

SUB-SURFACE
DIRECTIONAL
SURVEY
REPORT

AMOCO PRODUCTION COMPANY

COMPANY

SHU COOP NO. 6

WELL NAME

LEA COUNTY, NEW MEXICO

STATE AND COUNTY

34-18-38

CUSTOMER : AMOCO PRODUCTION COMPANY

ELL # : SHU COOP NO. 6

LOCATION : LEA COUNTY, NEW MEXICO

DATE : 9-22-83, (EW) 10-18-83

DR TYPE : MAGNETIC MULTISHOT, (EW) MAGNETIC MULTISHOT

DR # : MS-1270, (EW) S0058

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

DEPTH : 40'-1602', (EW) 1602'-4426'

ECL. : 10 DEGREES EAST

LEV. : 10'

FILE # : WT-D15

METHOD : RADIUS OF CURVATURE

SECTION : N39W

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

Larry Massey
D/C REPRESENTATIVE

FINAL STATION DATA

MEASURED	INCL.	HOLE	COURSE	VERTICAL	TRUE	VERTICAL	SECTION	CORD	ANGLES	C L D S U R F	DUG-LEG
DEPTH	ANGLE	DIRECTION	LENGTH	DEPTH					DISTANCE	DIRECTION	SEVERITY
FEET	DEGS.	DEGS.	FEET	FEET	FEET	N/S	FEET	FEET	FEET	DEGS.	DC/100FT

4425.00 # 15.75 # N 39.00 W # 40.00 # 4316.80 # 814.20 # 659.62 N 479.21 W # 015.32at N 35.99 W # 1.25

MEASURED	INCL.	HOLE	COURSE	VERTICAL	VERTICAL	SECTION	N/S	feet	E/W	feet	DECS.	DIRECTION	SEVERITY
DEPTH	ANGLE	DIRECTION	LENGTH	DEPTH	FEET	FEET	FEET	FEET	FEET	FEET	FEET	FEET	FEET
FEET	DEGS.	DEGS.	FEET	FEET	FEET	FEET	FEET	FEET	FEET	FEET	FEET	FEET	FEET
9.00	9.00	N 00.00 E	0.00	40.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N 00.00 E	0.00
111.00	1.25	N 72.00 E	111.00	150.99	-4.3	.37	1.15	1.21	1.13	1.13	1.13	N 71.99 E	1.13
173.00	1.25	N 72.00 E	62.00	212.98	-.92	.79	2.44	2.56	0.00	0.00	0.00	N 72.00 E	0.00
235.00	1.25	N 44.00 E	62.00	274.96	-1.08	1.50	3.57	3.89	.92	.92	.92	N 62.20 E	.92
298.00	1.00	N 65.00 E	63.00	337.95	-1.16	2.22	4.57	5.08	.76	.76	.76	N 64.15 E	.76
360.00	.75	N 06.00 E	62.00	399.94	-1.15	2.81	5.30	6.08	.81	.81	.81	N 62.84 E	.81
422.00	.75	N 45.00 E	62.00	461.93	-1.00	3.43	6.82	7.66	.19	.19	.19	N 59.51 E	.19
484.00	.75	N 74.00 E	62.00	523.93	-1.12	3.84	6.52	7.56	.51	.51	.51	N 59.51 E	.51
546.00	.75	N 65.00 E	62.00	585.93	-1.38	4.12	7.28	8.36	.19	.19	.19	N 60.47 E	.19
608.00	.75	N 48.00 E	62.00	647.92	-1.45	4.57	7.95	9.17	.36	.36	.36	N 60.12 E	.36
670.00	.50	N 63.00 E	62.00	709.92	-1.51	4.75	8.51	9.84	.80	.80	.80	N 57.81 E	.80
732.00	.50	N 88.00 E	62.00	771.91	-1.73	5.09	9.03	10.36	.35	.35	.35	N 60.51 E	.35
794.00	.50	S 29.00 E	62.00	833.91	-2.21	4.83	9.47	10.63	.84	.84	.84	N 62.98 E	.84
857.00	.50	S 16.00 W	63.00	896.91	-2.66	4.30	9.53	10.46	.61	.61	.61	N 65.73 E	.61
919.00	.50	S 74.00 W	62.00	958.91	-2.71	3.93	9.17	9.92	.78	.78	.78	N 66.79 E	.78
981.00	.50	S 30.00 W	62.00	1020.91	-2.70	3.51	8.24	9.46	.58	.58	.58	N 67.55 E	.58
1043.00	.50	S 01.00 E	62.00	1082.90	-3.01	3.10	8.60	9.14	.46	.46	.46	N 70.19 E	.46
1105.00	.75	S 20.00 W	62.00	1144.90	-3.27	2.70	8.54	8.95	.45	.45	.45	N 72.44 E	.45
1167.00	.25	S 24.00 E	62.00	1206.90	-3.48	2.44	8.54	8.88	.30	.30	.30	N 74.08 E	.30
1229.00	.50	S 46.00 W	62.00	1268.90	-3.73	2.06	8.47	8.72	.77	.77	.77	N 76.31 E	.77
1291.00	.25	N 80.00 W	62.00	1330.90	-3.58	1.95	8.10	8.33	.66	.66	.66	N 76.47 E	.66
1354.00	.50	S 68.00 E	63.00	1393.90	-3.74	1.68	8.02	8.19	1.18	1.18	1.18	N 78.17 E	1.18
1416.00	.50	S 05.00 W	62.00	1455.89	-4.24	1.25	8.28	8.38	.96	.96	.96	N 81.43 E	.96
1478.00	.75	S 10.00 E	62.00	1517.89	-4.79	.57	8.31	8.35	.48	.48	.48	N 86.04 E	.48
1540.00	.75	S 04.00 E	62.00	1579.89	-5.47	.23	8.41	8.42	.13	.13	.13	S 88.42 E	.13

MEASURED INCL. ANGLE	HOLE DIRECTION	COURSE LENGTH	TRUE VERTICAL DEPTH	VERTICAL SECTION FEET	N/S	feet	RECTANGULAR COORDINATES	C U S U R E	DIRECTION	SEVERITY
FEET	DEGS.	FEET	FEET	FEET			FEET		DEGS.	DG/100FT
1602.00	1.00	S 01.00 E	62.00	1641.88	-6.23	1.18 S	8.45 E	8.54	S 82.02 E	.41
(1602' MD AND PRECEDING RESULTS OF D.I.G. SURVEY MS-1270)										
(1602' MD AND FOLLOWING RESULTS OF EASTMAN WHIPSTICK SURVEY S0058)										
1679.00	1.00	S 28.00 W	77.00	1718.87	-7.04	2.47 S	8.14 E	8.51	S 73.13 E	.65
1741.00	1.00	S 41.00 W	62.00	1780.86	-7.32	3.34 S	7.51 E	8.22	S 66.01 E	.45
1802.00	1.00	N 73.00 W	61.00	1841.85	-6.90	3.60 S	6.53 E	7.45	S 61.16 E	1.71
1864.00	4.75	N 50.00 W	62.00	1903.76	-4.05	2.12 S	3.82 E	4.32	S 60.92 E	6.21
1926.00	7.75	N 37.00 W	62.00	1965.30	2.66	2.76 N	.82 W	2.68	N 16.51 W	5.32
1987.00	9.75	N 35.00 W	61.00	2025.67	11.93	10.27 N	6.27 W	12.03	N 31.41 W	3.32
2049.00	11.50	N 35.00 W	62.00	2086.60	23.33	19.63 N	12.83 W	23.45	N 33.16 W	2.82
2111.00	13.00	N 35.00 W	62.00	2147.19	36.46	30.41 N	20.39 W	36.60	N 33.82 W	2.42
2173.00	14.00	N 35.00 W	62.00	2207.48	50.89	42.27 N	28.68 W	51.08	N 34.15 W	1.61
2234.00	16.00	N 36.00 W	61.00	2266.40	66.65	55.12 N	37.84 W	66.86	N 34.47 W	3.31
2296.00	17.75	N 35.00 W	62.00	2325.72	84.61	69.77 N	48.30 W	84.85	N 34.69 W	2.86
2358.00	19.50	N 35.00 W	62.00	2384.47	104.37	85.99 N	59.65 W	104.65	N 34.74 W	2.82
2420.00	20.00	N 34.00 W	62.00	2442.83	125.25	103.25 N	71.52 W	125.60	N 34.70 W	.97
2481.00	21.25	N 35.00 W	61.00	2499.92	146.67	120.96 N	83.69 W	147.09	N 34.67 W	2.13
2543.00	22.50	N 33.00 W	62.00	2557.45	169.68	140.11 N	96.51 W	170.19	N 34.58 W	2.35
2605.00	23.75	N 35.00 W	62.00	2614.47	193.94	160.30 N	110.22 W	194.53	N 34.51 W	2.38
2667.00	24.25	N 32.00 W	62.00	2671.11	219.04	181.32 N	124.14 W	219.75	N 34.39 W	2.13
2728.00	20.00	N 31.00 W	61.00	2726.56	244.24	202.99 N	137.42 W	245.13	N 34.09 W	1.41
2790.00	25.75	N 30.00 W	62.00	2782.58	270.51	225.89 N	150.90 W	271.65	N 33.74 W	1.39
2852.00	26.25	N 30.00 W	62.00	2838.30	297.36	249.43 N	164.42 W	298.78	N 33.40 W	.81
2914.00	26.75	N 29.00 W	62.00	2893.79	324.64	273.50 N	178.11 W	326.39	N 33.07 W	1.08
2975.00	27.00	N 27.00 W	61.00	2948.20	351.71	297.85 N	191.06 W	353.86	N 32.62 W	1.54
3024.00	27.00	N 28.00 W	49.00	2991.86	373.51	317.58 N	201.33 W	376.02	N 32.32 W	.93
3086.00	26.50	N 30.00 W	62.00	3047.22	400.99	341.99 N	214.86 W	403.88	N 32.13 W	1.66

MEASURED DEPTH FEET	INCL. ANGLE DEGS.	HOLE DIRECTION	COURSE LENGTH FEET	TRUE VERTICAL DEPTH FEET	VERTICAL SECTION FEET	N/S	RECTANGULAR COORDINATES	C L O S U R E	D I S T A N C E	D I R E C T I O N	D O G - L E G S E V E R I T Y
3149.00	23.75	N 38.00 W	63.00	3104.26	427.61	N	364.14	229.80	430.59	N 32.25 W	6.93
3212.00	23.00	N 43.00 W	63.00	3162.09	452.59	N	383.14	246.03	453.33	N 32.70 W	3.37
3275.00	24.00	N 43.00 W	63.00	3219.86	477.65	N	401.51	263.16	480.07	N 33.24 W	1.59
3336.00	24.25	N 42.00 W	61.00	3275.53	502.54	N	419.90	280.01	504.20	N 33.69 W	.79
3399.00	24.75	N 42.00 W	63.00	3332.86	520.63	N	437.31	297.49	530.56	N 34.10 W	.79
3461.00	25.00	N 41.00 W	62.00	3389.11	554.68	N	458.84	314.77	556.43	N 34.45 W	.79
3522.00	23.25	N 41.00 W	61.00	3444.70	579.60	N	477.66	331.16	581.21	N 34.73 W	2.87
3583.00	21.00	N 41.00 W	61.00	3501.29	632.55	N	493.00	346.20	584.05	N 34.96 W	3.68
3645.00	18.25	N 40.00 W	62.00	3559.68	623.37	N	510.83	359.72	624.78	N 35.15 W	4.47
3707.00	16.25	N 40.00 W	62.00	3618.88	641.75	N	524.91	371.54	643.10	N 35.29 W	3.23
3770.00	13.50	N 39.00 W	63.00	3679.77	657.92	N	537.39	381.82	659.23	N 35.39 W	4.38
3832.00	13.00	N 38.00 W	62.00	3740.12	672.13	N	548.51	390.67	673.42	N 35.45 W	.89
3895.00	13.00	N 38.00 W	63.00	3801.50	686.30	N	559.68	399.39	687.57	N 35.51 W	0.00
3956.00	13.00	N 38.00 W	61.00	3860.94	700.02	N	570.49	407.84	701.28	N 35.56 W	0.00
4018.00	13.25	N 38.00 W	62.00	3921.32	714.10	N	581.59	416.51	715.35	N 35.60 W	.40
4081.00	13.25	N 38.00 W	63.00	3982.64	728.53	N	592.97	425.40	729.20	N 35.65 W	0.00
4144.00	13.25	N 39.00 W	63.00	4043.96	742.97	N	604.27	434.39	743.20	N 35.71 W	.36
4207.00	14.00	N 39.00 W	63.00	4105.19	757.81	N	615.80	443.73	759.02	N 35.77 W	1.19
4267.00	14.50	N 39.00 W	60.00	4163.34	772.58	N	627.28	453.02	773.76	N 35.83 W	.83
4326.00	15.25	N 39.00 W	59.00	4220.37	787.73	N	639.05	462.56	788.89	N 35.89 W	1.27
4386.00	15.25	N 39.00 W	60.00	4278.25	803.51	N	651.31	472.49	804.64	N 35.95 W	0.00
4426.00	15.75	N 39.00 W	40.00	4316.80	814.20	N	659.62	479.21	815.32	N 35.99 W	1.25

CLOSURE DISTANCE = 815.32 FEET.
CLOSURE DIRECTION = N 36.00 W

(1602/-44267 MD RESULTS OF EASTMAN WHIPSTOCK SURVEY 50050)

AMOCO PRODUCTION COMPANY

WELL #
SHU COOP NO. 6

LOCATION :
LEA COUNTY, NEW MEXICO

DATE :
9-22-83, (EW) 10-18-83

JOB TYPE :
MAGNETIC MULTISHOT, (EW) MAGNETIC MULTISHOT

JOB # :
MS-1270, (EW) 50058

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

DEPTHS :
40'-1802', (EW) 1802'-4428'

DECL. :
10 DEGREES EAST

ELEV. :
0'

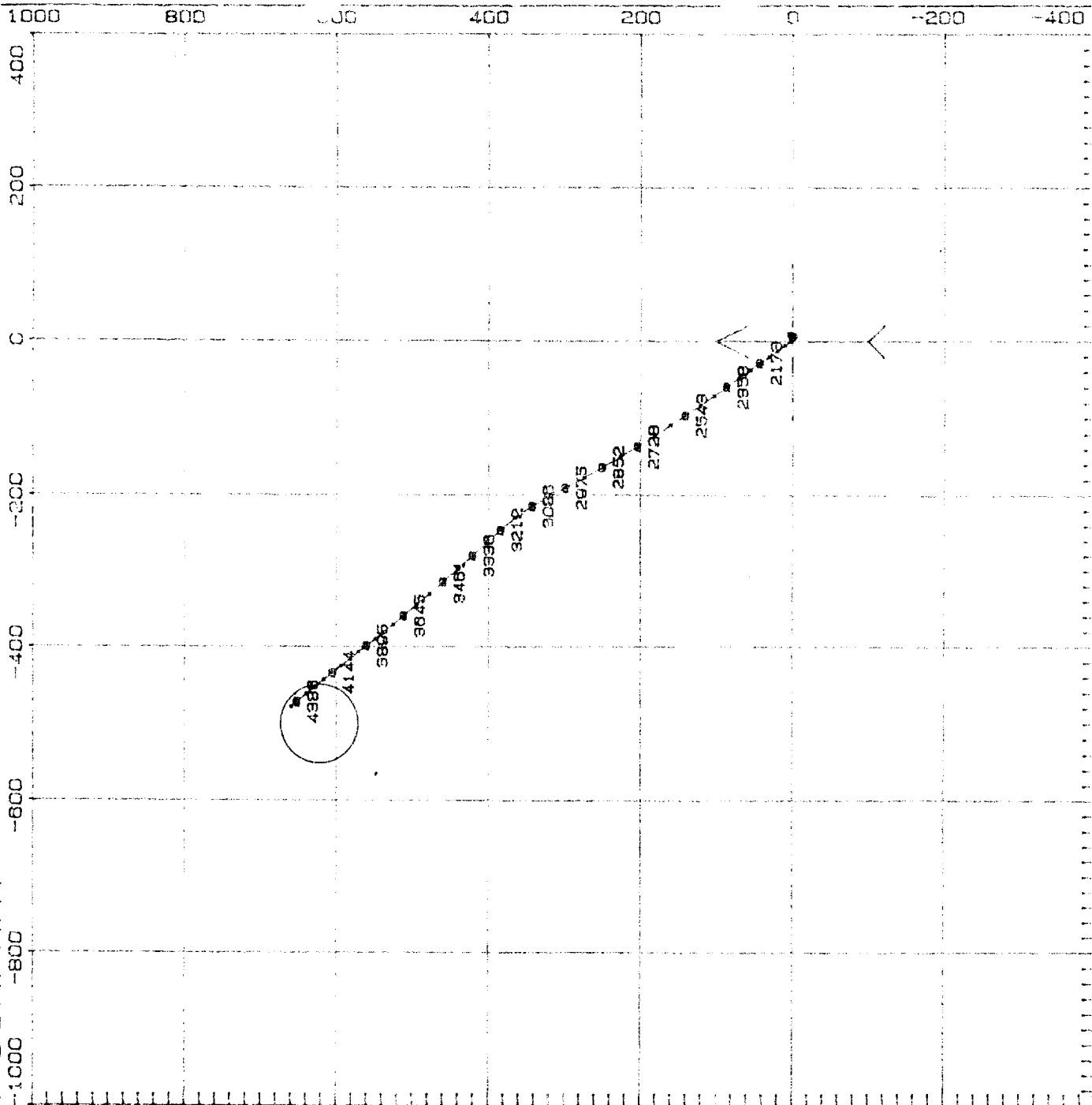
FILE # :
WT-D13

FINAL STATION DATA:

MD. 4426.00
TVD. 4316.80
N/S 859.82
E/W -479.21

CLOSURE DISTANCE
815.32 FEET
CLOSURE DIRECTION
N 36.00 W

1 IN. = 200 FT.



▲ NORTH ▲ SOUTH ▼



SURVEY CERTIFICATION

STATE TEXASCOUNTY OF MIDLAND

I, D. A. HARBERT, in the employ of D.I.G., Inc., did on the days of 9-22, 1983 through 9-22, 1983 conduct or supervise the taking of a MAGNETIC MULTISHOT survey by the method of magnetic orientation from a depth of 40 feet to 1602 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 COOP #6, LEA County, State of NEW MEXICO in the SOUTH HOBBS UNIT 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, appearing to read "D. A. Harbert", written over a horizontal line.

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.

A handwritten signature in cursive script, appearing to read "Larry Massey", written over a horizontal line.

LARRY MASSEY



P. O. Box 5577/Midland, Texas 79704/(915) 563-0511

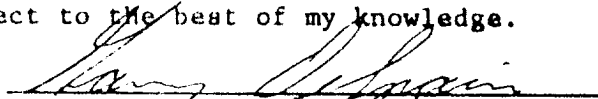
SURVEY CERTIFICATION SHEET

STATE OF TEXAS
COUNTY OF MIDLAND

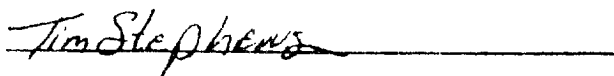
I, GARY DESPAIN, in the employ of Eastman Whipstock, Inc., did on the days of OCTOBER 5, 19 83 thru OCTOBER 6, 19 83 conduct or supervise the taking of a MAGNETIC MULTISHOT survey by the method of magnetic orientation from a depth of 1602 feet to 4426 feet, with recordings of inclination and direction being obtained at approximate intervals of 62 feet.

This survey was conducted at the request of AMOCO PRODUCTION COMPANY for their SOUTH HOBBS UNIT CO-OP #6, 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.

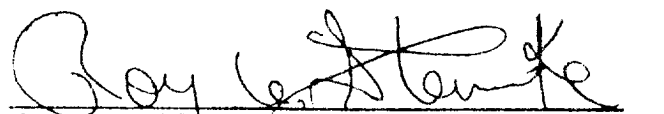

Directional Supervisor / Surveyor

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



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 20TH day of OCT., 19 83


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

