



SUB-SURFACE
DIRECTIONAL
SURVEY
REPORT

KENNEDY & MITCHELL

COMPANY

NORTH SHOEBAR WELL NO. 56959-1

WELL NAME

IEA COUNTY, NEW MEXICO

STATE AND COUNTY

PRELIMINARY REPORT

WELL # : NORTH SHOULDER WELL NO. 56959-1

LOCATION : LEA COUNTY, NEW MEXICO

DATE : 15-07-84

JOB TYPE : MAGNETIC MULTISHOT

JOB # : MS-1413

SURVEYOR : RALPH RICE

DEPTH : 2000'-12307'

DECL. : 10 DEGREES EAST

ELEV. : 10'

FILE # : WT-J45

METHOD : RADIUS OF CURVATURE

SECTION : 0

FINAL STATION DATA:

MEASURED 5 INCL. 5 HOLE 5 COURSE 5 VERTICAL 5 REL. TO B L O R 5 U S U R F 5 DRILLED

DEPTH 5 ANGLE 5 DIRECTION 5 LENGTH 5 DEPTH 5 SURF INCL. 5 DISTANCE DIRECTION 5 SEVERITY

FEET 5 DEGS. 5 FEET 5 R/S FEET L/W 5 FEET 5 DEG. 5 DEG/1000

12607.06 5 3.00 5 5 21.00 N 5 96.00 5 12600.99 5 120.93 S 130.39 W 5 103.27 5 5 45.00 W 5 0.00

I Richard E. Fromm, being duly sworn upon oath, state that this directional survey information is true, correct and complete according to the records of this office and to the best of my knowledge and belief.

Richard E. Fromm

Richard E. Fromm
Petroleum Engineer
Kennedy & Mitchell, Inc.

SUBSCRIBED AND SWORN TO before me this 31st day of August, 1984.

Denise R. Evancich

Denise R. Evancich
Notary Public

My commission expires February 10, 1988

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

Larry Massey

DIG REPRESENTATIVE

MEASURED	INCL.	HOLE	COURSE	VERTICAL	RECTANGULAR	C L U S U R E	DOG-LEG
DEPTH	ANGLE	DIRECTION	LENGTH	DEPTH	COURDINATES	DISTANCE	SEVERITY
FEET	DEGS.	DEGS.	FEET	FEET	N/S	FEET	DEGS.
0.00	0.00	N 00.00 E	0.00	0.00	0.00 N	0.00at N 00.00 E	0.00
7000.00	0.00	N 00.00 E	7000.00	7000.00	0.00 N	0.00at N 00.00 E	0.00
ASSUMED VERTICAL TO 7000'							
7016.00	1.75	S 80.00 W	16.00	7016.00	.04 S	.24at S 80.00 W	10.94
7111.00	2.00	S 81.00 W	95.00	7110.95	.56 S	3.35at S 80.46 W	.27
7206.00	2.00	S 84.00 W	95.00	7205.89	.99 S	6.67at S 81.47 W	.11
7300.00	2.00	S 82.00 W	94.00	7299.83	1.39 S	9.95at S 81.97 W	.07
7395.00	2.00	S 80.00 W	95.00	7394.77	1.91 S	13.26at S 81.73 W	.07
7490.00	2.00	S 80.00 W	95.00	7489.72	2.48 S	16.58at S 81.39 W	0.00
7585.00	2.00	S 84.00 W	95.00	7584.66	2.94 S	19.89at S 81.48 W	.15
7679.00	2.00	S 79.00 W	94.00	7678.60	3.43 S	23.17at S 81.49 W	.19
7774.00	2.00	S 78.00 W	95.00	7773.54	4.09 S	26.48at S 81.11 W	.04
7869.00	2.00	S 82.00 W	95.00	7868.48	4.66 S	29.80at S 80.99 W	.15
7964.00	2.00	S 79.00 W	95.00	7963.43	5.21 S	33.11at S 80.94 W	.11
8058.00	2.00	S 81.00 W	94.00	8057.37	5.78 S	36.39at S 80.85 W	.07
8153.00	1.75	S 80.00 W	95.00	8152.32	6.29 S	39.50at S 80.82 W	.27
8248.00	1.50	S 81.00 W	95.00	8247.28	6.74 S	42.19at S 80.80 W	.26
8343.00	1.75	S 85.00 W	95.00	8342.24	7.07 S	44.88at S 80.94 W	.29
8437.00	1.75	S 85.00 W	94.00	8436.20	7.32 S	47.75at S 81.18 W	0.00
8532.00	1.75	S 85.00 W	95.00	8531.15	7.57 S	50.64at S 81.40 W	0.00
8627.00	1.75	S 89.00 W	95.00	8626.11	7.72 S	53.53at S 81.70 W	.13
8722.00	1.50	S 83.00 W	95.00	8721.07	7.91 S	56.22at S 81.91 W	.32
8816.00	1.25	S 87.00 W	94.00	8815.04	8.11 S	58.47at S 82.02 W	.28
8911.00	1.25	S 84.00 W	95.00	8910.02	8.27 S	60.54at S 82.14 W	.07
9006.00	1.50	S 83.00 W	95.00	9004.99	8.53 S	62.82at S 82.19 W	.26
9101.00	1.50	S 76.00 W	95.00	9099.96	8.98 S	65.30at S 82.09 W	.19

MEASURED	INCL.	HOLE	COURSE	VERTICAL	TRUE	N/S	FEET	E/W	DISTANCE	DIRECTION	SEVERITY
DEPTH	ANGLE	DIRECTION	LENGTH	DEPTH	FEET						
FEET	DEGS.	DEGS.	FEET	FEET	FEET						
9173.00	1.50	S 75.00 W	94.00	9173.93	9.60 S	67.06 W	67.74at	S 81.85 W			.03
9290.00	1.50	S 78.00 W	95.00	9288.90	10.18 S	69.48 W	70.22at	S 81.66 W			.08
9385.00	1.25	S 77.00 W	95.00	9383.87	10.67 S	71.70 W	72.49at	S 81.53 W			.26
9480.00	1.00	S 80.00 W	95.00	9478.85	11.04 S	73.53 W	74.36at	S 81.45 W			.27
9574.00	1.00	S 89.00 W	94.00	9572.84	11.20 S	75.16 W	75.99at	S 81.52 W			.17
9669.00	1.00	S 84.00 W	95.00	9667.82	11.30 S	76.82 W	77.64at	S 81.63 W			.09
9764.00	1.00	S 79.00 W	95.00	9762.81	11.55 S	78.46 W	79.28at	S 81.62 W			.09
9859.00	1.00	S 80.00 W	95.00	9857.79	11.80 S	80.09 W	80.92at	S 81.58 W			.02
9954.00	1.00	S 76.00 W	95.00	9952.78	12.19 S	81.71 W	82.61at	S 81.51 W			.07
10048.00	1.00	S 81.00 W	94.00	10046.76	12.52 S	83.31 W	84.25at	S 81.45 W			.09
10143.00	.75	S 83.00 W	95.00	10141.75	12.72 S	84.75 W	85.70at	S 81.46 W			.27
10238.00	.75	S 75.00 W	95.00	10236.75	12.96 S	85.97 W	86.94at	S 81.42 W			.11
10333.00	.75	S 85.00 W	95.00	10331.74	13.17 S	87.19 W	88.18at	S 81.40 W			.14
10427.00	.75	S 77.00 W	94.00	10425.73	13.37 S	88.41 W	89.41at	S 81.40 W			.11
10522.00	1.00	S 87.00 W	95.00	10520.72	13.57 S	89.84 W	90.86at	S 81.41 W			.31
10617.00	.75	S 80.00 W	95.00	10615.71	13.73 S	91.28 W	92.31at	S 81.44 W			.29
10712.00	.50	S 53.00 W	95.00	10710.70	14.14 S	92.22 W	93.28at	S 81.28 W			.40
10806.00	.75	S 15.00 W	94.00	10804.70	14.98 S	92.79 W	93.99at	S 80.83 W			.50
10901.00	1.25	S 05.00 E	95.00	10899.68	16.62 S	92.93 W	94.41at	S 79.06 W			.63
10996.00	2.00	S 03.00 W	95.00	10994.64	19.31 S	92.88 W	94.87at	S 70.25 W			.82
11091.00	3.00	S 07.00 W	95.00	11089.55	23.44 S	93.25 W	96.15at	S 75.89 W			1.07
11185.00	3.50	S 01.00 E	94.00	11183.40	28.76 S	93.52 W	97.84at	S 72.90 W			.72
11280.00	4.00	S 01.00 W	95.00	11278.19	34.97 S	93.52 W	99.85at	S 69.49 W			.54
11375.00	5.25	S 02.00 W	95.00	11372.88	42.63 S	93.72 W	102.96at	S 65.54 W			1.32
11470.00	5.50	S 03.00 W	95.00	11467.47	51.52 S	94.11 W	107.29at	S 61.30 W			.28

MEASURED DEPTH	INCL. ANGLE	HOLE DIRECTION	COURSE LENGTH	TRUE VERTICAL DEPTH	RECTANGULAR COORDINATES N/S FEET E/W	CLOSURE DISTANCE FEET	DIRECTION DEGS.	DOG-LEG SEVERITY DG/100FT
11564.00	5.00	S 06.00 W	94.00	11561.07	60.09 S	74.77 W	112.23at S 57.62 W	.61
11659.00	4.75	S 15.00 W	95.00	11655.73	68.02 S	96.26 W	117.86at S 54.75 W	.85
11754.00	5.00	S 24.00 W	95.00	11750.38	75.62 S	98.95 W	124.54at S 52.61 W	.85
11849.00	5.00	S 31.00 W	95.00	11845.02	82.96 S	102.77 W	132.08at S 51.08 W	.64
11943.00	5.50	S 40.00 W	94.00	11938.63	89.96 S	107.76 W	140.37at S 50.14 W	1.02
12038.00	5.25	S 40.00 W	95.00	12033.21	96.77 S	113.48 W	149.14at S 49.54 W	.26
12133.00	4.50	S 37.00 W	95.00	12127.87	103.09 S	118.51 W	157.07at S 48.97 W	.83
12228.00	4.00	S 25.00 W	95.00	12222.60	109.11 S	122.12 W	163.77at S 48.22 W	1.07
12322.00	3.50	S 25.00 W	94.00	12316.40	114.69 S	124.72 W	169.44at S 47.40 W	.53
12417.00	3.00	S 21.00 W	95.00	12411.25	119.64 S	126.83 W	174.35at S 46.66 W	.58
12511.00	3.00	S 21.00 W	94.00	12505.12	124.24 S	128.59 W	178.80at S 45.98 W	0.00
12607.00	3.00	S 21.00 W	96.00	12600.99	128.93 S	130.39 W	183.37at S 45.32 W	0.00

CLOSURE DISTANCE = 183.37 FEET.

CLOSURE DIRECTION = S 45.32 W

