



STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

03/20

TONY ANAYA
GOVERNOR

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87501
(505) 827-5800

April 2, 1984

Administrative Order No. DHC-465

Southland Royalty Company
P.O. Drawer 570
Farmington, NM 87401

Attention: Doug R. Harris

Re: SRC-Harrison #2
Unit K, Sec. 31, T-32N,
R-10W, Fruitland and Pictured
Cliffs Pools, San Juan County,
NM

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APR 10 1984

Gentlemen:

Reference is made to your recent application for an exception to Rule 303-A of the Division Rules and Regulations for the subject dually completed well to permit the removal of the down-hole separation equipment and to commingle the production from both pools in the wellbore.

It appearing that the subject well qualifies for approval for such exception pursuant to the provisions of Rule 303-C, and that reservoir damage or waste will not result from such downhole commingling, and correlative rights will not be violated thereby, you are hereby authorized to commingle the production as described above and any administrative Division Order which authorized the dual completion and required separation of the two zones, is hereby placed in abeyance.

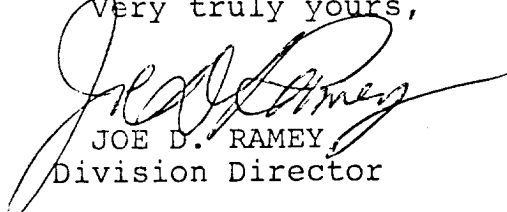
In accordance with the provisions of Rule 303.C.4., total commingled oil production from the subject well shall not exceed 20 barrels per day, and total water production from the well shall not exceed 40 barrels per day. The maximum amount of gas which may be produced daily from the well shall be determined by adding the individual gas production from each pool just prior to commingling.

Assignment of allowable to the well and allocation of production from the well shall be on the following basis:

Fruitland Pool: Oil 100 %, Gas 7 %
Pictured Cliffs Pool: Oil 0 %, Gas 93 %

Pursuant to Rule 303-C 5, the commingled authority granted by this order may be rescinded by the Division Director if, in his opinion, conservation is not being best served by such commingling.

Very truly yours,



JOE D. RAMEY,
Division Director



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
 EOX 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 3-11-84
 for the Southland Royalty Harrison #2
 Operator Lease and Well No. Unit, S-T-R

and my recommendations are as follows:

Approve

Yours truly,

Frank J. Cherry



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 - Harrison #2
Fruitland/Pictured Cliffs
SW/4, Section 31, T32N, R10W
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:	93% Pictured Cliffs 7% 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.

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DIST. 3

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
EPNG-Farmington
Amoco-Farmington
Mesa Petroleum-Amarillo, TX
C&E Operators, Inc.-Dallas, TX

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MISCELLANEOUS DATA

Fruitland Bottom Hole Pressure	=	596 psi
Pictured Cliffs Bottom Hole Pressure	=	582 psi
Fruitland Oil Gravity	=	43.1 deg.
BTU/CF at 14.73/60 F/Dry (Fruitland)		1126
BTU/CF at 14.73/60 F/Dry (Pictured Cliffs)		1120

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OIL CON. DIV.
DIST. 3

NEW MEXICO OIL CONSERVATION COMMISSION
WELL DELIVERABILITY TEST REPORT FOR 19 81

Form C122-A
 Revised 8-77

POOL NAME UND FRUITLAND	POOL SLOPE n = .85	FORMATION FRUITLAND	COUNTY SAN JUAN
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COMPANY SOUTHLAND ROYALTY			WELL NAME AND NUMBER HARRISON 2		
UNIT LETTER K	SECTION 31	TOWNSHIP 32N	RANGE 10W	PURCHASING PIPELINE SOUTHERN UNION GATHERING	
CASING O.D. - INCHES 5.5000	CASING I.D. - INCHES 5.0120	SET AT DEPTH - FEET 2952	TUBING O.D. - INCHES 1.6600	TUBING I.D. - INCHES 1.3800	TOP - TUBING PERF. - FEET 2479
GAS PAY ZONE FROM 2396 TO 2459		WELL PRODUCING THRU CASING _____ TUBING X		GAS GRAVITY .652	GRAVITY X LENGTH 1616
DATE OF FLOW TEST FROM 09/09/81 TO 09/17/81			DATE SHUT-IN PRESSURE MEASURED 09/24/81		

PRESSURE DATA - ALL PRESSURES IN PSIA

(a) Flowing Casing Pressure (DWt) 474	(b) Flowing Tubing Pressure (DWt) 453	(c) Flowing Meter Pressure (DWt) 451	(d) Flow Chart Static Reading 442	(e) Meter Error (Item c - Item d) 9+	(f) Friction Loss (a-c) or (b-c) 2+	(g) Average Meter Pressure (Integr.) 442
(h) Corrected Meter Pressure (g+e) 451	(i) Avg. Wellhead Press. $P_f = (h+f)$ 453	(j) Shut-in Casing Pressure (DWt) 503	(k) Shut-in Tubing Pressure (DWt) 457	(l) $P_c =$ higher value of (j) or (k) 503	(m) Del. Pressure $p_d = 80$ % p_c 402	(n) Separator or Dehydrator Pr. (DWt) for critical flow only ---

FLOW RATE CORRECTION (METER ERROR)

Integrated Volume - MCF/D 28	Quotient of $\frac{\text{Item c}}{\text{Item d}}$ 1.0203	$\sqrt{\frac{\text{Item c}}{\text{Item d}}}$ 1.0101	Corrected Volume Q = 28 MCF/D
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WORKING PRESSURE CALCULATION

$(1 \cdot 10^{-3})$.111	$(F_c Q_m)^2 (1000)$ 475	$R^2 = (1 \cdot 10^{-3}) (F_c Q_m)^2 (1000)$ 53	p_t^2 205,209	$p_w^2 = p_t^2 + R^2$ USE PT2	$P_w = \sqrt{p_w^2}$ 453
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DELIVERABILITY CALCULATION

$D = Q \left[\frac{p_c^2 - p_d^2}{p_c^2 - p_w^2} \right]^n =$ 28	$\left(\frac{91,405}{47,800} \right)^n =$ 1.9122	$=$ 1.7350	$=$ 49 MCF/D
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REMARKS:

SUMMARY

Item h 451 Psia
 P_c 503 Psia
 Q 28 MCF/D
 P_w 453 Psia
 P_d 402 Psia
 D 49 MCF/D

Company SOUTHLAND ROYALTY
 By [Signature]
 Title DISTRICT PRODUCTION MANAGER
 Witnessed By _____
 Company _____

OCT 20 1981

MAR 14 1984

OIL CON. DIV.
DIST. 3

NEW MEXICO OIL CONSERVATION COMMISSION
WELL DELIVERABILITY TEST REPORT FOR 19 82

Form C122-A
 Revised 8-77

POOL NAME BLANCO PC	POOL SLOPE n = 33	FORMATION PICTURED CLIFFS	COUNTY SAN JUAN
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COMPANY SOUTHLAND ROYALTY		WELL NAME AND NUMBER HARRISON 2	
UNIT LETTER K	SECTION 31	TOWNSHIP 32N	RANGE 10W
PURCHASING PIPELINE SOUTHERN UNION GATHERING			
CASING O.D. - INCHES 5.5000	CASING I.D. - INCHES 5.0120	SET AT DEPTH - FEET 2952	TUBING O.D. - INCHES 1.9000
GAS PAY ZONE		WELL PRODUCING THRU	TUBING PERFORATION
		1.6100	2893
FROM 2760	TO 2350	CASING	TUBING X
DATE OF FLOW TEST		DATE SHUT-IN PRESSURE MEASURED	
04/09/82		04/24/82	
		GAS GRAVITY .652	GRAVITY X LENGTH 1886

PRESSURE DATA - ALL PRESSURES IN PSIA

(a) Flowing Casing Pressure (DWI) 00	(b) Flowing Tubing Pressure (DWI) 362	(c) Flowing Meter Pressure (DWI) 361	(d) Flow Chart Static Reading 378	(e) Meter Error (Item c - Item d) 17-	(f) Friction Loss (a-c) or (b-c) 1+	(g) Average Meter Pressure (Integr.) 370
(h) Corrected Meter Pressure (g+e) 353	(i) Avg. Wellhead Press. $P_f = (h+i)$ 356	(j) Shut-in Casing Pressure (DWI) 00	(k) Shut-in Tubing Pressure (DWI) 474	(l) $P_c =$ higher value of (j) or (k) 474	(m) Del. Pressure $P_d = 30$ % P_c 379	(n) Separator or Dehydrator Pr. (DWI) for critical flow only ---

FLOW RATE CORRECTION (METER ERROR)

Integrated Volume - MCF/D 212	Quotient of $\frac{\text{Item c}}{\text{Item d}}$.9550	$\sqrt{\frac{\text{Item c}}{\text{Item d}}}$.9772	Corrected Volume Q = 212 MCF/D
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WORKING PRESSURE CALCULATION

$(1-e^{-3})$.123	$(F_c Q_m)^2 (1000)$ 12,170	$R^2 = (1-e^{-3}) (F_c Q_m)^2 (1000)$ 1,550	P_i^2 125,316	$P_w^2 = P_i^2 + R^2$ 126,875	$P_w = \sqrt{P_w^2}$ 356
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DELIVERABILITY CALCULATION

$$D = Q \left[\frac{P_c^2 + P_d^2}{P_c^2 - P_w^2} \right]^n = \frac{212}{\left(\frac{41,035}{97,301} \right)^n} = \left(\frac{.8236}{.6236} \right)^n = .3523 = 141 \text{ MCF/D}$$

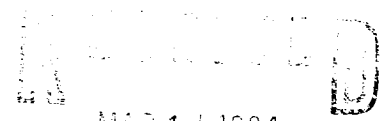
REMARKS:

SUMMARY

Item h _____ **353** Psia
 P_c _____ **474** Psia
 Q _____ **212** MCF/D
 P_w _____ **356** Psia
 P_d _____ **379** Psia
 D _____ **141** MCF/D

Company SOUTHLAND ROYALTY
 By [Signature]
 Title DISTRICT PRODUCTION MANAGER
 Witnessed By _____
 Company _____

JUN - 2 1982



MAR 14 1984

OIL CON. DIV.
DIST. 3

SOUTHERN UNION GATHERING COMPANY
REPORT OF BTU TEST RESULTS

TO: SOUTHLAND ROYALTY CO 27298 (826)

REF: STLD HARRISON 2 PC
4640
NORTHWEST NEW MEXICO (70)

DATE OF THIS TEST: 7/26/82
DATE OF LAST TEST: 7/16/81
TEST FREQUENCY: 12

RESULTS: SPECIFIC GRAVITY: 0.6430
BTU/CF @ 14.73/60F/DRY: 1120.0

	MCL %	G.P.M.
CARBON DIOXIDE	1.224	0.0000
NITROGEN	0.172	0.0000
METHANE	89.020	0.0000
ETHANE	5.990	1.6010
PROPANE	2.140	0.5380
ISOBUTANE	0.341	0.1110
N-BUTANE	0.512	0.1510
ISOPENTANE	0.194	0.0710
N-PENTANE	0.130	0.0470
HEXANE +	0.293	0.1290
TOTAL	100.016	2.7030

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DIST. 3

SOUTHERN UNION GATHERING COMPANY
 REPORT OF BTU TEST RESULTS

21297

TO: SOUTHLAND ROYALTY CO (826)

REF: STHLND HARRISON #2 - *Frnt*
 4641
 NORTHWEST NEW MEXICO (70)

DATE OF THIS TEST: 6/17/82
 DATE OF LAST TEST: 3/24/81
 TEST FREQUENCY: 12

RESULTS: SPECIFIC GRAVITY: 0.6417
 BTU/CF @ 14.73/60F/DRY: 1126.0

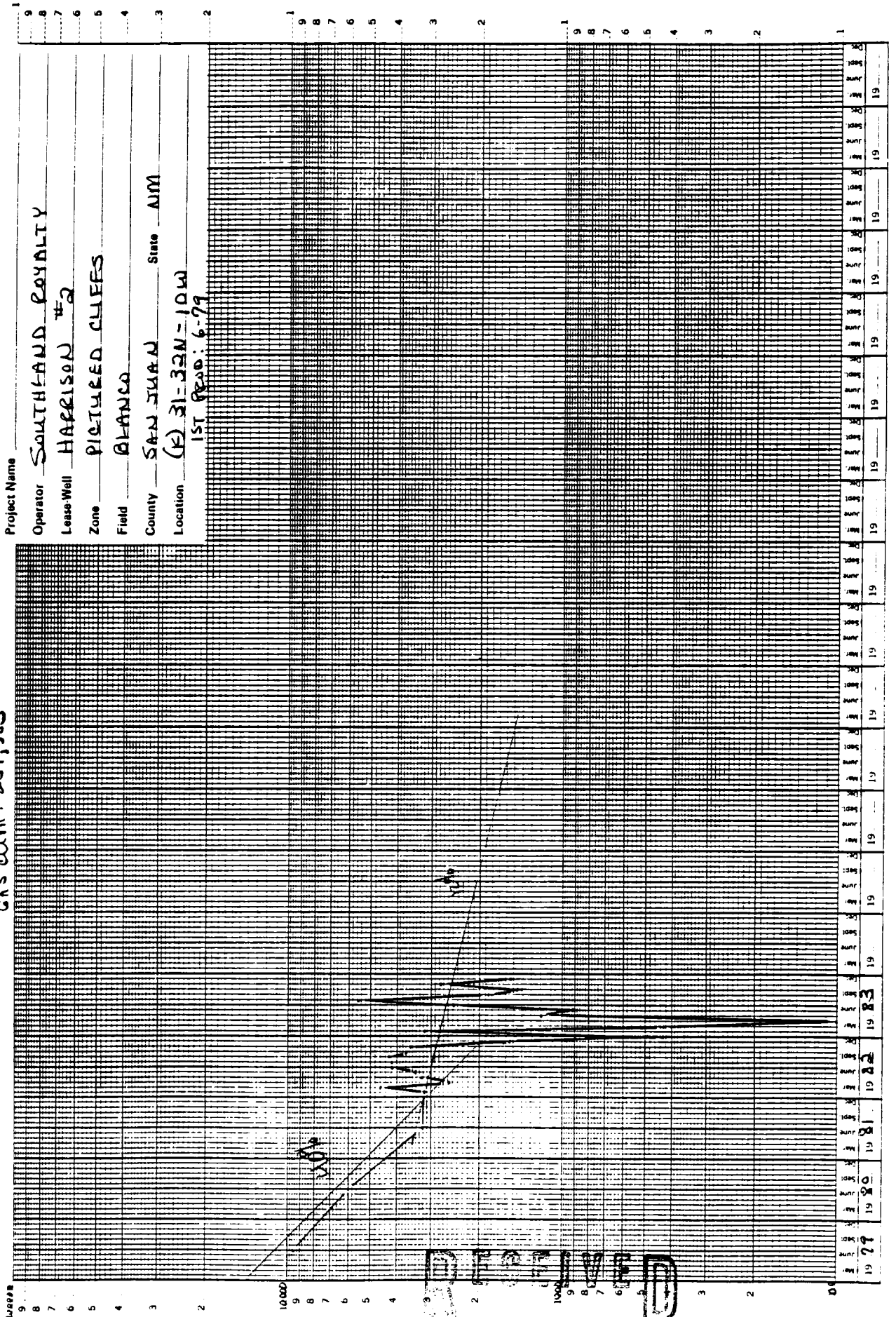
	MOL %	G.P.M.
CARBON DIOXIDE	0.908	0.0000
NITROGEN	0.167	0.0000
METHANE	89.320	0.0000
ETHANE	5.790	1.5470
PROPANE	2.281	0.6270
ISOBUTANE	0.391	0.1270
N-BUTANE	0.585	0.1840
ISOPENTANE	0.175	0.0640
N-PENTANE	0.132	0.0470
HEXANE +	0.286	0.1260
TOTAL	100.035	2.7220

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Southland Royalty Company

GAS CUM: 239,385



Project Name

Operator SOUTHLAND ROYALTY

Lease-Well HARRISON #2

Zone PICTURED CHIEFS

Field BLANCO

County SAN JUAN State NM

Location (K) 31-32N-10W

1ST REPRO: 6-79

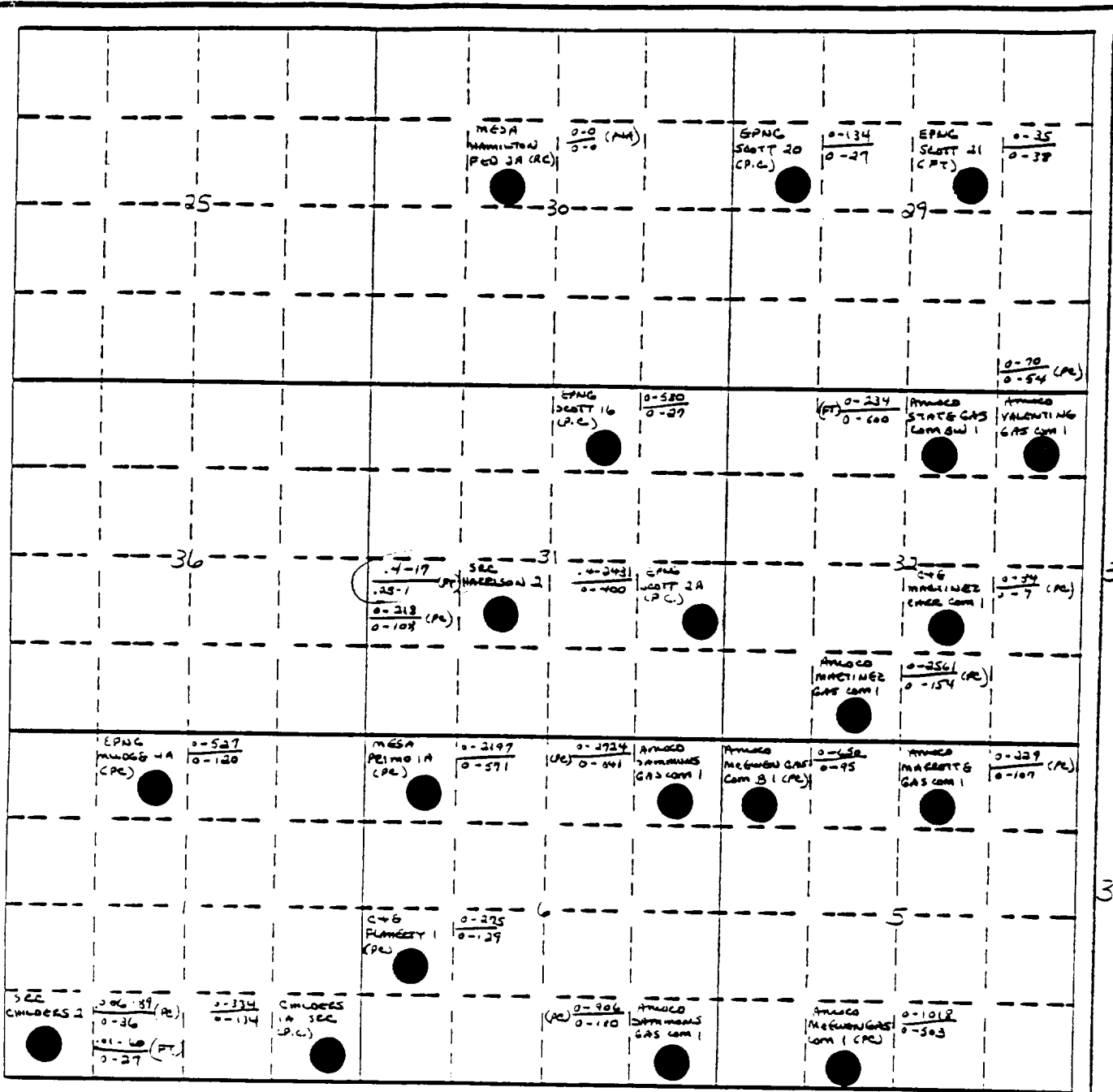
MAR 14 1984

OIL CON. DIV.

san juan repro Form 50-3

11 W

10 W



S.R.C.

bbls. MCF
 .4-17

 25 r 1

SOUTHLAND ROYALTY COMPANY				
AREA HARRISON #2 (FRUIT. - P.C.)				
LOCATION (K) 31-32 N - 10 W				
TYPE OF MAP PRODUCTION				
CONTOURED		IC:		
BY	DATE	REVISED BY	DATE	REFERENCE
NOTES				

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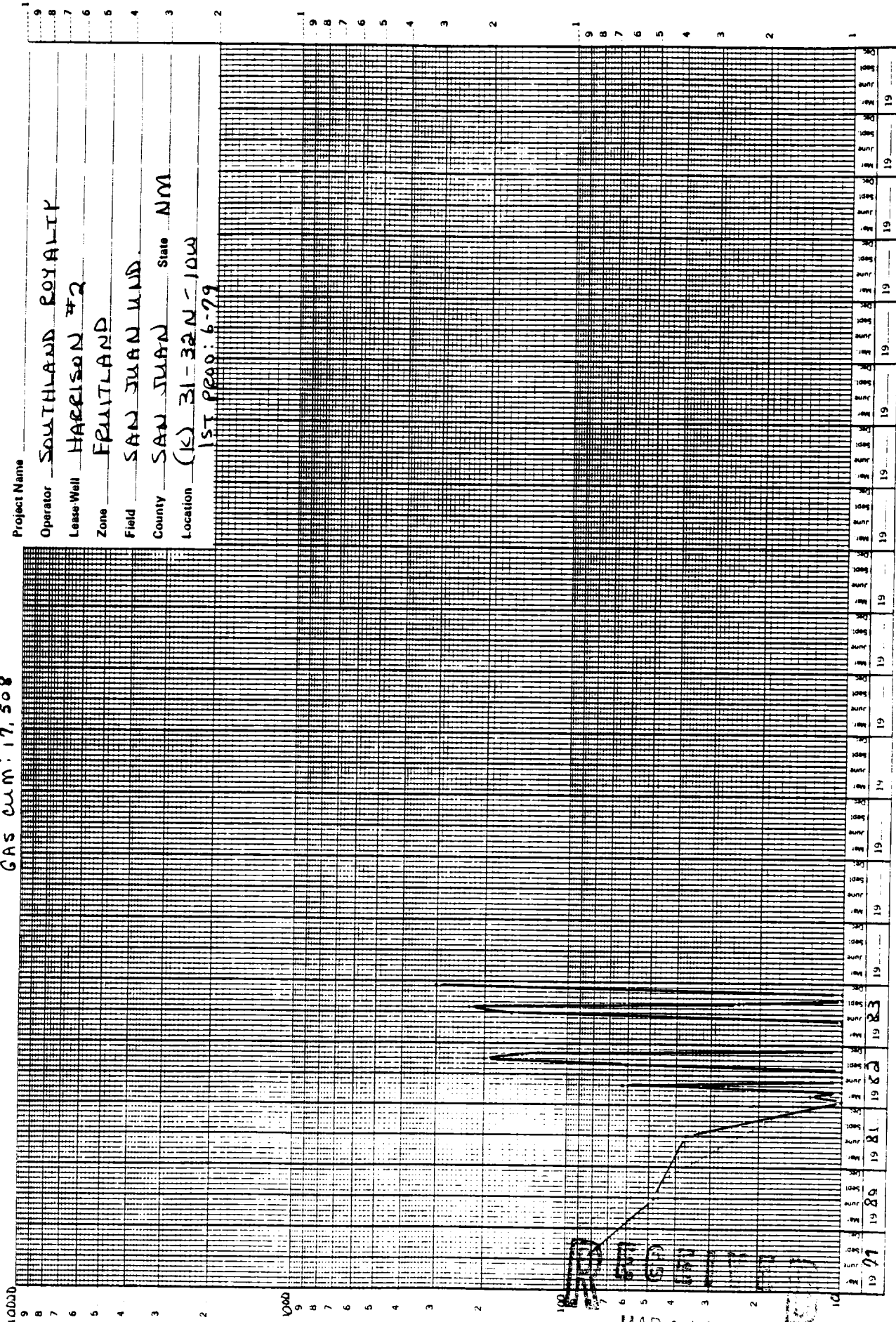
OIL CON. DIV.
DIST. 3



Southland Royalty Company

GAS CUM: 17,508

Project Name _____
 Operator SOUTHLAND ROYALTY
 Lease-Well HARRISON #2
 Zone FRUITLAND
 Field SAN JUAN UNID. State NM
 County SAN JUAN
 Location (K) 31-32N-10W
1ST PROD: 6-79



MAR 14 1984

san juan repro Form 50-3

OIL CON. DIV.
DIST 3