

ATLANTIC RICHFIELD COMPANY
 EMPIRE ABO NO. M-151
 EMPIRE ABO UNIT FIELD
 EDDY COUNTY, NEW MEXICO
 MAGNETIC MULTISHOT

DATE OF SURVEY AUGUST 13, 1978
 VERTICAL SECTION DIRECTION
 CLOSURE
 MS-6124

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SPEERY-SUN, INC. RECORD OF SURVEY									
MEASURED DEPTH	TRUE VERTICAL DEPTH	SUB SEA TVD	COURSE INCLINATION DEG MIN	COURSE DIRECTION DEG	DOG-LEG SEV DEG/100	RECTANGULAR NORTH/SOUTH	COORDINATES EAST/WEST	TOTAL	VERTICAL SECTION
4000	3999.53	3999.53	1 45	N 45 W	0.21	24.03 N	34.52 W		39.25
4100	4099.48	4099.48	1 45	N 47 W	0.06	26.15 N	36.71 W		42.86
4200	4199.43	4199.43	1 45	N 53 W	0.18	28.11 N	39.05 W		45.82
4300	4299.39	4299.39	1 30	N 55 W	0.26	29.78 N	41.34 W		48.51
4400	4399.35	4399.35	1 45	N 56 W	0.25	31.38 N	43.68 W		51.21
4500	4499.30	4499.30	2 0	N 58 W	0.26	33.16 N	46.42 W		54.27
4600	4599.25	4599.25	1 45	N 58 W	0.25	34.90 N	49.20 W		57.32
4700	4699.21	4699.21	1 30	N 60 W	0.26	36.36 N	51.63 W		59.04
4800	4799.17	4799.17	1 30	N 46 W	0.37	37.92 N	53.70 W		62.43
4900	4899.13	4899.13	2 0	N 43 W	0.51	40.11 N	55.83 W		65.45
5000	4999.06	4999.06	2 15	N 35 W	0.39	42.09 N	58.15 W		69.15
5100	5098.97	5098.97	2 30	N 19 W	0.71	46.60 N	59.00 W		73.10
5200	5198.85	5198.85	3 15	N 2 E	1.28	51.56 N	60.60 W		77.49
5300	5298.63	5298.63	4 15	N 15 E	1.31	57.07 N	59.54 W		82.02
5400	5398.33	5398.33	4 45	N 16 E	0.51	65.53 N	57.44 W		96.94
5500	5497.93	5497.93	5 30	N 18 E	0.77	74.07 N	54.62 W		92.15

** THE CALCULATIONS ARE BASED ON THE MINIMUM RADIUS OF CURVATURE METHOD **

HORIZONTAL DISPLACEMENT = 92.15 FEET AT NORTH 36 DEG. 30 MIN. WEST (TRUE)