

SUB-SURFACE  
DIRECTIONAL  
SURVEY  
REPORT

AMOCO PRODUCTION COMPANY  
COMPANY

SHU WELL NO. 148  
WELL NAME

LEA COUNTY, NEW MEXICO  
STATE AND COUNTY

CERTIFIED REPORT

# JUSTIMER TAMOCO PRODUCTION COMPANY

WELL # : SHU WELL NO. 148

LOCATION : LEA COUNTY NEW MEXICO

DATE : 11-26-83, 12-02-83, (EW)12-06-83

WELL TYPE : MAG MS, MAG MS, (EW)MAG MS

WELL # : MS-1334, MS-1340, (EW)S0178

SURVEYOR : R. RICE, A. HARBERT, (EW)G. DESPAIN

DEPTH : 0'-1541', 1541'-3410', (EW)3410'-4315'

ECL. : 10 DEGREES EAST

LEV. : 0'

FILE # : WT-F14CS FROM WT-F10S:D701

METHOD : RADIUS OF CURVATURE

SECTION : N60.37W

THIS SURVEY IS CORRECT TO THE BEST OF MY KNOWLEDGE AND IS SUPPORTED BY ACTUAL FIELD DATA.

Larry Macsey  
DTC REPRESENTATIVE

FINAL STATION DATA

MEASURED	INCL.	HOLE	COURSE	VERTICAL	TRUE	VERTICAL	RECTANGULAR	C L U S U R E	DOG-LEG	
DEPTH	ANGLE	DIRECTION	LENGTH	DEPTH		SECTION	C O R D I N A T E S	DISTANCE	DIRECTION	SEVERITY
FEET	DEGS.		FEET	FEET			N/S	FEET	DEGS.	DC/100FT

4315.00 13.00 55.09 0 60.98 4276.82 369.00 192.04 315.06 W 360.97 N 58.64 0.00

MEASURED DEPTH	INCL. ANGLE	HOLE DIRECTION	COURSE LENGTH	VERTICAL DEPTH	VERTICAL SECTION	N/S	foot	E/W	RECTANGULAR COORDINATES	DISTANCE	DIRECTION	SEVERITY
FEET	DEGS.	DEGS.	FEET	FEET	FEET	N	FEET	E	DEGS.	FEET	DEGS.	% 00/100FT
0.00	0.00	N 00.00 E	0.00	0.00	0.00	0.00	0.00	0.00	N 00.00 E	0.00	N 00.00 E	0.00
82.00	.50	N 87.00 E	82.00	82.00	-30	.02	.36	.36	N 87.00 E	.61	N 87.00 E	.61
112.00	0.00	N 00.00 E	30.00	112.00	-41	.03	.49	.49	N 00.00 E	1.67	N 00.00 E	1.67
142.00	.25	N 00.00 E	30.00	142.00	-39	.09	.50	.50	N 00.00 E	.83	N 00.00 E	.83
203.00	.25	N 01.00 W	61.00	203.00	-17	.20	.35	.35	N 01.00 W	.57	N 01.00 W	.57
263.00	.25	N 16.00 E	60.00	263.00	.04	.48	.23	.23	N 16.00 E	.60	N 16.00 E	.60
324.00	.25	N 60.00 E	61.00	324.00	.02	.69	.40	.40	N 60.00 E	.36	N 60.00 E	.36
384.00	.25	N 31.00 E	60.00	384.00	.11	.82	.60	.60	N 31.00 E	.24	N 31.00 E	.24
444.00	.50	N 16.00 W	60.00	443.99	.02	1.21	.66	.66	N 16.00 W	.63	N 16.00 W	.63
505.00	.50	N 16.00 W	61.00	504.99	.40	1.72	.82	.82	N 16.00 W	.00	N 16.00 W	.00
565.00	.25	N 07.00 W	60.00	564.99	.77	1.95	.23	.23	N 07.00 W	.00	N 07.00 W	.00
626.00	.25	N 20.00 W	61.00	625.99	1.02	2.10	.03	.03	N 20.00 W	.45	N 20.00 W	.45
686.00	.50	N 02.00 W	60.00	685.99	1.30	2.33	.27	.27	N 02.00 W	.74	N 02.00 W	.74
747.00	.75	N 45.00 W	61.00	746.99	2.04	2.63	.85	.85	N 45.00 W	.76	N 45.00 W	.76
807.00	1.00	N 10.00 W	60.00	806.99	2.79	3.43	1.27	1.27	N 10.00 W	.96	N 10.00 W	.96
868.00	.75	N 00.00 W	61.00	867.97	3.50	4.00	1.50	1.50	N 00.00 W	.34	N 00.00 W	.34
929.00	.75	N 35.00 W	60.00	928.97	4.21	4.91	2.03	2.03	N 35.00 W	.01	N 35.00 W	.01
989.00	.75	N 57.00 W	61.00	988.95	4.96	5.53	2.51	2.51	N 57.00 W	.02	N 57.00 W	.02
1049.00	1.00	N 41.00 W	60.00	1048.95	5.81	6.26	3.13	3.13	N 41.00 W	.42	N 41.00 W	.42
1110.00	1.00	N 27.00 W	61.00	1109.94	6.61	7.07	3.82	3.82	N 27.00 W	.00	N 27.00 W	.00
1170.00	1.00	N 30.00 W	60.00	1169.94	7.20	7.89	4.47	4.47	N 30.00 W	.03	N 30.00 W	.03
1231.00	1.00	N 27.00 W	61.00	1230.93	8.72	8.79	5.04	5.04	N 27.00 W	.61	N 27.00 W	.61
1291.00	.75	N 51.00 W	60.00	1290.92	9.15	9.14	5.32	5.32	N 51.00 W	1.46	N 51.00 W	1.46
1322.00	.75	N 55.00 W	61.00	1321.92	9.94	9.62	5.96	5.96	N 55.00 W	.09	N 55.00 W	.09
1382.00	1.00	N 27.00 W	60.00	1381.91	10.80	10.31	6.56	6.56	N 27.00 W	.81	N 27.00 W	.81





MEASURED	INCL.	HULL	COURSE	VERTICAL	VERTICAL	TRUE	RECTOR	CL	U	S	D	R	S	DOG
DEPTH	ANGLE	DIRECTION	LENGTH	DEPTH	SLOSION	FEET	COORDINATES	FEET	FEET	FEET	FEET	FEET	DIRECTION	SLOSION
FEET	DEUS.	DEUS.	FEET	FEET	FEET	FEET	N/S	FEET	FEET	FEET	FEET	FEET	DIRECTION	SLOSION
2703.00	8.25	N 67.00 W	61.00	2905.20	58.74	57.54 N	46.23 W	59.55at	N	50.91 W				1.31
2860.00	8.50	N 67.00 W	60.00	2904.56	67.42	40.96 N	54.27 W	67.99at	N	52.95 W				1.42
3029.00	9.75	N 65.00 W	61.00	3024.70	77.05	44.89 N	63.11 W	77.45at	N	54.57 W				2.11
3009.00	10.25	N 65.00 W	60.00	3003.87	87.43	49.30 N	72.55 W	87.71at	N	55.80 W				1.83
3150.00	11.00	N 65.00 W	61.00	3143.83	98.64	54.05 N	82.74 W	98.83at	N	56.84 W				1.23
3210.00	11.75	N 63.00 W	60.00	3202.65	110.45	59.24 N	93.38 W	110.50at	N	57.61 W				1.41
3271.00	12.50	N 63.00 W	61.00	3262.29	123.25	65.05 N	104.79 W	123.34at	N	50.16 W				1.23
3331.00	13.50	N 62.00 W	60.00	3320.75	136.74	71.29 N	116.77 W	136.81at	N	50.59 W				1.71
3392.00	14.25	N 62.00 W	61.00	3379.97	151.36	78.15 N	129.68 W	151.41at	N	50.92 W				1.23
3410.00	14.50	N 63.00 W	19.00	3397.40	155.03	80.22 N	133.65 W	155.07at	N	59.02 W				1.96
3523.00	14.25	N 64.00 W	113.00	3506.87	183.84	92.73 N	158.75 W	183.85at	N	59.70 W				1.31
3583.00	14.25	N 62.00 W	60.00	3565.02	198.59	99.44 N	171.91 W	198.60at	N	59.95 W				1.82
3643.00	14.00	N 60.00 W	60.00	3623.21	213.23	106.54 N	184.72 W	213.24at	N	60.02 W				1.91
3703.00	14.25	N 62.00 W	60.00	3681.39	227.87	113.64 N	197.52 W	227.88at	N	60.00 W				1.91
3764.00	14.00	N 60.00 W	61.00	3740.55	242.76	120.85 N	210.54 W	242.76at	N	60.14 W				1.90
3824.00	13.75	N 50.00 W	60.00	3790.81	267.11	130.22 N	229.07 W	267.15at	N	60.07 W				1.90
3884.00	13.75	N 57.00 W	65.00	3857.08	271.39	135.97 N	234.74 W	271.37at	N	57.74 W				1.70
3944.00	13.50	N 55.00 W	60.00	3915.39	285.48	143.83 N	246.62 W	285.49at	N	59.74 W				1.69
4005.00	13.00	N 55.00 W	61.00	3974.76	299.40	151.85 N	258.07 W	299.43at	N	59.52 W				1.82
4065.00	13.00	N 55.00 W	60.00	4033.23	312.84	159.59 N	269.13 W	312.89at	N	59.33 W				0.00
4125.00	13.00	N 54.00 W	60.00	4091.67	326.26	167.43 N	280.12 W	326.34at	N	59.13 W				1.37
4186.00	13.00	N 55.00 W	61.00	4151.12	339.91	175.39 N	291.29 W	340.02at	N	50.94 W				1.37
4246.00	13.00	N 55.00 W	60.00	4209.59	352.35	183.14 N	302.34 W	353.48at	N	50.79 W				0.00
4315.00	13.00	N 55.00 W	67.00	4276.82	366.00	192.04 N	315.06 W	368.77at	N	50.63 W				0.00

CLOSURE DISTANCE = 369.77 FEET.  
CLOSURE DIRECTION = N 58.64 W



# AMOCO PRODUCTION COMPANY

WELL # :  
SHU WELL NO. 148

LOCATION :  
LEA COUNTY NEW MEXICO

DATE :  
11-28-83, 12-02-83, <EW>12-08-83

JOB TYPE :  
MAG MS, MAG MS, <EW>MAG MS

JOB # :  
MS-1334, MS-1340, <EW>S0178

SURVEYOR :  
R. RICE, A. HARBERT, <EW>G. DESPAIN

DEPTHS :  
0'-1541', 1541'-3410', <EW>3410'-4315'

DECL. :  
10 DEGREES EAST

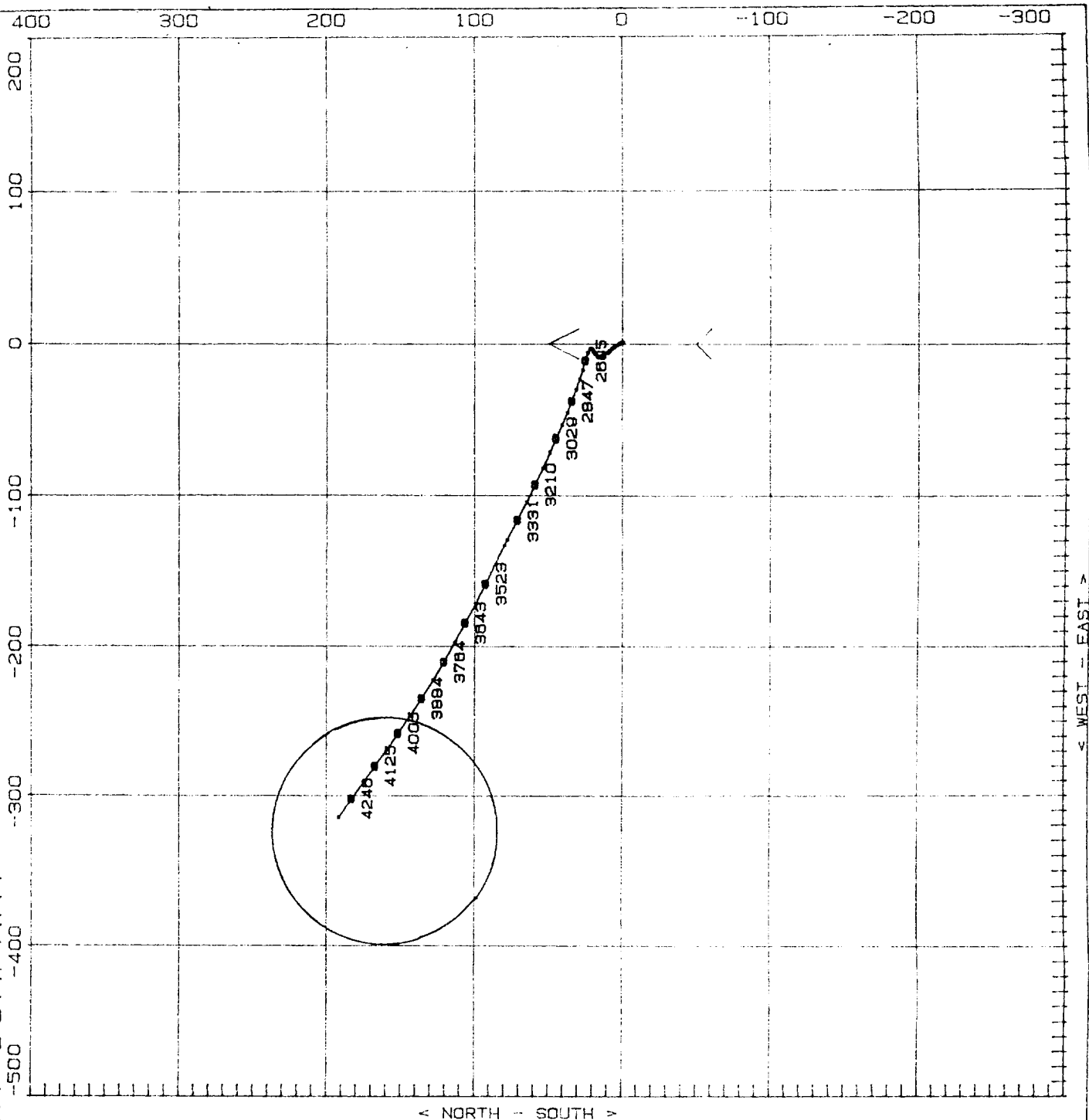
ELEV. :  
0'

FILE # :  
WT-F14CS FROM WT-F10S, D701

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FINAL STATION DATA:  
MD. 4315.00  
TVD. 4276.82  
N/S 192.04  
E/W -315.06

CLOSURE DISTANCE  
368.97 FEET  
CLOSURE DIRECTION  
N 58.64 W

1 IN. = 100 FT.









DIRECTIONAL  
INVESTMENT  
GUIDANCE, INC.

P. O. BOX 7238  
MIDLAND, TEXAS 79708

## SURVEY CERTIFICATION

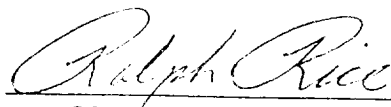
STATE TEXAS

COUNTY OF MIDLAND

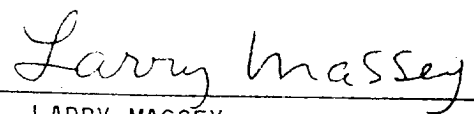
I, RALPH RICE, in the employ of D.I.G., Inc., did on the days of 11-26, 1983 through 11-26, 1983 conduct or supervise the taking of a MAGNETIC MULTISHOT survey by the method of magnetic orientation from a depth of 0 feet to 1541 feet, with recordings of inclination being obtained at approximately intervals of 61 feet.

This survey was conducted at the request of AMOCO PRODUCTION COMPANY for their SHU #148, LEA County, State of TEXAS 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





DIRECTIONAL  
INVESTMENT  
GUIDANCE, INC.

P. O. BOX 7238  
MIDLAND, TEXAS 79708

## SURVEY CERTIFICATION

STATE TEXAS

COUNTY OF MIDLAND

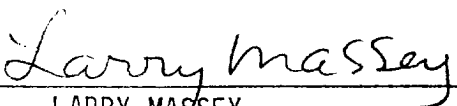
I, D. A. HARBERT, in the employ of D.I.G., Inc., did on the days of 12-2, 1983 through 12-2, 1983 conduct or supervise the taking of a MAGNETIC MULTISHOT survey by the method of magnetic orientation from a depth of 1541 feet to 3410 feet, with recordings of inclination being obtained at approximately intervals of 61 feet.

This survey was conducted at the request of AMOCO PRODUCTION COMPANY for their SHU #148, 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.

  
D. A. HARBERT

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





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 5, 1983 thru December 6, 1983 conduct or supervise the taking of a Magnetic Multi Shot survey by the method of magnetic orientation from a depth of 3410 feet to 4315 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. 148 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.

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.

Ray C. Strike

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 8TH day of Dec., 1983

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

