



STATE OF NEW MEXICO

ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

TONY ANAYA
GOVERNOR

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

Administrative Order No. DHC-464

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

Attention: Doug R. Harris

Re: SRC-Calloway #2
Unit A, Sec. 22, T-31N,
R-11W, Fruitland and Pictured
Cliffs Pools, San Juan County,
NM

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.

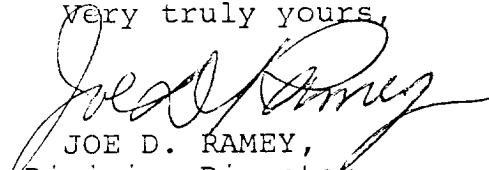
In accordance with the provisions of Rule 303.C.4., total commingled oil production from the subject well shall not exceed 20 barrels per day, and total water production from the well shall not exceed 40 barrels per day. The maximum amount of gas which may be produced daily from the well shall be determined 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 43 %
Pictued Cliffs Pool: Oil 0 %, Gas 57 %

Pursuant to Rule 303-C 5, the commingled authority granted by this order may be rescinded by the Division Director if, in his opinion, conservation is not being best served by such commingling.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
BOX 2088
SANTA FE, NEW MEXICO 87501

DATE March 20, 1984

RE: Proposed MC _____
Proposed DHC 2 _____
Proposed NSL _____
Proposed SWD _____
Proposed WFX _____
Proposed PMX _____

Gentlemen:

I have examined the application dated March 14, 1984
for the Southern Royalty Calloway #2 A-22-31N-11W
Operator Lease and Well No. Unit, S-T-R

and my recommendations are as follows:

Approve

Yours truly,

Frank D. Enay



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 - Calloway #2
Fruitland/Pictured Cliffs
NE/4, Section 22, T31N, R11W
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. *see attached*

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:	57% Pictured Cliffs 43% 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.

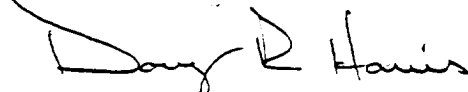
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MAR 14 1984
OIL CON. DIV.
DIST. 3

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

MAR 14 1984
OIL CON. DIV.
DSE

MISCELLANEOUS DATA

Fruitland Bottom Hole Pressure	=	552 psi
Pictured Cliffs Bottom Hole Pressure	=	619 psi
Fruitland Oil Gravity	=	45.2 deg.
BTU/CF @ 14.73/60 F/Dry (Fruitland)		1142.9
BTU/CF @ 14.73/60 F/Dry (Pictured Cliffs)		1150.1

MAR 1 1961
OIL CON. DIV.
DIST. 3

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

Form CT22-A
 Revised 8-77

POOL NAME <u>BLANCO PC</u>	POOL SLOPE <u>0 = 35</u>	FORMATION <u>PICTURED CLIFFS</u>	COUNTY <u>SAN JUAN</u>
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COMPANY <u>SOUTHLAND ROYALTY</u>			WELL NAME AND NUMBER <u>CALLADAY 2 (EPC)</u>		
UNIT LETTER <u>A</u>	SECTION <u>22</u>	TOWNSHIP <u>31N</u>	RANGE <u>11W</u>	PURCHASING PIPELINE <u>SOUTHERN UNION GATHERING</u>	
CASING O.D. - INCHES <u>4.5000</u>	CASING I.D. - INCHES <u>4.0520</u>	SET AT DEPTH - FEET <u>2527</u>	TUBING O.D. - INCHES <u>2.3750</u>	TUBING I.D. - INCHES <u>1.9950</u>	TOP - TUBING PERF. - FEET <u>2469</u>
GAS PAY ZONE		WELL PRODUCING THRU		GAS GRAVITY <u>.660</u>	GRAVITY X LENGTH <u>1630</u>
FROM <u>2456</u>	TO <u>2527</u>	CASING	TUBING <u>X</u>		
DATE OF FLOW TEST FROM <u>04/09/82</u> TO <u>04/17/82</u>			DATE SHUT-IN PRESSURE MEASURED <u>04/24/82</u>		

PRESSURE DATA - ALL PRESSURES IN PSIA

(a) Flowing Casing Pressure (DWI)	(b) Flowing Tubing Pressure (DWI)	(c) Flowing Meter Pressure (DWI)	(d) Flow-Chart Static Reading	(e) Meter Error (Item c - Item d)	(f) Friction Loss (a-c) or (b-c)	(g) Average Meter Pressure (Integr.)
00	367	366	387	21-	1+	379
(h) Corrected Meter Pressure: (g-e)	(i) Avg. Wellhead Press. $P_i = (h+f)$	(j) Shut-in Casing Pressure (DWI)	(k) Shut-in Tubing Pressure (DWI)	(l) P_c = higher value of (j) or (k)	(m) Del. Pressure $P_d = 80$ % P_c	(n) Separator or Dehydrator Pr. (DWI) for critical flow only
354	359	00	524	524	419	

FLOW-RATE CORRECTION (METER ERROR)

Integrated Volume - MCF/D	Quotient of $\frac{\text{Item c}}{\text{Item d}}$	$\sqrt{\frac{\text{Item c}}{\text{Item d}}}$	Corrected Volume
56	.9457	.9725	Q = 54 MCF/D

WORKING PRESSURE CALCULATION

$(1-e^{-3})$	$(F_c Q_m)^2 (1000)$	$R^2 = (1-e^{-3}) (F_c Q_m)^2 (1000)$	P_i^2	$P_w^2 = P_i^2 + R^2$	$P_w = \sqrt{P_w^2}$
.112	253	29	128,381	USE PT2	359

DELIVERABILITY CALCULATION

$D = Q \left[\frac{P_c^2 - P_d^2}{P_c^2 - P_w^2} \right]^n =$	<u>54</u>	$\left(\frac{99,015}{145,695} \right)^n =$	<u>.6796</u>	$=$	<u>.7201</u>	$=$	<u>39</u> MCF/D
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REMARKS:

SUMMARY

Item h 358 Psia
 P_c 524 Psia
 Q 54 MCF/D
 P_w 359 Psia
 P_d 419 Psia
 D 39 MCF/D

Company SOUTHLAND ROYALTY
 By E. J. Farnsworth
 Title DISTRICT PRODUCTION MANAGER
 Witnessed By _____
 Company _____

JUN - 2 1982

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OIL CONSERVATION

NEW MEXICO OIL CONSERVATION COMMISSION
WELL DELIVERABILITY TEST REPORT FOR 19 83

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 CALLOWAY 2 (FPC)		
UNIT LETTER A	SECTION 22	TOWNSHIP 31N	RANGE 11W	PURCHASING PIPELINE SOUTHERN UNION GATHERING	
CASING O.D. - INCHES 4.5000	CASING I.D. - INCHES 4.0520	SET AT DEPTH - FEET 2627	TUBING O.D. - INCHES 2.3750	TUBING I.D. - INCHES 1.9950	TOP - TUBING PERF. - FEET 2469
GAS PAY ZONE FROM 2216 TO 2318		WELL PRODUCING THRU CASING X TUBING		GAS GRAVITY .648	GRAVITY X LENGTH 1436
DATE OF FLOW TEST FROM 05/09/83 TO 05/17/83			DATE SHUT-IN PRESSURE MEASURED 05/24/83		

PRESSURE DATA - ALL PRESSURES IN PSIA

(a) Flowing Casing Pressure (DWt) 463	(b) Flowing Tubing Pressure (DWt) 00	(c) Flowing Meter Pressure (DWt) 462	(d) Flow Chart Static Reading 461	(e) Meter Error (Item c - Item d) 1+	(f) Friction Loss (a-c) or (b-c) 1+	(g) Average Meter Pressure (Integr.) 442
(h) Corrected Meter Pressure (g+e) 443	(i) Avg. Wellhead Press. $P_t = (h+f)$ 444	(j) Shut-in Casing Pressure (DWt) 464	(k) Shut-in Tubing Pressure (DWt) 00	(l) $P_c = \text{higher value of (i) or (k)}$ 464	(m) Del. Pressure $P_d = 80 \text{ } \times P_c$ 371	(n) Separator or Dehydrator Pr. (DWt) for critical flow only _____

FLOW RATE CORRECTION (METER ERROR)

Integrated Volume - MCF/D 28	Quotient of $\frac{\text{Item c}}{\text{Item d}}$ 1.0021	$\sqrt{\frac{\text{Item c}}{\text{Item d}}}$ 1.0010	Corrected Volume Q = 28 MCF/D
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WORKING PRESSURE CALCULATION

(1×10^{-3}) .099	$(F_c Q_m)^2 (1000)$ 12	$R^2 = (1 \times 10^{-3}) (F_c Q_m)^2 (1000)$ 1	P_t^2 197,136	$P_w^2 = P_t^2 + R^2$ USE PT2	$P_w = \sqrt{P_w^2}$ 444
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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	$\left(\frac{77,655}{18,160} \right)^n = \left(\frac{4.2762}{1} \right)^n =$ 3.4387	= 96 MCF/D
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REMARKS:

SUMMARY

Item h **443** Psia
 P_c **464** Psia
 Q **28** MCF/D
 P_w **444** Psia
 P_d **371** Psia
 D **96** MCF/D

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

JUL 13 1983

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OIL CON. DIV.
DIST. 3

SOUTHERN UNION GATHERING COMPANY
REPORT OF BTU TEST RESULTS

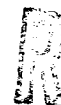
TO: SOUTHLAND ROYALTY CO (826)

REF: CALLOWAY 2 BLPC
4645
NORTHWEST NEW MEXICO (70)

DATE OF THIS TEST: 4/14/83
DATE OF LAST TEST: 6/10/82
TEST FREQUENCY: 12

RESULTS: SPECIFIC GRAVITY: 0.6589
BTU/CF @ 14.73/60F/DRY: 1150.1

	MOL %	G. P. M.
CARBON DIOXIDE	0.602	0.0000
NITROGEN	0.763	0.0000
METHANE	86.360	0.0000
ETHANE	7.700	2.0590
PROPANE	2.813	0.7740
ISOBUTANE	0.455	0.1480
N-BUTANE	0.667	0.2100
ISOPENTANE	0.226	0.0820
N-PENTANE	0.167	0.0600
HEXANE +	0.271	0.1190
TOTAL	100.024	3.4520



MAR 14 1983

OIL CON. DIV.
DIST. 8

SOUTHERN UNION GATHERING COMPANY
REPORT OF BTU TEST RESULTS

TO: SOUTHLAND ROYALTY CO (826)

REF: CALLOWAY 2 UND PRT.
4646
NORTHWEST NEW MEXICO (70)

DATE OF THIS TEST: 4/14/83
DATE OF LAST TEST: 2/21/83
TEST FREQUENCY: 12

RESULTS: SPECIFIC GRAVITY: 0.6463
BTU/CF @ 14.73/60F/DRY: 1142.9

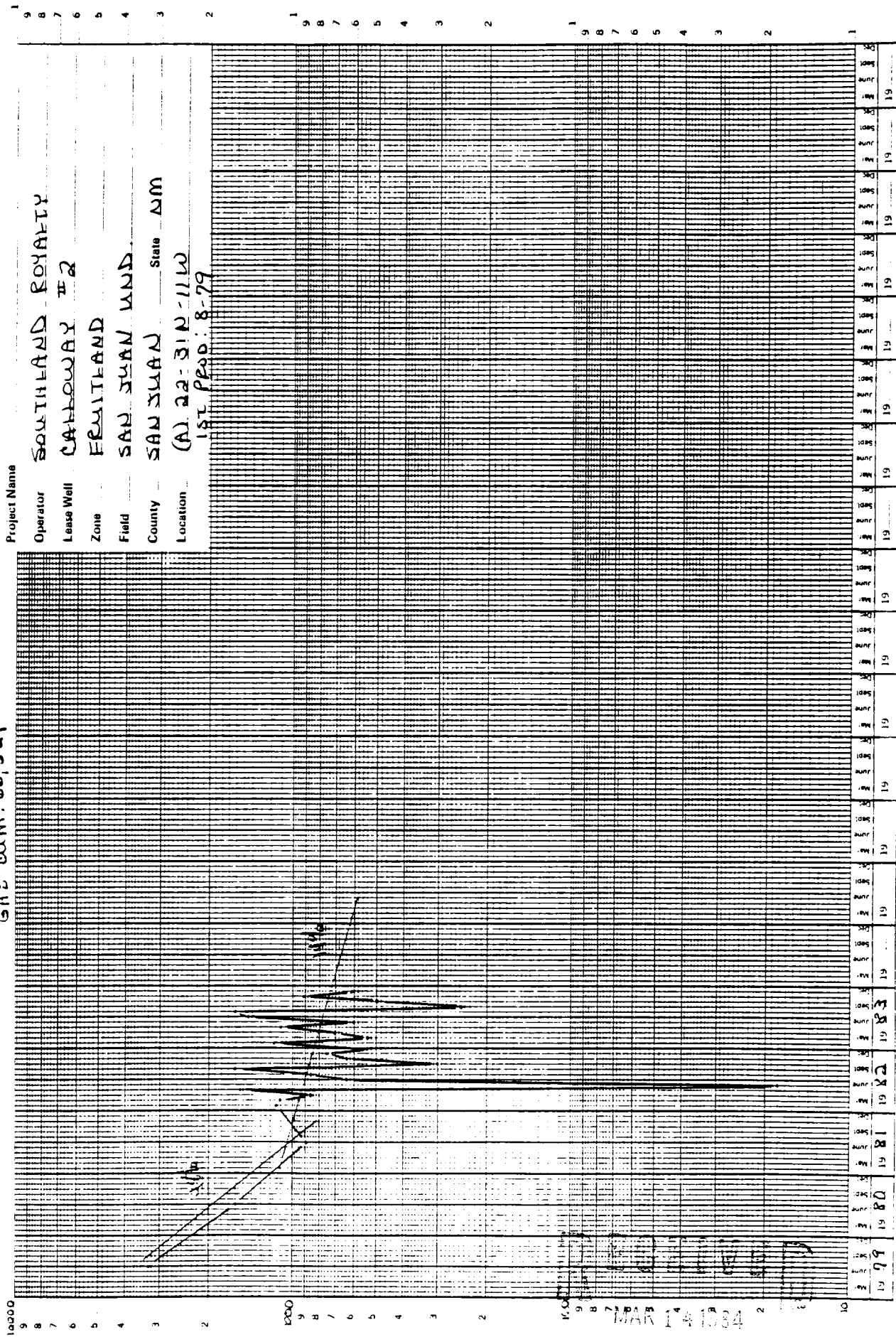
	MOL %	G. P. M.
CARBON DIOXIDE	0.304	0.0000
NITROGEN	0.456	0.0000
METHANE	88.220	0.0000
ETHANE	6.710	1.7940
PROPANE	2.612	0.7190
ISOBUTANE	0.495	0.1610
N-BUTANE	0.609	0.1910
ISOPENTANE	0.225	0.0820
N-PENTANE	0.142	0.0510
HEXANE +	0.237	0.1040
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TOTAL	100.010	3.1020

MAR 14 1984
OIL CON. DIV.
DIST. 3



Southland Royalty Company

GAC sum: 66,321



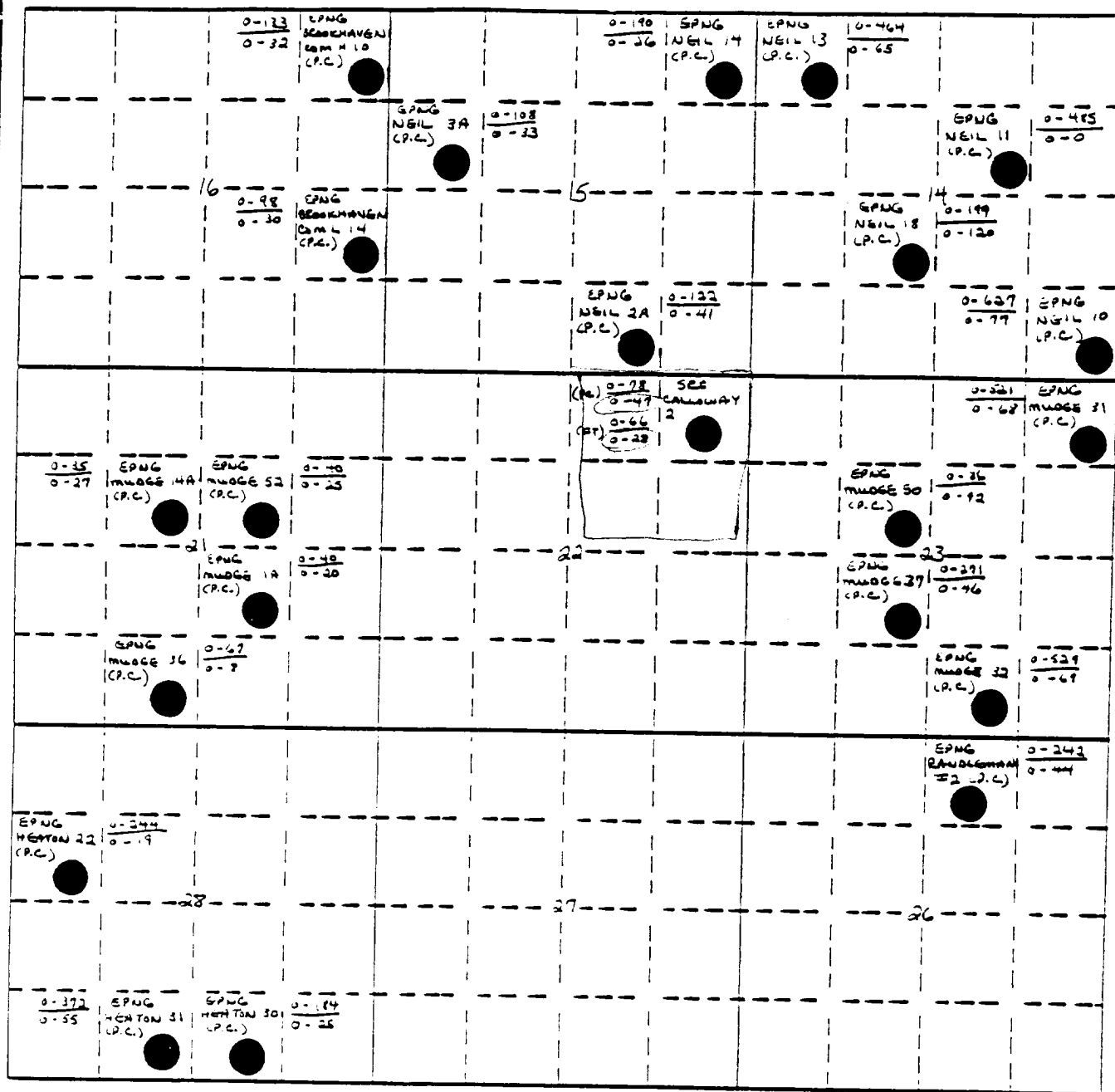
Project Name
Operator SOUTHLAND ROYALTY
Lease Well CALLOWAY #2
Zone FRUITLAND
Field SAN JUAN UND
County SAN JUAN State NM
Location (A) 22-31N-11W
1st Prod: 8-79



Off: 87, 173

OIL CON. C. W.
san juan repro Form 50-3
DIST. 3

11W



31N

S.R.C.

SOUTHLAND ROYALTY COMPANY

CALLAWAY #2 (FRUIT - P.C.)

(A) 22-31N-11W SAN JUAN

PRODUCTION

CONTOURED

DATE REVISED BY DATE REFERENCE DATE

NOTES

MAR 1 4 1986

OIL CON. DIV.
DIST. 3