



**REPORT
of
SUB-SURFACE
DIRECTIONAL
SURVEY**

SANTA FE ENERGY COMPANY
COMPANY

BILBERY 28 FED. WELL 1
WELL NAME

1980/N + 660/E
28-21-32

LEA COUNTY, NEW MEXICO
LOCATION

JOB NUMBER
430-950

TYPE OF SURVEY
Gyroscopic Multishot
Magnetic Multishot

DATE
1-24-89

SURVEY BY

OFFICE

REV 1-1-88
2001 10 25L
000
30010 0000H

EASTMAN CHRISTENSEN

RECORD OF SURVEY

FOR

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* * * * *
* * * * *
* * OPERATOR : SANTA FE ENERGY COMPANY
* *
* * WELL NAME : BILBERRY 28 FED. WELL 1
* *
* * LOCATION : LEA COUNTY, NEW MEXICO
* *
* * JOB NUMBER :
* *
* * RIG : WILBRO'S RIG 16
* *
* * DECLINATION : 10.00 E
* *
* * * * *
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EC DISTRICT : WEST TEXAS BASE



ANTA FE ENERGY COMPANY
ILBERRY 28 FED. WELL 1
EA COUNTY, NEW MEXICO

DATE PRINTED : 30-JAN-89
OUR REF. NO. : S01307.4SF
DECLINATION : 10.00 JOB NUMBER :

PAGE NO. 2

MEASURED DEPTH	DRIFT ANGLE D M	DRIFT DIRECTION D M	COURSE LENGTH	TRUE VERTICAL DEPTH	R E C T A N G U L A R C O O R D I N A T E S	DOGLEG SEVERITY
0.00	0 0	N 0 0 E	0.00	0.00	0.00 N 0.00 E	0.00
100.00	0 0	N 11 5 W	100.00	100.00	0.00 N 0.00 E	0.00
200.00	0 30	S 48 59 E	100.00	200.00	0.29 S 0.33 E	0.50
300.00	0 30	S 49 54 E	100.00	299.99	0.85 S 0.99 E	0.01
400.00	0 45	S 40 47 E	100.00	399.99	1.62 S 1.77 E	0.27
500.00	0 45	S 15 40 E	100.00	499.98	2.77 S 2.38 E	0.33
600.00	1 0	S 18 32 E	100.00	599.97	4.22 S 2.83 E	0.25
700.00	0 45	S 8 36 W	100.00	699.96	5.73 S 2.96 E	0.43
800.00	0 45	S 9 44 W	100.00	799.95	7.02 S 2.75 E	0.02
900.00	0 45	S 41 43 W	100.00	899.94	8.19 S 2.19 E	0.41
1000.00	1 0	S 65 52 W	100.00	999.93	9.03 S 0.97 E	0.44
1100.00	1 15	S 79 2 W	100.00	1099.91	9.67 S 0.90 W	0.36
1200.00	1 0	N 77 48 W	100.00	1199.89	9.65 S 2.85 W	0.51
1300.00	0 45	N 70 38 W	100.00	1299.88	9.24 S 4.32 W	0.27
1400.00	0 30	N 77 29 W	100.00	1399.87	8.94 S 5.37 W	0.26
1500.00	0 45	N 54 20 W	100.00	1499.87	8.49 S 6.36 W	0.35
1600.00	0 45	N 58 12 W	100.00	1599.86	7.77 S 7.45 W	0.05
1700.00	0 30	N 62 4 W	100.00	1699.85	7.22 S 8.39 W	0.23
1800.00	0 30	N 19 57 W	100.00	1799.85	6.58 S 8.95 W	0.36
1900.00	0 30	N 30 50 W	100.00	1899.84	5.79 S 9.33 W	0.09
2000.00	0 30	N 14 16 E	100.00	1999.84	4.95 S 9.45 W	0.38
2100.00	0 30	N 12 21 E	100.00	2099.84	4.10 S 9.25 W	0.02
2200.00	1 30	N 36 25 E	100.00	2199.82	2.52 S 8.53 W	1.06
2300.00	2 15	N 40 30 E	100.00	2299.77	0.04 N 6.50 W	0.76
2400.00	3 15	N 47 33 E	100.00	2399.65	3.49 N 3.17 W	1.05
2500.00	4 0	N 54 2 E	100.00	2499.45	7.48 N 1.73 E	0.85
2600.00	5 0	N 56 5 E	100.00	2599.14	11.97 N 8.16 E	1.01
2700.00	5 15	N 55 10 E	100.00	2698.74	17.02 N 15.54 E	0.26
2800.00	5 45	N 56 14 E	100.00	2798.28	22.42 N 23.45 E	0.51
2900.00	6 0	N 56 18 E	100.00	2897.75	28.10 N 31.97 E	0.25

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ANTA FE ENERGY COMPANY
ILBERRY 28 FED. WELL 1
TUA COUNTY, NEW MEXICO

PAGE NO. 3

DATE PRINTED : 30-JAN-89
OUR REF. NO. : S01307.4SF
DECLINATION : 10.00 JOB NUMBER :

MEASURED DEPTH	DRIFT ANGLE D M	DRIFT DIRECTION D M	COURSE LENGTH	TRUE VERTICAL DEPTH	R E C T A N G U L A R C O O R D I N A T E S	DOGLEG SEVERITY
3000.00	6 0	N 57 22 E	100.00	2997.20	33.82 N 40.71 E	0.11
3100.00	5 15	N 58 27 E	100.00	3096.72	39.03 N 49.02 E	0.76
3200.00	5 15	N 61 31 E	100.00	3196.30	43.61 N 56.94 E	0.28
3300.00	5 0	N 66 35 E	100.00	3295.90	47.52 N 64.97 E	0.52
3400.00	4 45	N 67 37 E	100.00	3395.54	50.82 N 72.80 E	0.27
3500.00	3 45	N 69 39 E	100.00	3495.27	53.52 N 79.70 E	1.01
3600.00	3 30	N 72 40 E	100.00	3595.07	55.56 N 85.68 E	0.31
3700.00	2 45	N 76 41 E	100.00	3694.92	57.00 N 90.94 E	0.78
3800.00	2 30	N 74 42 E	100.00	3794.81	58.14 N 95.38 E	0.27
3900.00	2 0	N 67 42 E	100.00	3894.73	59.40 N 99.09 E	0.57
4000.00	1 45	N 69 43 E	100.00	3994.68	60.59 N 102.14 E	0.26
4100.00	1 30	N 81 43 E	100.00	4094.64	61.29 N 104.88 E	0.42
4200.00	1 15	N 88 43 E	100.00	4194.61	61.49 N 107.27 E	0.30
4300.00	1 0	N 89 42 E	100.00	4294.59	61.51 N 109.24 E	0.25
4400.00	0 45	S 88 18 E	100.00	4394.58	61.49 N 110.76 E	0.25
4500.00	0 30	S 41 20 E	100.00	4494.57	61.04 N 111.72 E	0.55
4600.00	0 15	S 14 39 W	100.00	4594.57	60.43 N 111.87 E	0.42
4700.00	0 30	S 22 0 W	100.00	4694.57	59.81 N 111.66 E	0.25
4800.00	0 30	S 75 0 E	100.00	4794.56	59.12 N 112.01 E	0.75
4900.00	0 30	S 31 0 E	100.00	4894.56	58.60 N 112.69 E	0.37
5000.00	0 30	S 6 0 W	100.00	4994.56	57.77 N 112.87 E	0.32
5100.00	0 45	S 36 0 E	100.00	5094.55	56.73 N 113.15 E	0.51
5200.00	0 30	S 11 0 W	100.00	5194.54	55.70 N 113.38 E	0.55
5300.00	0 15	S 1 0 W	100.00	5294.54	55.05 N 113.31 E	0.26
5400.00	0 15	S 25 0 W	100.00	5394.54	54.62 N 113.21 E	0.10
5500.00	0 30	S 45 0 E	100.00	5494.54	54.02 N 113.32 E	0.48
5600.00	0 15	S 25 0 E	100.00	5594.54	53.48 N 113.69 E	0.28
5700.00	0 15	S 61 0 W	100.00	5694.54	53.11 N 113.57 E	0.34
5800.00	0 15	S 41 0 E	100.00	5794.53	52.73 N 113.51 E	0.39
5900.00	0 30	S 18 0 E	100.00	5894.53	52.16 N 113.83 E	0.29

CONTINUED ON NEXT PAGE ...



INTA FE ENERGY COMPANY
LIBERY 28 FED. WELL 1
A COUNTY, NEW MEXICO

DATE PRINTED : 30-JAN-89
OUR REF. NO. : S01307.4SF
DECLINATION : 10.00 JOB NUMBER :

PAGE NO. 2

MEASURED DEPTH	DRIFT ANGLE D M	DRIFT DIRECTION D M	COURSE LENGTH	TRUE VERTICAL DEPTH	R E C T A N G U L A R C O O R D I N A T E S	DOGLEG SEVERITY
6000.00	0 15	S 71 O W	100.00	5994.53	51.63 N 113.56 E	0.56
6100.00	0 15	N 56 O W	100.00	6094.53	51.69 N 113.15 E	0.22
6200.00	0 15	N 20 O E	100.00	6194.53	52.07 N 113.02 E	0.31
6300.00	0 30	N 8 O E	100.00	6294.53	52.71 N 113.18 E	0.26
6400.00	0 45	N 1 O W	100.00	6394.52	53.80 N 113.25 E	0.27
6500.00	0 45	N 13 O E	100.00	6494.51	55.10 N 113.38 E	0.18
6600.00	1 0	N 5 O E	100.00	6594.50	56.60 N 113.62 E	0.28
6700.00	0 30	N 14 O E	100.00	6694.49	57.89 N 113.84 E	0.51
6800.00	0 30	N 45 O W	100.00	6794.49	58.70 N 113.61 E	0.49
6900.00	0 45	N 10 O W	100.00	6894.48	59.65 N 113.12 E	0.45
7000.00	1 0	N 12 O W	100.00	6994.47	61.15 N 112.83 E	0.25
7100.00	1 0	N 32 O W	100.00	7094.45	62.76 N 112.17 E	0.35
7200.00	1 0	N 31 O W	100.00	7194.44	64.25 N 111.26 E	0.02
7300.00	0 45	N 66 O W	100.00	7294.43	65.24 N 110.14 E	0.58
7400.00	1 15	N 47 O W	100.00	7394.41	66.20 N 108.69 E	0.59
7500.00	1 0	N 44 O W	100.00	7494.39	67.58 N 107.29 E	0.26
7600.00	0 45	N 35 O W	100.00	7594.38	68.76 N 106.32 E	0.28
7700.00	0 45	N 18 O W	100.00	7694.37	69.92 N 105.74 E	0.22
7800.00	0 30	N 8 O W	100.00	7794.37	70.99 N 105.49 E	0.27
7900.00	0 45	N 25 O W	100.00	7894.36	72.03 N 105.18 E	0.31
8000.00	0 30	N 22 O W	100.00	7994.35	73.03 N 104.75 E	0.25
8100.00	1 0	N 30 O W	100.00	8094.34	74.21 N 104.17 E	0.51
8200.00	1 0	N 36 O W	100.00	8194.33	75.67 N 103.22 E	0.10
8300.00	0 45	N 33 O W	100.00	8294.32	76.93 N 102.36 E	0.25
8400.00	0 45	N 33 O W	100.00	8394.31	78.03 N 101.65 E	0.00
8500.00	0 30	N 54 O W	100.00	8494.30	78.81 N 100.90 E	0.34
8600.00	0 30	N 53 O W	100.00	8594.30	79.33 N 100.20 E	0.01
8700.00	0 45	N 31 O W	100.00	8694.29	80.14 N 99.47 E	0.34
8800.00	1 0	N 69 O W	100.00	8794.28	81.10 N 98.32 E	0.62
8900.00	1 30	N 75 O W	100.00	8894.26	81.78 N 96.25 E	0.50

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ANTA FE ENERGY COMPANY
ILBERRY 28 FED. WELL 1
EA COUNTY, NEW MEXICO

DATE PRINTED : 30-JAN-89
OUR REF. NO. : S01307.4SF
DECLINATION : 10.00 JOB NUMBER :

PAGE NO. 5

MEASURED DEPTH	DRIFT ANGLE D M	DRIFT DIRECTION D M	COURSE LENGTH	TRUE VERTICAL DEPTH	R E C T A N G U L A R C O O R D I N A T E S	DOGLEG SEVERITY
9000.00	2 0	N 79 0 W	100.00	8994.21	82.46 N 93.27 E	0.51
9100.00	2 15	N 82 0 W	100.00	9094.14	83.08 N 89.62 E	0.27
9200.00	2 30	N 83 0 W	100.00	9194.05	83.62 N 85.51 E	0.25
9300.00	2 45	N 85 0 W	100.00	9293.95	84.10 N 80.95 E	0.27
9400.00	2 45	N 84 0 W	100.00	9393.83	84.56 N 76.18 E	0.05
9500.00	2 30	N 88 0 W	100.00	9493.73	84.87 N 71.61 E	0.31
9600.00	2 0	S 86 0 W	100.00	9593.65	84.81 N 67.69 E	0.55
9700.00	1 15	S 82 0 W	100.00	9693.61	84.51 N 64.87 E	0.76
9800.00	1 30	S 76 0 W	100.00	9793.58	84.05 N 62.51 E	0.29
9900.00	2 45	S 67 0 W	100.00	9893.51	82.88 N 59.00 E	1.29
10000.00	2 45	S 66 0 W	100.00	9993.40	80.96 N 54.60 E	0.05
10100.00	2 0	S 58 0 W	100.00	10093.31	79.02 N 50.95 E	0.82
10200.00	1 45	S 47 0 W	100.00	10193.25	77.03 N 48.36 E	0.44
10300.00	1 45	S 46 0 W	100.00	10293.21	74.93 N 46.14 E	0.03
10400.00	1 30	S 44 0 W	100.00	10393.17	72.92 N 44.13 E	0.26
10500.00	1 15	S 37 0 W	100.00	10493.14	71.10 N 42.58 E	0.30
10600.00	1 30	S 43 0 W	100.00	10593.11	69.26 N 41.04 E	0.29
10700.00	1 30	S 42 0 W	100.00	10693.08	67.33 N 39.27 E	0.03
10800.00	1 45	S 27 0 W	100.00	10793.04	65.00 N 37.67 E	0.49
10900.00	3 45	S 35 0 E	100.00	10892.92	60.45 N 37.99 E	3.31
11000.00	1 0	S 0 0 W	100.00	10992.82	56.56 N 39.21 E	2.99
11100.00	0 30	S 15 0 E	100.00	11092.81	55.26 N 39.38 E	0.53
11200.00	0 45	S 22 0 W	100.00	11192.80	54.19 N 39.32 E	0.46
11300.00	1 0	S 8 0 W	100.00	11292.79	52.72 N 38.92 E	0.33
11400.00	0 15	S 32 0 W	100.00	11392.79	51.70 N 38.55 E	0.78
11500.00	0 30	S 70 0 W	100.00	11492.78	51.30 N 38.05 E	0.34
11600.00	0 45	N 90 0 W	100.00	11592.78	51.11 N 36.98 E	0.33
11700.00	1 0	N 79 0 W	100.00	11692.77	51.26 N 35.46 E	0.30
11800.00	1 0	N 76 0 W	100.00	11792.75	51.63 N 33.76 E	0.05
11900.00	1 0	N 77 0 W	100.00	11892.74	52.04 N 32.06 E	0.02

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SANTA FE ENERGY COMPANY
WILBERRY 28 FED. WELL 1
DEA COUNTY, NEW MEXICO

DECLINATION : 10.00 JOB NUMBER :
DATE PRINTED : 30-JAN-89
OUR REF. NO. : S01307.4SF

PAGE NO. 6

MEASURED DEPTH	DRIFT ANGLE D M	DRIFT DIRECTION D M	COURSE LENGTH	TRUE VERTICAL DEPTH	R E C T A N G U L A R C O O R D I N A T E S	DOGLEG SEVERITY
12000.00	1 0	N 80 0 W	100.00	11992.72	52.39 N 30.35 E	0.05
12080.00	1 0	S 85 0 W	80.00	12072.71	52.45 N 28.96 E	0.33

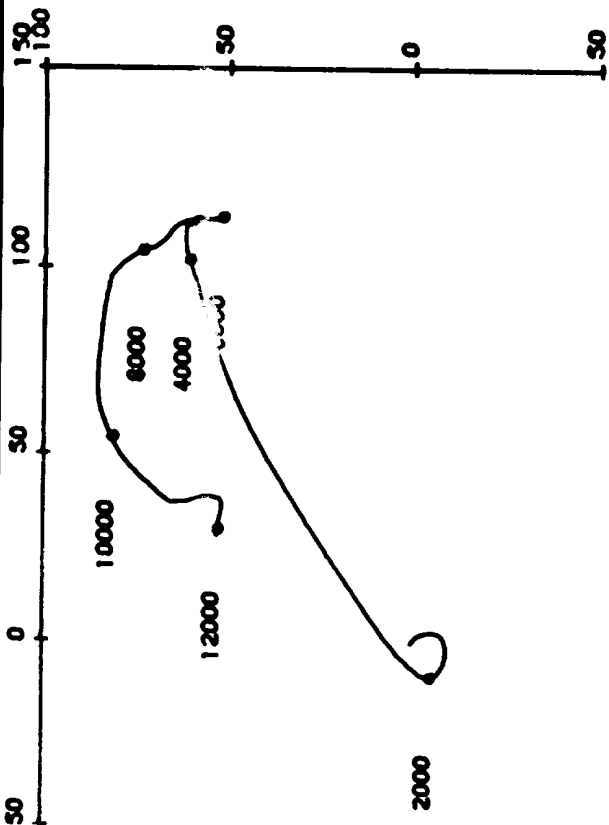
CLOSURE - DISTANCE : 59.91
DIRECTION : N 28 54 E

REPORT UNITS : Feet
SURVEY CALCULATION METHOD : Radius of curvature

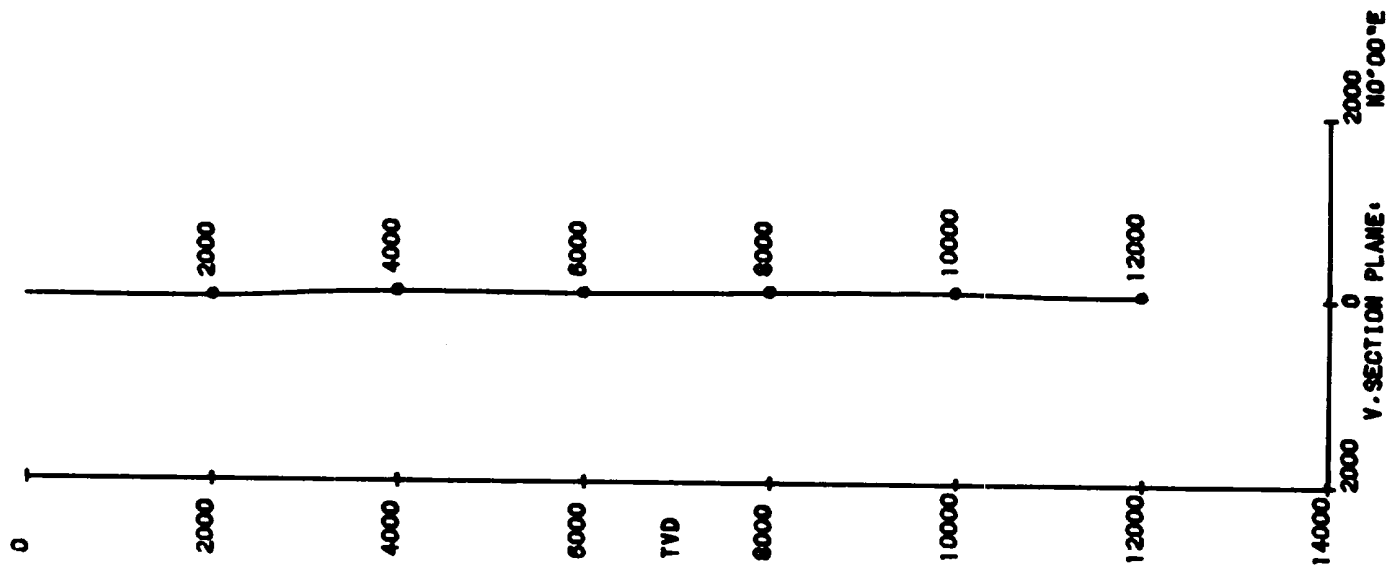
SURVEY RUN INFORMATION

=====

GYROSCOPIC MULTI-SHOT SURVEY	430-950
SURVEYOR: TIM STEPHENS	(0'-4600')
MAGNETIC MULTI-SHOT SURVEY	430-950
SURVEYOR: STEVE COVINGTON	(4600'-12,080')



SCALE 1"=50FT.
NOTE: COORDINATES RELATIVE
TO SLOT



SURVEY: S01307.48F

SCALE 1"=2000FT.

SANTA FE ENERGY COMPANY
BILBERRY 28 FEB. WELL 1
LEA COUNTY, NEW MEXICO
WELL: BILBERRY 28-1
SLOT: 1



2103 Market, Midland, Texas 79703, Phone: (915) 694-9517, (915) 563-0511

SURVEY CERTIFICATION SHEET

STATE OF TEXAS
COUNTY OF MIDLAND

I, TIM STEPHENS, in the employ of Eastman Christensen, Inc. did on the days of JANUARY 24, 1989 thru JANUARY 24, 1989 conduct or supervise the taking of a GYROSCOPIC MULTI-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 SANTA FE ENERGY COMPANY for their BILBERY 28 FED NO. 1, 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 Christensen, Inc. and is true and correct to the best of my knowledge.

Tim Stephens
Directional Supervisor/Surveyor

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

D. E. S. Covington

Before me, the undersigned authority, on this day personally appeared _____, 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 _____ day of _____, 19____

Notary Public in and for the
County of Midland, Texas
My commission expires _____



EASTMAN CHRISTENSEN

2103 Market, Midland, Texas 79703, Phone: (915) 694-9517, (915) 563-0511

SURVEY CERTIFICATION SHEET

STATE OF TEXAS
COUNTY OF MIDLAND

I, STEVE COVINGTON, in the employ of Eastman Christensen, Inc. did on the days of JANUARY 24, 1989 thru JANUARY 24, 1989 conduct or supervise the taking of a MAGNETIC MULTI-SHOT survey by the method of magnetic orientation from a depth of 4600 feet to 12,080 feet, with recordings of inclination and direction being obtained at approximate intervals of 100 feet.

This survey was conducted at the request of SANTA FE ENERGY COMPANY for their BILBERY 28 FED NO. 1, 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 Christensen, Inc. and is true and correct to the best of my knowledge.

Steve S. Covington
Directional Supervisor/Surveyor

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

Tim Stephens

Before me, the undersigned authority, on this day personally appeared _____, 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 _____ day of _____, 19____

Notary Public in and for the
County of Midland, Texas
My commission expires _____

NEW MEXICO OIL CONSERVATION COMMISSION
WELL LOCATION AND ACREAGE DEDICATION PLAT

Form C-162
Supersedes C-128
Effective 1-4-85

All distances must be from the outer boundaries of the Section.

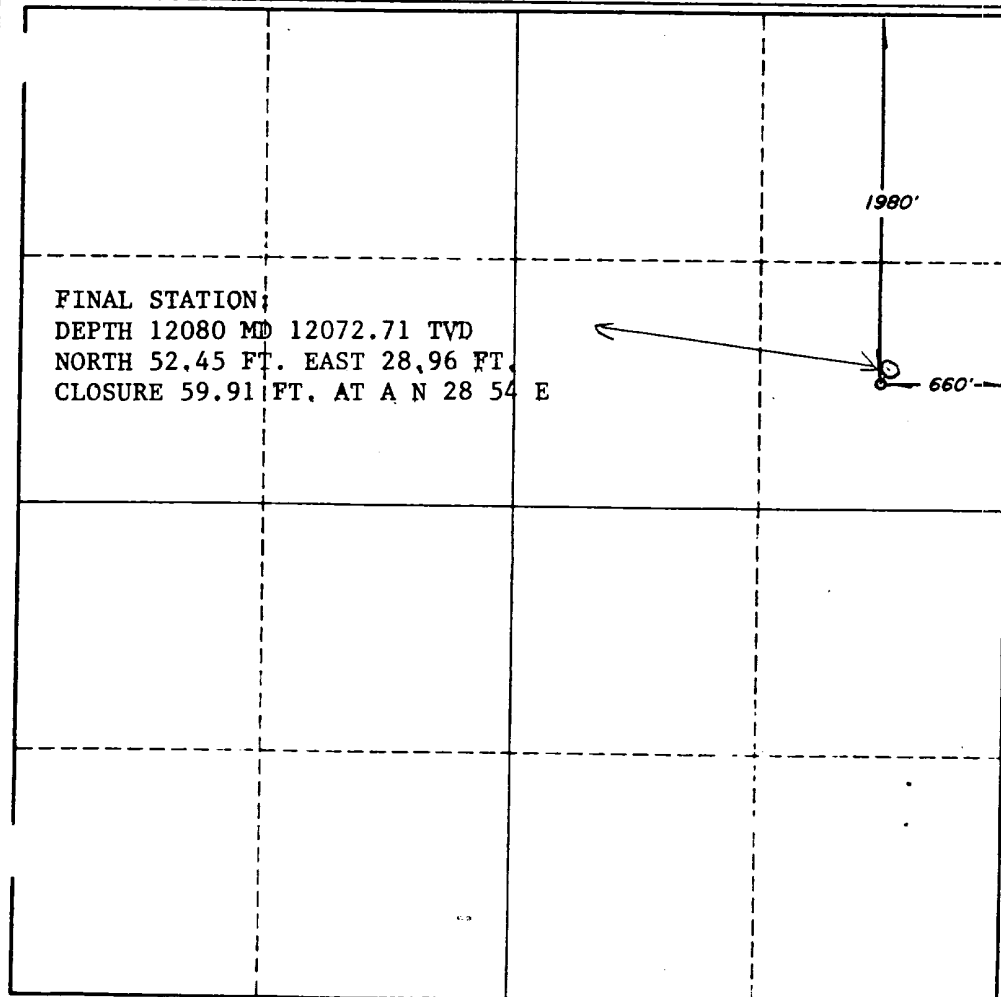
Operator SANTA FE ENERGY OPERATING PARTNERS, L.P.			Lease BILBREY "28" FEDERAL			Well No. 1
Unit Letter H	Section 28	Township 21-S	Range 32-E	County LEA		
Actual Footage Location of Well: 1980 feet from the NORTH line and 660 feet from the EAST line						
Ground Level Elev. 3681'	Producing Formation		Pool		Dedicated Acreage: Acres	

1. Outline the acreage dedicated to the subject well by colored pencil or hachure marks on the plat below.
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).
3. If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling, etc?

☐ Yes ☐ No If answer is "yes," type of consolidation _____

If answer is "no," list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary.) _____

No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Commission.



CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.

Name

Position

Company

Date

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge and belief.

Date Surveyed **GARY D**

BOSWELL
SEPTEMBER 1, 1988

Registered Professional Engineer
and a Licensed Surveyor
No. 6689

Certificate No.

6689