
3241.	22 0	N 40 E	44.	3180.14		365.31	260.10 N	257.28 E	0.00
3264 IS THE START OF D.I.G. SURVEY TO TD.									
3264.	21 30	N 38 E	23.	3201.50		373.73	266.72 N	262.64 E	3.89
3326.	20 45	N 38 E	62.	3259.34		395.75	284.33 N	276.40 E	1.21
3388.	20 0	N 39 E	62.	3317.46		417.06	301.22 N	289.84 E	1.33
3450.	19 0	N 40 E	62.	3375.90		437.54	317.19 N	303.00 E	1.70

AMOCO PRODUCTION COMPANY

SOUTH HOBBS UNIT WELL NO. 133
LEA COUNTY, NEW MEXICO BD1-18

TIME DATE
11:01:27 15-DEC-83

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
3512.	18 0	N 40 E	62.	3434.70	457.03	332.26 N 315.65 E	1.61
3574.	16 30	N 45 E	62.	3493.91	475.33	345.81 N 328.06 E	3.40
3636.	16 0	N 50 E	62.	3553.43	492.67	357.53 N 340.85 E	2.40
3698.	16 0	N 50 E	62.	3613.03	509.75	368.51 N 353.94 E	0.00
3761.	16 30	N 49 E	63.	3673.51	527.37	379.96 N 367.35 E	0.91
3823.	16 15	N 50 E	62.	3732.99	544.84	391.31 N 380.64 E	0.61
3885.	17 0	N 50 E	62.	3792.40	562.57	402.72 N 394.22 E	1.21
3947.	16 30	N 50 E	62.	3851.77	580.42	414.20 N 407.91 E	0.81
4009.	17 15	N 47 E	62.	3911.10	598.42	426.13 N 421.39 E	1.85
4071.	18 0	N 47 E	62.	3970.19	617.19	438.93 N 435.12 E	1.21
4133.	18 15	N 45 E	62.	4029.11	636.46	452.33 N 448.99 E	1.08
4195.	19 0	N 44 E	62.	4087.87	666.22	466.57 N 462.75 E	1.59
4257.	19 30	N 44 E	62.	4146.40	676.60	481.40 N 476.82 E	0.97
4319.	19 0	N 41 E	62.	4204.93	696.95	496.46 N 490.63 E	1.79
4381.	20 0	N 43 E	62.	4263.98	717.54	511.84 N 504.47 E	1.94
4399.	21 0	N 43 E	18.	4280.24	723.83	516.45 N 508.77 E	5.56

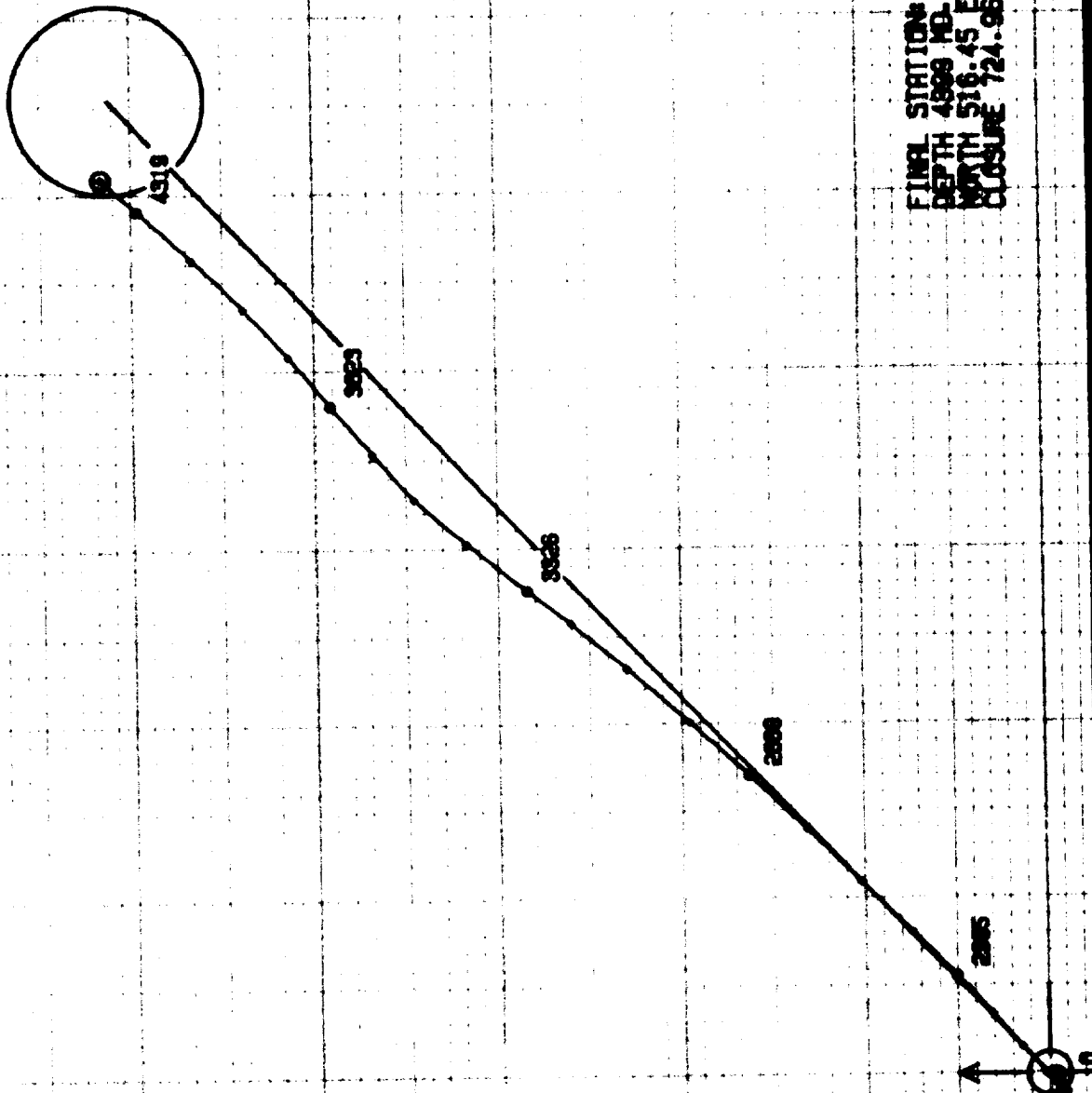
FINAL CLOSURE - DIRECTION: N 44 DEGS 34 MINS E
DISTANCE: 724.96 FEET

AMOCO PRODUCTION COMPANY
SOUTH HOBBS UNIT WELL NO. 133
LEA COUNTY, NEW MEXICO 8801-18

EASTMAN WHIPSTOCK, INC.

HORIZONTAL PROJECTION

SCALE 1 IN. = 100 FEET
DEPTH INDICATOR: MD



FINAL STATION: 4280-28 TWO
DEPTH 4800 MD. 4280-28 TWO
NORTH 516.45 EAST 500.77
CLOSURE 724.96 N 44 34 14 E



P. O. Box 5577/Midland, Texas 79704/(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 11-15, 1983 thru 11-15, 1983 conduct or supervise the taking of a Magnetic Multi Shot survey by the method of magnetic orientation from a depth of 1566 feet to 3241 feet, with recordings of inclination and direction being obtained at approximate intervals of 62 feet.

This survey was conducted at the request of Amoco Production Company for their South Hobbs Unit Well No. 133 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.

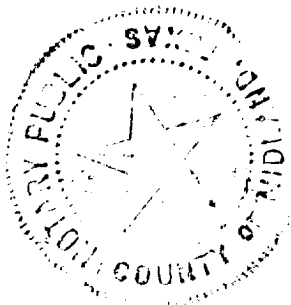
Troy Oney
Directional Supervisor/ Surveyor

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

Ray Delpain
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 instrument is a true statement of facts therein recited.

Subscribed and sworn to before me on this 15th day of DEC., 1983

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





P. O. Box 5577/Midland, Texas 79704/(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 11-11, 19 83 thru 11-11, 19 83 conduct or supervise the taking of a Magnetic Multi Shot survey by the method of magnetic orientation from a depth of 0 feet to 1566 feet, with recordings of inclination and direction being obtained at approximate intervals of 61 feet.

This survey was conducted at the request of Amoco Production Company for their South Hobbs Unit Well No. 133 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.

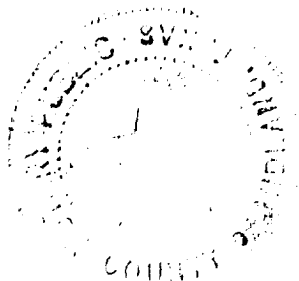
Troy Oney
Directional Supervisor/ Surveyor

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

Harry Delapain
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 instrument is a true statement of facts therein recited.

Subscribed and sworn to before me on this 15TH day of DEC, 19 83

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





DIRECTIONAL
INVESTMENT
GUIDANCE, INC.

SURVEY CERTIFICATION

STATE TEXAS

COUNTY OF MIDLAND

I, RALPH RICE, in the employ of D.I.G., Inc., did on the days of 11-20, 1983 through 11-20, 1983 conduct or supervise the taking of a MAGNETIC MULTISHOT survey by the method of magnetic orientation from a depth of 3241 feet to 4399 feet, with recordings of inclination being obtained at approximately intervals of 62 feet.

This survey was conducted at the request of AMOCO PRODUCTION COMPANY for their SHU NO. 133, LEA County, State of NEW MEXICO in the SOUTH HOBBS field.

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

RALPH RICE

The data for this survey has been examined by me and conforms to the principles and procedures as set forth by D.I.G., Inc.

LARRY MASSEY