



**REPORT
of
SUB-SURFACE
DIRECTIONAL
SURVEY**

HARVEY E. YATES
COMPANY

SUPERIOR 19 STATE WELL NO. 1
WELL NAME

LEA COUNTY, NEW MEXICO
LOCATION

JOB NUMBER

WT-880 D-2299

TYPE OF SURVEY

Magnetic Single Shot

(Sidetrack at 10379')

DATE

8-2 / 9-2-80

SURVEY BY
Dale Welch

OFFICE
West Texas

HARVEY E. YATES
SUPERIOR 19 STATE WELL NO. 1
LEA COUNTY, NEW MEXICO

SIDETRACK AT 10379'

EASTMAN WHIPSTOCK, INC.
GYROSCOPIC MULTIPLE SHOT SURVEY
SURVEYOR: STEVE COVINGTON
MAGNETIC MULTIPLE SHOT SURVEY
SURVEYOR: STEVE COVINGTON
MAGNETIC SINGLE SHOT SURVEY
SURVEYOR: DALE WELCH

WT780-G2289
(0'-4600')
WT780-S2290
(4600'-10379')
WT880-D2299
(10379'-11163')

27
RECORD OF SURVEY

RADIUS OF CURVATURE METHOD

HARVEY E. YATES
SUPERIOR 19 STATE WELL NO. 1
LEA COUNTY, NEW MEXICO

SIDETRACK AT 10379'

COMPUTATION

PAGE NO.

TIME DATE
09:47:20 03-SEP-80

MEASURED DEPTH FEET	DRIFT ANGLE D M	DRIFT DIRECTION D	TRUE		RECTANGULAR COORDINATES FEET	DOG LEG SEVERITY DG/100FT
			VERTICAL DEPTH FEET	DEPTH FEET		
0.	0 0	0	0.00	0.00	0.00	0.00
100.	0 45	N 34 W	100.00	0.54 N	0.37 W	0.75
200.	0 45	N 38 W	199.99	1.60 N	1.14 W	0.05
300.	1 0	N 56 W	299.98	2.64 N	2.25 W	0.37
400.	1 0	N 61 W	399.96	3.55 N	3.73 W	0.09
500.	1 0	N 51 W	499.95	4.52 N	5.18 W	0.17
600.	1 0	N 53 W	599.93	5.60 N	6.55 W	0.03
700.	0 45	N 55 W	699.92	6.50 N	7.79 W	0.25
800.	0 45	N 55 W	799.91	7.25 N	8.86 W	0.00
900.	0 45	N 61 W	899.90	7.94 N	9.97 W	0.08
1000.	0 45	N 65 W	999.89	8.52 N	11.14 W	0.07
1100.	0 45	N 61 W	1099.89	9.11 N	12.31 W	0.07
1200.	0 45	N 63 W	1199.88	9.72 N	13.47 W	0.03
1300.	0 30	N 68 W	1299.87	10.17 N	14.46 W	0.26
1400.	0 30	N 64 W	1399.87	10.53 N	15.26 W	0.03
1500.	0 30	N 6 W	1499.86	11.21 N	15.74 W	0.48
1600.	0 30	N 0 W	1599.86	12.08 N	15.78 W	0.05
1700.	0 30	N 8 W	1699.86	12.95 N	15.84 W	0.07
1800.	0 15	N 20 W	1799.85	13.59 N	16.00 W	0.26
1900.	0 0	0	1899.85	13.79 N	16.08 W	0.25
2000.	0 0	0	1999.85	13.79 N	16.08 W	0.00
2100.	0 0	0	2099.85	13.79 N	16.08 W	0.00
2200.	0 0	0	2199.85	13.79 N	16.08 W	0.00
2300.	0 0	0	2299.85	13.79 N	16.08 W	0.00
2400.	0 30	N 72 W	2399.85	13.93 N	16.49 W	0.50
2500.	0 45	N 54 W	2499.85	14.42 N	17.46 W	0.31
2600.	0 45	N 49 W	2599.84	15.24 N	18.48 W	0.07
2700.	1 0	N 46 W	2699.83	16.27 N	19.61 W	0.25
2800.	1 0	N 43 W	2799.81	17.51 N	20.83 W	0.05
2900.	1 15	N 42 W	2899.79	18.96 N	22.16 W	0.25

TIME DATE
09:47:20 03-SEP-80

MEASURED DEPTH FEET	DRIFT ANGLE D M	DRIFT DIRECTION D	TRUE VERTICAL DEPTH FEET	R E C T A N G U L A R C O O R D I N A T E S FEET	DOG LEG SEVERITY DG/100FT
3000.	1 30	N 35 W	2999.76	20.84 N 23.65 W	0.30
3100.	1 45	N 36 W	3099.72	23.14 N 25.30 W	0.25
3200.	2 0	N 36 W	3199.67	25.79 N 27.22 W	0.25
3300.	2 15	N 32 W	3299.60	28.87 N 29.29 W	0.22
3400.	2 0	N 34 W	3399.53	31.97 N 31.31 W	0.26
3500.	2 0	N 36 W	3499.47	34.83 N 33.31 W	0.07
3600.	2 0	N 39 W	3599.41	37.60 N 35.44 W	0.10
3700.	2 0	N 34 W	3699.35	40.41 N 37.51 W	0.17
3800.	2 15	N 25 W	3799.28	43.63 N 39.34 W	0.42
3900.	2 30	N 23 W	3899.19	47.34 N 41.19 W	0.23
4000.	2 30	N 18 W	3999.10	51.35 N 42.89 W	0.44
4100.	2 15	N 9 W	4099.01	55.37 N 43.85 W	0.45
4200.	2 15	N 10 W	4198.93	59.24 N 44.50 W	0.04
4300.	2 30	N 6 W	4298.85	63.34 N 45.08 W	0.30
4400.	2 45	N 1 W	4398.74	67.91 N 45.36 W	0.34
4500.	2 30	N 4 E	4498.64	72.49 N 45.24 W	0.34
4600.	2 0	N 7 E	4598.52	77.27 N 44.78 W	0.52
4635.	2 0	N 9 E	4631.48	78.93 N 44.54 W	0.32
4725.	2 0	N 9 E	4723.35	83.73 N 43.78 W	0.00
4818.	2 45	N 9 E	4816.23	88.34 N 43.05 W	0.27
4911.	2 45	N 10 E	4909.13	92.74 N 42.32 W	0.05
5004.	2 45	N 9 E	5002.02	97.14 N 41.53 W	0.05
5096.	2 30	N 12 E	5093.92	101.29 N 40.81 W	0.31
5159.	2 00	N 12 E	5186.84	105.31 N 40.32 W	0.47
5232.	2 00	N 3 E	5279.73	109.36 N 40.14 W	0.05
5374.	2 30	N 4 E	5371.66	113.37 N 39.90 W	0.05
5467.	2 30	N 6 E	5464.57	117.41 N 39.54 W	0.09
5560.	2 45	N 7 E	5557.47	121.64 N 39.06 W	0.27
5652.	2 0	N 9 E	5649.36	126.21 N 38.42 W	0.22
5745.	2 0	N 11 E	5742.23	131.00 N 37.57 W	0.11

SUPERIOR 19 STATE WELL NO. 1
SEA COUNTY, NEW MEXICO

TIME DATE
09:47:20 03-SEP-80

MEASURED DEPTH FEET	DRIFT ANGLE D M	DRIFT DIRECTION D	TRUE VERTICAL DEPTH FEET	RECTANGULAR CORRELATION FEET	DOG LEG SEVERITY DG/100FT
5838.	3 0	N 16 E	5835.10	135.73 N	0.28
5930.	3 0	N 14 E	5926.98	140.38 N	0.11
6023.	3 15	N 16 E	6019.84	145.23 N	0.29
6116.	3 15	N 15 E	6112.62	150.36 N	0.06
6208.	3 0	N 16 E	6204.55	155.20 N	0.28
6301.	2 45	N 17 E	6297.44	159.67 N	0.27
6394.	2 30	N 16 E	6390.24	163.75 N	0.27
6486.	2 15	N 17 E	6482.26	167.41 N	0.28
6579.	2 0	N 14 E	6575.19	170.73 N	0.29
6672.	2 0	N 21 E	6668.14	173.82 N	0.26
6764.	2 0	N 27 E	6760.08	176.75 N	0.23
6857.	1 45	N 24 E	6853.03	179.50 N	0.29
6950.	1 45	N 31 E	6945.92	182.02 N	0.23
7042.	1 45	N 31 E	7037.95	184.43 N	0.00
7135.	1 45	N 30 E	7130.90	186.88 N	0.03
7228.	1 39	N 34 E	7223.86	189.21 N	0.17
7321.	1 45	N 35 E	7316.82	191.49 N	0.11
7413.	1 45	N 34 E	7408.78	193.80 N	0.03
7506.	1 30	N 27 E	7501.74	196.07 N	0.34
7599.	1 30	N 27 E	7594.71	198.24 N	0.00
7691.	1 15	N 30 E	7686.68	200.13 N	0.29
7784.	1 15	N 29 E	7779.66	201.95 N	0.02
7877.	1 15	N 29 E	7872.64	203.72 N	0.00
7969.	1 15	N 23 E	7964.62	205.52 N	0.14
8062.	1 30	N 26 E	8057.59	207.55 N	0.28
8155.	1 30	N 35 E	8150.56	209.65 N	0.25
8247.	1 30	N 40 E	8242.53	211.56 N	0.14
8340.	1 45	N 43 E	8335.49	213.53 N	0.28
8433.	2 0	N 48 E	8428.44	215.67 N	0.32
8525.	1 45	N 44 E	8520.39	217.76 N	0.31

HARVEY E. YATES
SUPERIOR 19 STATE WELL NO. 1
LEA COUNTY, NEW MEXICO

SIDETRACK AT 10379'

COMPUTATION

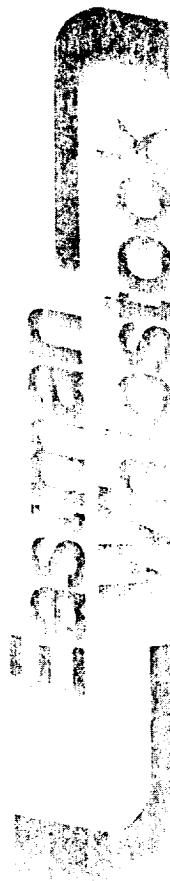
PAGE NO. 4

TIME DATE
09:47:20 03-SEP-80

MEASURED DEPTH FEET	DRIFT ANGLE D M	DRIFT DIRECTION D	TRUE VERTICAL DEPTH FEET	RECTANGULAR		DOG LEG SEVERITY DG/100FT
				C-O-R-D-I-N-A-T-E-S FEET		
8618.	2 0	N 46 E	8613.34	219.91 N	4.03 E	0.28
8711.	2 0	N 45 E	8706.28	222.19 N	6.35 E	0.04
8803.	2 30	N 46 E	8798.21	224.72 N	8.92 E	0.55
8896.	2 15	N 43 E	8891.13	227.47 N	11.62 E	0.30
8989.	2 15	N 43 E	8984.06	230.14 N	14.11 E	0.00
9081.	2 15	N 39 E	9075.99	232.86 N	16.48 E	0.17
9174.	2 15	N 40 E	9168.92	235.68 N	18.80 E	0.04
9267.	2 15	N 41 E	9261.85	238.45 N	21.18 E	0.04
9359.	2 15	N 43 E	9353.77	241.14 N	23.59 E	0.09
9452.	2 30	N 47 E	9446.69	243.86 N	26.32 E	0.32
9545.	2 45	N 46 E	9539.60	246.79 N	29.41 E	0.27
9638.	2 45	N 44 E	9632.49	249.95 N	32.56 E	0.10
9730.	2 30	N 44 E	9724.39	252.98 N	35.49 E	0.27
9823.	2 45	N 44 E	9817.29	256.05 N	38.45 E	0.27
9916.	2 30	N 44 E	9910.20	259.11 N	41.41 E	0.27
10008.	2 30	N 41 E	10002.11	262.07 N	44.12 E	0.14
10101.	2 30	N 41 E	10095.02	265.13 N	46.78 E	0.00
10194.	2 15	N 36 E	10187.94	268.15 N	49.18 E	0.35
10286.	2 0	N 42 E	10279.88	270.79 N	51.32 E	0.36
10379.	2 0	N 41 E	10372.82	273.23 N	53.47 E	0.04
10502.	4 45	N 63 E	10495.59	277.66 N	59.14 E	2.43
10544.	5 0	N 65 E	10537.44	279.22 N	62.35 E	0.72
10629.	5 15	N 62 E	10622.10	282.61 N	69.15 E	0.43
10680.	5 0	N 60 E	10672.90	284.82 N	73.13 E	0.60
10732.	4 15	N 62 E	10724.73	286.85 N	76.80 E	1.48
10783.	4 30	N 64 E	10775.53	288.62 N	80.27 E	0.57
10812.	4 0	N 60 E	10804.50	289.62 N	82.16 E	2.00
10858.	4 15	N 60 E	10850.33	291.28 N	85.03 E	0.54
10945.	3 45	N 50 E	10937.17	294.76 N	89.99 E	0.98
11008.	3 15	N 45 E	11000.05	297.35 N	92.83 E	0.93

MEASURED DEPTH FEET	DRIFT ANGLE D M	DRIFT DIRECTION D	TRUE VERTICAL DEPTH FEET	R E C T A N G U L A R C O O R D I N A T E S FEET	D O G L E G S E V E R I T Y D G / 100 F T
11070.	2 0	N 42 E	11061.96	299.80 N	95.15 E 0.48
11163.	2 45	N 44 E	11154.84	303.22 N	98.33 E 0.29

FINAL CLOSURE - DIRECTION: N 17 DEGS 58 MINS E
 DISTANCE: 318.76 FEET

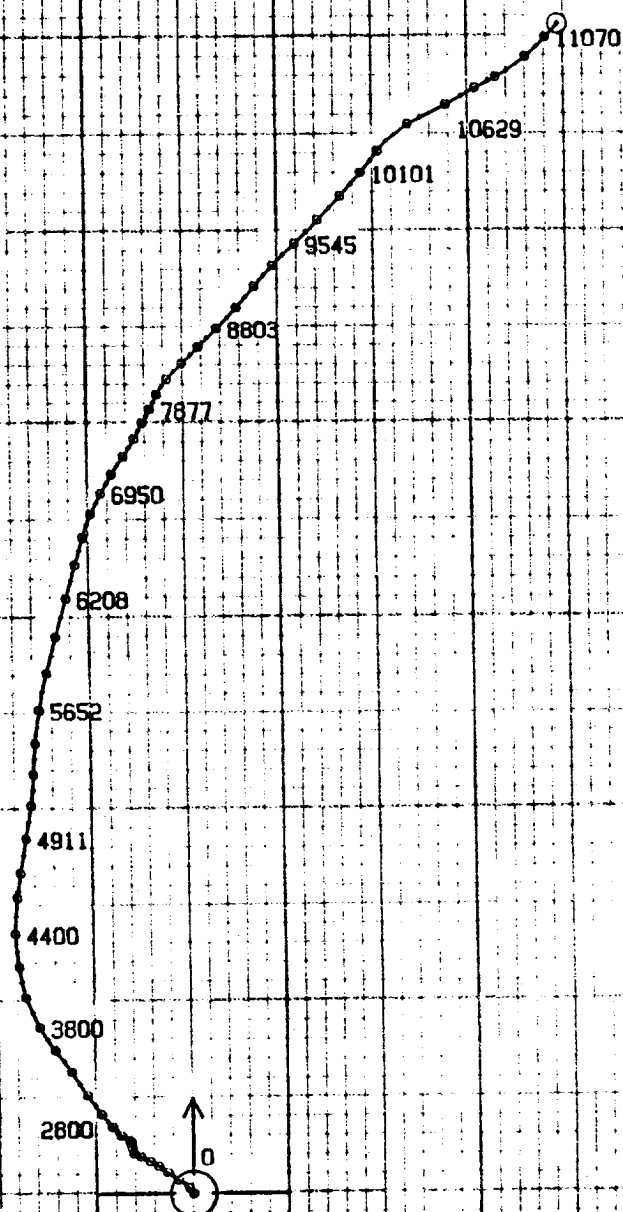


HARVEY E. YATES
SUPERIOR 19 STATE WELL NO. 1
LEA COUNTY, NEW MEXICO

EASTMAN WHIPSTOCK, INC.

HORIZONTAL PROJECTION

SCALE 1 IN. = 50 FEET
DEPTH INDICATOR: MD



FINAL STATION:
DEPTH 11163 MD. 11154.84 TVD
NORTH 303.21 EAST 98.33
CLOSURE 318.76 N 17 58 6 E



P. O. Box 5577 / Midland, Texas 79701 / (915) 563-0511
TWX 910-881-5066 / Cable: EASTCO

SURVEY CERTIFICATION SHEET

STATE OF TEXAS
COUNTY OF MIDLAND

I, Dale Welch, in the employ of Eastman Whipstock, Inc., did on the days of 8-2-80, 1980 thru 9-2, 1980 conduct or supervise the taking of a Single shot survey by the method of magnetic orientation from a depth of 18,502 feet to 11,163 feet, with recordings of inclination and direction being obtained at approximate intervals of 60-90 feet.

This survey was conducted at the request of Keyco for their Superior 19 State #1, Area N.M. County, State of New Mexico, in the field.

The data for this survey and the calculations 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.

Dale Welch
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.

Ken Hanner

Before me, the undersigned authority, on this day personally appeared Dale Welch, 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 3rd day of September, 1980.

Anna M. Smith
Notary Public in and for the County of
Midland, Texas
My commission expires 5-24-84



**REPORT
of
SUB-SURFACE
DIRECTIONAL
SURVEY**

HARVEY E. YATES
COMPANY

SUPERIOR 19 STATE WELL NO.1
WELL NAME

LEA COUNTY, NEW MEXICO
LOCATION

JOB NUMBER

WT-780 G-2289
WT-780 S-2290

TYPE OF SURVEY

Gyroscopic Multiple Shot
Magnetic Multiple Shot

DATE

7-31-80
7-31-80

SURVEY BY
Steve Covington

OFFICE
West Texas

HARVEY E. YATES
SUPERIOR 19 STATE WELL NO. 1
LEA COUNTY, NEW MEXICO

EASTMAN WHIPSTOCK, INC.
GYROSCOPIC MULTIPLE SHOT SURVEY
SURVEYOR: STEVE COVINGTON
MAGNETIC MULTIPLE SHOT SURVEY
SURVEYOR: STEVE COVINGTON

WT780-G2289
(0'-4600')
WT780-S2290
(4600'-11110')



RADIUS OF CURVATURE METHOD

TIME DATE
02:32:56 00--00

MEASURED DEPTH FEET	DRIFT ANGLE D M	DRIFT DIRECTION D	TRUE		RECTANGULAR COORDINATES FEET	DOG LEG SEVERITY DG/100FT
			VERTICAL DEPTH FEET	VERTICAL FEET		
0.	0 0	0	0.00	0.00	0.00	0.00
100.	0 45	N 34 W	100.00	0.34 N	0.37 W	0.75
200.	0 45	N 38 W	199.99	1.60 N	1.14 W	0.05
300.	1 0	N 56 W	299.98	2.64 N	2.25 W	0.37
400.	1 0	N 61 W	399.96	3.55 N	3.73 W	0.09
500.	1 0	N 51 W	499.95	4.52 N	5.18 W	0.17
600.	1 0	N 53 W	599.93	5.60 N	6.55 W	0.03
700.	0 45	N 55 W	699.92	6.50 N	7.79 W	0.25
800.	0 45	N 55 W	799.91	7.25 N	8.86 W	0.00
900.	0 45	N 61 W	899.90	7.94 N	9.97 W	0.08
1000.	0 45	N 66 W	999.89	8.52 N	11.14 W	0.07
1100.	0 45	N 61 W	1099.89	9.11 N	12.31 W	0.07
1200.	0 45	N 63 W	1199.88	9.72 N	13.47 W	0.03
1300.	0 30	N 68 W	1299.87	10.17 N	14.46 W	0.26
1400.	0 30	N 64 W	1399.87	10.53 N	15.26 W	0.03
1500.	0 30	N 6 W	1499.86	11.21 N	15.74 W	0.48
1600.	0 30	N 0 W	1599.86	12.03 N	15.78 W	0.05
1700.	0 30	N 8 W	1699.86	12.95 N	15.84 W	0.07
1800.	0 15	N 20 W	1799.85	13.52 N	16.00 W	0.26
1900.	0 0	0	1899.85	13.79 N	16.08 W	0.25
2000.	0 0	0	1999.85	13.79 N	16.08 W	0.00
2100.	0 0	0	2099.85	13.79 N	16.08 W	0.00
2200.	0 0	0	2199.85	13.79 N	16.08 W	0.00
2300.	0 0	0	2299.85	13.79 N	16.08 W	0.00
2400.	0 30	N 72 W	2399.85	13.93 N	16.49 W	0.50
2500.	0 45	N 54 W	2499.85	14.42 N	17.46 W	0.31
2600.	0 45	N 49 W	2599.84	15.24 N	18.48 W	0.07
2700.	1 0	N 46 W	2699.83	16.27 N	19.61 W	0.25
2800.	1 0	N 43 W	2799.81	17.51 N	20.83 W	0.05
2900.	1 15	N 42 W	2899.79	18.96 N	22.16 W	0.25

TIME DATE
02:32:56 00--00

MEASURED DEPTH FEET	DRIFT ANGLE D M	DRIFT DIRECTION D	TRUE		R E C T A N G U L A R C O O R D I N A T E S FEET	D O G L E G S E V E R I T Y D G / 1 0 0 F T
			VERTICAL DEPTH FEET			
3000.	1 30	N 35 W	2999.76		20.84 N 23.65 W	0.30
3100.	1 45	N 36 W	3099.72		23.14 N 25.30 W	0.25
3200.	2 0	N 36 W	3199.67		25.79 N 27.22 W	0.25
3300.	2 15	N 32 W	3299.60		28.87 N 29.29 W	0.29
3400.	2 0	N 34 W	3399.53		31.97 N 31.31 W	0.26
3500.	2 0	N 36 W	3499.47		34.83 N 33.31 W	0.07
3600.	2 0	N 39 W	3599.41		37.60 N 35.44 W	0.10
3700.	2 0	N 34 W	3699.35		40.41 N 37.51 W	0.17
3800.	2 15	N 25 W	3799.28		43.63 N 39.34 W	0.42
3900.	2 30	N 28 W	3899.19		47.34 N 41.19 W	0.28
4000.	2 30	N 18 W	3999.10		51.35 N 42.89 W	0.44
4100.	2 15	N 19 W	4099.01		55.37 N 43.85 W	0.45
4200.	2 15	N 10 W	4198.93		59.24 N 44.50 W	0.04
4300.	2 30	N 4 W	4298.85		63.34 N 45.08 W	0.30
4400.	2 45	N 1 W	4398.74		67.91 N 45.36 W	0.34
4500.	2 30	N 4 E	4498.64		72.49 N 45.24 W	0.34
4600.	3 0	N 7 E	4598.52		77.27 N 44.78 W	0.52
4633.	3 0	N 9 E	4631.48		78.98 N 44.54 W	0.32
4725.	3 0	N 9 E	4723.35		83.73 N 43.78 W	0.00
4818.	2 45	N 9 E	4816.23		88.34 N 43.05 W	0.27
4911.	2 45	N 10 E	4909.13		92.74 N 42.32 W	0.05
5004.	2 45	N 9 E	5002.02		97.14 N 41.58 W	0.05
5096.	2 30	N 12 E	5093.92		101.29 N 40.81 W	0.31
5189.	2 30	N 2 E	5186.84		105.31 N 40.32 W	0.47
5282.	2 30	N 3 E	5279.75		109.36 N 40.14 W	0.05
5374.	2 30	N 4 E	5371.66		113.37 N 39.90 W	0.05
5467.	2 30	N 6 E	5464.57		117.41 N 39.54 W	0.09
5560.	2 45	N 7 E	5557.47		121.64 N 39.06 W	0.27
5652.	3 0	N 9 E	5649.36		126.21 N 38.42 W	0.29
5745.	3 0	N 11 E	5742.23		131.00 N 37.57 W	0.11

TIME DATE
02:32:56 00--00

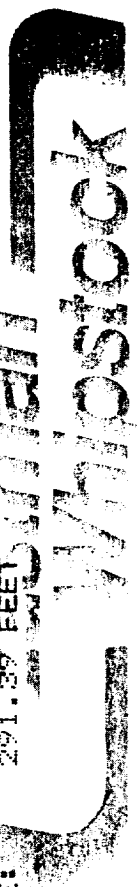
MEASURED DEPTH FEET	DRIFT ANGLE D M	DRIFT DIRECTION D	TRUE VERTICAL DEPTH FEET	R E C T A N G U L A R C O O R D I N A T E S FEET	D O S SEVERITY DG/100FT	LEG
5838.	3 0	N 16 E	5835.10	135.73 N 36.44 W	0.28	
5930.	3 0	N 14 E	5926.98	140.38 N 35.19 W	0.11	
6023.	3 15	N 16 E	6019.84	145.28 N 33.88 W	0.29	
6116.	3 15	N 15 E	6112.62	150.26 N 32.47 W	0.06	
6208.	3 0	N 16 E	6204.55	155.20 N 31.13 W	0.28	
6301.	2 45	N 17 E	6297.44	159.67 N 29.81 W	0.27	
6394.	2 30	N 16 E	6390.34	163.75 N 28.60 W	0.27	
6486.	2 15	N 17 E	6482.26	167.41 N 27.51 W	0.28	
6579.	2 0	N 14 E	6575.19	170.73 N 26.59 W	0.29	
6672.	2 0	N 21 E	6668.14	173.82 N 25.62 W	0.26	
6764.	2 0	N 27 E	6760.98	176.75 N 24.31 W	0.23	
6857.	1 45	N 24 E	6853.08	179.30 N 23.00 W	0.29	
6950.	1 45	N 31 E	6945.93	182.02 N 21.69 W	0.23	
7042.	1 45	N 34 E	7037.95	184.43 N 20.24 W	0.00	
7135.	1 45	N 30 E	7130.90	186.89 N 18.80 W	0.03	
7228.	1 39	N 34 E	7223.86	189.21 N 17.34 W	0.17	
7321.	1 45	N 35 E	7316.82	191.49 N 15.78 W	0.11	
7413.	1 45	N 34 E	7408.78	193.80 N 14.19 W	0.03	
7506.	1 30	N 27 E	7501.74	196.07 N 12.85 W	0.34	
7599.	1 30	N 27 E	7594.71	198.24 N 11.75 W	0.00	
7691.	1 15	N 30 E	7686.68	200.18 N 10.69 W	0.28	
7784.	1 15	N 29 E	7779.66	201.95 N 9.69 W	0.02	
7877.	1 15	N 29 E	7872.64	203.72 N 8.71 W	0.00	
7969.	1 15	N 23 E	7964.62	205.52 N 7.83 W	0.14	
8062.	1 30	N 26 E	8057.59	207.55 N 6.91 W	0.28	
8155.	1 30	N 35 E	8150.56	209.65 N 5.67 W	0.25	
8247.	1 30	N 40 E	8242.53	211.56 N 4.21 W	0.14	
8340.	1 45	N 43 E	8335.49	213.53 N 2.46 W	0.28	
8433.	2 0	N 48 E	8428.44	215.67 N 0.29 W	0.32	
8525.	1 45	N 44 E	8520.39	217.76 N 1.88 E	0.31	

TIME DATE
02:32:56 00--00

MEASURED DEPTH FEET	DRIFT ANGLE D M	DRIFT DIRECTION D	TRUE VERTICAL DEPTH FEET	RECTANGULAR COORDINATES FEET	DOG LEG SEVERITY DG/100FT
8618.	2 0	N 46 E	8613.34	219.91 N 4.03 E	0.28
8711.	2 0	N 45 E	8706.28	222.19 N 6.35 E	0.04
8803.	2 30	N 46 E	8798.21	224.72 N 8.92 E	0.55
8896.	2 15	N 43 E	8891.13	227.47 N 11.62 E	0.30
8989.	2 15	N 43 E	8984.06	230.14 N 14.11 E	0.00
9081.	2 15	N 39 E	9075.99	232.86 N 16.48 E	0.17
9174.	2 15	N 40 E	9168.92	235.68 N 18.80 E	0.04
9267.	2 15	N 41 E	9261.85	238.45 N 21.18 E	0.04
9359.	2 15	N 43 E	9353.77	241.14 N 23.59 E	0.09
9452.	2 30	N 47 E	9446.69	243.86 N 26.32 E	0.32
9545.	2 45	N 48 E	9539.20	246.78 N 29.41 E	0.27
9638.	2 45	N 44 E	9632.49	249.58 N 32.56 E	0.10
9730.	2 30	N 44 E	9724.39	252.98 N 35.49 E	0.27
9823.	2 45	N 44 E	9817.25	256.05 N 38.45 E	0.27
9916.	2 30	N 44 E	9910.20	259.11 N 41.41 E	0.27
10008.	2 30	N 41 E	10002.11	262.07 N 44.12 E	0.14
10101.	2 30	N 41 E	10095.02	265.13 N 46.78 E	0.00
10194.	2 15	N 36 E	10187.94	268.15 N 49.18 E	0.35
10286.	2 0	N 42 E	10279.88	270.79 N 51.32 E	0.36
10379.	2 0	N 41 E	10372.82	273.23 N 53.47 E	0.04
10472.	2 0	N 44 E	10465.76	275.62 N 55.67 E	0.11
10564.	2 0	N 39 E	10557.71	278.02 N 57.79 E	0.19
10657.	2 0	N 45 E	10650.65	280.43 N 59.96 E	0.23
10697.	2 0	N 41 E	10680.63	281.20 N 60.68 E	0.47
10718.	2 0	N 38 E	10711.61	282.03 N 61.37 E	0.34
10749.	1 45	N 43 E	10742.60	282.80 N 62.03 E	0.96
10780.	1 30	N 33 E	10773.58	283.50 N 62.57 E	1.22
10811.	1 0	N 24 E	10804.58	284.09 N 62.89 E	1.73
10842.	0 45	N 38 W	10835.57	284.54 N 62.83 E	2.99
10873.	1 45	N 69 W	10866.57	284.93 N 62.30 E	3.78

MEASURED DEPTH FEET	DRIFT ANGLE D M	DRIFT DIRECTION D	TRUE VERTICAL DEPTH FEET	RECTANGULAR COORDINATES FEET	DOG LEG SEVERITY DG/100FT
10904.	3 0	N 74 W	10897.54	285.34 N 61.08 E	4.08
10935.	3 0	N 76 W	10928.50	285.76 N 59.51 E	0.34
10965.	3 0	N 79 W	10958.45	286.10 N 57.98 E	0.52
10996.	3 0	N 80 W	10989.41	286.40 N 56.38 E	0.17
11027.	3 45	N 85 W	11020.36	286.64 N 54.57 E	2.60
11058.	4 0	N 84 W	11051.29	286.84 N 52.49 E	0.84
11089.	4 0	N 83 W	11082.21	287.08 N 50.34 E	0.23
11110.	4 0	N 83 W	11103.16	287.26 N 48.89 E	0.00

FINAL CLOSURE - DIRECTION: N 89 DEGS 40 MINS E
 DISTANCE: 291.39 FEET

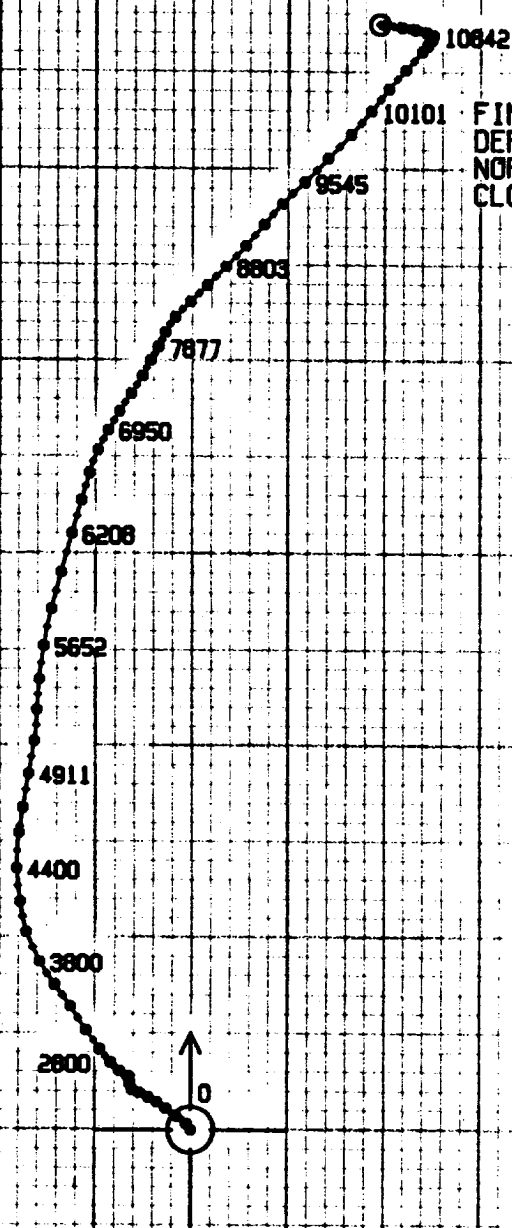


HARVEY E. YATES
SUPERIOR 19 STATE 1
LEA COUNTY, NEW MEXICO

EASTMAN WHIPSTOCK, INC.

HORIZONTAL PROJECTION

SCALE 1 IN. = 50 FEET
DEPTH INDICATOR: MD



FINAL STATION:
DEPTH 11110 MD. 11103.16 TVD
NORTH 287.25 EAST 48.88
CLOSURE 291.39 N 9 39 30 E



P. O. Box 5577/Midland, Texas 79701/(915) 563-0511-
TWX 910-881-5066/Cable: EASTCO

SURVEY CERTIFICATION SHEET

STATE OF TEXAS
COUNTY OF MIDLAND

I, Steve Covington, in the employ of Eastman Whipstock, Inc., did on the days of July 31, 19 80 thru July 31, 19 80 conduct or supervise the taking of a Gyroscopic Multiple Shot survey by the method of magnetic orientation from a depth of 0 feet to 4600 feet, with recordings of inclination and direction being obtained at approximate intervals of 100 feet.

This survey was conducted at the request of Harvey E. Yates for their Superior 19 State No.1, Lea County, State of New Mexico, in the _____ field.

The data for this survey and the calculations 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.

[Signature]
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.

Larry Massey

Before me, the undersigned authority, on this day personally appeared Steve Covington, 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 12th day of August, 19 80.

[Signature]
Notary Public in and for the County of
Midland, Texas
My commission expires 5-24-84



P. O. Box 5577/Midland, Texas 79701/(915) 563-0511
TWX 910-881-5066/Cable: EASTCO

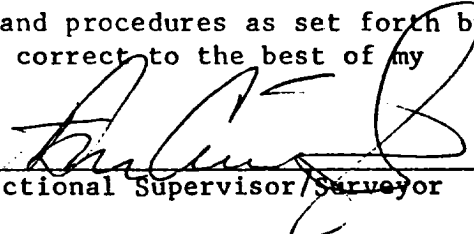
SURVEY CERTIFICATION SHEET

STATE OF TEXAS
COUNTY OF MIDLAND

I, Steve Covington, in the employ of Eastman Whipstock, Inc., did on the days of July 31, 19 80 thru July 31, 19 80 conduct or supervise the taking of a Magnetic Multiple Shot survey by the method of magnetic orientation from a depth of 4600 feet to 11110 feet, with recordings of inclination and direction being obtained at approximate intervals of 93 feet.

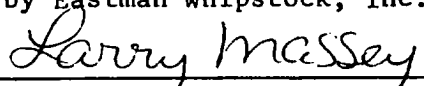
This survey was conducted at the request of Harvey E. Yates for their Superior 19 State No.1, Lea County, State of New Mexico, in the field.

The data for this survey and the calculations 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

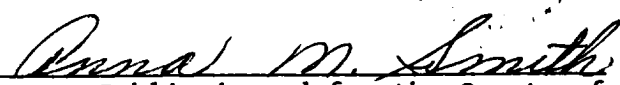
The data for this survey has been examined by me and conforms to principles and procedures set forth by Eastman Whipstock, Inc.



Larry Massey

Before me, the undersigned authority, on this day personally appeared Steve Covington, 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 August, 1980.



Notary Public in and for the County of
Midland, Texas
My commission expires 5-24-84