

5/6/97 | 5/27/97 | MS | KN | NSL

ABOVE THIS LINE FOR DIVISION USE ONLY

NEW MEXICO OIL CONSERVATION DIVISION

- Engineering Bureau -

ADMINISTRATIVE APPLICATION COVERSHEET

THIS COVERSHEET IS MANDATORY FOR ALL ADMINISTRATIVE APPLICATIONS FOR EXCEPTIONS TO DIVISION RULES AND REGULATIONS

Application Acronyms:

- [NSP-Non-Standard Proration Unit] [NSL-Non-Standard Location]
- [DD-Directional Drilling] [SD-Simultaneous Dedication]
- [DHC-Downhole Commingling] [CTB-Lease Commingling] [PLC-Pool/Lease Commingling]
- [PC-Pool Commingling] [OLS - Off-Lease Storage] [OLM-Off-Lease Measurement]
- [WFX-Waterflood Expansion] [PMX-Pressure Maintenance Expansion]
- [SWD-Salt Water Disposal] [IPI-Injection Pressure Increase]
- [EOR-Qualified Enhanced Oil Recovery Certification] [PPR-Positive Production Response]

[1] TYPE OF APPLICATION - Check Those Which Apply for [A]

- [A] Location - Spacing Unit - Directional Drilling
- NSL NSP DD SD

MAY - 6 1997

Check One Only for [B] or [C]

- [B] Commingling - Storage - Measurement
- DHC CTB PLC PC OLS OLM
- [C] Injection - Disposal - Pressure Increase - Enhanced Oil Recovery
- WFX PMX SWD IPI EOR PPR

[2] NOTIFICATION REQUIRED TO: - Check Those Which Apply, or Does Not Apply

- [A] Working, Royalty or Overriding Royalty Interest Owners
- [B] Offset Operators, Leaseholders or Surface Owner
- [C] Application is One Which Requires Published Legal Notice
- [D] Notification and/or Concurrent Approval by BLM or SLO
U.S. Bureau of Land Management - Commissioner of Public Lands, State Land Office
- [E] For all of the above, Proof of Notification or Publication is Attached, and/or,
- [F] ~~Waivers are Attached~~ *No offset operator*

[3] INFORMATION / DATA SUBMITTED IS COMPLETE - Statement of Understanding

I hereby certify that I, or personnel under my supervision, have read and complied with all applicable Rules and Regulations of the Oil Conservation Division. Further, I assert that the attached application for administrative approval is accurate and complete to the best of my knowledge and where applicable, verify that all interest (WI, RI, ORRI) is common. I further verify that all applicable API Numbers are included. I understand that any omission of data, information or notification is cause to have the application package returned with no action taken.

James Bruce
P.O. Box 1056
Santa Fe, NM 87502

Note: Statement must be completed by an individual with supervisory capacity.

James Bruce

5/6/97

Print or Type Name

Signature

Title

Date

JAMES BRUCE
ATTORNEY AT LAW

POST OFFICE BOX 1056
SANTA FE, NEW MEXICO 87504

SUITE B
612 OLD SANTA FE TRAIL
SANTA FE, NEW MEXICO 87501

(505) 982-2043
(505) 982-2151 (FAX)

May 6, 1997

Hand Delivered

Michael E. Stogner
New Mexico Oil Conservation Division
2040 South Pacheco Street
Santa Fe, New Mexico 87505

Dear Mr. Stogner:

Pursuant to Division Rule 104.F(2), Santa Fe Energy Resources, Inc. ("Santa Fe") hereby applies for administrative approval of an unorthodox gas well location for the following well:

Abe Unit Well No. 2
660 feet FSL & 660 feet FWL
W½ §21, Township 21 South, Range 33 East, NMPM
Lea County, New Mexico

The well will be drilled to test the Morrow formation (Undesignated Legg Atoka-Morrow Gas Pool). Well spacing is 320 acres. An APD and Form C-108 for the well are attached as Exhibits A and B.

The proposed location is based upon geologic reasons. Attached hereto are a geologic discussion (Exhibit C), a structure map (Exhibit D), and two isopachs (Exhibits E and F). Moving the well from an orthodox location to its proposed location substantially reduces the risk involved in drilling the well.

Attached as Exhibit G is a land plat of the subject area, highlighting Santa Fe-operated acreage in yellow. The well is within the Abe Unit. All offsetting acreage is owned or operated by Santa Fe. Therefore, notice of this application is not required to be given to any offset.¹

This application is submitted in duplicate. Please call me if you

¹The Phillips acreage in the well unit is the subject of a compulsory pooling application set for the May 29th Examiner hearing.

need anything further on this matter.

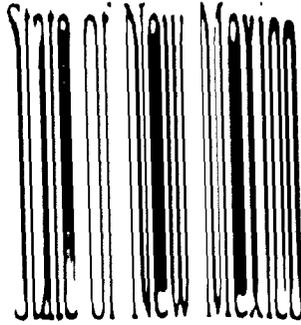
Very truly yours,

A handwritten signature in cursive script that reads "James Bruce". The signature is written in dark ink and is positioned to the right of the typed name.

James Bruce

Attorney for Santa Fe
Energy Resources, Inc.

District I



Energy, Minerals & Natural Resources Department

PO Box 1980, Hobbs, NM 88241-1980
District II
PO Drawer DD, Artesia, NM 88211-0719
District III
1000 Rio Brazos Rd., Aztec, NM 87410
District IV
PO Box 2088, Santa Fe, NM 87504-2088

OIL CONSERVATION DIVISION
PO Box 2088
Santa Fe, NM 87504-2088

Form C-101
Revised February 10, 1994
Instructions on back
Submit to Appropriate District Office
State Lease - 6 Copies
Fee Lease - 5 Copies

AMENDED REPORT

APPLICATION FOR PERMIT TO DRILL, RE-ENTER, DEEPEN, PLUGBACK, OR ADD A ZONE

Operator Name and Address: Santa Fe Energy Resources, Inc. 550 W. Texas, Suite 1330 Midland, TX 79701		OGRID Number
		API Number 30 - 0
Property Code	Property Name Abe Unit	Well No. 2

Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	21	21-S	33-E		660	South	660	West	Lea

Proposed Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
Proposed Pool 1 Grama Ridge (Morrow)					Proposed Pool 2				

Work Type Code N	Well Type Code G	Cable/Rotary R	Lease Type Code S	Ground Level Elevation 3712
Multiple No	Proposed Depth 15100	Formation Morrow	Contractor To be determined	Spud Date 5-15-97

Proposed Casing and Cement Program

Hole Size	Casing Size	Casing weight/foot	Setting Depth	Sacks of Cement	Estimated TOC
17 1/2"	13 3/8"	54.5	1650'	1800	surface
12 1/4"	9 5/8"	40.0	5200'	2600	surface
8 3/4"	7"	26.0	12000'	800	8000'
6 1/8"	4 1/2"	13.5	15100'	500	Top of Liner ±11800'

Describe the proposed program. If this application is to DEEPEN or PLUG BACK give the data on the present productive zone and proposed new productive zone. Describe the blowout prevention program, if any. Use additional sheets if necessary.

Rig up rotary tools. Set 13 5/8" casing @ 1650', WOC 12 hours, NU annular preventor and test casing to 600 psi. Set 9 5/8" casing @ 5200', WOC 12 hours and NU 10M triple ram BOP w annular. Test casing to 2000 psi. Set 7" casing @ 12000', install a rotating head and test BOP stack and choke manifold to 10000 psi. Test casing to 3000 psi. Drill to TD of 15100'. Run logs and evaluate for completion or P&A.



I hereby certify that the information given above is true and complete to the best of my knowledge and belief. Signature: <i>James P. "Phil" Stinson</i>		OIL CONSERVATION DIVISION Approved by:	
Printed name: James P. "Phil" Stinson		Title:	
Title: Agent for Santa Fe Energy		Approval Date:	Expiration Date:
Date: 4-23-97	Phone: (915) 682-6373	Conditions of Approval: Attached <input type="checkbox"/>	

DISTRICT I:
 P. O. Box 1980
 Hobbs, NM 88241-1980

State of New Mexico
 Energy Minerals, and Natural Resources Department

Form C-102
 Revised 02-10-94

Instructions on back

DISTRICT II
 P. O. Drawer DD
 Artesia, NM 88211-0719

OIL CONSERVATION DIVISION
 P. O. Box 2088
 Santa Fe, New Mexico 87504-2088

Submit to the Appropriate
 District Office
 State Lease - 4 copies
 Fee Lease - 3 copies

AMENDED REPORT

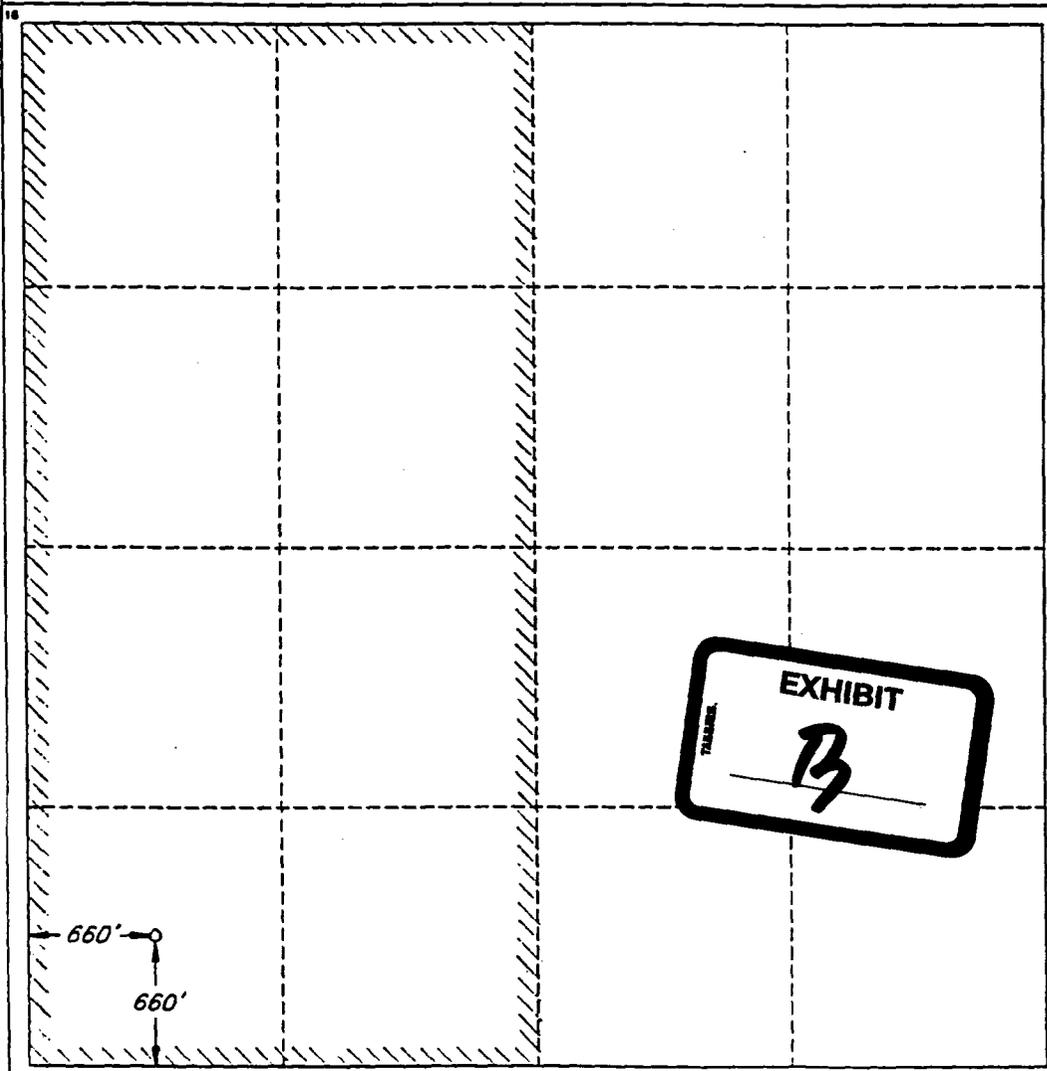
DISTRICT III
 1000 Rio Brazos Rd.
 Aztec, NM 87410

DISTRICT IV
 P. O. Box 2088
 Santa Fe, NM 87507-2088

WELL LOCATION AND ACREAGE DEDICATION PLAT

1 API Number		2 Pool Code		3 Pool Name Grama Ridge (Morrow)					
4 Property Code		5 Property Name ABE UNIT					6 Well Number 2		
7 OGRID No.		8 Operator Name SANTA FE ENERGY RESOURCES, INC.					9 Elevation 3712'		
10 SURFACE LOCATION									
UL or lot no. M	Section 21	Township 21 SOUTH	Range 33 EAST, N.M.P.M.	Lot Ida	Feet from the 660'	North/South line SOUTH	Feet from the 660'	East/West line WEST	County LEA
11 BOTTOM HOLE LOCATION IF DIFFERENT FROM SURFACE									
UL or lot no.	Section	Township	Range	Lot Ida	Feet from the	North/South line	Feet from the	East/West line	County
12 Dedicated Acres 320		13 Joint or Infill		14 Consolidation Code		15 Order No.			

NO ALLOWABLE WELL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION



OPERATOR CERTIFICATION

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

Signature: *James P. Stinson*
 Printed Name: James P. "Phil" Stinson
 Title: Agent for Santa Fe Energy
 Date: 4-23-97

SURVEYOR CERTIFICATION

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 belief.

Date of Survey: APRIL 16, 1997
 Signature and Seal of Professional Surveyor:
 V. LYNN BEZNER
 NO. 7920
 STATE OF NEW MEXICO
 V. LYNN BEZNER P.E.S. #7920

SANTA FE ENERGY RESOURCES, INC.

SPESSARTINE PROSPECT

ABE UNIT #2

T-21-S, R-33-E, Sec. 21, 660 FS & WL of Section
Unorthodox Location
Lea County, New Mexico

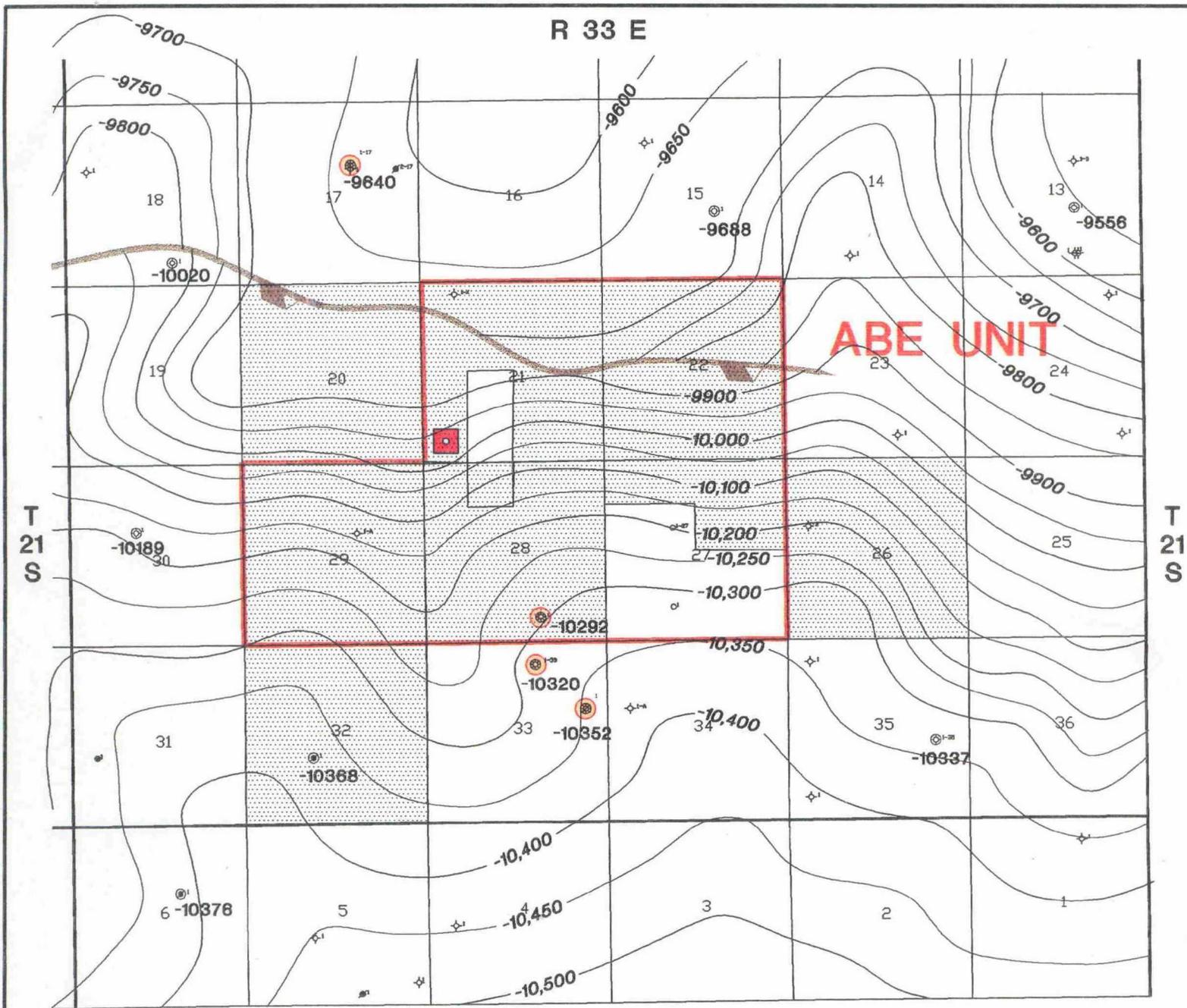
GEOLOGICAL

There are four geological reasons for this unorthodox location. One reason is based on subsurface structure and three are based on subsurface stratigraphy.

Structural mapping on top of the Morrow carbonate shows regional dip to the south. The structural contours show steeper dip on the downthrown south side of the east to the west trending normal fault. Most of the Abe Unit is situated on this hanging wall. The placement of the fault is somewhat tenuous and is interpreted from fair to poor quality seismic data integrated with well data (no fault cuts are seen in wells). The Abe Unit #2 location is the most updip position on the hanging wall that remains within the three stratigraphic gas sand trends in the Morrow. These three Morrow gas sand trends are within an interval of 900 feet below the top of the Morrow carbonate.

The three stratigraphic gas sand trends in the Morrow are depicted by the various isopach maps. The isopach map of the net clean Bilbrey sands shows the Abe Unit #2 location on the north side of this prospective gas sand trend. The isopach map of the middle Morrow sands shows the Abe Unit #2 location on the west side of this trend. The isopach map of the lower Morrow trend shows the Abe Unit #2 location on the east side of this trend. The edges of these three potential gas sand trends form an outline of the most prospective area. The Abe Unit #2 well location is near the center of this outline.





ABE UNIT #2 LOCATION



SFER INTEREST ACREAGE



Santa Fe Energy Resources, Inc.
CENTRAL DIVISION
MIDLAND, TEXAS

LEA SOUTH AREA
ABE UNIT #2
LEA CO., NEW MEXICO

STRUCTURE MAP
TOP OF MORROW CARBONATE

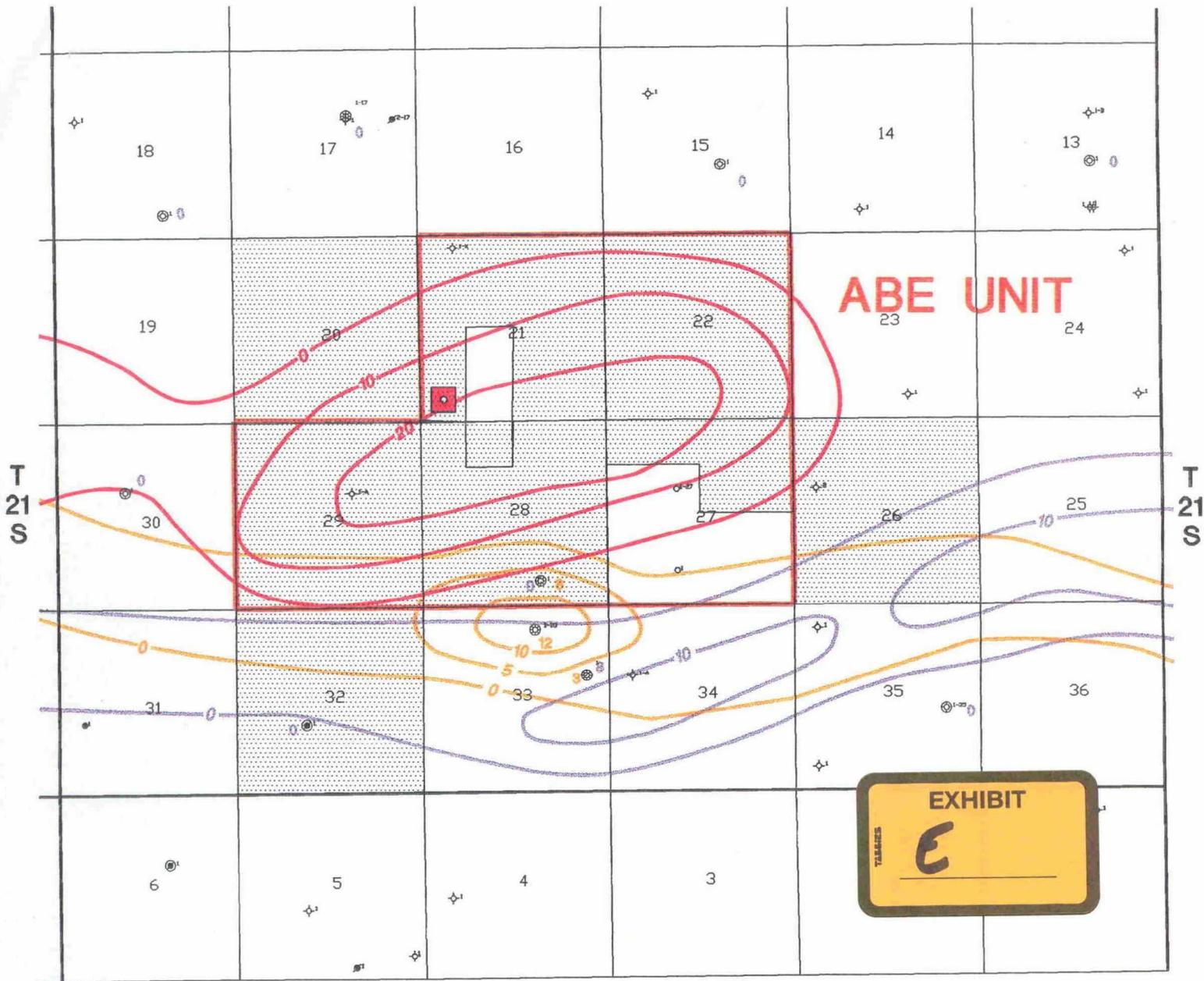
GEOL. DILLI-HUGGARD
SCALE 1"=4000'

C.I. 50'
DATE 5-1-97

AB-HEAR.DWG

File:

R 33 E



ABE UNIT #2 LOCATION



SFER INTEREST ACREAGE



BILBREY B₁ SAND (C.I. = 5')



BILBREY B₂ SAND (C.I. = 10')



BILBREY B₃ SAND (C.I. = 10')



BILBREY B₃ PRODUCER



Santa Fe Energy Resources. Inc.

CENTRAL DIVISION

MIDLAND, TEXAS

LEA SOUTH AREA

ABE UNIT #2

LEA CO., NEW MEXICO

**ISOPACH MAP
NET CLEAN BILBREY SANDS**

GEOL. DILLI-HUGGARD
SACLE 1"=4000'

C.I. 10'
DATE 5-1-97

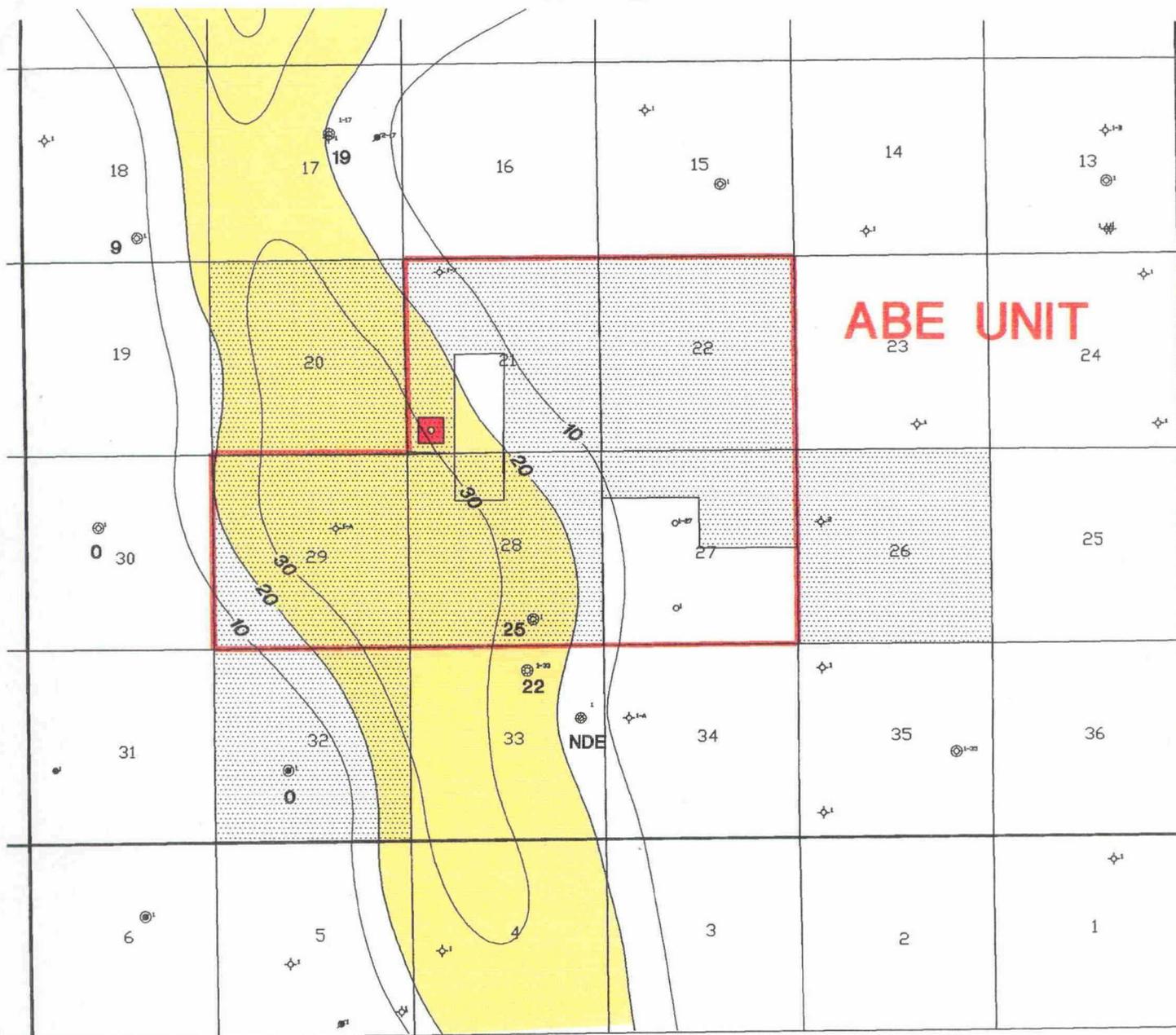
AB-HEAR.DWG

File:

R 33 E

T 21 S

T 21 S



ABE UNIT #2 LOCATION



SFER INTEREST ACREAGE



Santa Fe Energy Resources, Inc.
CENTRAL DIVISION
MIDLAND, TEXAS

LEA SOUTH AREA
ABE UNIT #2
LEA CO., NEW MEXICO

ISOPACH MAP
GROSS LOWER MORROW SANDS

GEOL. DILLI-HUGGARD
SCALE 1"=4000'

C.I. 10'
DATE 5-1-97

AB-HEAR.DWG

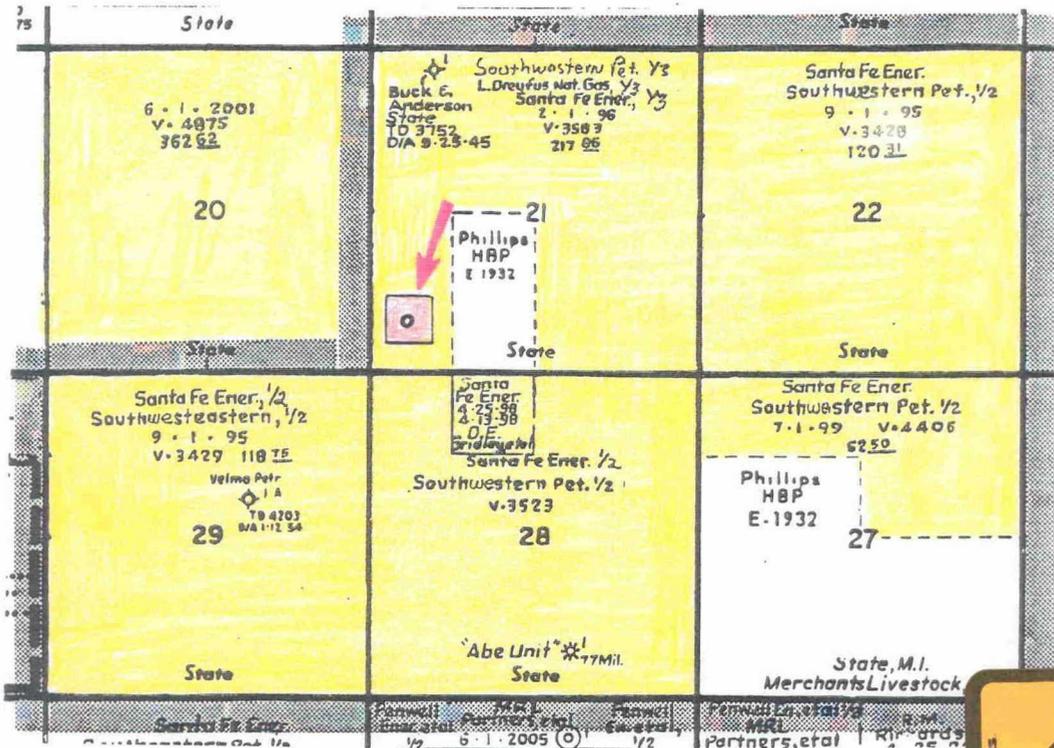
File:

T21S - R33E

Section 20: Leasehold Ownership

Santa Fe Energy Resources, Inc. - 50% WI

Southwestern Energy Production Company - 50% WI



Sections 28 and 29: Leasehold Ownership

Santa Fe Energy Resources, Inc. - 50% WI

Southwestern Energy Production Company - 50% WI

Abe Unit Ownership

Santa Fe Energy Resources, Inc. -	46.56855% WI
Southwestern Energy Production Company-	46.56855% WI
Louis Dreyfus Natural Gas Corp. -	6.86290% WI

Addresses:

Santa Fe Energy Resources, Inc.
550 W. Texas, Suite 1330
Midland, TX 79707

Southwestern Energy Production Company
5600 N. May Ave., Suite 200
Oklahoma City, OK 73112

Louis Dreyfus Natural Gas Corp.
14000 Quail Springs Parkway
Suite 600
Oklahoma City, OK 73134



ABE UNIT NO. 2 WELL
660' FSL & 660' FWL
Section 21-T21S-R33E

Anticipated Participating Area
W/2 Section 21-T21S-R33E

Operator: SFER, Inc.



Abe Unit Area



SFER, INC. Acreage

	Santa Fe Energy Resources, Inc. Central Division Midland, Texas
LEA COUNTY, NEW MEXICO	
LAND PLAT	
SPESSARTINE PROSPECT	
Date: 2-1-97	

JAMES BRUCE

ATTORNEY AT LAW

POST OFFICE BOX 1056
SANTA FE, NEW MEXICO 87504

SUITE B
612 OLD SANTA FE TRAIL
SANTA FE, NEW MEXICO 87501

(505) 982-2043
(505) 982-2151 (FAX)

May 6, 1997

Hand Delivered

Michael E. Stogner
New Mexico Oil Conservation Division
2040 South Pacheco Street
Santa Fe, New Mexico 87505

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Lea County, New Mexico

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Attached as Exhibit G is a land plat of the subject area, highlighting Santa Fe-operated acreage in yellow. The well is within the Abe Unit. All offsetting acreage is owned or operated by Santa Fe. Therefore, notice of this application is not required to be given to any offset.¹

This application is submitted in duplicate. Please call me if you

¹The Phillips acreage in the well unit is the subject of a compulsory pooling application set for the May 29th Examiner hearing.

need anything further on this matter.

Very truly yours,

A handwritten signature in black ink that reads "James Bruce". The signature is written in a cursive style with a large, looping initial "J".

James Bruce

Attorney for Santa Fe
Energy Resources, Inc.

District I
PO Box 1980, Hobbs, NM 88241-1980
District II
PO Drawer DD, Artesa, NM 88211-0719
District III
1000 Rio Brazos Rd., Aztec, NM 87410
District IV
PO Box 2088, Santa Fe, NM 87504-2088

State of New Mexico
Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION
PO Box 2088
Santa Fe, NM 87504-2088

Form C-101
Revised February 10, 1994
Instructions on back
Submit to Appropriate District Office
State Lease - 6 Copies
Fee Lease - 5 Copies

AMENDED REPORT

APPLICATION FOR PERMIT TO DRILL, RE-ENTER, DEEPEN, PLUGBACK, OR ADD A ZONE

Operator Name and Address. Santa Fe Energy Resources, Inc. 550 W. Texas, Suite 1330 Midland, TX 79701		OGRID Number
		API Number 30 - 0
Property Code	Property Name Abe Unit	Well No. 2

Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	21	21-S	33-E		660	South	660	West	Lea

Proposed Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
Proposed Pool 1 Grama Ridge (Morrow)					Proposed Pool 2				

Work Type Code N	Well Type Code G	Cable/Rotary R	Lease Type Code S	Ground Level Elevation 3712
Multiple No	Proposed Depth 15100	Formation Morrow	Contractor To be determined	Spud Date 5-15-97

Proposed Casing and Cement Program

Hole Size	Casing Size	Casing weight/foot	Setting Depth	Sacks of Cement	Estimated TOC
17 1/2"	13 3/8"	54.5	1650'	1800	surface
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6 1/8"	4 1/2"	13.5	15100'	500	Top of Liner ±11800'

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

Signature: *James P. "Phil" Stinson*

Printed name: James P. "Phil" Stinson

Title: Agent for Santa Fe Energy

Date: 4-23-97

Phone: (915) 682-6373

OIL CONSERVATION DIVISION

Approved by:

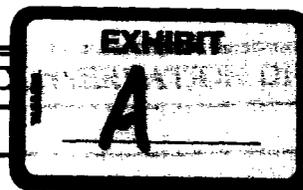
Title:

Approval Date:

Expiration Date:

Conditions of Approval:

Attached



DISTRICT I:
 P. O. Box 1980
 Hobbs, NM 88241-1980

State of New Mexico
 Energy Minerals, and Natural Resources Department

Form C-102
 Revised 02-10-94
 Instructions on back

DISTRICT II
 P. O. Drawer DD
 Artesia, NM 88211-0719

OIL CONSERVATION DIVISION
 P. O. Box 2088
 Santa Fe, New Mexico 87504-2088

Submit to the Appropriate
 District Office
 State Lease - 4 copies
 Fee Lease - 3 copies

DISTRICT III
 1000 Rio Brazos Rd.
 Aztec, NM 87410

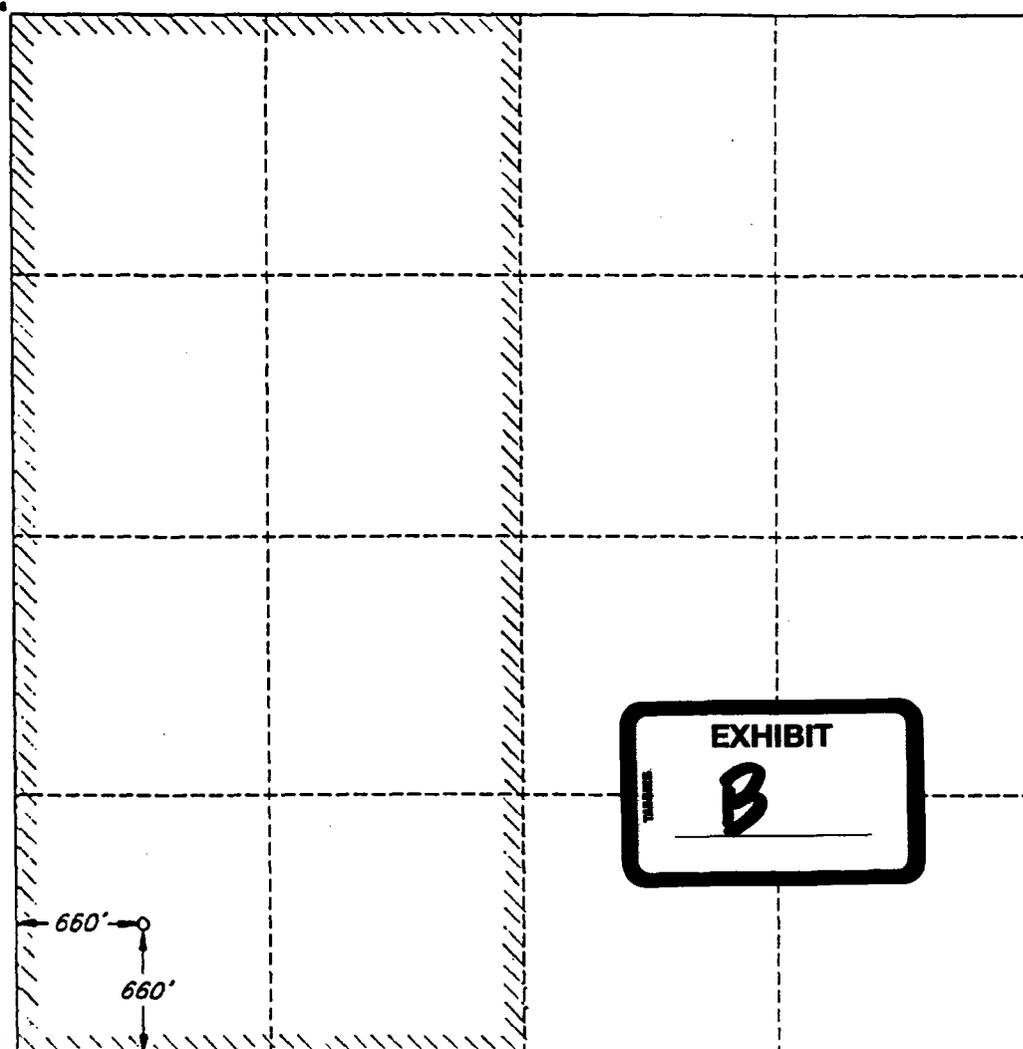
AMENDED REPORT

DISTRICT IV
 P. O. Box 2088
 Santa Fe, NM 87507-2088

WELL LOCATION AND ACREAGE DEDICATION PLAT

1 API Number		2 Pool Code		3 Pool Name Grama Ridge (Morrow)					
4 Property Code		5 Property Name ABE UNIT				6 Well Number 2			
7 OGRID No.		8 Operator Name SANTA FE ENERGY RESOURCES, INC.				9 Elevation 3712'			
10 SURFACE LOCATION									
UL or lot no. M	Section 21	Township 21 SOUTH	Range 33 EAST, N.M.P.M.	Lot Ida	Feet from the 660'	North/South line SOUTH	Feet from the 660'	East/West line WEST	County LEA
11 BOTTOM HOLE LOCATION IF DIFFERENT FROM SURFACE									
UL or lot no.	Section	Township	Range	Lot Ida	Feet from the	North/South line	Feet from the	East/West line	County
12 Dedicated Acres 320		13 Joint or Infill		14 Consolidation Code		15 Order No.			

NO ALLOWABLE WELL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION



OPERATOR CERTIFICATION

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

Signature
James P. Stinson
 Printed Name
 James P. "Phil" Stinson
 Title
 Agent for Santa Fe Energy
 Date
 4-23-97

SURVEYOR CERTIFICATION

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 belief.

Date of Survey
 APRIL 16, 1997
 Signature and Seal of Professional Surveyor

 V. LYNN BEZNER P.S. #7920

SANTA FE ENERGY RESOURCES, INC.

SPESSARTINE PROSPECT

ABE UNIT #2

T-21-S, R-33-E, Sec. 21, 660 FS & WL of Section
Unorthodox Location
Lea County, New Mexico

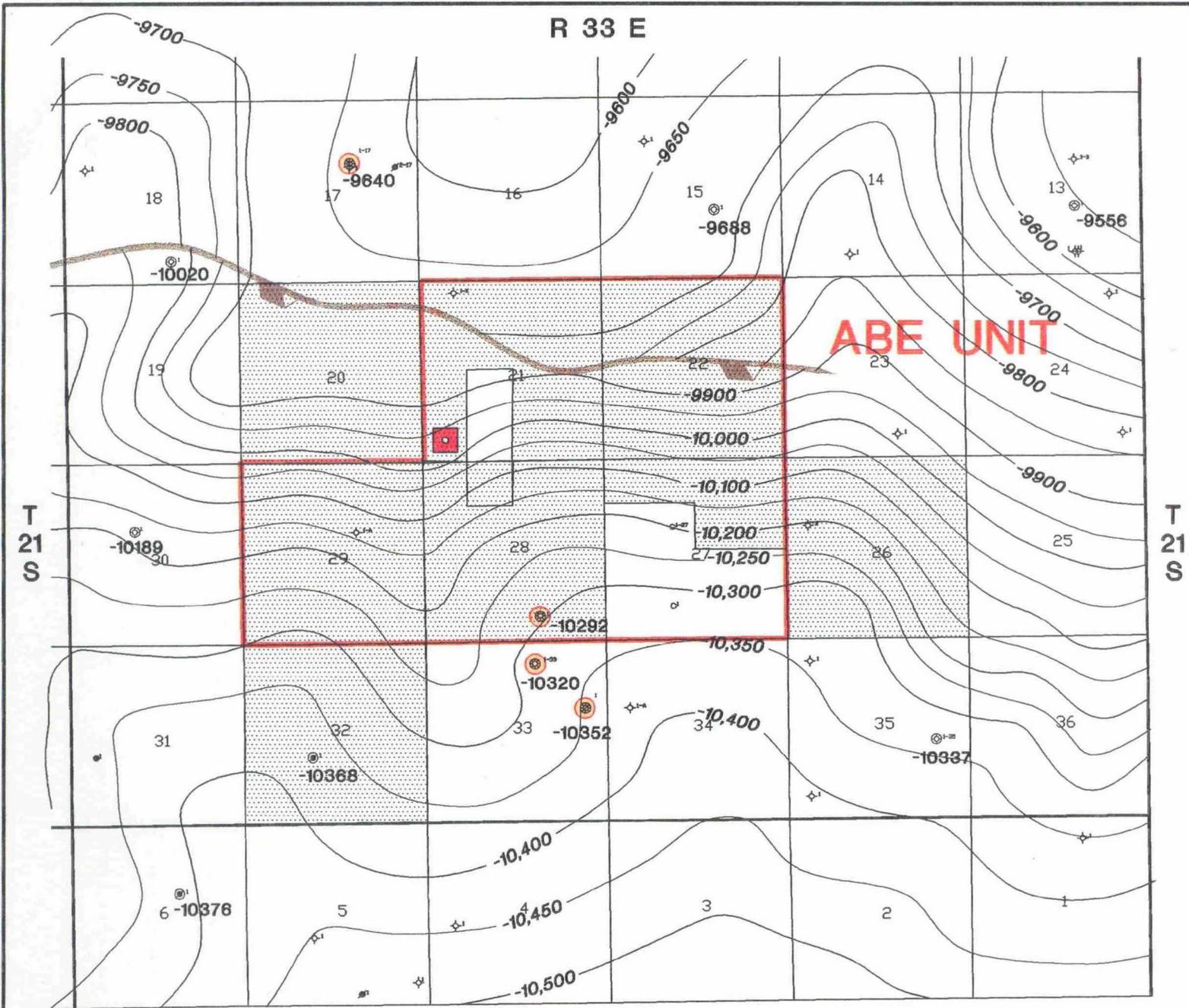
GEOLOGICAL

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-  ABE UNIT #2 LOCATION
-  SFER INTEREST ACREAGE

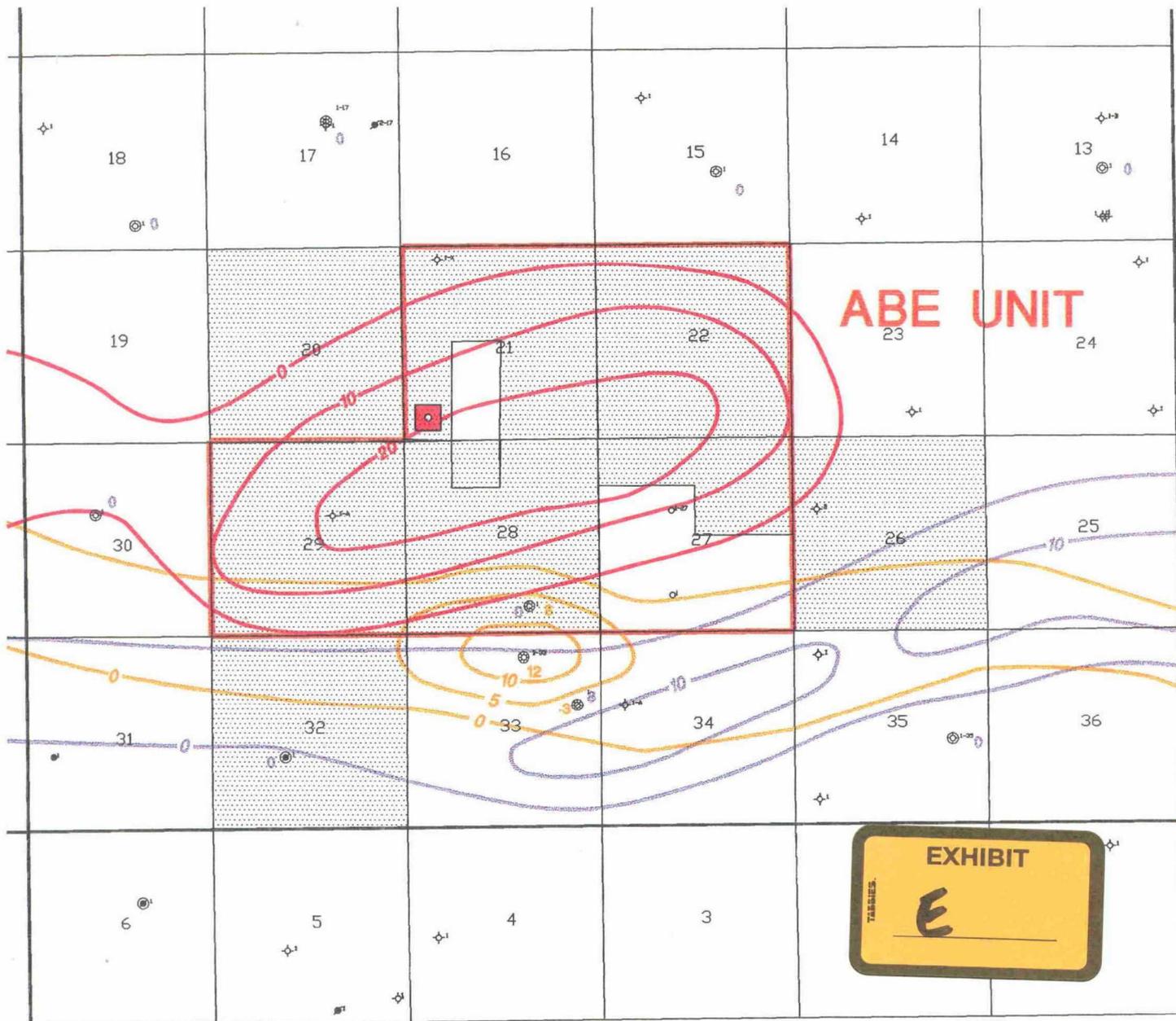
EXHIBIT
D

 <p>Santa Fe Energy Resources. Inc. CENTRAL DIVISION MIDLAND, TEXAS</p>	
<p>LEA SOUTH AREA ABE UNIT #2 LEA CO., NEW MEXICO</p>	
<p>STRUCTURE MAP TOP OF MORROW CARBONATE</p>	
<p>GEOL. DILLI-HUGGARD SACLE 1"=4000'</p>	<p>C.I. 50' DATE 5-1-97</p>
<p>AB-HEAR.DWG</p>	<p>File:</p>

R 33 E

T 21 S

T 21 S



ABE UNIT

EXHIBIT
E



ABE UNIT #2 LOCATION



SFER INTEREST ACREAGE



BILBREY B₁ SAND (C.I. = 5')



BILBREY B₂ SAND (C.I. = 10')



BILBREY B₃ SAND (C.I. = 10')



BILBREY B₃ PRODUCER



Santa Fe Energy Resources. Inc.

*CENTRAL DIVISION
MIDLAND, TEXAS*

LEA SOUTH AREA
ABE UNIT #2
LEA CO., NEW MEXICO

**ISOPACH MAP
NET CLEAN BILBREY SANDS**

GEOL. DILLI-HUGGARD
SACLE 1"=4000'

C.I. 10'
DATE 5-1-97

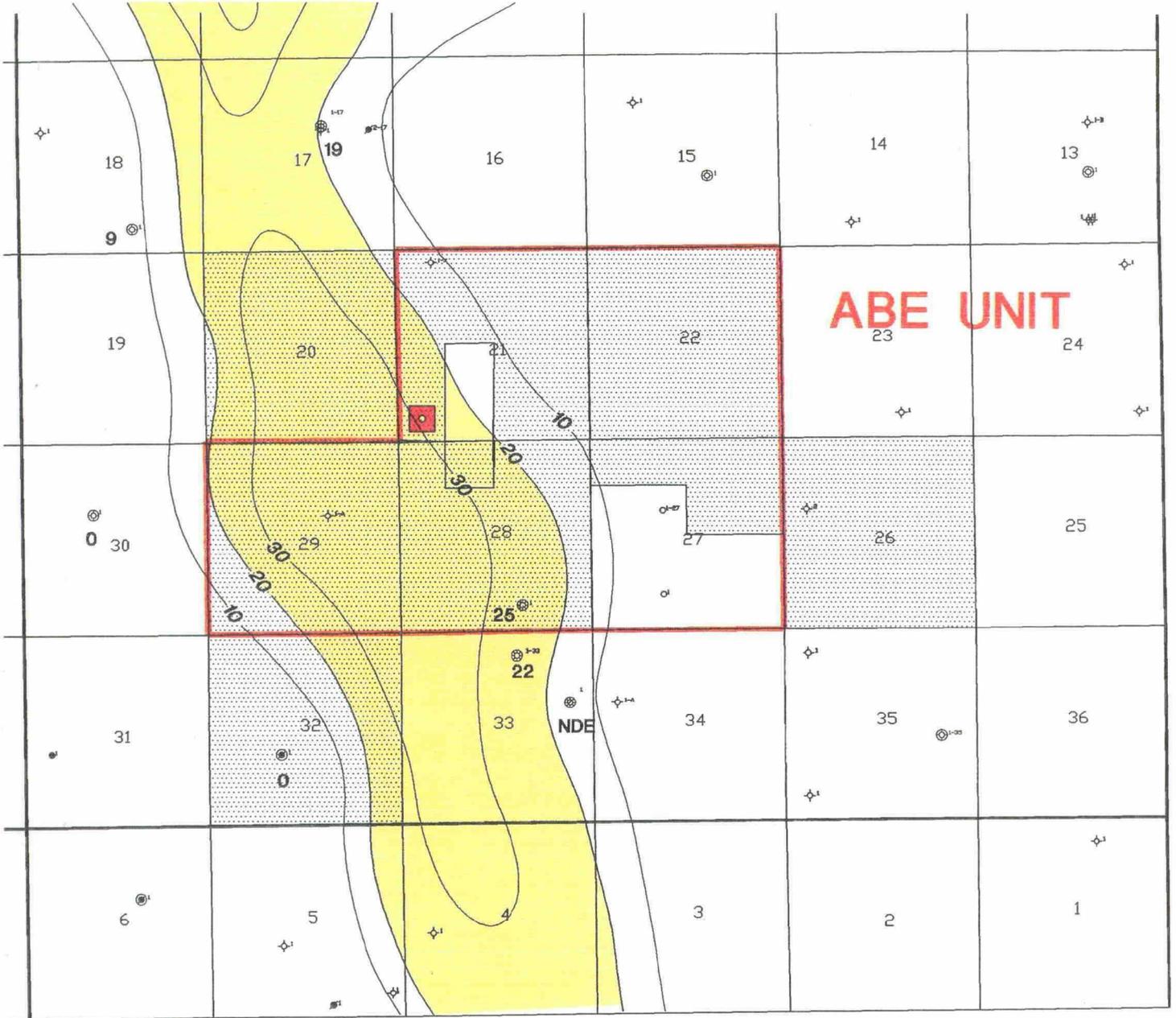
AB-HEAR.DWG

File:

R 33 E

T 21 S

T 21 S



ABE UNIT #2 LOCATION



SFER INTEREST ACREAGE



Santa Fe Energy Resources, Inc.
 CENTRAL DIVISION
 MIDLAND, TEXAS

LEA SOUTH AREA
ABE UNIT #2
 LEA CO., NEW MEXICO

ISOPACH MAP
GROSS LOWER MORROW SANDS

GEOLOGICAL: DILLI-HUGGARD
 SCALE: 1" = 4000'

C.I. 10'
 DATE 5-1-97

AB-HEAR.DWG

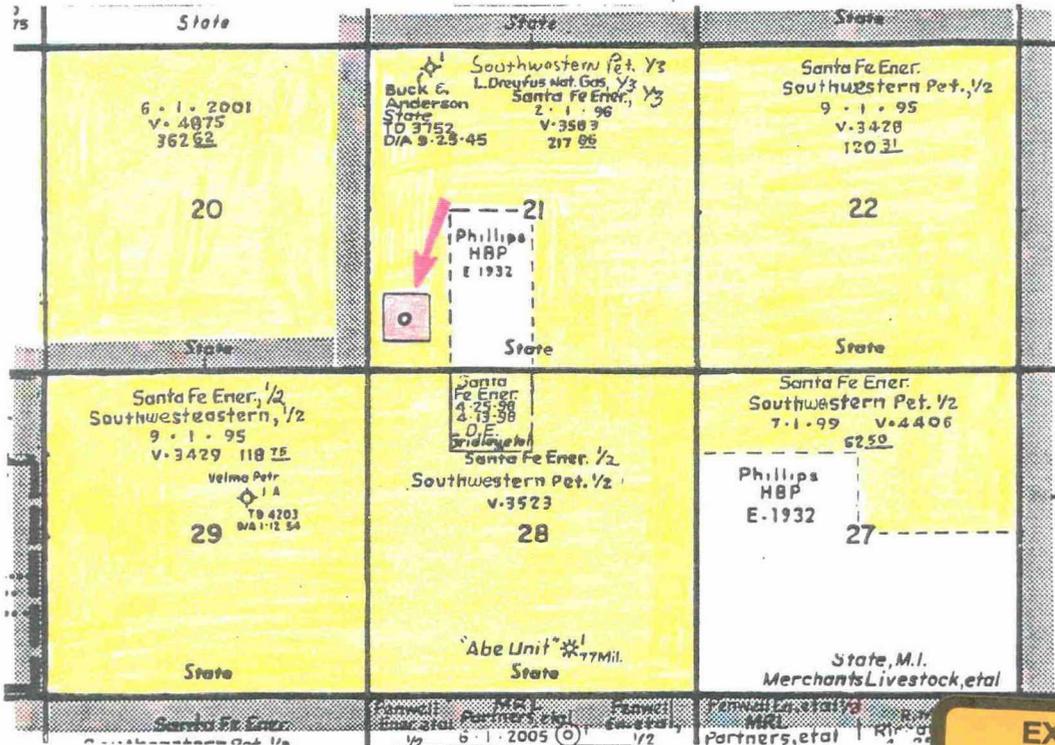
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T21S - R33E

Section 20: Leasehold Ownership

Santa Fe Energy Resources, Inc. - 50% WI

Southwestern Energy Production Company - 50% WI



Sections 28 and 29: Leasehold Ownership

Santa Fe Energy Resources, Inc. - 50% WI

Southwestern Energy Production Company - 50% WI

Abe Unit Ownership

Santa Fe Energy Resources, Inc. -	46.56855% WI
Southwestern Energy Production Company -	46.56855% WI
Louis Dreyfus Natural Gas Corp. -	6.86290% WI

Addresses:

Santa Fe Energy Resources, Inc. 550 W. Texas, Suite 1330
Midland, TX 79707

Southwestern Energy Production Company 5600 N. May Ave., Suite 200
Oklahoma City, OK 73112

Louis Dreyfus Natural Gas Corp. 14000 Quail Springs Parkway
Suite 600
Oklahoma City, OK 73134



ABE UNIT NO. 2 WELL
660' FSL & 660' FWL
Section 21-T21S-R33E

Anticipated Participating Area
W/2 Section 21-T21S-R33E

Operator: SFER, Inc.



Abe Unit Area



SFER, INC. Acreage

Santa Fe Energy Resources, Inc.
Central Division
Midland, Texas

LEA COUNTY, NEW MEXICO

LAND PLAT

SPESSARTINE PROSPECT

Date: 2-1-97