

3-17-28

ARCO OIL AND GAS COMPANY
EMPIRE ABO UNIT "G" WELL NO. 301
EDDY COUNTY, NEW MEXICO B01-299

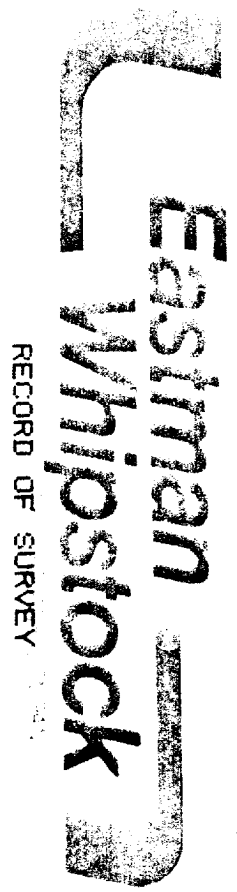
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JUN 06 1983

O. C. D.
ARTESIA, OFFICE

EASTMAN WHIPSTOCK INC.

GYROSCOPIC MULTISHOT SURVEY	WT0483-G020
SURVEYOR: TROY ONEY	(0'-6200')
GYROSCOPIC MULTISHOT SURVEY	WT0583-G0206
SURVEYOR: GARY DESPAIN	(6200'-6253')
MAGNETIC MULTISHOT SURVEY	WT0583-S0212
SURVEYOR: GARY DESPAIN	(6253'-6267')
MAGNETIC MULTISHOT SURVEY	WT0583-S0217
SURVEYOR: GARY DESPAIN	(6267'-6274')
MAGNETIC MULTISHOT SURVEY	WT0583-S0221
SURVEYOR: GARY DESPAIN	(6274'-6302')
MAGNETIC MULTISHOT	WT0583-S0223, SURVEYOR: TIM STEPHENS (6302'-6401')
MAGNETIC MULTISHOT	WT0583-S0228, SURVEYOR: TROY ONEY (6401'-6430')



RADIUS OF CURVATURE METHOD

ARCO OIL AND GAS COMPANY
EMPIRE ABO UNIT "G" WELL NO. 301
EDDY COUNTY, NEW MEXICO BDL-299

COMPUTATION PAGE NO. 1
TIME DATE
13:46:02 18-MAY-83

MEASURED DEPTH FEET	DRIPT ANGLE D M	DRIPT DIRECTION D	COURSE LENGTH FEET	TRUE		RECTANGULAR C O O R D I N A T E S FEET	DOGLEG SEVERITY DG/100FT
				VERTICAL DEPTH FEET			
0.	0 0	0	0.	0.00	0.00	0.00	0.00
100.	0 15	N 22 W	100.	100.00	0.20 N	0.08 W	0.25
200.	0 30	N 47 W	100.	200.00	0.74 N	0.45 W	0.22
300.	0 45	S 83 W	100.	299.99	1.06 N	1.45 W	0.57
400.	0 30	N 80 W	100.	399.99	1.09 N	2.54 W	0.31
500.	0 30	N 52 W	100.	499.98	1.44 N	3.33 W	0.24
600.	0 45	N 71 W	100.	599.98	1.96 N	4.28 W	0.32
700.	1 0	N 60 W	100.	699.96	2.59 N	5.67 W	0.30
800.	0 45	N 55 W	100.	799.95	3.41 N	6.96 W	0.26
900.	0 30	53 W	100.	899.95	4.05 N	7.84 W	0.25
1000.	1 0	42 W	100.	999.94	4.94 N	8.80 W	0.52
1100.	1 15	N 38 W	100.	1099.87	6.44 N	10.06 W	0.26
1200.	1 30	N 33 W	100.	1199.83	8.44 N	11.46 W	0.28
1300.	1 30	N 50 W	100.	1299.83	10.35 N	13.18 W	0.44
1400.	1 30	N 44 W	100.	1399.82	12.13 N	15.10 W	0.16
1500.	1 30	N 40 W	100.	1499.79	14.08 N	16.85 W	0.10
1600.	1 15	N 23 W	100.	1599.76	16.11 N	18.10 W	0.48
1700.	1 30	N 30 W	100.	1699.73	18.26 N	19.17 W	0.30
1800.	1 30	N 26 W	100.	1799.69	20.57 N	20.40 W	0.10
1900.	1 45	N 20 W	100.	1899.65	23.18 N	21.50 W	0.30
2000.	1 30	N 20 W	100.	1999.61	25.84 N	22.47 W	0.25
2100.	1 45	N 18 W	100.	2099.57	28.52 N	23.40 W	0.26
2200.	1 30	N 10 W	100.	2199.53	31.27 N	24.08 W	0.34
2300.	1 45	N 3 W	100.	2299.49	34.09 N	24.40 W	0.32
2400.	1 45	N 4 W	100.	2399.45	37.14 N	24.59 W	0.03
2500.	1 30	N 6 W	100.	2499.41	39.96 N	24.84 W	0.26
2600.	1 30	N 4 W	100.	2599.37	42.57 N	25.06 W	0.05
2700.	1 30	N 2 E	100.	2699.34	45.19 N	25.11 W	0.16
2800.	1 30	N 8 W	100.	2799.30	47.80 N	25.25 W	0.26
2900.	1 0	N 8 W	100.	2899.28	49.96 N	25.55 W	0.50

Eastman
Whitlock

ARCO OIL AND GAS COMPANY
EMPIRE ABO UNIT "G" WELL NO. 301
EDDY COUNTY, NEW MEXICO BDI-299

COMPUTATION PAGE NO. 2
TIME DATE
13:46:09 18-MAY-83

MEASURED DEPTH FEET	DRIFT ANGLE D M	DRIFT DIRECTION D	COURSE LENGTH FEET	TRUE		RECTANGULAR COORDINATES	DOGLEG SEVERITY DG/100FT
				VERTICAL DEPTH FEET			
3000.	0 45	N 13 W	100.	2999.27	51.46 N	25.83 W	0.26
3100.	0 45	N 12 W	100.	3099.26	52.74 N	26.11 W	0.01
3200.	0 30	N 18 W	100.	3199.25	53.79 N	26.39 W	0.26
3300.	0 45	N 0 E	100.	3299.25	54.86 N	26.56 W	0.31
3400.	1 0	N 23 E	100.	3399.23	56.35 N	26.26 W	0.43
3500.	1 0	N 18 E	100.	3499.22	57.98 N	25.65 W	0.09
3600.	1 0	N 20 E	100.	3599.20	59.63 N	25.08 W	0.03
3700.	1 0	N 24 E	100.	3699.19	61.25 N	24.43 W	0.07
3800.	0 30	N 22 E	100.	3799.18	62.45 N	23.92 W	0.50
3900.	0 30	N 36 E	100.	3899.18	63.21 N	23.50 W	0.12
4000.	0 45	N 41 E	100.	3999.17	64.07 N	22.82 W	0.26
4100.	1 0	N 24 E	100.	4099.16	65.36 N	22.00 W	0.36
4200.	1 0	N 11 E	100.	4199.15	67.04 N	21.62 W	0.40
4300.	1 0	N 12 E	100.	4299.13	68.77 N	21.43 W	0.19
4400.	1 0	N 4 E	100.	4399.11	70.50 N	21.18 W	0.14
4500.	1 15	N 0 E	100.	4499.09	72.46 N	21.12 W	0.26
4600.	1 30	N 6 E	100.	4599.06	74.86 N	20.99 W	0.29
4700.	1 45	N 1 E	100.	4699.02	77.69 N	20.82 W	0.29
4800.	2 0	N 1 E	100.	4798.97	80.96 N	20.76 W	0.25
4900.	2 0	N 3 E	100.	4898.91	84.45 N	20.64 W	0.07
5000.	2 15	N 4 W	100.	4998.84	88.15 N	20.67 W	0.36
5100.	2 30	N 11 W	100.	5098.75	92.26 N	21.21 W	0.38
5200.	2 45	N 8 W	100.	5198.65	96.77 N	21.97 W	0.29
5300.	3 0	N 9 W	100.	5298.52	101.73 N	22.71 W	0.25
5400.	3 15	N 3 W	100.	5398.38	107.15 N	23.28 W	0.41
5500.	3 15	N 1 E	100.	5498.21	112.82 N	23.38 W	0.23
5600.	3 30	N 5 W	100.	5598.04	118.70 N	23.58 W	0.43
5700.	3 0	N 2 E	100.	5697.88	124.37 N	23.73 W	0.64
5800.	3 0	N 6 E	100.	5797.74	129.59 N	23.37 W	0.21
5900.	3 0	N 5 E	100.	5897.61	134.80 N	22.86 W	0.05

ARCO OIL AND GAS COMPANY
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EDDY COUNTY, NEW MEXICO BDL-299

COMPUTATION PAGE NO. 3
TIME DATE
13:46:09 18-MAY-83

MEASURED DEPTH FEET	DRIFT ANGLE D M	DRIFT DIRECTION D	COURSE LENGTH FEET	TRUE		RECTANGULAR COORDINATES FEET	DOGLEG SEVERITY DG/100FT
				VERTICAL DEPTH FEET	HORIZONTAL FEET		
6000.	2 30	N 17 E	100.	5997.49	139.50 N	21.95 W	0.76
6100.	2 45	N 21 E	100.	6097.39	143.83 N	20.46 W	0.31
6200.	2 45	N 22 E	100.	6197.27	148.29 N	18.70 W	0.05
6227.	3 0	N 35 E	27.	6224.24	149.48 N	18.06 W	2.58
6228.	3 0	N 35 E	1.	6225.23	149.52 N	18.03 W	0.00
6229.	3 0	N 35 E	1.	6226.23	149.57 N	18.00 W	0.00
6230.	3 0	N 35 E	1.	6227.23	149.61 N	17.97 W	0.00
6231.	3 0	N 32 E	1.	6228.23	149.65 N	17.94 W	15.70
6232.	3 0	N 32 E	1.	6229.23	149.70 N	17.91 W	0.00
6233.	3 0	N 34 E	1.	6230.23	149.74 N	17.88 W	10.47
6234.	3 0	N 31 E	1.	6231.23	149.78 N	17.85 W	15.70
6235.	3 0	N 19 E	1.	6232.23	149.82 N	17.83 W	62.69
6236.	4 0	N 18 W	1.	6233.22	149.86 N	17.82 W	151.86
6237.	6 0	N 16 W	1.	6234.22	149.98 N	17.83 W	241.97
6238.	7 30	N 28 W	1.	6235.21	150.09 N	17.88 W	205.13
6239.	9 0	N 35 W	1.	6236.20	150.21 N	17.95 W	180.26
6240.	12 15	N 34 W	1.	6237.18	150.36 N	18.06 W	325.51
6241.	14 45	N 34 W	1.	6238.16	150.55 N	18.19 W	250.00
6242.	17 0	N 34 W	1.	6239.12	150.78 N	18.34 W	225.00
6243.	19 15	N 33 W	1.	6240.07	151.04 N	18.51 W	227.13
6244.	21 30	N 36 W	1.	6241.01	151.33 N	18.71 W	247.99
6245.	24 0	N 37 W	1.	6241.93	151.64 N	18.94 W	252.96
6246.	26 30	N 38 W	1.	6242.83	151.98 N	19.20 W	253.60
6247.	29 15	N 36 W	1.	6243.72	152.35 N	19.48 W	290.43
6248.	32 15	N 36 W	1.	6244.58	152.76 N	19.78 W	300.00
6249.	33 15	N 38 W	1.	6245.42	153.20 N	20.11 W	147.32
6250.	35 45	N 39 W	1.	6246.24	153.64 N	20.46 W	256.33
6251.	38 0	N 41 W	1.	6247.04	154.10 N	20.84 W	254.98
6252.	40 0	N 42 W	1.	6247.82	154.57 N	21.26 W	209.66
6253.	42 30	N 51 W	1.	6248.57	155.02 N	21.74 W	643.39

ARCO OIL AND GAS COMPANY
EMPIRE ABO UNIT "G" WELL NO. 301
EDDY COUNTY, NEW MEXICO BD1-299

COMPUTATION PAGE NO. 4
TIME DATE
13:46:09 18-MAY-83

MEASURED	DRIFT	DRIFT	COURSE	TRUE	R E C T A N G U L A R	DOGLEG
DEPTH	ANGLE	DIRECTION	LENGTH	VERTICAL	C O O R D I N A T E S	SEVERITY
FEET	D M	D	FEET	DEPTH	FEET	DG/100FT

END OF GYROSCOPIC SURVEY AND START OF MAGNETIC MULTISHOT #2

6254.	45 15	N 58 W	1.	6249.29	155.42 N	22.30 W	557.37
6255.	47 45	N 59 W	1.	6249.98	155.80 N	22.92 W	260.30
6256.	50 0	N 61 W	1.	6250.64	156.18 N	23.57 W	270.76
6257.	52 15	N 60 W	1.	6251.26	156.56 N	24.25 W	238.08
6258.	54 15	N 59 W	1.	6251.86	156.97 N	24.94 W	215.45
6259.	56 45	N 59 W	1.	6252.43	157.39 N	25.65 W	250.00
6260.	59 0	N 60 W	1.	6252.96	157.82 N	26.38 W	240.41
6261.	60 45	N 61 W	1.	6253.46	158.25 N	27.13 W	195.20
6262.	62 15	N 61 W	1.	6253.94	158.68 N	27.90 W	150.00
6263.	63 45	N 61 W	1.	6254.39	159.11 N	28.68 W	150.00
6264.	65 45	N 60 W	1.	6254.82	159.56 N	29.46 W	219.50
6265.	68 0	N 59 W	1.	6255.21	160.02 N	30.26 W	243.07
6266.	70 45	N 57 W	1.	6255.56	160.52 N	31.05 W	332.64
6267.	72 0	N 56 W	1.	6255.88	161.04 N	31.84 W	156.86

END OF MAGNETIC MULTISHOT #2 AND START OF MAGNETIC MULTISHOT #4

6268.	75 0	N 53 W	1.	6256.17	161.60 N	32.62 W	415.59
6269.	77 0	N 51 W	1.	6256.41	162.19 N	33.39 W	278.66
6270.	78 30	N 50 W	1.	6256.62	162.81 N	34.14 W	179.02
6271.	79 45	N 49 W	1.	6256.81	163.45 N	34.89 W	158.96
6272.	81 30	N 46 W	1.	6256.97	164.12 N	35.61 W	343.84
6273.	83 15	N 44 W	1.	6257.11	164.82 N	36.31 W	264.42
6274.	84 45	N 43 W	1.	6257.21	165.54 N	37.00 W	179.97

END OF MAGNETIC MULTISHOT #4 AND THE START OF MAGNETIC MULTISHOT #5

6275.	86 45	N 40 W	1.	6257.29	166.29 N	37.66 W	359.86
6276.	87 30	N 39 W	1.	6257.34	167.06 N	38.30 W	124.90
6277.	87 45	N 39 W	1.	6257.38	167.84 N	38.92 W	25.00

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EMPIRE ABO UNIT "G" WELL NO. 301
EDDY COUNTY, NEW MEXICO BDI-299

COMPUTATION PAGE NO. 5
TIME DATE
13:46:09 18-MAY-83

MEASURED DEPTH FEET	DRIET ANGLE D M	DRIET DIRECTION D	COURSE LENGTH FEET	TRUE		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
				VERTICAL DEPTH FEET	DEPTH FEET		
6278.	88 0	N 39 W	1.	6257.41	168.61 N	39.55 W	25.00
6279.	88 0	N 39 W	1.	6257.45	169.39 N	40.18 W	0.00
6280.	88 15	N 38 W	1.	6257.48	170.17 N	40.80 W	103.03
6281.	88 30	N 38 W	1.	6257.51	170.96 N	41.42 W	25.00
6282.	88 45	N 39 W	1.	6257.53	171.74 N	42.04 W	103.05
6283.	89 0	N 39 W	1.	6257.55	172.52 N	42.67 W	25.00
6284.	89 0	N 39 W	1.	6257.57	173.29 N	43.30 W	0.00
6285.	89 15	N 39 W	1.	6257.59	174.07 N	43.93 W	25.00
6286.	89 30	N 39 W	1.	6257.60	174.85 N	44.56 W	25.00
6287.	89 45	N 39 W	1.	6257.60	175.63 N	45.19 W	25.00
6288.	90 0	N 38 W	1.	6257.61	176.41 N	45.81 W	103.08
6289.	90 0	N 38 W	1.	6257.61	177.20 N	46.43 W	0.00
6290.	90 15	N 38 W	1.	6257.60	177.99 N	47.04 W	25.00
6291.	90 15	N 38 W	1.	6257.60	178.77 N	47.66 W	0.00
6292.	91 0	N 38 W	1.	6257.59	179.56 N	48.27 W	75.00
6293.	90 45	N 38 W	1.	6257.57	180.35 N	48.89 W	25.00
6294.	91 0	N 38 W	1.	6257.56	181.14 N	49.50 W	25.00
6295.	91 0	N 38 W	1.	6257.54	181.92 N	50.12 W	0.00
6296.	91 0	N 38 W	1.	6257.52	182.71 N	50.74 W	0.00
6297.	91 15	N 38 W	1.	6257.50	183.50 N	51.35 W	25.00
6298.	91 15	N 38 W	1.	6257.48	184.29 N	51.97 W	0.00
6299.	91 30	N 38 W	1.	6257.46	185.08 N	52.58 W	25.00
6300.	91 45	N 38 W	1.	6257.43	185.86 N	53.20 W	25.00
6301.	92 0	N 38 W	1.	6257.40	186.65 N	53.81 W	25.00
6302.	92 0	N 38 W	1.	6257.36	187.44 N	54.43 W	0.00
6305.	93 0	N 38 W	3.	6257.23	189.80 N	56.27 W	33.33
6310.	93 15	N 38 W	5.	6256.96	193.73 N	59.35 W	5.00
6315.	94 0	N 37 W	5.	6256.64	197.69 N	62.38 W	24.97
6320.	94 45	N 37 W	5.	6256.26	201.67 N	65.38 W	15.00
6325.	95 0	N 37 W	5.	6255.84	205.65 N	68.38 W	5.00

MEASURED DEPTH FEET	DRIFT ANGLE	DRIFT DIRECTION	COURSE		TRUE VERTICAL		RECTANGULAR COORDINATES	
			LENGTH FEET		DEPTH FEET		FEET	
6330	96 0	N37W	5.		6255.36		209.63N	71.38W
6335	97 0	N37W	5.		6254.79		213.60N	74.37W
6340	97 15	N37W	5.		6254.17		217.56N	77.35W
6345	98 0	N37W	5.		6253.51		221.52N	80.34W
6350	98 30	N37W	5.		6252.79		225.47N	83.31W
6355	99 0	N37W	5.		6252.03		229.41N	86.29W
6360	99 45	N36W	5.		6251.25		233.38N	89.22W
6365	100 0	N37W	5.		6250.42		237.34N	92.15W
6370	100 0	N37W	5.		6249.52		241.27N	95.11W
6375	100 0	N37W	5.		6248.58		245.21N	98.03W
6380	100 0	N37W	5.		6247.61		249.19N	100.92W
6385	102 0	N36W	5.		6246.59		253.15N	103.80W
6390	102 45	N36W	5.		6245.52		257.11N	106.67W
6395	103 0	N36W	5.		6244.40		261.05N	109.54W
6400	103 45	N37W	5.		6243.25		264.96N	112.43W
6401	103 45	N37W	5.		6243.01		265.74N	113.01W
6403	103 45	N36W	2.		6242.53		267.28N	114.16W
6405	104 0	N36W	2.		6242.05		268.85N	114.30W
6407	104 0	N36W	2.		6241.57		270.42N	116.44W
6409	104 30	N37W	2.		6241.08		271.98N	117.59W
6411	104 45	N37W	2.		6240.37		273.53N	118.76W
6413	105 0	N37W	2.		6240.06		275.07N	119.92W
6415	105 0	N37W	2.		6239.54		276.61N	121.08W
6417	105 15	N37W	2.		6239.02		278.15N	122.24W
6419	105 30	N37W	2.		6238.49		279.69N	123.41W
6421	106 0	N37W	2.		6237.75		281.23N	124.56W
6423	106 0	N37W	2.		6237.40		282.77N	125.72W
6424	106 0	N36W	1.		6237.12		283.54N	126.29W
6425	106 0	N36W	1.		6236.84		284.32N	126.86W

Estiman
 Whipstock

ARCO OIL AND GAS COMPANY
EMPIRE ABO "G" WELL NO. 301
EDDY COUNTY, NEW MEXICO BDL-299

MEASURED DEPTH FEET	DRIFT ANGLE	DRIFT DIRECTION	TRUE		RECTANGULAR	
			COURSE LENGTH FEET	VERTICAL DEPTH FEET	COORDINATES FEET	
6426	106 0	N36W	1.	6236.57	285.10N	127.42W
6427	106 0	N36W	1.	6236.29	285.88N	127.99W
6428	106 30	N36W	1.	6236.01	286.65N	128.55W
6429	106 30	N36W	1.	6235.73	287.43N	129.11W
6430	106 30	N36W	1.	6235.45	288.20N	129.68W

FINAL CLOSURE---DIRECTION: N 24DEGS 13 MINS. W
DISTANCE: 316.8 FEET

Eastman
Whipstock