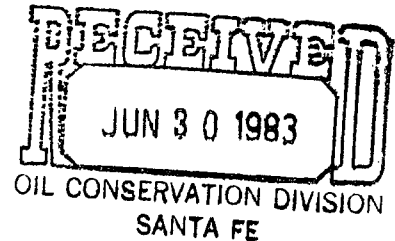


AMERADA HESS CORPORATION

P. O. DRAWER "D"
MONUMENT, NEW MEXICO 88265

June 27, 1983

State of New Mexico
Energy and Minerals Department
P.O. Box 2088
Santa Fe, New Mexico 87501



RE: Amerada Hess Corporation
Jicarilla Apache "F" #2, Sec. 17, T25N, R5W
Jicarilla Apache "F" #4, Sec. 18, T25N, R5W

37-3800

Request to Downhole Commingle the S. Blanco
Pictured Cliffs and Otero Chacra Gas Zones

Dear Sir:

Amerada Hess Corporation is requesting approval for an exception to Rule 303-C to permit the downhole commingling of the Pictured Cliffs and Chacra gas zones in the wellbores of the Jicarilla Apache "F" #2 and the Jicarilla Apache "F" #4. Permission to dually complete these wells was authorized by administrative orders DC-337 and DC-485, respectively.

To aid in the removal of formation fluids from the Pictured Cliffs zone, 3/4" siphon strings are in these wells. The J. Apache "F" #4 has problems with water production, therefore the Pictured Cliffs zone has been temporarily abandoned since 1977. Once downhole commingled, this zone should be productive again. Upon receiving approval to downhole commingle these wellbores, the siphon strings will be removed and they will be produced through a common string of production tubing set open-ended in the Chacra perforations.

In April of this year, annual packer leakage tests were conducted on these wells and both of them showed some communications between zones. In May, 1983, downhole commingling proposals were submitted for the J. Apache "F" #1, Sec. 17, T25N, R5W and for the J. Apache "F" #3, Sec. 18, T25N, R5W. Both wells are offsets to these proposed wells and bottom hole pressure data for the "F" #1 and "F" #3 is presented below as evidence that the "F"

#2 and "F" #4 are compatible, pressure wise.

J. Apache "F" #1	P.C.	409 psia @ 3647'
	CH.	342 psia @ 3647'

J. Apache "F" #3	P.C.	381 psia @ 3616'
	CH.	363 psia @ 3616'

Packer leakage test data was used to obtain the information above. But since the two wells we are now proposing to be downhole commingled failed this test, offset pressure data is the only information available. The New Mexico Oil Conservation Division in Aztec has given Amerada Hess permission to wait to see if the J. Apache "F" Nos. 2 and 4 are approved for downhole commingling before rigging up to pull and repair the tubing in them. This way, all work that needs to be done can be accomplished at once.

In 1977, Amerada Hess Corporation's Jicarilla Apache "A" #8 and the Jicarilla Apache "F" #12 were downhole commingled in the Pictured Cliffs and Chacra gas zones by administrative order R-5578. To date, there have been no indications of fluid incompatibility between the zones and therefore, expect no problems of this nature when the J. Apache "F" Nos. 2 and 4 are downhole commingled.

The ownership of the zones to be commingled is common with respect to working interest, royalty and overriding royalty.

Presently, Amerada Hess is receiving \$3.4550/MCF for the gas from the Pictured Cliffs and Chacra zones in the "F" #2 and "F" #4, therefore, the value of the commingled production will not be less than the sum of the values of the individual streams.

Attached with this proposal are computations showing the production allocation to each zone in the two subject wells. Decline curves were used to get annual decline rates and these were used with an algebraic derivation to calculate allocation percentages. These percentages are:

J. Apache "F" #2	P.C.	49%
	CH.	51%

J. Apache "F" #4	P.C.	21%
	CH.	79%

All offset operators as well as the Bureau of Land Management in Farmington, New Mexico, have been notified of this proposal by receipt of this recommendation. If you have any questions concerning this matter, please contact me.

Respectfully,



D.W. Holmes
Petroleum Engineer

Phone: (505) 393-2144

Enclosures:

XC Division Director (5)
District Office
Offset Operators
Bureau of Land Management (6)

Jicarilla Apache "F" #2

PRODUCTION ALLOCATION

Pictured Cliffs Zone: $q_i = 290$ MCF/mo.
 $q = 270$ MCF/mo.
 $t = 4$ years

$$a_n = \frac{\ln \frac{290}{270}}{4}$$

$$a_n(\text{P.C.}) = 0.01786/\text{yr.}$$

Chacra Zone: $q_i = 325$ MCF/mo.
 $q = 270$ MCF/mo.
 $t = 4$ years

$$a_n = \frac{\ln \frac{325}{270}}{4}$$

$$a_n(\text{CH}) = 0.04635/\text{yr.}$$

Combined Zones: $q_i = 615$ MCF/mo.
 $q = 540$ MCF/mo.
 $t = 4$ years

$$a_n = \frac{\ln \frac{615}{540}}{4}$$

$$a_n(\text{COMB}) = 0.03251/\text{yr.}$$

Actual Allocation:

$X = \text{Pictured Cliffs Allocation}$

$1-X = \text{Chacra Allocation}$

$$0.03251 = (X)(0.01786) + (1-X)(0.04635)$$

$$0.03251 = (X)(0.01786) + (0.04635) - (X)(0.04635)$$

$$-0.01384 = -(X)(0.02849)$$

$$X = 0.48578$$

$$1-X = 0.51422$$

Therefore:

<u>ZONE</u>	<u>PRODUCTION ALLOCATION</u>
Pictured Cliffs	49%
Chacra	51%

Jicarilla Apache "F" #4

PRODUCTION ALLOCATION

Pictured Cliffs Zone: $q_i = 1080$ MCF/mo.
 $q = 110$ MCF/mo.
 $t = 4$ years

$$a_n = \frac{\ln \frac{1080}{110}}{4}$$

$$a_n (\text{P.C.}) = 0.57106/\text{yr.}$$

Chacra Zone: $q_i = 1600$ MCF/mo.
 $q = 1300$ MCF/mo.
 $t = 4$ years

$$a_n = \frac{\ln \frac{1600}{1300}}{4}$$

$$a_n (\text{CH}) = 0.05191/\text{yr.}$$

Combined Zones: $q_i = 2680$ MCF/mo.
 $q = 1410$ MCF/mo.
 $t = 4$ years

$$a_n = \frac{\ln \frac{2680}{1410}}{4}$$

$$a_n (\text{COMB}) = 0.16056/\text{yr.}$$

Acutal Allocation:

X = Pictured Cliffs Allocation
1-X = Chacra Allocation

J. Apache "F" #4 - Continued

$$0.16056 = (X)(0.57106) + (1-X)(0.05191)$$

$$0.16056 = (X)(0.57106) + 0.05191 - (X)(0.05191)$$

$$0.10865 = (X)(0.51915)$$

$$X = 0.20928$$

$$1-X = 0.79072$$

Therefore:

<u>ZONE</u>	<u>PRODUCTION ALLOCATION</u>
Pictured Cliffs	21%
Chacra	79%

Equations Used:

Decline Rates
$$a_n = \frac{\ln \frac{q_i}{q}}{t}$$

a_n = nominal decline rate, per yr.

q_i = beginning flow rate, MCF/mo.

q = later flow rate, MCF/mo.

t = time between flow rates, years

Allocation
$$a_n(\text{COMB}) = (X)(a_n(\text{P.C.})) + (1-X)(a_n(\text{CH}))$$

$a_n(\text{COMB})$ = Combined decline rates

$a_n(\text{P.C.})$ = Pictured Cliffs decline rate

$a_n(\text{CH})$ = Chacra decline rate

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION
P. O. BOX 2018
SANTA FE, NEW MEXICO 87501

Form C-116
Revised 10-1-78

GAS-OIL RATIO TESTS

Operator AMERADA HESS CORPORATION		Pool S. Blanco Pictured Cliffs		County Rio Arriba											
Addressee Drawer "D", Monument, New Mexico 88265		Type of Test - (X) ☒ TEST - (X)		Scheduled ☐ Special ☒											
LEASE NAME	WELL NO.	LOCATION			DATE OF TEST	CHOKE SIZE	TBG. PRESS.	DAILY ALLOW. ABLE	LENGTH OF TEST HOURS	PROD. DURING TEST			GAS - OIL RATIO CU.FT/BBL		
		U	S	T						R	WATER BBL'S.	CRUD. OIL BBL'S.		GAS M.C.F.	
Jicarilla Apache "F"	2	D	17	25	5	6/15/83	F	180	--	24	0	---	0	8	----
Jicarilla Apache "F"	4	J	18	25	5	TA									

No well will be assigned an allowable greater than the amount of oil produced on the official test.
During gas-oil ratio test, each well shall be produced at a rate not exceeding the top unit allowable for the pool in which well is located by more than 25 percent. Operator is encouraged to take advantage of this 25 percent tolerance in order that well can be assigned increased allowable when authorized by the Division.
Gas volumes must be reported in MCF measured at a pressure base of 15.023 psia and a temperature of 60° F. Specific gravity base will be 0.60.

Report casing pressure in lieu of tubing pressure for any well producing through casing.
Well original and one copy of this report to the district office of the New Mexico Oil Conservation Division in accordance with Rule 301 and appropriate pool rules.

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

D.W. Johnson
(Signature)
Petroleum Engineer
(Title)
June 24, 1983
(Date)

GAS-OIL RATIO TESTS

Operator AMERADA HESS CORPORATION		Pool Otero Chacra		County Rio Arriba											
Address Drawer "D", Monument, New Mexico 88265		TYPE OF TEST - (X) ☒ Scheduled ☐		Completion ☐ Special ☒											
LEASE NAME	WELL NO.	LOCATION			DATE OF TEST	CHOKE SIZE	TBG. PRESS.	DAILY ALLOW. ABLE	LENGTH OF TEST HOURS	PROD. DURING TEST			GAS - OIL RATIO CU.FT./BBL		
		U	S	T						R	WATER BBL'S.	GRAV. OIL BBL'S.		OIL BBL'S.	GAS M.C.F.
Jicarilla Apache "F"	2	D	17	25	5	6/15/83 F	---	180	----	24	0	--	0	9	----
Jicarilla Apache "F"	4	J	18	25	5	6/15/83 F	---	180	----	24	0	--	0	16	----

No well will be assigned an allowable greater than the amount of oil produced on the official test.

During gas-oil ratio test, each well shall be produced at a rate not exceeding the top unit allowable for the pool in which well is located by more than 25 percent. Operator is encouraged to take advantage of this 25 percent tolerance in order that well can be assigned increased allowable when authorized by the Division.

Gas volumes must be reported in MCF measured at a pressure base of 15.025 psia and a temperature of 60° F. Specific gravity base will be 0.60.

Report casing pressure in lieu of tubing pressure for any well producing through casing.

Well original and one copy of this report to the district office of the New Mexico Oil Conservation Division in accordance with Rule 301 and appropriate pool rules.

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

A. W. Thomas
(Signature)
Petroleum Engineer

June 24, 1983 (Date)

(Date)

OFFSET OPERATORS

AMOCO Production Company
501 Airport Drive
Farmington, New Mexico 87401

CONOCO, Inc.
501 Airport Drive
Farmington, New Mexico 87401

Energy Reserves Group, Inc.
P.O. Box 977
Farmington, New Mexico 87499

El Paso Natural Gas Company
P.O. Box 990
Farmington, New Mexico 87499

Getty Oil Company
P.O. Box 501
Farmington, New Mexico 87499

Union Texas Petroleum Corporation
P.O. Box 808
Farmington, New Mexico 87499

Western Oil and Minerals, LTD
3001 Northridge Drive
Farmington, New Mexico 87401

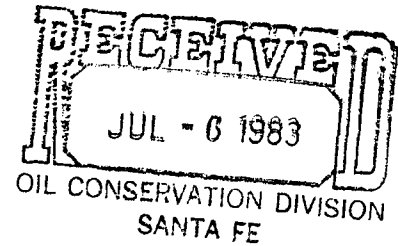


Amoco Production Company

Petroleum Center Building
501 Airport Drive
Farmington, New Mexico 87401
505-325-8841

S. D. Blossom
District Superintendent

July 1, 1983



State of New Mexico
Energy and Minerals Department
Oil Conservation Division
P. O. Box 2088
Santa Fe, New Mexico 87501

File: DHS-305-986.510.1

Gentlemen:

Amerada Hess Corporation's Commingling Application for
Jicarilla Apache "F" No. 2 and
Jicarilla Apache "F" No. 4

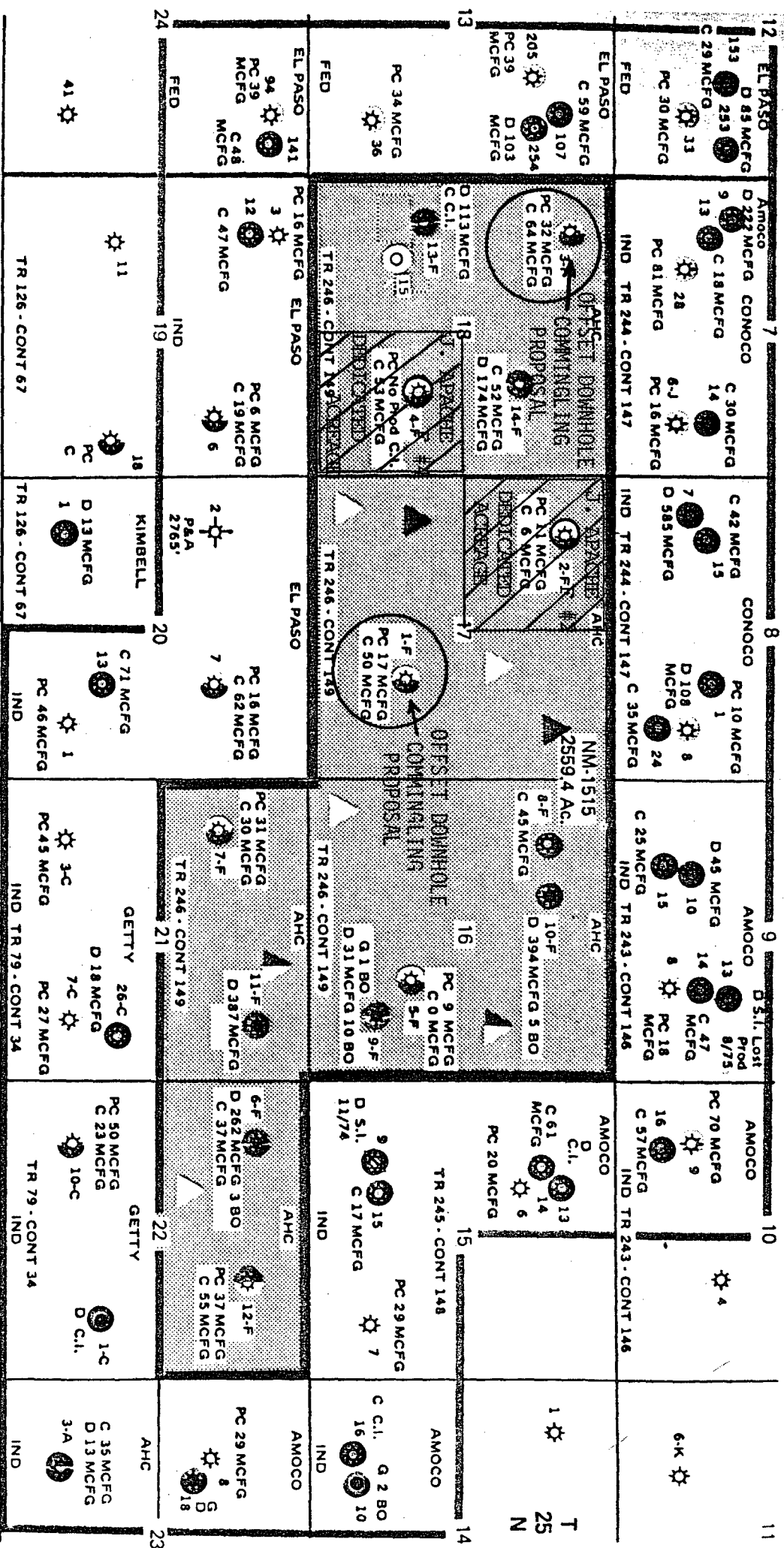
Amoco Production Company has no objections to Amerada Hess Corporation's application for commingling production from the Pictured Cliffs and Chacra gas zones in the two subject wells.

Very truly yours,

S. D. Blossom

AMM/mp

cc: J. C. Burnside, Denver



LOCATION MAP

LEGEND

- AHC
- Pictured Cliffs
- Chacra
- Gallup
- Dakota/Graneros
- Dual Completion (Zones as color coded)
- Lease Outline
- Offsetting wells Outline
- Proposed Wells

TULSA EXPLORATION REGION

JICARILLA APACHE "F"

Rio Arriba County, New Mexico

AMERADA

HESS

CONTRACT NO. 149, LEASE NM-1515

0 1/2 1 Mile

Volumes indicate average daily production for 1st half of 1981.

CODES
 = O
 = X
 = *

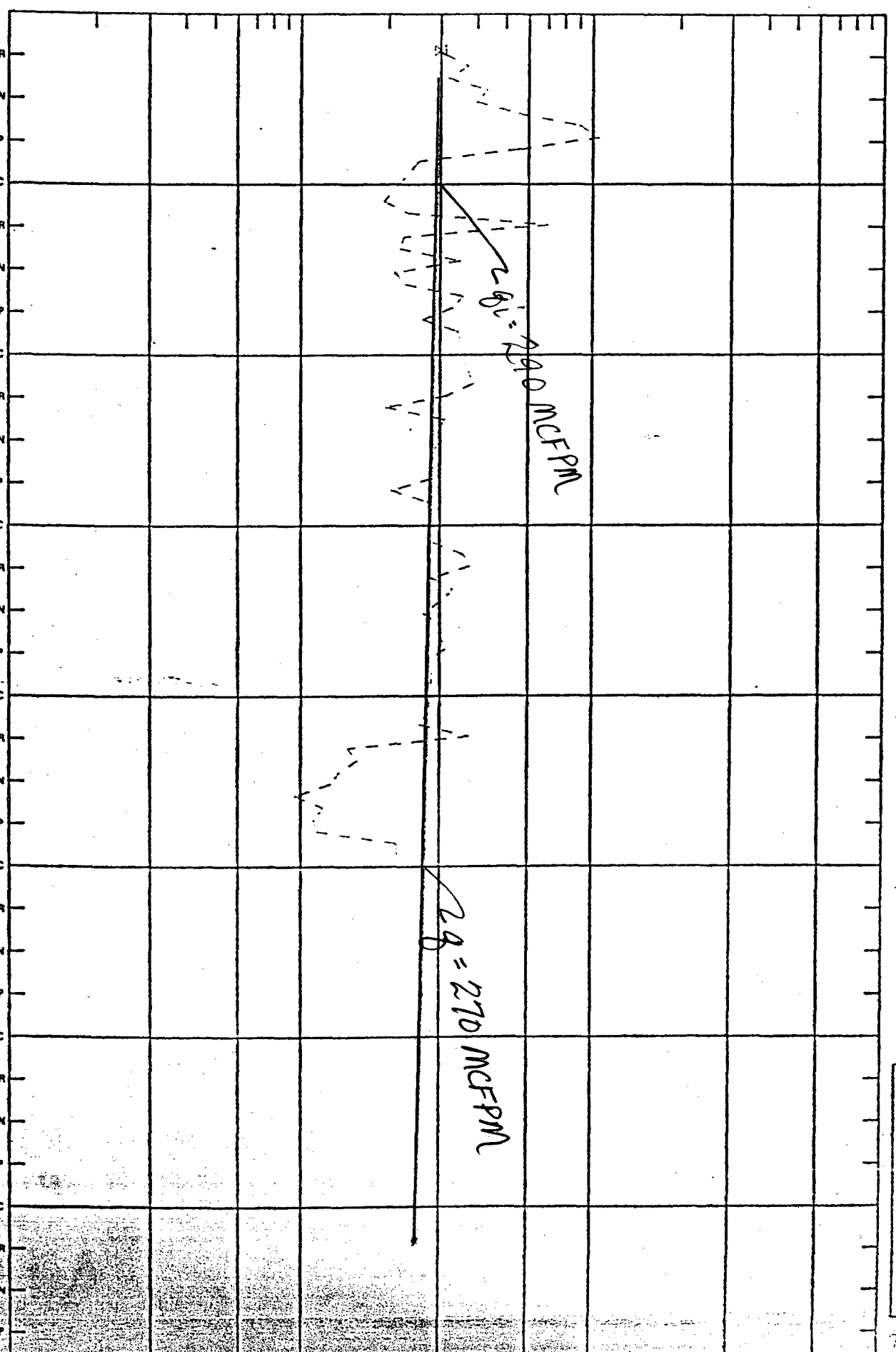
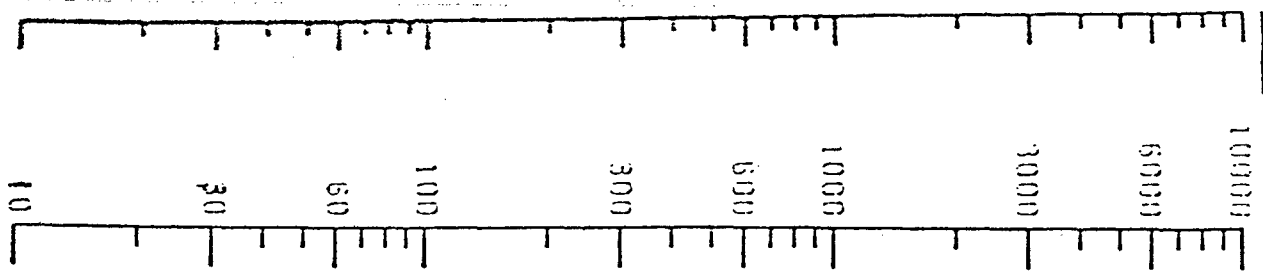
PRODUCTION PLOT API-600-B

STATUS:

41 ON 6 / 25 / 82

CUMULATIVES:
 OIL MBLS
 GAS MMCF
 WTR MBLS

169.1	172.7	176.2	179.9	182.0	182.4
1.3	1.3	1.3	1.3	1.3	1.3



REGION: SOUTHWEST REGIO
 FIELD: LOTERD FIELD
 POOL: PICTURED CUMULATIVE
 LEASE: 00095 JICARILLA APACHE
 WELL: "F" #2

PRODUCTION PLOT

STATUS:

41 ON 12/16/82

725

CUMULATIVES:
OIL MBBLs
GAS MMCF
WTR MBBLs

2333.5
0.8

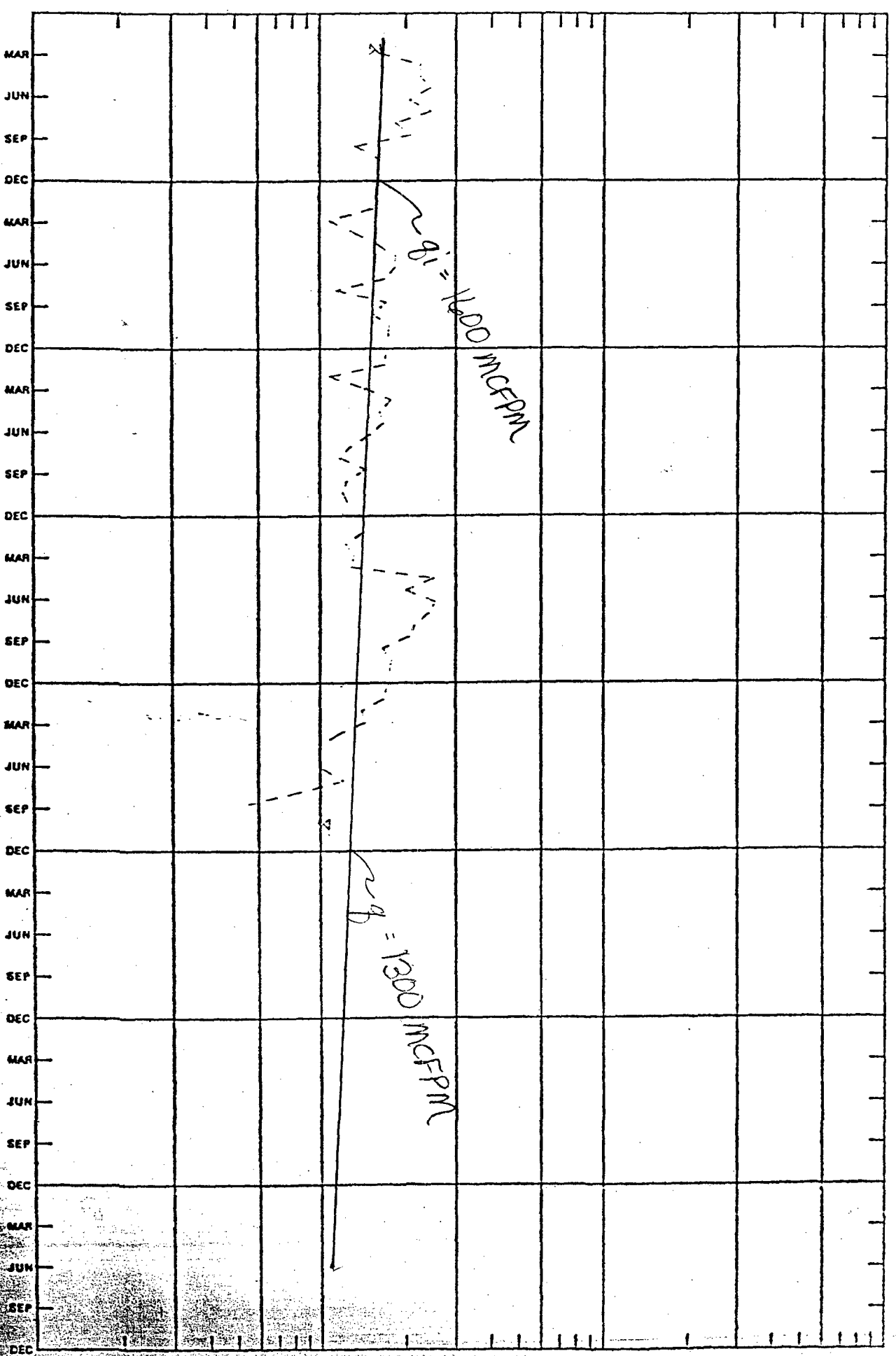
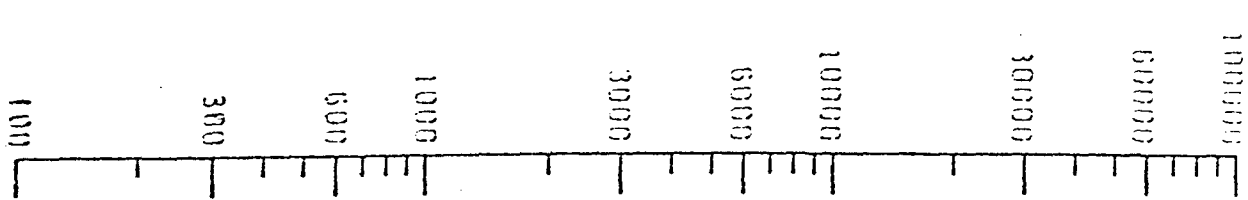
2350.0
0.8

2369.6
0.8

2391.3
0.8

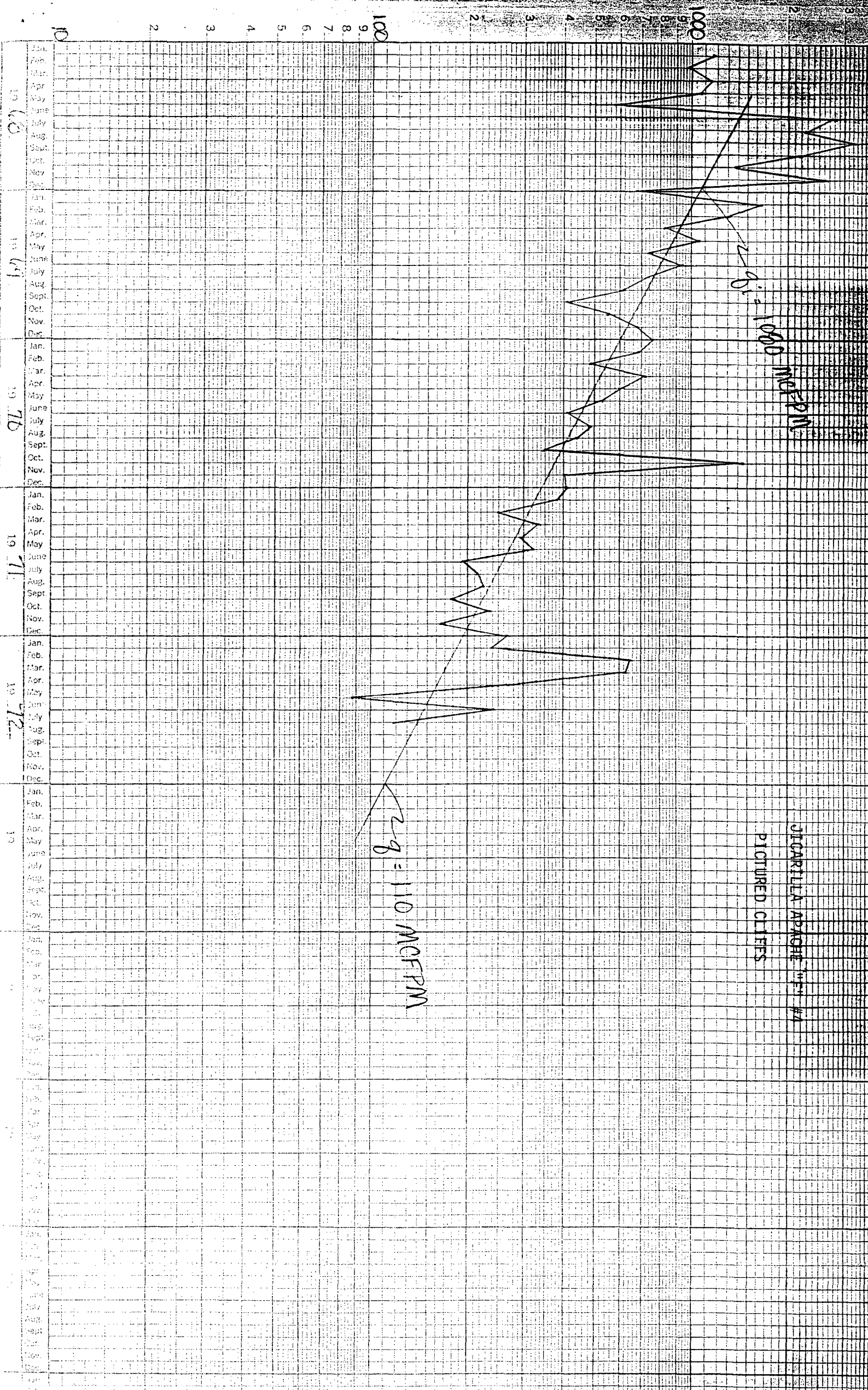
2404.3
0.8

2406.5
0.8



LEASE: 00095 JICARILLA APACHE
REGION: SOUTHWEST REGION
FIELD: OTERO FIELD
WELL: "F" #4
POOL: CHACRA/

RATE BOPM



ODES
: O
: X
: *

PRODUCTION PLOT

API-1000-8

STATUS:

41 ON 6 /23/82

CUMULATIVES:

OIL MBBL
GAS MMCF
WTR MBBL

2394.5
0.4

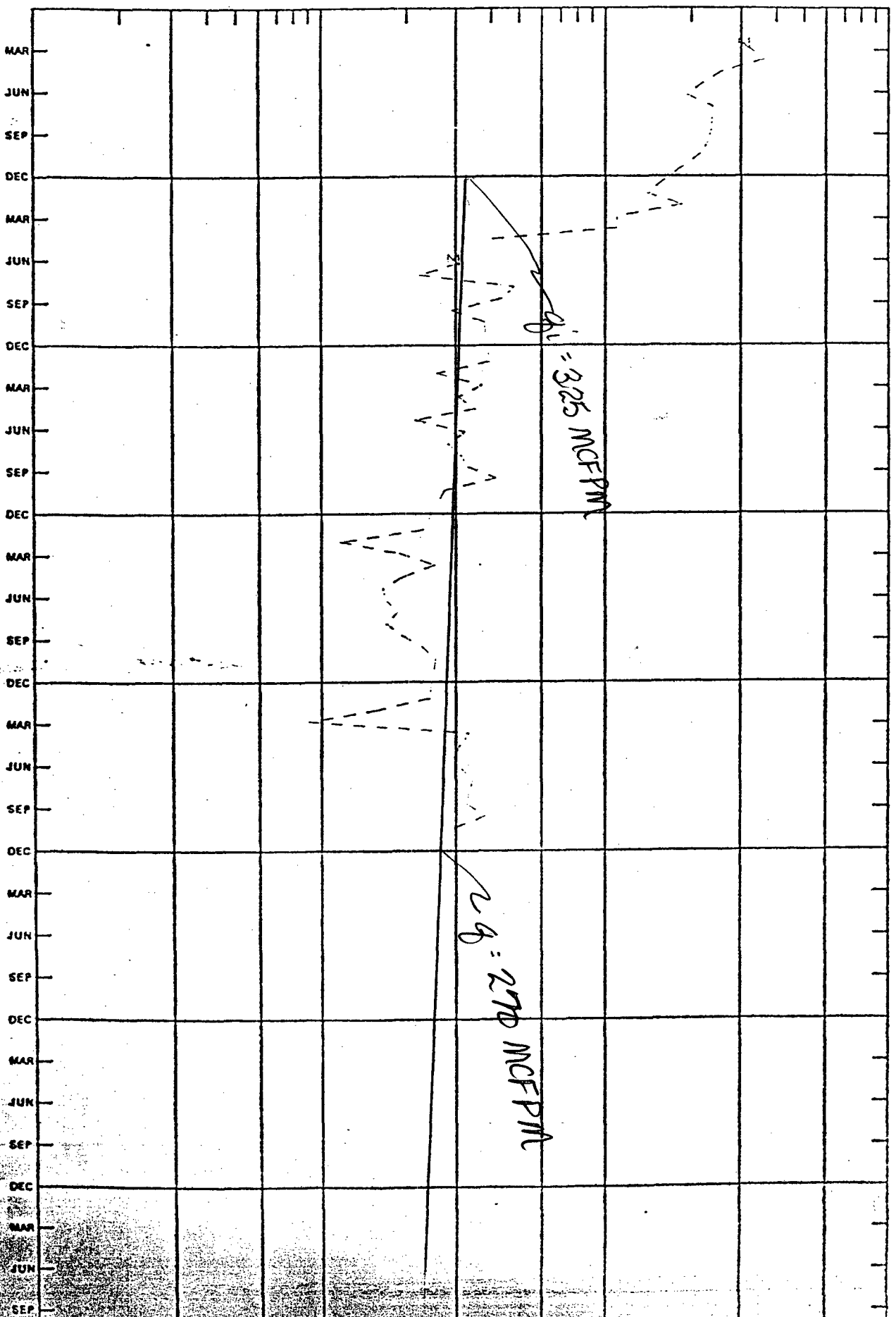
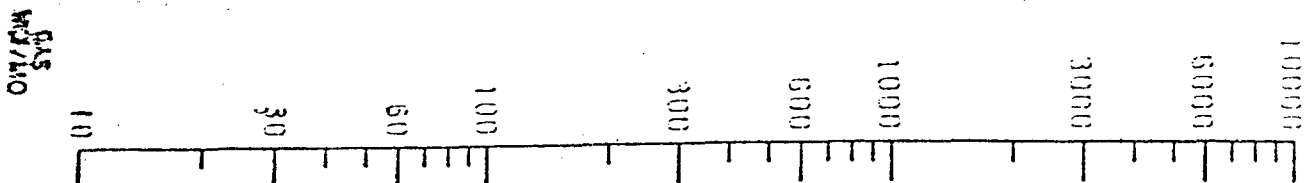
2304.4
0.4

2308.3
0.4

2310.7
0.4

2314.1
0.4

2314.7
0.4



19 78

19 79

19 80

19 81

19 82

19 83

19 84

19 85

REGION: SOUTHWEST REGIO

FIELD: OTERO FIELD

POOL: CHACRA/

LEASE: 00095 JICARILLA APACHE

WELL: "F" #2

P23 0611011

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED—
NOT FOR INTERNATIONAL MAIL

(See Reverse)

SENT TO	
El Paso Natural Gas Co.	
STREET AND NO.	
P.O. Box 990	
P.O. STATE AND ZIP CODE	
Farmington, NM 87401	
POSTAGE	\$.71
CERTIFIED FEE	.75
SPECIAL DELIVERY	¢
RESTRICTED DELIVERY	¢
SHOW TO WHOM AND DATE DELIVERED	¢
SHOW TO WHOM, DATE, AND ADDRESS OF DELIVERY	¢
SHOW TO WHOM AND DATE DELIVERED WITH RESTRICTED DELIVERY	¢
SHOW TO WHOM, DATE AND ADDRESS OF DELIVERY WITH RESTRICTED DELIVERY	¢
CONSULT POSTMASTER FOR FEES	
OPTIONAL SERVICES	
RETURN RECEIPT SERVICE	
TOTAL POSTAGE AND FEES	\$ 1.46
POSTMARK OR DATE	

PS Form 3800, Apr. 1976

CERTIFIED

P23 0611011

MAIL

P23 0611010

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED—
NOT FOR INTERNATIONAL MAIL

(See Reverse)

SENT TO	
Energy Reserves Group, Inc.	
STREET AND NO.	
P.O. Box 977	
P.O. STATE AND ZIP CODE	
Farmington, NM 87401	
POSTAGE	\$.71
CERTIFIED FEE	.75
SPECIAL DELIVERY	¢
RESTRICTED DELIVERY	¢
SHOW TO WHOM AND DATE DELIVERED	¢
SHOW TO WHOM, DATE, AND ADDRESS OF DELIVERY	¢
SHOW TO WHOM AND DATE DELIVERED WITH RESTRICTED DELIVERY	¢
SHOW TO WHOM, DATE AND ADDRESS OF DELIVERY WITH RESTRICTED DELIVERY	¢
CONSULT POSTMASTER FOR FEES	
OPTIONAL SERVICES	
RETURN RECEIPT SERVICE	
TOTAL POSTAGE AND FEES	\$ 1.46
POSTMARK OR DATE	

PS Form 3800, Apr. 1976

CERTIFIED

P23 0611010

MAIL

P23 0611015

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED—
NOT FOR INTERNATIONAL MAIL

(See Reverse)

SENT TO	
CONOCO, Inc.	
STREET AND NO.	
501 Airport Drive	
P.O. STATE AND ZIP CODE	
Farmington, NM 87401	
POSTAGE	\$.71
CERTIFIED FEE	.75
SPECIAL DELIVERY	¢
RESTRICTED DELIVERY	¢
SHOW TO WHOM AND DATE DELIVERED	¢
SHOW TO WHOM, DATE, AND ADDRESS OF DELIVERY	¢
SHOW TO WHOM AND DATE DELIVERED WITH RESTRICTED DELIVERY	¢
SHOW TO WHOM, DATE AND ADDRESS OF DELIVERY WITH RESTRICTED DELIVERY	¢
CONSULT POSTMASTER FOR FEES	
OPTIONAL SERVICES	
RETURN RECEIPT SERVICE	
TOTAL POSTAGE AND FEES	\$ 1.46
POSTMARK OR DATE	

PS Form 3800, Apr. 1976

CERTIFIED

P23 0611015

MAIL

P23 0611009

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED—
NOT FOR INTERNATIONAL MAIL

(See Reverse)

SENT TO	
AMOCO Production Company	
STREET AND NO.	
501 Airport Drive	
P.O. STATE AND ZIP CODE	
Farmington, NM 87401	
POSTAGE	\$.71
CERTIFIED FEE	.75
SPECIAL DELIVERY	¢
RESTRICTED DELIVERY	¢
SHOW TO WHOM AND DATE DELIVERED	¢
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SHOW TO WHOM AND DATE DELIVERED WITH RESTRICTED DELIVERY	¢
SHOW TO WHOM, DATE AND ADDRESS OF DELIVERY WITH RESTRICTED DELIVERY	¢
CONSULT POSTMASTER FOR FEES	
OPTIONAL SERVICES	
RETURN RECEIPT SERVICE	
TOTAL POSTAGE AND FEES	\$ 1.46
POSTMARK OR DATE	

PS Form 3800, Apr. 1976

CERTIFIED

P23 0611009

MAIL

P23 0611012

RECEIPT FOR CERTIFIED MAIL
NO INSURANCE COVERAGE PROVIDED—
NOT FOR INTERNATIONAL MAIL
(See Reverse)

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Getty Oil Company	
STREET AND NO	
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Farmington, NM 87401	
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OPTIONAL SERVICES	
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TOTAL POSTAGE AND FEES	
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POSTMARK OR DATE	

PS Form 3800, Apr. 1976

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P23 0611012

MAIL

P23 0611013

RECEIPT FOR CERTIFIED MAIL
NO INSURANCE COVERAGE PROVIDED—
NOT FOR INTERNATIONAL MAIL
(See Reverse)

SENT TO	
Union Texas Petroleum Corp.	
STREET AND NO	
P.O. Box 808	
P.O. STATE AND ZIP CODE	
Farmington, NM 87401	
POSTAGE	\$.71
CONSULT POSTMASTER FOR FEES	
OPTIONAL SERVICES	
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SHOW TO WHOM DATE AND ADDRESS OF DELIVERY WITH RESTRICTED DELIVERY	
TOTAL POSTAGE AND FEES	
\$ 1.46	
POSTMARK OR DATE	

PS Form 3800, Apr. 1976

CERTIFIED

P23 0611013

MAIL

P23

RECEIPT FOR CERTIFIED MAIL
NO INSURANCE COVERAGE PROVIDED—
NOT FOR INTERNATIONAL MAIL
(See Reverse)

SENT TO	
Western Oil & Minerals, LTD	
STREET AND NO	
3001 Northridge Drive	
P.O. STATE AND ZIP CODE	
Farmington, NM 87401	
POSTAGE	\$.71
CONSULT POSTMASTER FOR FEES	
OPTIONAL SERVICES	
RETURN RECEIPT SERVICE	
SHOW TO WHOM DATE AND ADDRESS OF DELIVERY	
SHOW TO WHOM DATE AND ADDRESS OF DELIVERY WITH RESTRICTED DELIVERY	
TOTAL POSTAGE AND FEES	
\$ 1.46	
POSTMARK OR DATE	

PS Form 3800, Apr. 1976

CERTIFIED

P23 0611014

MAIL