



**REPORT
of
SUB-SURFACE
DIRECTIONAL
SURVEY**

AMOCO PRODUCTION COMPANY
COMPANY

SOUTH HOBBS UNIT WELL NO. 136
WELL NAME

LEA COUNTY, NEW MEXICO
LOCATION

<u>JOB NUMBER</u>	<u>TYPE OF SURVEY</u>	<u>DATE</u>
WT1283-S0174	MAGNETIC MULTI-SHOT SURVEY	12/04/83
WT1283-S0173	MAGNETIC MULTI-SHOT SURVEY	12/07/83
KS-1350	MAGNETIC MULTI-SHOT SURVEY	12/11/83

SURVEY BY
GARY DESPAIN, TROY ONEY
EASTMAN WHIPSTOCK

RALPH RICE
D.I.G.

OFFICE
WEST TEXAS

AMOCO PRODUCTION COMPANY
SOUTH HOBBS UNIT WELL NO. 138
LEA COUNTY, NEW MEXICO BD1-213
DECEMBER 4, 1983

EASTMAN WHIPSTOCK, INC.	
MAGNETIC MULTI SHOT SURVEY	WT1283-S0174
SURVEYOR: GARY DESPAIN	(0'-1571')
MAGNETIC MULTI SHOT SURVEY	WT1283-S0173
SURVEYOR: TROY ONEY	(1571'-3176')
MAGNETIC MULTI-SHOT SURVEY	MS-1350
SURVEYOR: RALPH RICE	(3176'-4292')

VERTICAL SECTION CALCULATED IN PLANE OF PROPOSAL
DIRECTION: N 49 DEG. 21 MIN. E

RECORD OF SURVEY

RADIUS OF CURVATURE METHOD

TIME

DATE

11:12:46 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
				DEPTH FEET	VERTICAL FEET		FEET	FEET	
0.	0 0	0	0.	0.00	0.00	0.00	0.00	0.00	0.00
72.	0 30	N 15 W	72.	72.00	0.14	0.30	N	0.08 W	0.69
133.	0 45	N 15 E	61.	133.00	0.56	0.96	N	0.08 W	0.66
194.	0 45	S 84 E	61.	193.99	1.29	1.38	N	0.52 E	1.60
255.	0 30	S 76 E	61.	254.99	1.71	1.26	N	1.18 E	0.43
316.	1 0	N 72 E	61.	315.98	2.33	1.29	N	1.96 E	1.04
377.	0 30	S 65 E	61.	376.98	2.89	1.24	N	2.74 E	1.18
438.	0 45	S 37 E	61.	437.97	3.01	0.83	N	3.25 E	0.64
499.	0 30	S 78 E	61.	498.97	3.20	0.48	N	3.80 E	0.81
560.	0 30	N 83 E	61.	559.97	3.58	0.45	N	4.33 E	0.27
621.	0 30	S 67 E	61.	620.93	3.93	0.38	N	4.85 E	0.42
682.	0 45	S 37 E	61.	681.96	4.05	0.03	S	5.36 E	0.69
743.	0 45	S 15 E	61.	742.95	3.83	0.75	S	5.70 E	0.43
804.	0 45	S 25 E	61.	803.95	3.55	1.50	S	5.97 E	0.21
865.	1 0	S 17 W	61.	864.94	3.01	2.41	S	6.04 E	1.10
926.	1 0	S 21 W	61.	925.93	2.09	3.42	S	5.69 E	0.11
987.	1 0	S 48 W	61.	986.92	1.07	4.29	S	5.09 E	0.77
1048.	1 0	S 56 W	61.	1047.91	0.01	4.94	S	4.25 E	0.23
1109.	1 0	S 66 W	61.	1108.91	-1.03	5.46	S	3.32 E	0.29
1170.	1 0	S 62 W	61.	1169.90	-2.06	5.92	S	2.37 E	0.11
1231.	1 0	S 70 W	61.	1230.89	-3.08	6.35	S	1.40 E	0.23
1292.	1 0	S 86 W	61.	1291.88	-4.01	6.58	S	0.36 E	0.46
1353.	1 0	S 70 W	61.	1352.87	-4.94	6.80	S	0.68 W	0.46
1414.	1 0	S 72 W	61.	1413.86	-5.93	7.14	S	1.69 W	0.06
1475.	0 45	S 47 W	61.	1474.85	-6.84	7.61	S	2.48 W	0.74
1571.	1 0	S 63 W	96.	1570.84	-8.30	8.45	S	3.68 W	0.36
1638.	1 15	S 55 W	67.	1637.83	-9.59	9.13	S	4.81 W	0.44
1701.	1 0	S 61 W	63.	1700.82	-10.81	9.78	S	5.86 W	0.44
1763.	1 15	S 52 W	62.	1762.80	-12.02	10.45	S	6.87 W	0.49
1825.	1 0	S 52 W	62.	1824.79	-13.24	11.20	S	7.83 W	0.40

TIME DATE
11:12:46 15-DEC-83

MEASURED DEPTH FEET	DRIFT ANGLE D M	DRIFT DIRECTION D	COURSE LENGTH FEET	TRUE VERTICAL DEPTH FEET	VERTICAL SECTION FEET	RECTANGULAR COORDINATES FEET	DOGLEG SEVERITY DG/100FT
1888.	0 45	S 40 W	63.	1887.78	-14.20	11.87 S 8.52 W	0.49
1950.	0 30	S 27 W	62.	1949.78	-14.85	12.43 S 8.89 W	0.46
2012.	0 30	S 8 W	62.	2011.78	-15.30	12.95 S 9.05 W	0.27
2075.	0 15	S 45 E	63.	2074.78	-15.45	13.32 S 8.93 W	0.64
2137.	0 45	S 58 E	62.	2136.77	-15.35	13.66 S 8.50 W	0.82
2199.	0 45	S 72 E	62.	2198.77	-15.02	14.00 S 7.77 W	0.29
2262.	0 45	N 88 E	63.	2261.76	-14.48	14.12 S 6.96 W	0.41
2324.	1 0	N 71 E	62.	2323.76	-13.66	13.94 S 6.03 W	0.58
2386.	1 15	N 75 E	62.	2385.74	-12.54	13.59 S 4.87 W	0.42
2449.	1 30	N 59 E	63.	2448.73	-11.11	13.00 S 3.48 W	0.72
2511.	1 45	N 71 E	62.	2510.70	-9.42	12.26 S 1.89 W	0.68
2573.	2 0	N 64 E	62.	2572.67	-7.49	11.48 S 0.02 W	0.55
2636.	2 0	N 56 E	63.	2635.63	-5.33	10.38 S 1.89 E	0.44
2698.	2 0	N 64 E	62.	2697.59	-3.21	9.30 S 3.76 E	0.45
2760.	1 45	N 64 E	62.	2759.56	-1.24	8.41 S 5.58 E	0.40
2823.	1 45	N 56 E	63.	2822.53	0.65	7.45 S 7.25 E	0.39
2885.	1 45	N 48 E	62.	2884.50	2.54	6.29 S 8.74 E	0.39
2948.	1 45	N 64 E	63.	2947.47	4.44	5.21 S 10.33 E	0.77
3010.	1 45	N 64 E	62.	3009.44	6.27	4.38 S 12.03 E	0.00
3074.	1 45	N 55 E	64.	3073.41	8.19	3.39 S 13.71 E	0.43
3135.	1 45	N 50 E	61.	3134.38	10.05	2.26 S 15.19 E	0.25
3176.	1 45	N 57 E	41.	3175.36	11.30	1.51 S 16.20 E	0.52
3225 IS THE START OF D.I.G. SURVEY TO TD.							
3225.	4 0	N 41 E	49.	3224.30	13.75	0.09 N 18.05 E	4.83
3287.	5 30	N 36 E	62.	3286.09	18.79	4.11 N 21.24 E	2.51
3349.	6 30	N 37 E	62.	3347.75	25.11	9.32 N 25.09 E	1.62
3410.	6 30	N 32 E	61.	3408.35	31.78	15.01 N 29.00 E	0.93
3472.	7 15	N 35 E	62.	3469.91	38.92	21.20 N 33.10 E	1.34
3534.	8 0	N 26 E	62.	3531.36	46.70	28.28 N 37.27 E	2.27

TIME DATE

11:12:46 15-DEC-83

MEASURED DEPTH FEET	DRIFT		DRIFT DIRECTION	COURSE LENGTH FEET	TRUE VERTICAL DEPTH FEET		VERTICAL SECTION FEET	RECTANGULAR COORDINATES		DOGLEG SEVERITY DG/100FT
	ANGLE D	M			FEET	FEET		FEET	FEET	
3595.	9	0	N 27 E	61.	3591.69	55.01	36.35 N	41.29 E	1.66	
3657.	9	0	N 25 E	62.	3652.92	63.91	45.06 N	45.55 E	0.50	
3719.	11	0	N 35 E	62.	3713.98	74.06	54.37 N	50.92 E	4.26	
3780.	11	0	N 45 E	61.	3773.86	85.53	63.28 N	58.39 E	3.12	
3842.	11	0	N 38 E	62.	3834.72	97.24	72.13 N	66.23 E	2.15	
3904.	11	0	N 43 E	62.	3895.58	108.92	81.13 N	73.91 E	1.54	
3966.	11	0	N 44 E	62.	3956.44	120.69	89.71 N	82.05 E	0.31	
4027.	11	0	N 43 E	61.	4016.32	132.27	98.15 N	90.06 E	0.31	
4089.	11	30	N 40 E	62.	4077.13	144.25	107.21 N	98.08 E	1.24	
4151.	11	45	N 42 E	62.	4137.86	156.61	116.64 N	106.27 E	0.76	
4212.	12	0	N 42 E	61.	4197.53	169.06	125.97 N	114.67 E	0.41	
4274.	12	0	N 42 E	62.	4258.20	181.85	135.55 N	123.30 E	0.00	
4292.	12	15	N 42 E	18.	4275.79	185.60	138.36 N	125.83 E	1.39	

FINAL CLOSURE - DIRECTION:

N 42 DEGS 17 MINS E

DISTANCE:

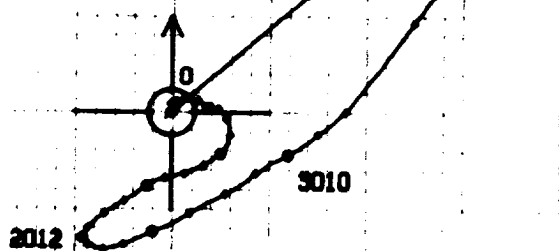
187.02 FEET

AMOCO PRODUCTION COMPANY
SOUTH HOBBS UNIT WELL NO. 138
LEA COUNTY, NEW MEXICO B01-213

EASTMAN WHIPSTOCK, INC.

HORIZONTAL PROJECTION

SCALE 1 IN. = 20 FEET
DEPTH INDICATOR, MD



FINAL STATION
DEPTH 4292 MD. 4275.79 TVD
NORTH 196.95 EAST 125.82
CLOSURE 187.01 N 42 17 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 12-7, 19 83 thru 12-7, 19 83 conduct or supervise the taking of a Magnetic Multi Shot survey by the method of magnetic orientation from a depth of 1571 feet to 3176 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. 138 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

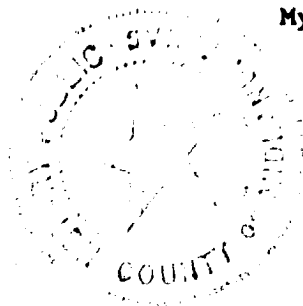
The data for this survey has been examined by me and conforms to principles and procedures set forth by Eastman Whipstock, Inc.

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

Ray C. Steink
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, Gary DeSpain, in the employ of Eastman Whipstock, Inc., did on the days of December 4, 1983 thru December 4, 1983 conduct or supervise the taking of a Magnetic Multi Shot survey by the method of magnetic orientation from a depth of 0 feet to 1571 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 # 138, Lea County, State of , 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.

Gary DeSpain
Directional Supervisor / Surveyor

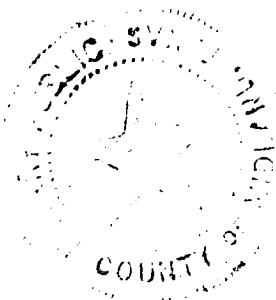
The data for this survey has been examined by me and conforms to principles and procedures set forth by Eastman Whipstock, Inc.

Troy Dyer

Before me, the undersigned authority, on this day personally appeared Gary DeSpain, 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

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





SURVEY CERTIFICATION

STATE TEXASCOUNTY OF MIDLAND

I, RALPH RICE, in the employ of D.I.G., Inc., did on the days of 12-11, 1983 through 12-11, 1983 conduct or supervise the taking of a MAGNETIC MULTISHOT survey by the method of magnetic orientation from a depth of 3176 feet to 4292 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. 138, IEA 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.

A handwritten signature in cursive script that reads "Ralph Rice". The signature is written in dark ink and is positioned above a horizontal line.

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.

A handwritten signature in cursive script that reads "Larry Massey". The signature is written in dark ink and is positioned above a horizontal line.

LARRY MASSEY