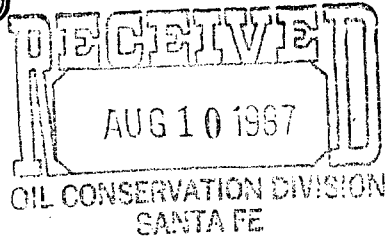




National Cooperative Refinery Association

1775 SHERMAN STREET, SUITE 3000 • DENVER, COLORADO 80203 • 303/861-4883



*Crude Oil
Division
Office*

July 29, 1987

New Mexico Oil Conservation Division
Post Office Box 2088
Sante Fe, New Mexico 87504

RE: Commingling Application
Candado No. 19A
Unit D, Sec 3, T26N-R7W
Rio Arriba County, New Mexico

Gentlemen:

National Cooperative Refinery Association requests administrative approval to downhole commingle production from the Blanco Mesaverde and the Otero Chacra in the subject well. The downhole commingling will be achieved by pulling both tubing strings and the packer. A single tubing string will be run to the Mesaverde and both the Chacra and the Mesaverde will produce through tubing.

The downhole commingling of the Candado No. 19A is necessary to improve the producing efficiency, and thereby prevent waste of the Mesaverde gas resources. Currently, the Mesaverde logs off every other day due to liquid loading and must be blown to the atmosphere to re-establish production. By commingling production downhole, the Chacra will provide additional gas production and aid the Mesaverde in unloading liquids from the wellbore. Subsurface and surface equipment installations can also be used to prevent waste if the well continues to log off. Such equipment cannot be used effectively with the current wellbore configuration.

The proposed commingling will not adversely effect either zone for the following reasons:

1. The bottom hole pressure of the Chacra is 63 percent of the Mesaverde bottom hole pressure based on a 5 day shut-in period.
2. Neither zone has a history of sensitivity to condensate or water and should not be damaged by the small amount produced.
3. Both zones produce gas with a similiar BTU content and commingling will not diminish the value of the commingled gas.

Commingling Application
July 29, 1987
Page 2

4. Both zones have common ownership.

In compliance with New Mexico Oil Conservation Division rule 303C, please find two copies of each of the following attachments:

1. Well location map showing acreage dedicated to well and ownership of offsetting leases.
2. Division Form C-116, 24-hour productivity test.
3. Production curve for the Mesaverde.
4. Production curve for the Chacra.
5. Bottom hole pressure for the Mesaverde.
6. Calculated bottom hole pressure for the Chacra.
7. Water analysis for the Mesaverde.*
8. Gas analysis for the Mesaverde.
9. Gas analysis for the Chacra.
10. Formula for the allocation of production for each commingled zone.
11. A copy of the letter sent to all offset operators notifying them of our intent to commingle.

* The Chacra formation does not produce any liquids in this well.

To allocate production to the individual Mesaverde and Chacra formations we recommend the following:

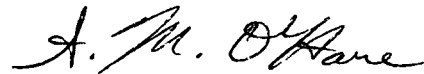
1. Allocate 61.3 percent gas production to the Mesaverde.
2. Allocate 38.7 percent gas production to the Chacra.

Commingling Application
July 29, 1987
Page 3

3. Allocate 100 percent condensate production to the Mesaverde.

Questions concerning this commingling application should be directed to the undersigned at (303) 861-4883.

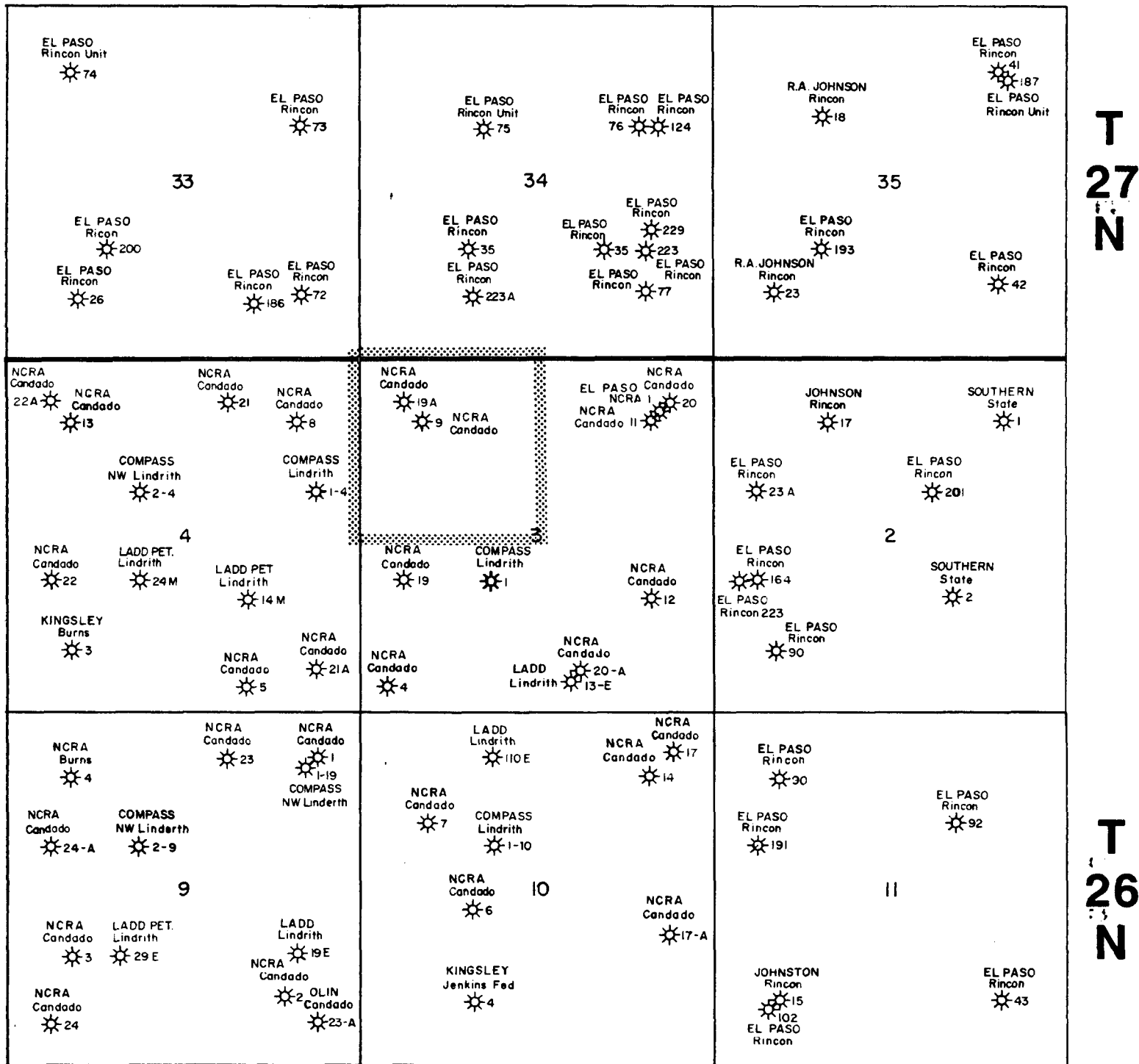
Sincerely,

A handwritten signature in cursive script, appearing to read "A.M. O'Hare".

A.M. O'Hare
Joint Operations Supervisor

MJB/bv1
enc

R 7 W



N.C.R.A.

Acerage Dedication Plat Showing Offset Ownership

Candado No. 19A

Rio Arriba County, New Mexico

GAS-OIL RATIO TESTS

Operator		Pool		County										
National Cooperative Refinery Ass.		Blanco Mesaverde/Otero Chacra		Rio Arriba										
Address 1775 Sherman, Suite 3000 Denver, CO 80202				TEST - (X) <input checked="" type="checkbox"/> Scheduled <input type="checkbox"/> Completion <input type="checkbox"/> Special <input checked="" type="checkbox"/>										
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.	GRAV. OIL BBL.	GAS M.C.F.	
Candado No. 19A Mesaverde	19A D	3	26N	7W	7/14/87		344		24	0	1.1	222	201,818	
Candado No. 19A Chacra	19A D	3	26N	7W	7/22/87		344		24	0	0	115		

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 allowables 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.

Mail original and one copy of this report to the district office of the New Mexico Oil Conservation Division in accordance with Rule 333 and appropriate pool rules.

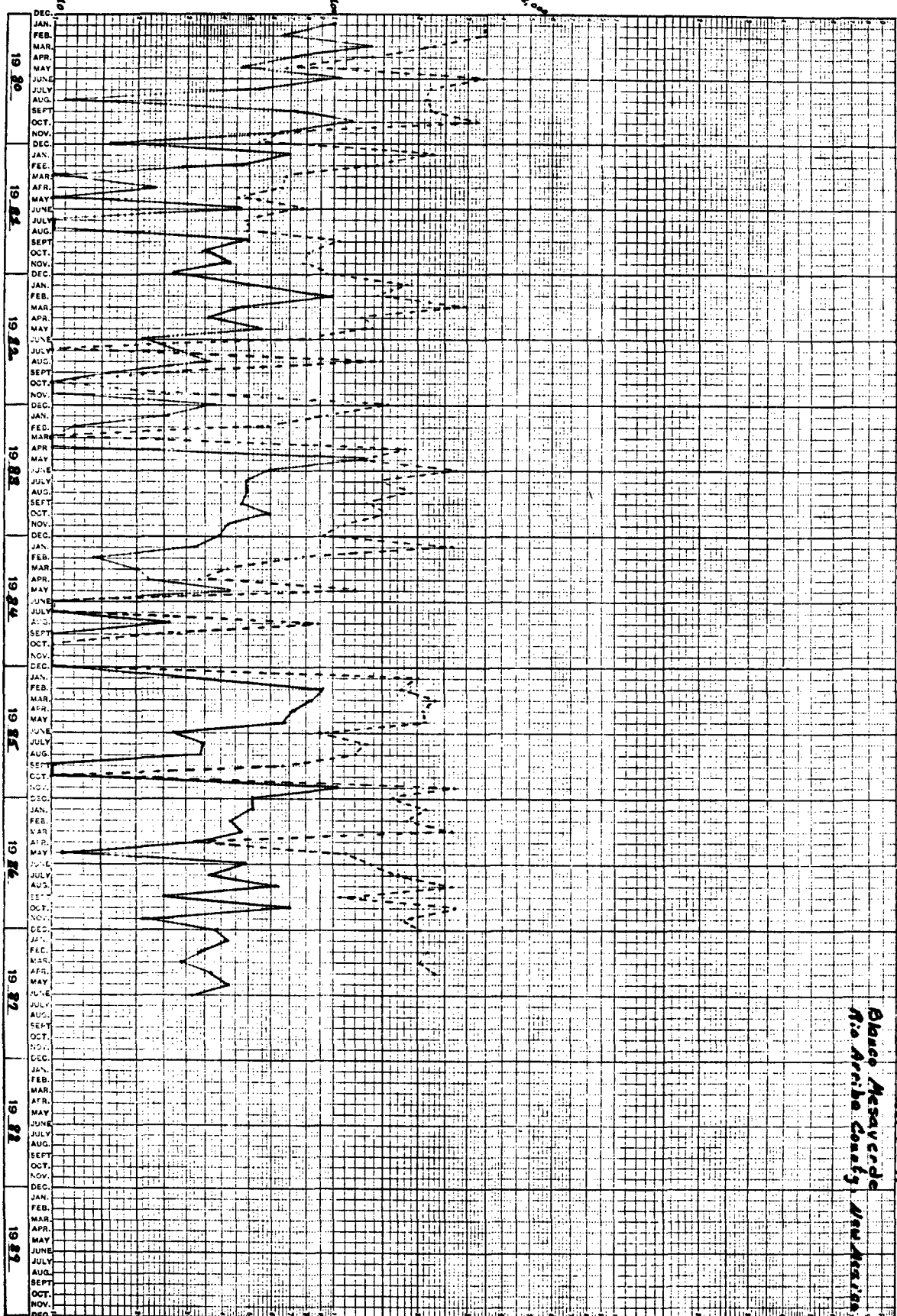
I hereby certify that the above information is true and complete to the best of my knowledge and belief.

A.M. O'Hare
A.M. O'Hare (Signature)

Joint Operations Supervisor

(Title)

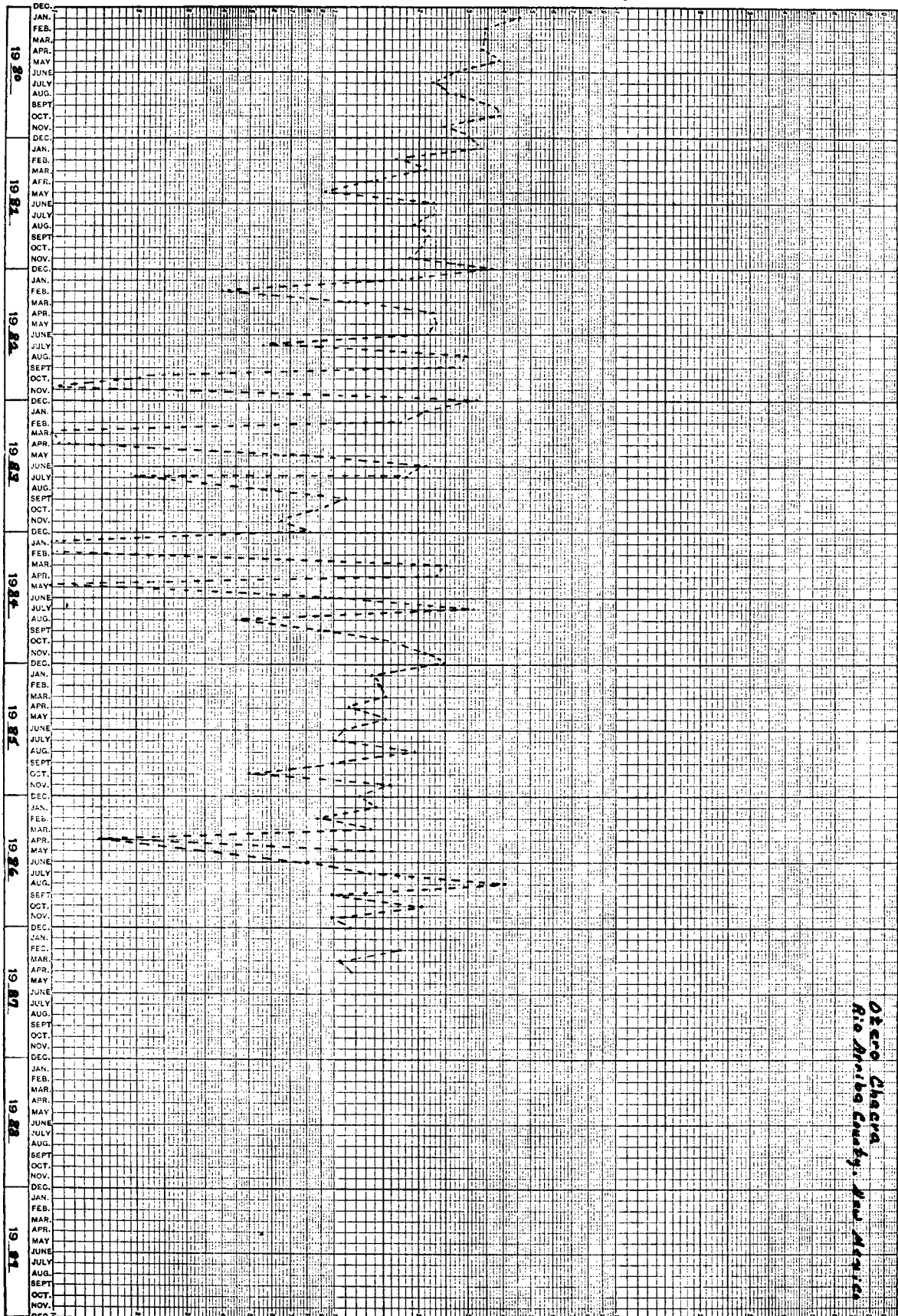
Condensate per Month



Condensate No. 19-A
Blanco Mesaverte
Rio Arriba County, New Mexico

MEF per Month

1000 MCF per Month



Candado, Jr. 19-A
Otero Chacra
Rio Arriba County, New Mexico

B & R SERVICE, INC.

P. O. Box 1048
Farmington, New Mexico 87499
(505) 325-2393

Company N.C.R.A. Lease CANADO Well #19-A
County RIO ARRIBA State NEW MEXICO Date 6-25-87
Shut-In _____ Zero Point G.L. Tbg. Pressure 460
Casing Pressure _____ Tbg. Depth _____ Casing Perf. _____
Max. Temp. _____ Fluid Level 4450'

<u>DEPTH</u>	<u>PSIG</u>	<u>GRADIENT</u>
0	460	----
3800	524	.017
5000	690	.138
5100	718	.280

CANDADO NO. 19A

CHACRA BOTTOM HOLE PRESSURE CALCULATION

Measured Surface Pressure, $P_s = 412 \text{ psig} = 426 \text{ psia}$

From Gas Analysis, Apparent Molecular Weight, $M_A = 20 \frac{\text{lbm}}{\text{lb} \cdot \text{mol}}$

Estimated Bottom Hole Temperature, $\text{BHT} = 110^\circ\text{F} = 570^\circ\text{R}$

Surface Temperature, $T_s = 60^\circ\text{F} = 520^\circ\text{R}$

$$\bar{T} = \frac{\text{BHT} + T_s}{2} = \frac{570^\circ\text{R} + 520^\circ\text{R}}{2} = 545^\circ\text{R}$$

Assume BHP = 466 psia, $\bar{P} = \frac{P_s + \text{BHP}}{2} = 446 \text{ psia}$

$$\rho = \frac{\bar{P}}{\bar{T}} \frac{M_A}{R} = 446 \text{ psia} \cdot 20 \frac{\text{lbm}}{\text{lb} \cdot \text{mol}} \cdot \frac{1}{545^\circ\text{R} \cdot 10.73 \frac{\text{psia} \cdot \text{ft}^3}{\text{lb} \cdot \text{mol} \cdot \text{R}^\circ}} = 1.525 \frac{\text{lb}}{\text{ft}^3}$$

$$\text{BHP} = P_s + \text{Depth} (\rho) = 426 + 3800 \text{ ft} \left(1.515 \frac{\text{lb}}{\text{ft}^3} \right) \frac{1 \text{ ft}^2}{144 \text{ in}^2} =$$

$$\text{BHP} = 466.2 \text{ psia} \approx 466 \text{ psia}$$

$$\text{BHP} = 466 \text{ psia} = 452 \text{ psig}$$

Company: N. C. R. A.
Address:
Attention: MIKE BARNES
Date Sampled: 3-22-87

Report No: 1
Date: 3-23-87
County: SAN JUAN
Field: BLANCO
Formation: MESA VERDE
Lease: CANDADO
Well: 19A

WATER ANALYSIS

Specific Grav: 1.000
Chloride: 2,499 mg/l
Bicarbonate: 31 mo/l
Sulfate: 0.
Sulfide: 0.
Total Hardness
(as CaCO₃): 400 mo/l
Resistivity: 2.10
Potassium: 0.

pH: 6.50
Calcium: 56 mg/l
Magnesium: 63 mo/l
Total Iron: 0.
Sodium: 1,448 mo/l
Total Dissolved
Solids: 4,097 mo/l
Ohm Meters @: 60 F
Carbonate: N D

Sample Source:

Remarks:

Analyst: M. CONREY
Smith Representative: M. CONREY

06-05-87

EL PASO NATURAL GAS COMPANY
MEASUREMENT DEPARTMENT
POST OFFICE BOX 1492
EL PASO, TEXAS 79978

MAILEE
04920

CHROMATOGRAPHIC GAS ANALYSIS REPORT

NATIONAL CO-OP REFINERY ASSN
1775 SHERMAN ST. SUITE 3000
DENVER, CO 80203

ANAL DATE 00-00-00

METER STATION NAME
CANDADO #19A MV

METER STA 89982
OPER 6311

TYPE CODE	SAMPLE DATE	EFF. DATE	USE MOS	H2S GRAINS	LOCATION
00 ***	04-16-87	04-28-87	06	0	4 F 13

	NORMAL MOL%	GPM
CO2	.58	.000
H2S	.00	.000
N2	1.18	.000
METHANE	75.33	.000
ETHANE	11.83	3.165
PROPANE	6.91	1.904
ISO-BUTANE	1.22	.399
NORM-BUTANE	1.72	.542
ISO-PENTANE	.53	.194
NORM-PENTANE	.36	.130
HEXANE PLUS	.34	.148
	100.00	6.482

SPECIFIC GRAVITY .760

MIXTURE HEATING VALUE
(BTU/CF @14.73 PSIA, 60 DEGREES, DRY) 1301

RATIO OF SPECIFIC HEATS 1.273

NO TEST SECURED FOR H2S CONTENT

*** TYPE CODE EXPLANATION SINGLE METER ANALYSIS

GXC

06-05-87

EL PASO NATURAL GAS COMPANY
MEASUREMENT DEPARTMENT
POST OFFICE BOX 1492
EL PASO, TEXAS 79978

MAILEE
04920

CHROMATOGRAPHIC GAS ANALYSIS REPORT

NATIONAL CO-OP REFINERY ASSN
1775 SHERMAN ST. SUITE 3000
DENVER, CO 80203

ANAL DATE 00-00-00

METER STATION NAME
CANDADO #19A CH

METER STA 89980
OPER 6311

TYPE CODE	SAMPLE DATE	EFF. DATE	USE MOS	H2S GRAINS	LOCATION
00 ***	04-16-87	04-28-87	06	0	4 F 13

	NORMAL MOL%	GPM
CO2	1.25	.000
H2S	.00	.000
N2	.95	.000
METHANE	84.81	.000
ETHANE	7.22	1.931
PROPANE	3.40	.937
ISO-BUTANE	.73	.239
NORM-BUTANE	.84	.265
ISO-PENTANE	.32	.117
NORM-PENTANE	.19	.069
HEXANE PLUS	.29	.126
	100.00	3.684

SPECIFIC GRAVITY .680

MIXTURE HEATING VALUE
(BTU/CF @14.73 PSIA, 60 DEGREES, DRY) 1162

RATIO OF SPECIFIC HEATS 1.288

NO TEST SECURED FOR H2S CONTENT

*** TYPE CODE EXPLANATION SINGLE METER ANALYSIS

GXC

ALLOCATION FORMULA

The recommended allocation of production back to the Chacra and Mesaverde formations is based on the percentage of gas historically produced from each formation to the total amount of gas produced from the wellbore.

The established production declines were extrapolated to mid-year 1987. The monthly values from that point were individually divided by the sum of the values and multiplied by 100 to get the percentage production for each formation. This procedure is outlined arithmetically below.

$$\text{Chacra Allocation} = \frac{\text{Chacra Production}}{\text{Chacra} + \text{Mesaverde Prod. combined}} \times 100$$

$$\text{Mesaverde Allocation} = \frac{\text{Mesaverde Production}}{\text{Chacara} + \text{Mesaverde Prod. combined}} \times 100$$



National Cooperative Refinery Association

1775 SHERMAN STREET, SUITE 3000 • DENVER, COLORADO 80203 • 303/861-4883

*Crude Oil
Division
Office*

July 29, 1987

Offset Operators

RE: Candado #19A
Section 3, T26N-R7W
Rio Arriba County, NM

Gentlemen:

National Cooperative Refinery Association is applying to the New Mexico Oil Conservation Division pursuant to NMOCD Rule 303C for administrative approval to commingle production from the Mesaverde and Chacra zones in the subject well. If you have no objections to this application we ask that you sign and return one copy of the enclosed Waiver of Objection to the NMOCD in the envelope provided.

Please contact the undersigned at (303)861-4883 if you have any questions pertaining to this application.

Sincerely,

A.M. O'Hare
Joint Operations Supervisor

/bv1
enc



National Cooperative Refinery Association

1775 SHERMAN STREET, SUITE 3000 • DENVER, COLORADO 80203 • 303/861-4883

*Crude Oil
Division
Office*

WAIVER OF OBJECTION

The undersigned, as an offset operator to National Cooperative Refinery Association's dual Mesaverde/Chacra producer known as Candado No. 19A and located in Unit D, Section 3, T26N, R7W, Rio Arriba County, New Mexico, does hereby waive any and all objections to NCRA's application for downhole commingling of the above specified well.

By: _____

Name(print): _____

Title: _____

Firm: _____

Date: _____

8/3/87

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

SUBMIT IN TRIPLICATE*
(Other instructions on re-
verse side)

Form approved.
Budget Bureau No. 1004-0135
Expires August 31, 1985

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir.
Use "APPLICATION FOR PERMIT—" for such proposals.)

1. <input type="checkbox"/> OIL WELL <input type="checkbox"/> GAS WELL <input checked="" type="checkbox"/> OTHER		5. LEASE DESIGNATION AND SERIAL NO. SF-079161
2. NAME OF OPERATOR National Cooperative Refinery Association		6. IF INDIAN, ALLOTTEE OR TRIBE NAME
3. ADDRESS OF OPERATOR 1775 Sherman Street, Suite 3000, Denver, CO 80203		7. UNIT AGREEMENT NAME
4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.* See also space 17 below.) At surface 790 FNL x 1140' FWL		8. FARM OR LEASE NAME Candado
14. PERMIT NO.		9. WELL NO. 19A
15. ELEVATIONS (Show whether DF, RT, GR, etc.)		10. FIELD AND POOL, OR WILDCAT Blanco Mesa Verde- Otero Chacra
		11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA Sec 3, T26N-R7W
		12. COUNTY OR PARISH Rio Arriba
		13. STATE NM

15. Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:

SUBSEQUENT REPORT OF:

TEST WATER SHUT-OFF

PULL OR ALTER CASING

FRACTURE TREAT

MULTIPLE COMPLETE

SHOOT OR ACIDIZE

ABANDON*

REPAIR WELL

CHANGE PLANS

(Other)

Comingle Well

X

WATER SHUT-OFF

FRACTURE TREATMENT

SHOOTING OR ACIDIZING

(Other)

REPAIRING WELL

ALTERING CASING

ABANDONMENT*

(NOTE: Report results of multiple completion on Well
Completion or Recompletion Report and Log form.)

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

It is our intention to seek administration approval for
downhole comingling of the Mesa Verde and Chacra Zones
in this well from New Mexico Oil Conservation Division.

18. I hereby certify that the foregoing is true and correct

SIGNED

A. M. O'Hare

TITLE

Jt. Operations Supervisor

DATE

8-8-87

(This space for Federal or State office use)

APPROVED BY

TITLE

DATE

CONDITIONS OF APPROVAL, IF ANY:

*See Instructions on Reverse Side



National Cooperative Refinery Association

1775 SHERMAN STREET, SUITE 3000 • DENVER, COLORADO 80203 • 303/861-4883

Crude Oil
Division
Office

WAIVER OF OBJECTION

The undersigned, as an offset operator to National Cooperative Refinery Association's dual Mesaverde/Chacra producer known as Candado No. 19A and located in Unit D, Section 3, T26N, R7W, Rio Arriba County, New Mexico, does hereby waive any and all objections to NCRA's application for downhole commingling of the above specified well.

By: Clyde E. Phillips

Name(print): Clyde E. Phillips

Title: District Superintendent

Firm: Ladd Petroleum Corporation

Date: 8-17-87

8/3/87



National Cooperative Refinery Association

1775 SHERMAN STREET, SUITE 3000 • DENVER, COLORADO 80203 • 303/861-4883

Crude Oil
Division
Office

WAIVER OF OBJECTION

The undersigned, as an offset operator to National Cooperative Refinery Association's dual Mesaverde/Chacra producer known as Candado No. 19A and located in Unit D, Section 3, T26N, R7W, Rio Arriba County, New Mexico, does hereby waive any and all objections to NCRA's application for downhole commingling of the above specified well.

By: R. Craig Nielsen

Name(print): R. Craig Nielsen, Attorney-in-Fact

Title: _____

Firm: SOUTHERN UNION EXPLORATION COMPANY

Date: 8-21-87

8/3/87



National Cooperative Refinery Association

1775 SHERMAN STREET, SUITE 3000 • DENVER, COLORADO 80203 • 303/861-4883

Crude Oil
Division
Office

WAIVER OF OBJECTION

The undersigned, as an offset operator to National Cooperative Refinery Association's dual Mesaverde/Chacra producer known as Candado No. 19A and located in Unit D, Section 3, T26N, R7W, Rio Arriba County, New Mexico, does hereby waive any and all objections to NCRA's application for downhole commingling of the above specified well.

By: S. F. Reiger
Name(print): G. F. REIGER
Title: Mgr. Outside Ops.
Firm: DEPCO, Inc.
Date: 8-20-87

8/3/87



National Cooperative Refinery Association

1775 SHERMAN STREET, SUITE 3000 • DENVER, COLORADO 80203 • 303/861-4883

Crude Oil
Division
Office

WAIVER OF OBJECTION

The undersigned, as an offset operator to National Cooperative Refinery Association's dual Mesaverde/Chacra producer known as Candado No. 19A and located in Unit D, Section 3, T26N, R7W, Rio Arriba County, New Mexico, does hereby waive any and all objections to NCRA's application for downhole commingling of the above specified well.

By: Lon H. Parode
Name(print): LON H. PARODE
Title: Casper District Oper. Manager
Firm: UNION OIL CO. OF CALIFORNIA
Date: 8/31/87

8/3/87



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

1000 RIO BRAZOS ROAD
AZTEC, NEW MEXICO 87410
(505) 334-8178

OIL CONSERVATION DIVISION
BOX 2088
SANTA FE, NEW MEXICO 87501

DATE 9-18-87

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

Gentlemen:

I have examined the application dated 9-15-87
for the Alt Cooperative Refinery Assoc. Candado #19A D-3-26N-7W
Operator Lease and Well No. Unit, S-T-R

and my recommendations are as follows:

Approve with an Allocation of gas 61% gas
to the MW & 39% to the Charco.

Yours truly,

Eric Busch