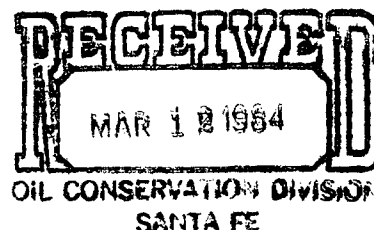




**Southland Royalty Company**

March 9, 1984



Mr. Joe D. Ramey  
New Mexico Oil Conservation Division  
P. O. Box 2088  
Santa Fe, New Mexico 87501

RE: Downhole Commingling  
SRC - Moore #3  
Fruitland/Pictured Cliffs  
SE/4, Section 35, T32N, R12W  
San Juan County, New Mexico

Dear Mr. Ramey:

Southland Royalty Company requests permission to downhole commingle production from the Fruitland and Pictured Cliffs formations in this dual well. The Fruitland formation cannot continuously produce enough gas to lift the oil it produces. With the additional gas from the Pictured Cliffs formation, we feel that the Fruitland oil will be produced with fewer problems.

The gas produced from each zone is similar, and the Fruitland oil produced has no adverse effect on the Pictured Cliffs formation. Bottom hole pressures are similar for the two formations and there will be no crossflow between the zones, therefore no production will be lost.

Production allocation between the two zones was determined from the decline curves and cumulative production from each zone. Proposed allocation is as follows:

Oil Production:	100% Fruitland
Gas Production:	68% Pictured Cliffs 32% Fruitland

Royalty ownership in both zones of the well are identical. The well is currently unproductive and no current 24 hour productivity test can be supplied, therefore, we have included the latest deliverability test reports. In addition, copies of gas analysis from each zone, decline curves, production plats, and miscellaneous data are included with this package for your information.

Mr. Joe D. Ramey  
Page Two  
March 9, 1984

A copy of this application has also been sent to the Bureau of Land Management and all offset operators.

Sincerely,

SOUTHLAND ROYALTY COMPANY

Doug R. Harris  
Petroleum Engineer

  
DRH/eg

Attachments

XC: BLM-Farmington  
Mesa Petroleum-Amarillo, TX  
Kimbark Oil & Gas Co.-Denver, CO

### MISCELLANEOUS DATA

Fruitland Bottom Hole Pressure	=	867 psi
Pictured Cliffs Bottom Hole Pressure	=	808 psi
Fruitland Oil Gravity	=	46.3 Deg.

BTU/CF at 14.73/60 F/Dry (Fruitland)	1265.7
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BTU/CF at 14.73/60 F/Dry (Pictured Cliffs)	1194.6
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# OIL CONSERVATION DIVISION

STATE OF NEW MEXICO  
ENERGY AND MINERALS DEPARTMENT

P. O. BOX 2088  
SANTA FE, NEW MEXICO 87501

Form C-122-A  
Revised 10-1-78

## WELL DELIVERABILITY TEST REPORT FOR 19 82

WELL NAME <b>Undesignated</b>	WELL DEPTH <b>82</b>	FORMATION <b>Fruitland</b>	COUNTY <b>San Juan</b>
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COMPANY <b>Southland Royalty Company</b>			WELL NAME AND NUMBER <b>Moore #3</b>		
WELL LETTER <b>J</b>	SECTION <b>35</b>	TOWNSHIP <b>32N</b>	RANGE <b>12W</b>	PRODUCING ZONE <b>Southern Union Gathering</b>	
CASING O.D. - INCHES <b>4.500</b>	CASING I.D. - INCHES <b>4.052</b>	SET AT DEPTH - FEET <b>3038</b>	TUBING O.D. - INCHES <b>1.900</b>	TUBING I.D. - INCHES <b>1.610</b>	TSP - TUBING DEPTH - FEET
GAS-PROD-2000 FROM <b>2456</b> TO <b>2544</b>		WELL PRODUCED YEARS CASING <b>X</b> TUBING		GAS-CRUIVITY <b>.689</b>	CRUIVITY 2-LEDS <b>1692</b>
DATE OF FLOW TEST FROM <b>4-9-82</b> TO <b>4-17-82</b>			DATE SHUT-IN PRESSURE MEASURED <b>4-24-82</b>		

### PRESSURE DATA - ALL PRESSURES IN PSIA

(a) Flowing Casing Pressure (DWT) <b>433</b>	(b) Flowing Tubing Pressure (DWT) <b>-0-</b>	(c) Flowing Meter Pressure (DWT) <b>438</b>	(d) Flow Choke Static Reading <b>442</b>	(e) Meter Error (Range - Item d) <b>-4</b>	(f) Friction Loss (a-c) or (b-e) <b>-5</b>	(g) Average Meter Pressure (Integr.) <b>444</b>
(h) Corrected Meter Pressure (g-f) <b>440</b>	(i) Avg. Wellhead Press. $P_1 = (b+c)$ <b>435</b>	(j) Shut-in Casing Pressure (DWT) <b>770</b>	(k) Shut-in Tubing Pressure (DWT) <b>-0-</b>	(l) $P_2 =$ higher value of (i) or (k) <b>770</b>	(m) Del. Pressure $P_d =$ <b>80</b> % $P_1$ <b>616</b>	(n) Separator or Dehydrator Pr. (DWT) for critical flow only

### FLOW RATE CORRECTION (METER ERROR)

Integrated Volume - MCP/D <b>87</b>	Correction of $\frac{\text{Range}}{\text{Range-d}}$ <b>.9910</b>	$\sqrt{\frac{\text{Range}}{\text{Range-d}}}$ <b>.9955</b>	Corrected Volume Q = <b>87</b> MCP/D
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### WORKING PRESSURE CALCULATION

$(1 - \frac{e}{100})$ <b>.116</b>	$(P_1 Q)^2 (1000)$ <b>59</b>	$\frac{P_1^2}{(1 - \frac{e}{100}) (P_1 Q)^2 (1000)}$ <b>7</b>	$P_1^2$ <b>189225</b>	$P_2^2 = P_1^2 + e^2$ <b>189232</b>	$P_2 = \sqrt{P_2^2}$ <b>435</b>
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### DELIVERABILITY CALCULATION

$D = Q \left[ \frac{P_1^2 - P_d^2}{P_1^2 - P_2^2} \right]^{.5}$ <b>87</b>	$\left[ \frac{213444}{403668} \right]^{.5} (.5288)^{.5} .5818$	<b>51</b> MCP/D
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### REMARKS

### FIRST AND ANNUAL

#### SUMMARY

From <b>440</b>	To
$P_1$ <b>770</b>	Pressure
Q <b>87</b>	MCP/D
$P_2$ <b>435</b>	Pressure
$P_d$ <b>616</b>	Pressure
D <b>51</b>	MCP/D

Company Southland Royalty Company  
By [Signature]  
Title District Manager  
Witnessed By \_\_\_\_\_  
Company \_\_\_\_\_  
May 17, 1982

## OIL CONSERVATION DIVISION

STATE OF NEW MEXICO  
ENERGY AND MINERALS DEPARTMENTP. O. BOX 2089  
SANTA FE, NEW MEXICO 87501Form C-122-A  
Revised 10-1-78WELL DELIVERABILITY TEST REPORT FOR 19 82

WELL NAME	WELL DEPTH	FORMATION	COUNTY
Blanco	85	Pictured Cliffs	San Juan

COMPANY			WELL NAME AND NUMBER				
Southland Royalty Company			Moore #3				
WELL-LESTER	SECTION	TOWNSHIP	RANGE	FEDERATED PIPELINE			
J	35	32N	12W	Southern Union Gathering			
CASING O.D. - INCHES	CASING I.D. - INCHES	SET AT BOTTOM - FEET	TUBING O.D. - INCHES	TUBING I.D. - INCHES	TUBING TO BOTTOM - FEET		
4.500	4.052	3038	1.900	1.610	2915		
Casing Head Pressure		WELL FLOWING TIME		Casing Head Pressure			
FROM 2870 TO 2954		Casing Head Pressure		Casing Head Pressure			
		TUBING HEAD PRESSURE		TUBING HEAD PRESSURE			
		X		.689			
DATE OF FLOW TEST			DATE STOPPED FLOWING				
FROM 4-9-82 TO 4-17-82			4-24-82				

## PRESSURE DATA - ALL PRESSURES IN PSIA

(a) Flowing Casing Pressure (DPR)	(b) Flowing Tubing Pressure (DTR)	(c) Flowing Bottom Pressure (DPR)	(d) Flow Choke Static Reading	(e) Meter Base (DPR - Base)	(f) Friction Loss (DPR - Base)	(g) Average Meter Pressure (DPR)
-0-	433	438	442	-4	-5	444
(h) Corrected Meter Pressure (g + e)	(i) Avg. Wellhead Press. $P_1 = (b + g)$	(j) Shut-in Casing Pressure (DPR)	(k) Shut-in Tubing Pressure (DTR)	(l) $P_0 =$ higher value of (j) or (k)	(m) Del. Pressure $P_d =$ <u>80</u> $P_0$	(n) Separator or Dehydrator $P_s$ (DPR) for critical flow only
440	435	-0-	696	696	557	

## FLOW RATE CORRECTION (METER ERROR)

Integrated Volume - MCF/D	Quantity of Meter	Quantity of Meter	Corrected Volume
171	.9910	.9955	Q = 170 MCF/D

## WORKING PRESSURE CALCULATION

$(1 - \frac{P_0}{P_1})$	$(P_0 Q)^2 (3888)$	$\frac{P_0^2}{(1 - \frac{P_0}{P_1}) (P_0 Q)^2 (3888)}$	$P_1^2$	$P_0^2 = P_1^2 + P_0^2$	$P_0 = \sqrt{P_0^2}$
.136	7830	1065	189225	190290	436

## DELIVERABILITY CALCULATION

$D = Q \left[ \frac{P_1^2 - P_0^2}{P_0^2 - P_s^2} \right]^{\frac{1}{2}} =$	170	$\left[ \frac{174167}{294126} \right]^{\frac{1}{2}} =$	.5922	$=$	.6406	$=$	109 MCF/D
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## REMARKS:

## FIRST AND ANNUAL

## SUMMARY

Pressure	440	Pressure
$P_0$	696	Pressure
Q	170	MCF/D
$P_0$	436	Pressure
$P_d$	557	Pressure
D	109	MCF/D

Company Southland Royalty Company  
 By [Signature]  
 Title District Manager  
 Witnessed By \_\_\_\_\_  
 Company \_\_\_\_\_  
 May 17, 1982

SOUTHERN UNION GATHERING COMPANY  
REPORT OF BTU TEST RESULTS

48314

TO: SOUTHLAND ROYALTY CO (826)

REF: MOORE 003 PC  
9325  
NORTHWEST NEW MEXICO ( 70)

DATE OF THIS TEST: 4/08/82  
DATE OF LAST TEST: NO PRIOR TEST  
TEST FREQUENCY: 12

RESULTS: SPECIFIC GRAVITY: 0.6749  
BTU/CF @ 14.73/60F/DRY: 1194.6

	MOL %	G.P.M.
CARBON DIOXIDE	0.263	0.0000
NITROGEN	0.126	0.0000
METHANE	86.340	0.0000
ETHANE	7.430	1.9870
PROPANE	3.208	0.8820
ISOBUTANE	0.600	0.1960
N-BUTANE	0.812	0.2560
ISOPENTANE	0.307	0.1120
N-PENTANE	0.213	0.0770
HEXANE +	0.727	0.3200
	-----	-----
TOTAL	100.026	3.8300

SOUTHERN UNION GATHERING COMPANY  
REPORT OF BTU TEST RESULTS

48311

TO: SOUTHLAND ROYALTY CO (826)

REF: MOORE 003 FRT  
9257  
NORTHWEST NEW MEXICO ( 70)

DATE OF THIS TEST: 4/08/82  
DATE OF LAST TEST: NO PRIOR TEST  
TEST FREQUENCY: 12

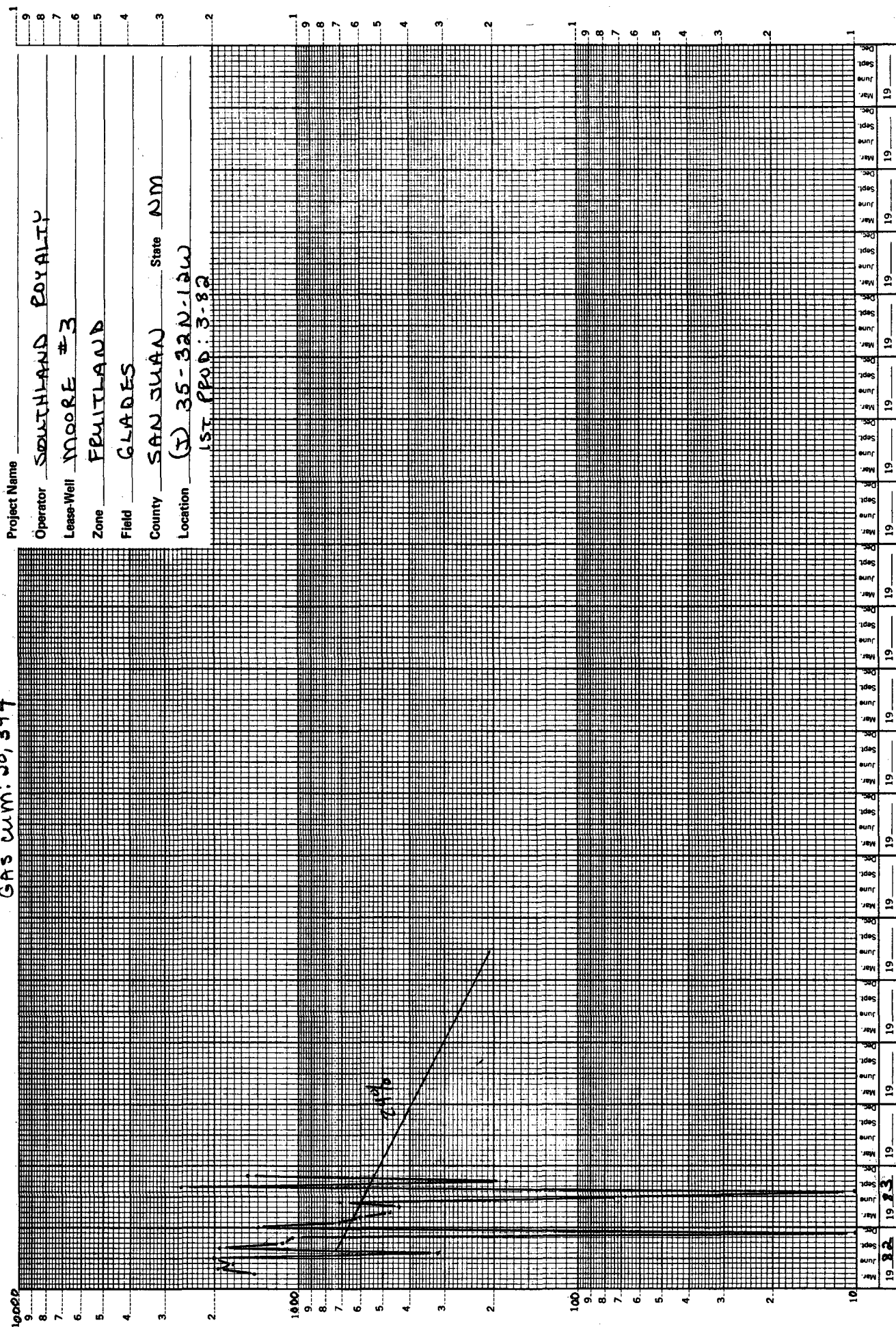
RESULTS: SPECIFIC GRAVITY: 0.7154  
BTU/CF @ 14.73/60F/DRY: 1265.7

	MOL %	G.P.M.
CARBON DIOXIDE	0.023	0.0000
NITROGEN	0.094	0.0000
METHANE	80.690	0.0000
ETHANE	9.450	2.5280
PROPANE	6.868	1.8900
ISOBUTANE	1.011	0.3300
N-BUTANE	1.157	0.3640
ISOPENTANE	0.220	0.0800
N-PENTANE	0.162	0.0580
HEXANE +	0.346	0.1520
	-----	-----
TOTAL	100.021	5.4020



Gas um: 20,394

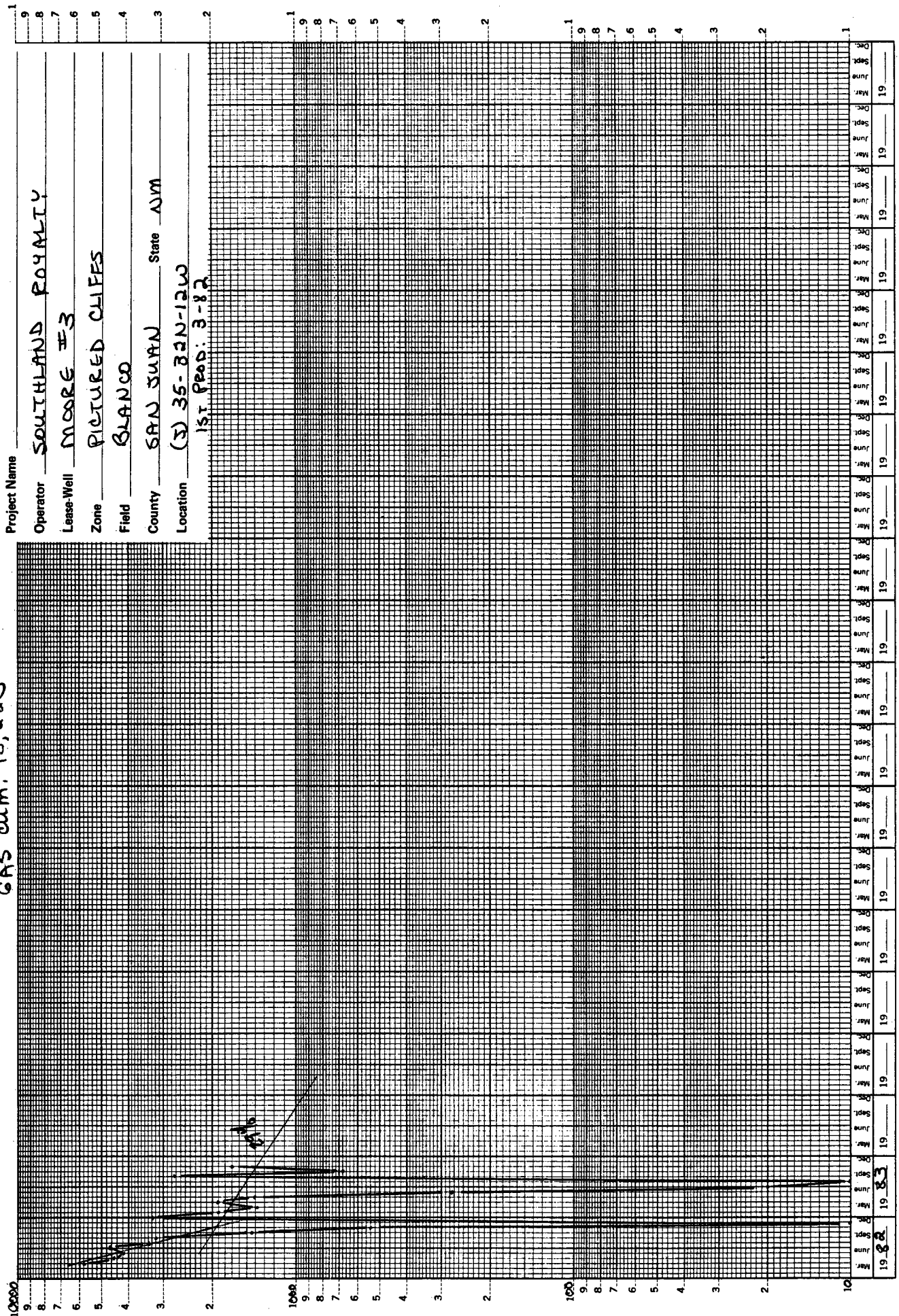
Project Name	Operator	Lease-Well	Zone	Field	County	State	Location
	SOUTHLAND ROYALTY	MOORE #3	FRUITLAND	GLADES	SAN JUAN	NM	(S) 35-32N-12W
							1ST PRPD: 3-82
1	9	8	7	6	5	4	3
2							





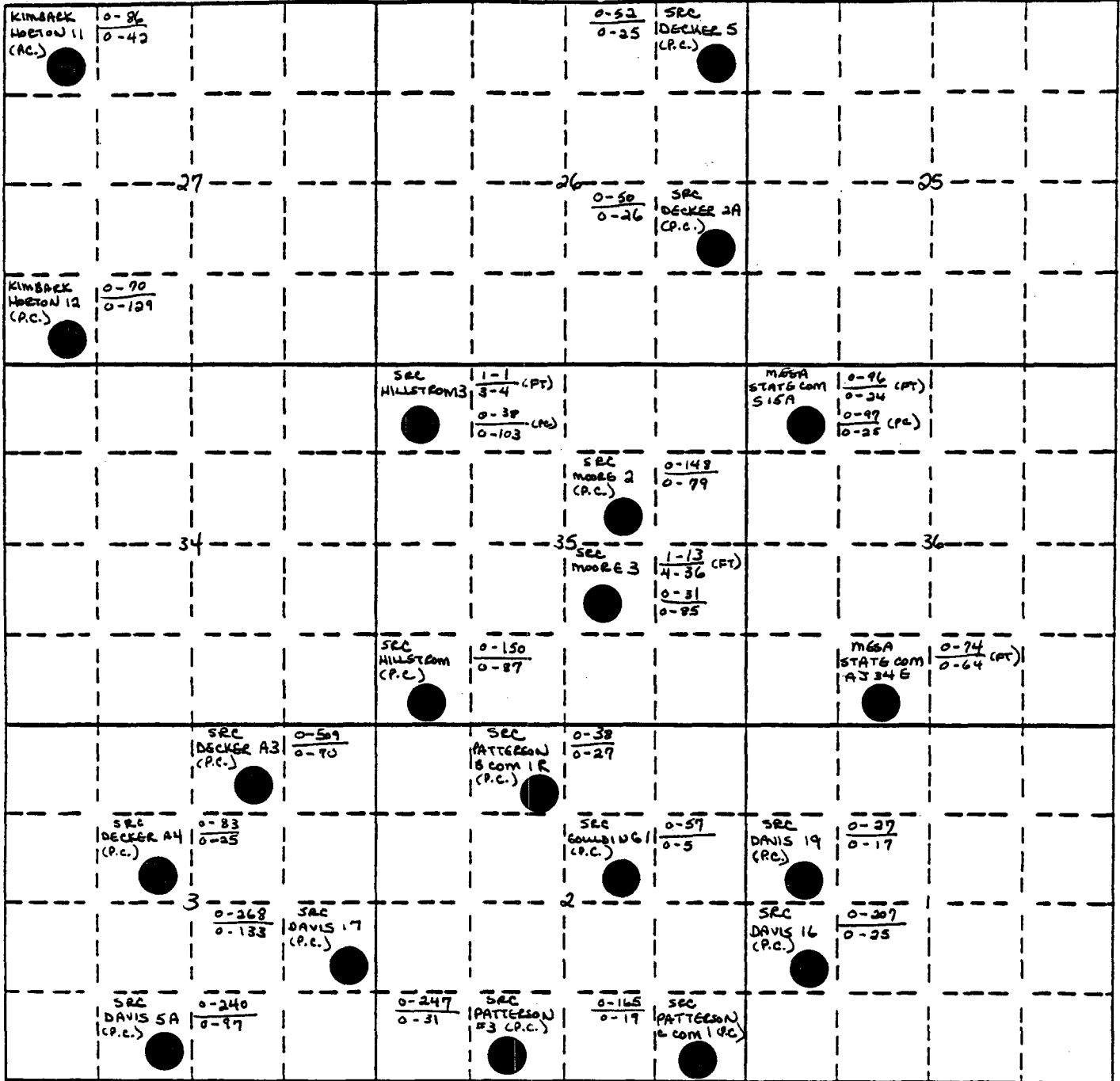
# Southland Royalty Company

GAS cum: 43,223



Project Name \_\_\_\_\_  
 Operator SOUTHLAND ROYALTY  
 Lease-Well MOORE #3  
 Zone PICTURED CLIFFS  
 Field BLANCO  
 County SAN JUAN State NM  
 Location (S) 35-32N-12W  
1st Prod: 3-82

12W



32N

31N

S.R.C.

SOUTHLAND ROYALTY COMPANY

MOORE #3 (FRUIT. - P.C.)

(D) 35-32N-12W SAN JUAN

PRODUCTION

CONTOURED

CL

BY

DATE

REVISED BY

DATE

REFERENCE

DATE

NOTES



STATE OF NEW MEXICO  
ENERGY AND MINERALS DEPARTMENT  
OIL CONSERVATION DIVISION  
AZTEC DISTRICT OFFICE

1000 RIO BRAZOS ROAD  
AZTEC, NEW MEXICO 87410  
(505) 334-6178

OIL CONSERVATION DIVISION  
BOX 2088  
SANTA FE, NEW MEXICO 87501

DATE 3-20-84

RE: Proposed MC \_\_\_\_\_  
Proposed DHC   X   \_\_\_\_\_  
Proposed NSL \_\_\_\_\_  
Proposed SWD \_\_\_\_\_  
Proposed WFX \_\_\_\_\_  
Proposed PMX \_\_\_\_\_

Gentlemen:

I have examined the application dated 3-14-84  
for the Shenandoah Royalty Moore #3 J-35-32N-12W  
Operator Lease and Well No. Unit, S-T-R

and my recommendations are as follows:

Approve  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Yours truly,

Frank J. Chang

