



**REPORT
of
SUB-SURFACE
DIRECTIONAL
SURVEY**

AMOCO PRODUCTION COMPANY

COMPANY

SOUTH HOBBS UNIT WELL NO. 137

WELL NAME

LEA COUNTY, NEW MEXICO

LOCATION

<u>JOB NUMBER</u>	<u>TYPE OF SURVEY</u>	<u>DATE</u>
WT1183-S0159	MAGNETIC MULTI-SHOT SURVEY	11/24/83
WT1183-S0163	MAGNETIC MULTI-SHOT SURVEY	11/27/83
MS-1337	MAGNETIC MULTI-SHOT SURVEY	11/30/83

SURVEY BY
TROY ONEY, TROY ONEY, RALPH RICE
EASTMAN WHIPSTOCK D.I.G.

OFFICE
WEST TEXAS

AMOCO PRODUCTION COMPANY
SOUTH HOBBS UNIT WELL NO. 137
LEA COUNTY, NEW MEXICO BD1-9
NOVEMBER 24, 1983

EASTMAN WHIPSTOCK, INC.

MAGNETIC MULTI SHOT SURVEY	WT1183-S0159
SURVEYOR: TROY ONEY	(0'-1567')
MAGNETIC MULTI SHOT SURVEY	WT1183-S0163
SURVEYOR: TROY ONEY	(1567'-3235')
MAGNETIC MULTI-SHOT SURVEY	MS-1337
SURVEYOR: RALPH RICE	(3235'-4295')

Vertical Section Calculated in Plane of Proposal
Direction: N 66 DEG. 37 MIN. W
Whipstock

RECORD OF SURVEY

RADIUS OF CURVATURE METHOD

TIME DATE
10:18:07 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
0.	0 0	0	0.	0.00	0.00	0.00	0.00
45.	0 15	S 86 E	45.	45.00	-0.02	0.01 S	0.10 E
106.	0 45	S 33 E	61.	106.00	-0.33	0.27 S	0.54 E
167.	0 15	S 65 E	61.	166.99	-0.72	0.61 S	0.94 E
228.	0 15	S 81 E	61.	227.99	-0.82	0.69 S	1.19 E
289.	0 15	S 27 E	61.	288.99	-1.00	0.84 S	1.40 E
350.	0 15	N 82 E	61.	349.99	-1.14	0.96 S	1.62 E
411.	0 15	S 10 E	61.	410.99	-1.30	1.10 S	1.81 E
473.	0 15	S 67 E	62.	472.99	-1.52	1.30 S	1.98 E
534.	0 15	N 81 E	61.	533.99	-1.58	1.33 S	2.24 E
595.	0 15	S 75 E	61.	594.99	-1.63	1.35 S	2.50 E
656.	0 30	S 71 E	61.	655.99	-1.79	1.46 S	2.88 E
717.	0 30	S 50 E	61.	716.99	-2.10	1.72 S	3.34 E
778.	0 15	S 67 E	61.	777.99	-2.34	1.93 S	3.68 E
839.	0 15	S 64 E	61.	838.99	-2.48	2.04 S	3.93 E
900.	0 15	S 85 E	61.	899.98	-2.58	2.11 S	4.18 E
961.	0 30	N 80 E	61.	960.98	-2.61	2.10 S	4.58 E
1022.	0 45	N 79 E	61.	1021.98	-2.56	1.97 S	5.23 E
1083.	0 30	S 67 E	61.	1082.98	-2.71	2.04 S	5.88 E
1145.	0 45	S 79 E	62.	1144.97	-2.98	2.24 S	6.53 E
1206.	0 30	S 57 E	61.	1205.97	-3.29	2.49 S	7.14 E
1267.	0 30	S 51 E	61.	1266.97	-3.65	2.80 S	7.57 E
1328.	0 15	S 20 E	61.	1327.96	-4.00	3.12 S	7.80 E
1389.	0 30	S 20 E	61.	1388.96	-4.39	3.50 S	7.94 E
1450.	0 0	0	61.	1449.96	-4.65	3.75 S	8.03 E
1481.	0 15	S 36 E	31.	1480.96	-4.71	3.80 S	8.07 E
1542.	0 15	S 3 E	61.	1541.96	-4.96	4.05 S	8.16 E
1567.	0 45	S 0 E	25.	1566.96	-5.18	4.27 S	8.16 E
1591.	1 0	S 15 E	24.	1590.96	-5.55	4.63 S	8.21 E
1653.	1 15	S 2 E	62.	1652.95	-6.76	5.83 S	8.39 E
							0.57

TIME DATE
10:18:07 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
1715.	1 15	S O E	62.	1714.93	-8.11	7.18 S 8.41 E	0.07
1776.	1 15	S 6 E	61.	1775.92	-9.43	8.51 S 8.48 E	0.21
1838.	1 0	S 4 E	62.	1837.91	-10.65	9.73 S 8.59 E	0.41
1900.	1 0	S 10 W	62.	1899.90	-11.72	10.80 S 8.53 E	0.39
1961.	0 15	S 1 E	61.	1960.89	-12.37	11.47 S 8.48 E	1.24
2023.	0 15	S 32 W	62.	2022.89	-12.61	11.72 S 8.41 E	0.23
2085.	0 15	S 67 W	62.	2084.89	-12.76	11.90 S 8.21 E	0.24
2146.	0 30	N 78 W	61.	2145.89	-12.75	11.93 S 7.82 E	0.54
2208.	0 30	N 71 W	62.	2207.89	-12.55	11.79 S 7.29 E	0.10
2270.	0 45	N 54 W	62.	2269.88	-12.17	11.48 S 6.70 E	0.50
2332.	1 0	N 21 W	62.	2331.88	-11.37	10.74 S 6.13 E	0.87
2393.	1 0	N 3 W	62.	2392.87	-10.32	9.70 S 5.91 E	0.51
2455.	1 30	N 1 E	62.	2454.85	-8.97	8.35 S 5.91 E	0.83
2517.	1 30	N 16 E	62.	2516.83	-7.42	6.75 S 6.18 E	0.55
2578.	1 45	N 17 E	61.	2577.81	-5.83	5.09 S 6.67 E	0.41
2640.	1 45	N 16 E	62.	2639.78	-4.09	3.28 S 7.20 E	0.05
2702.	2 0	N 14 E	62.	2701.74	-2.20	1.32 S 7.73 E	0.42
2764.	2 45	N 21 E	62.	2763.69	0.14	1.13 N 8.50 E	1.29
2825.	3 15	N 25 E	61.	2824.61	2.92	4.07 N 9.75 E	0.89
2887.	3 45	N 14 E	62.	2886.49	6.31	7.63 N 11.01 E	1.35
2948.	3 45	N 15 E	61.	2947.36	10.03	11.49 N 12.01 E	0.11
3010.	4 0	N 14 E	62.	3009.22	13.94	15.55 N 13.06 E	0.42
3072.	3 45	N 16 E	62.	3071.08	17.84	19.60 N 14.14 E	0.46
3133.	3 45	N 15 E	61.	3131.95	21.53	23.44 N 15.21 E	0.11
3195.	4 0	N 14 E	62.	3193.80	25.44	27.50 N 16.26 E	0.42
3235.	4 0	N 13 E	40.	3233.71	28.06	30.21 N 16.91 E	0.17

3235 TO 4295 IS D.I.G. SURVEY ON THIS AT TD.

3267.	4 0	N 13 E	32.	3265.63	30.16	32.39 N 17.41 E	0.00
3329.	4 0	N 20 E	62.	3327.48	34.14	36.53 N 18.64 E	0.79

TIME DATE
10:18:07 15-DEC-83

MEASURED DEPTH FEET	DRIFT ANGLE D M	DRIFT DIRECTION D	COURSE LENGTH FEET	TRUE		VERTICAL SECTION FEET	RECTANGULAR COORDINATES		DOGLEG SEVERITY DG/100FT
				VERTICAL DEPTH FEET	VERTICAL SECTION FEET				
3391.	4 0	N 9 E	62.	3389.33	38.17	40.71 N	19.72 E	1.24	
3452.	4 0	N 11 E	61.	3450.18	42.25	44.90 N	20.46 E	0.23	
3514.	4 0	N 8 E	62.	3512.03	46.40	49.17 N	21.17 E	0.34	
3576.	3 45	N 5 E	62.	3573.88	50.48	53.33 N	21.65 E	0.52	
3638.	3 15	N 6 E	62.	3635.77	54.18	57.10 N	22.01 E	0.81	
3699.	4 0	N 2 E	61.	3696.65	57.97	60.94 N	22.28 E	1.30	
3761.	5 45	N 26 W	62.	3758.42	63.16	66.05 N	21.19 E	4.68	
3823.	7 0	N 29 W	62.	3820.04	69.59	72.15 N	18.02 E	2.09	
3885.	7 0	N 32 W	62.	3881.57	76.50	78.66 N	14.18 E	0.59	
3946.	8 0	N 33 W	61.	3942.05	83.67	85.38 N	9.90 E	1.65	
4008.	8 30	N 41 W	62.	4003.41	91.33	92.48 N	4.55 E	2.02	
4070.	9 15	N 41 W	61.	4064.67	99.23	99.69 N	1.72 W	1.21	
4132.	11 0	N 42 W	62.	4125.70	108.17	107.86 N	8.94 W	2.84	
4193.	12 0	N 42 W	61.	4185.47	116.08	116.89 N	17.08 W	1.64	
4255.	13 15	N 42 W	62.	4245.97	129.13	126.97 N	26.15 W	2.02	
4295.	13 45	N 43 W	40.	4284.87	136.70	133.85 N	32.46 W	1.38	

FINAL CLOSURE - DIRECTION: N 13 DEGS 38 MINS W
DISTANCE: 137.73 FEET

AMOCO PRODUCTION COMPANY
SOUTH HOBBS UNIT WELL NO. 137
LEA COUNTY, NEW MEXICO B01-9

EASTMAN WHIPSTOCK, INC.

HORIZONTAL PROJECTION

SCALE 1 IN. = 20 FEET
DEPTH INDICATOR: MD

FINAL STATION:
DEPTH 4285 MD. 4284.86 TVD
NORTH 133.84 WEST 32.45
CLOSURE 137.72 N 13 37 48 W

Q

4285

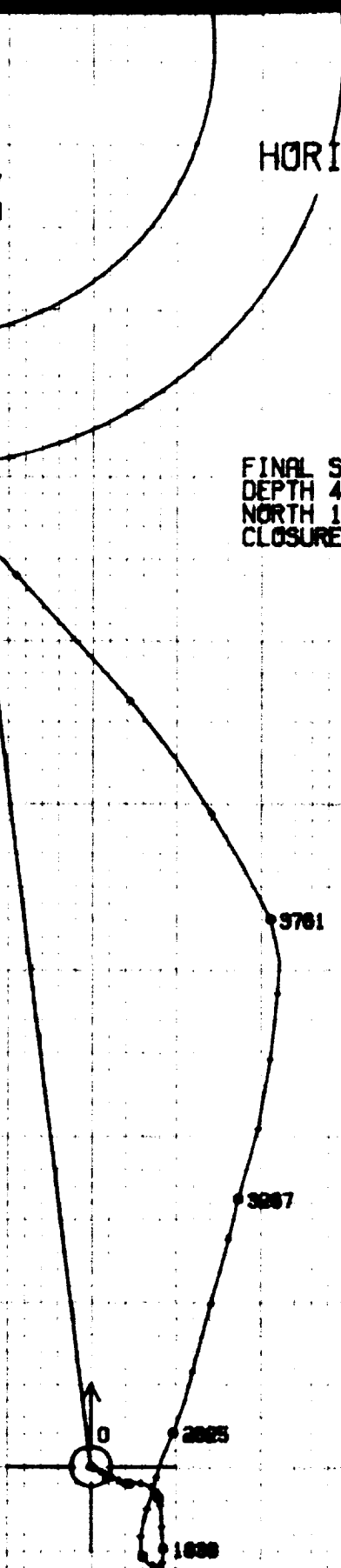
3761

3287

2885

1888

0





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 11-23, 19 83 thru 11-24, 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 1567 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. 137 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.

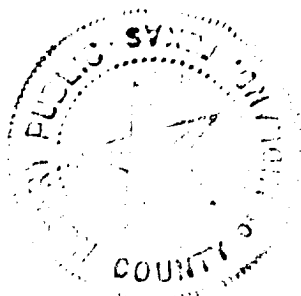
Troy Oney
Directional Supervisor/ Surveyor

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

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

Ray W. Steinke
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 11-27, 19 83 thru 11-27, 19 83 conduct or supervise the taking of a Magnetic Multi Shot survey by the method of magnetic orientation from a depth of 1567 feet to 3235 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. 137 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

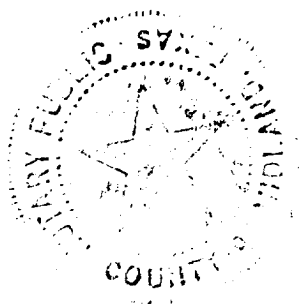
The data for this survey has been examined by me and conforms to principles and procedures set forth by Eastman Whipstock, Inc.

Tim 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 instrument is a true statement of facts therein recited.

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

Gary Steinke
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 11-30, 1983 through 11-30, 1983 conduct or supervise the taking of a MAGNETIC MULTISHOT survey by the method of magnetic orientation from a depth of 3235 feet to 4295 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 #137, 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