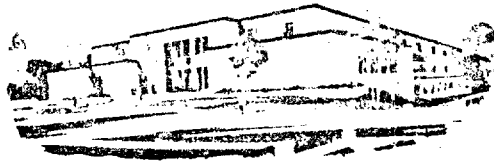


State of New Mexico



Commissioner of Public Lands

April 12, 1982

P. O. BOX 1148
SANTA FE, NEW MEXICO 87501
87504-1148

ALEX J. ARMIJO
COMMISSIONER

Amoco Production Company (USA)
Amoco Building 17th & Broadway
Denver, Colorado 80202

Re: Northeast Blanco Unit
Initial Participating Area for the
Fruitland and Pictured Cliffs Formations
San Juan and Rio Arriba Counties, New Mexico

ATTENTION: Mr. M. R. Gile

Gentlemen:

This office is in receipt of your letter of protest dated March 31, 1982, against the above referenced application dated February 9, 1982, from Blackwood and Nichols Company, Ltd., for approval of an Initial Participating Area for the Fruitland and Pictured Cliffs Formations in the Northeast Blanco Unit.

Please be advised that this office has not received the above referenced application from Blackwood and Nichols Company, Ltd., and when it comes in your letter of March 31, 1982 will be given consideration.

Very truly yours,

ALEX J. ARMIJO
COMMISSIONER OF PUBLIC LANDS

BY:
RAY D. GRAHAM, Director
Oil and Gas Division
AC 505/827-2748

AJA/RDG/pm

encls.

cc: OCD-Santa Fe, New Mexico
 USGS-Albuquerque, New Mexico

318



APR 08 1982
SANTA FE

Amoco Production Company (USA)
Denver Region
Amoco Building
17th & Broadway
Denver, Colorado 80202
303-830-4040

March 31, 1982

United States Department of the Interior
Office of the Secretary
Minerals Management Service
South Central Region
P. O. Box 26124
Albuquerque, NM 87125

State of New Mexico
Commissioner of Public Lands
P. O. Box 1148
Santa Fe, NM 87501

State of New Mexico
Oil Conservation Commission
P. O. Box 2088
Santa Fe, NM 87501

Attention: Mr. Ray D. Graham

Attention: Mr. Joe Ramey

File: DAW-5-416

Gentlemen:

Initial Participating Area for the
Fruitland and Pictured Cliffs Formation,
Northeast Blanco Unit,
No. 1, Section No. 929,
San Juan and Rio Arriba Counties, New Mexico

Please reference the application dated February 9, 1982, from Blackwood and Nichols Company, Ltd., for approval of an initial participating area for the Fruitland and Pictured Cliffs formations in the Northeast Blanco Unit. Amoco Production Company submits this letter as protest against the said application since it is not in accordance with section 11 of the unit agreement. As stated in the unit agreement, the participating area is to consist of "...unitized land then regarded as reasonably proved to be productive of unitized substances in paying quantities...." The proposed initial participating area by Blackwood and Nichols includes acreage which is not developed in the Fruitland and Pictured Cliffs formations, therefore, this land is not "...proved to be productive..." and should not

be included in participation. Also, the proposed participating area includes two wells that are not economical to produce, well No. 203 produced an average of 3 MCFD in December, 1981, and well No. 206 produced an average of 0.5 MCFD in December, 1981, therefore, these two wells are not "...productive of unitized substances in paying quantities..." and should not be included. Blackwood and Nichols attempted to show these two wells as being economical by stating that well No. 203 "...will require a rework or redrill..." to be economical and by showing well No. 206 economical based on a "...volumetric estimate of recoverable reserves...." The fact still remains that wells No. 203 and 206 are not economical today based on their performance. When these two wells are proved to be productive in paying quantities, either by workover or redrilling, they can then be brought into participation.

Amoco Production Company submits for your consideration the following lands to make up the initial participating area for the Fruitland and Pictured Cliffs formations in the Northeast Blanco Unit consisting of three separate areas and containing 990 acres, more or less:

AREA A

The west half of Section 1, the northeast quarter of Section 11, and the west half of Section 12, T31N-R7W, NMPM.

AREA B

The southeast quarter of Section 10, T31N-R7W, NMPM.

AREA C

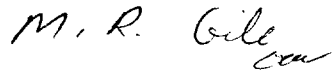
The southwest quarter of Section 9, T31N-R7W, NMPM.

The proposed initial participating area includes Northeast Blanco Unit wells No. 201, 202, 204, 205 and 208 which produce in paying quantities from the Fruitland and Pictured Cliffs formations. Amoco Production Company concurs with Blackwood and Nichols effective date of the initial participating area as December 12, 1979.

United States Department of the Interior, et al.,
March 31, 1982
Page 3

Amoco Production Company requests your consideration of the argument against the Blackwood and Nichols Company proposed participating area, and of the alternate initial participating area for the Fruitland and Pictured Cliffs formations presented herein.

Very truly yours,

A handwritten signature in cursive script that reads "M. R. Gile" with a small flourish underneath.

M. R. Gile
Division Production Manager

MDG:jal

LTR644

Blackwood & Nichols Company, Ltd
All Other Working Interest Owners
(See Attached Mailing List)

NORTHEAST BLANCO UNIT
SAN JUAN AND RIO ARRIBA COUNTIES, NEW MEXICO

Working Interest Owners:

Blackwood & Nichols Co., Ltd.
2013 First National Center, West
Oklahoma City, Oklahoma 73102

Devon-Blanco, Ltd.
1500 Mid-America Tower
Oklahoma City, Oklahoma 73102
Attention: Marvin Lunde

El Paso Natural Gas Company
P. O. Box 1492
El Paso, Texas 79978
Attention: Harold Lines

The Wiser Oil Company
P. O. Box 192
Sisterville, West Virginia 26175

Amoco Production Company
Amoco Building
Denver, Colorado 80202
Attention: L.L. Hurst

Jacquelyn M. Williams
1100 South Pickard
Norman, Oklahoma 73609

Texaco, Inc.
P. O. Box 2100
Denver, Colorado 80201
Attention: Dan Brock

H. H. Phillips
314 Milam Building
San Antonio, Texas 78205

Winnie A. Phillips
314 Milam Building
San Antonio, Texas 78205

Jane Phillips Ladouceur
314 Milam Building
San Antonio, Texas 78205

H. H. Phillips, Jr.
E-102 Petroleum Center
San Antonio, Texas 78209

Castle, Inc.
205 North Main Street
Butler, Pennsylvania 16001

Wintergreen Energy Corporation
8515 Greenville Ave., Suite N-205A
Dallas, Texas 75243

Susanna P. Kelly
Bar K Ranch, P.O. Box 585
Cameron, Montana 59720

Tenneco Oil Company
P. O. Box 2511
Houston, Texas 77001
Attention: R. L. Wynne

Continental Oil Company
P. O. Box 2197
Suite 2810, NGPA Dept.
Houston, Texas 77001

Northwest Pipeline Corporation
P. O. Box 1526
Salt Lake, Utah 84110
Attention: Glenna Bittan

Westland Oil Development Corp.
P. O. Box 36389
Houston, Texas 77036
Attention: Rowland Laxson

Thayer H. Laurie & David Mills
Trustees,
C/O National Bank of Detroit,
Trust Department
P. O. Box 222-A
Detroit, Michigan 48232

Thayer H. Laurie
C/O National Bank of Detroit,
Trust Department
P. O. Box 222-A
Detroit, Michigan 48232

MDG/dfs
040582
RPT646



United States Department of the Interior

OFFICE OF THE SECRETARY

Minerals Management Service
South Central Region
P. O. Box 26124
Albuquerque, New Mexico 87125

MAR 11 1982

318

Blackwood & Nichols Company, Ltd.
Attention: Charles F. Blackwood
2013 First National Center West
Oklahoma City, Oklahoma 73102

Gentlemen:

Two approved copies of your 1982 plan of development for the Northeast Blanco Unit Area, San Juan and Rio Arriba Counties, New Mexico, are enclosed. Such plan, proposing the drilling of ten Mesaverde and eight Pictured Cliff wells, was approved on this date subject to like approval by the appropriate officials of the State of New Mexico.

The possibility might exist of drainage by wells outside of the unit boundary. You will be contacted by our Development Unit about this possibility.

Sincerely yours,

(ORIG. SGD.) JAMES W. SHELTON

FOR Gene F. Daniel
Deputy Minerals Manager
Oil and Gas

Enclosures

cc:
NMOCD, Santa Fe
Comm. of Public Lands, Santa Fe



STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

February 22, 1982

BRUCE KING
GOVERNOR

LARRY KEHOE
SECRETARY

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87501
(505) 827-2434

Blackwood & Nichols Company, Ltd.
2013 First National Center West
Oklahoma City, Oklahoma 73102

318

Re: Northeast Blanco Unit
San Juan and Rio Arriba
Counties, New Mexico

Dear Sirs:

Enclosed please find a copy of the application for approval of Initial Participating Area for the Fruitland and Pictured Cliffs formations of the above-referenced unit. This copy shows the approval of the New Mexico Oil Conservation Division which approval is contingent upon like approval of the Commissioner of Public Lands and the United States Minerals Management Service.

Sincerely,

W. PERRY PEARCE
General Counsel

WPP/dr

cc: Commissioner of Public Lands
U. S. Minerals Management Service

BLACKWOOD & NICHOLS Co., LTD.

2013 FIRST NATIONAL CENTER WEST
OKLAHOMA CITY, OKLAHOMA 73102

405 235-8505

RECEIVED
FEB 18 1982
ALB, NM

February 10, 1982

United States Department of the Interior
Office of the Secretary
Minerals Management Service
South Central Region
P. O. Box 26124
Albuquerque, New Mexico 87125

Attention: Joe Lara

Re: Economic Evaluation
Northeast Blanco Unit
Fruitland-Pictured Cliffs Wells
San Juan Co., New Mexico

Separate economic evaluations have been made for each of the seven wells in the proposed initial participating area for the Fruitland-Pictured Cliffs interval in the northern part of the Northeast Blanco Unit.

The Fruitland Formation was designated a "tight reservoir" on June 10, 1981, Order #155 New Mexico #4. The Pictured Cliffs Formations was designated a "tight reservoir" on December 16, 1981, Order #198, New Mexico #7. All of the wells are eligible to receive the "tight reservoir" price retroactively to date of first production. An accurate economic evaluation was not possible prior to the F. E. R. C.'s ruling on the Pictured Cliffs tight reservoir application which was only approved December 16, 1981.

One important assumption as to future price has been used in all of the economic evaluations. A ten percent per year inflation factor has been used to calculate the category 107 tight reservoir price.

The closest well which has been producing for several years from the Fruitland or Pictured Cliffs is the Northwest Pipeline Co. #6-17 San Juan Unit 32-7 Well. It is located in the NE/4 of Sec. 17-T31N-R7W San Juan Co., New Mexico. It is a direct offset to the Northeast Blanco Unit Well #201. A pressure vs. cumulative production curve, an annual production vs. time curve, and a cumulative production vs. time curve for the Northwest Pipeline 6-17 Well is attached.

The NEBU Well No. 201 is currently producing approximately 500 Mcf. per month. Its production has increased each month for the last 6 months. By analogy with the direct offset the Northwest Pipeline 6-17 Well and by volumetrics an estimate of future production and income has been made which shows that the NEBU #201 is estimated to be a commercial well.

The NEBU Well No. 202 has already produced 173,856 Mcf. of gas. This well has already paid out and has a long productive life remaining.

The NEBU Well No. 203 has had production problems which will require a rework or redrill in order to produce the gas reserves still remaining below the NW/4 of Sec. 11-31N-7W. An economic evaluation based on log calculations and volumetrics reserves shows that this well should greatly exceed a 15% rate of return if reworked or redrilled.

The NEBU #204 Well has already produced 179,478 Mcf. and has paid out. This well continues to produce well and has a long profitable life remaining.

The NEBU #205 has increased its monthly production each month for the last six months. By analogy and comparison with the Northwest Pipeline Co. 6-17 Well, an estimate of future production and income has been made which shows that the well will exceed a 15% rate of return.

The NEBU #206 Well has been studied and a volumetric estimate of recoverable reserves has been made. The estimated production rates were established by analogy of other wells in the area. The resulting economic analysis shows that the well should exceed a 15% rate of return.

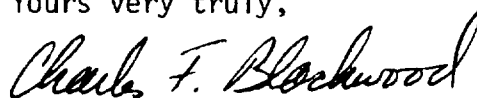
The NEBU #208 Well has produced 29,716 Mcf. of gas during the first few months of production. At its current rate it will pay out in less than one additional year. The NEBU #208 should make approximately \$1,000,000 profit over and above a 15% rate of return.

A map which shows the proposed initial participating area and the individual tracts involved is enclosed. The owners of tract 21-A have already participated in NEBU Wells numbered 202, 203, 205, 206 and 208. These and the other owners in the proposed initial participating area desire that the proposal be approved.

We have submitted a plan of development in which nine additional development wells are proposed in this initial participating area for 1982 if the proposal is approved.

Your prompt attention to this matter will be appreciated. If you have any questions, we would be happy to try and supply answers.

Yours very truly,



Charles F. Blackwood

CFB:jw

ECONOMIC EVALUATION OF THE
NORTHEAST BLANCO UNIT FRUITLAND PICTURED CLIFFS WELLS

Northeast Blanco Unit
Well No. 201
SW/4 Sec. 9 T31N R7W
San Juan Co., New Mexico

Completed July 24, 1979
Reworked and recompleted July 25, 1980
Deliverability test after rework 37 Mcfpd.

1981 Production

January	775	July	180
February	545	August	217
March	591	September	245
April	514	October	262
May	218	November	424
June	shut in	December	477

Cumulative production through December 31, 1981 7,826. Mcf.

The actual cost of this well including the rework was \$221,029, of that \$180,142 was intangible expense and \$40,887 was equipment.

The current gas price being paid is approximately \$3.00 per Mcf. The Fruitland and Pictured Cliffs reservoirs are now designated "tight reservoirs" and this well is now eligible to receive twice the category 103 price retroactively to first production. This means that the final price will become approximately \$6.00 per Mcf for production prior to 1982.

Economics to date:

Well cost	\$221,029
Operating cost	6,665
Total costs	<u>\$227,694</u>

Income @ \$6.00/Mcf. x 7,826 Mcf.	\$ 46,956
less Royalty @ .126709	(5,950)
less Taxes @ 9%	<u>(4,226)</u>
Net Income	36,780
Less costs	(227,694)
remaining to be paid out	\$ (190,914)

This well is currently producing approximately 500 Mcf. per month. The production has been increasing steadily over the last six months. The offset well to the west, the Northwest Pipeline 6-17, San Juan Unit 32-7 Well began producing thirty years ago and its production gradually increased over the years to four times its original productive capacity. (See attached graphs.) We have assumed no production decline for ten years because of the production history of the closest well the Northwest Pipeline Co. 6-17, San Juan Unit 32-7.

ESTIMATED FUTURE PRODUCTION

<u>Year</u>	<u>Mcf</u>	<u>Price</u>	<u>Gross Income</u>	<u>Net Income</u> <u>after Royalty</u> <u>& Taxes</u>	<u>Disc. Factor</u> <u>@ 15%</u>	<u>Net Income</u> <u>Discounted</u>
				(.783291)		
1982	6,000	6.60	39,600	31,018	.87	\$ 26,985
1983	6,000	7.26	43,560	34,120	.76	25,931
1984	6,000	7.99	47,940	37,551	.66	24,784
1985	6,000	8.78	52,680	41,263	.57	23,520
1986	6,000	9.66	57,960	45,400	.50	22,700
1987	6,000	10.63	63,780	49,958	.43	21,482
1988	6,000	11.69	70,140	54,940	.38	20,877
1989	6,000	12.86	77,160	60,439	.33	19,945
1990	6,000	14.14	84,840	66,454	.28	18,607
1991	6,000	15.56	93,360	73,128	.25	18,282
1992	5,400	17.12	92,448	72,413	.21	19,414
1993	4,860	18.88	91,757	71,872	.19	17,433
1994	3,936	20.70	81,475	63,819	.16	13,036
1995	3,542	22.78	80,687	63,201	.14	11,296
1996	3,189	25.06	79,916	62,597	.14	9,590
Value of future Net Income Discounted						\$ 293,882
Remaining to be paid out						(190,914)
Profit over 15% rate of return						\$ 102,968

The estimated future net income discounted calculated to show a 15% rate of return exceeds the amount required by approximately 190,000. The N. E. B. U. #201 Well is estimated to greatly exceed a 15% rate of return and is therefore, a commercial well.

Yours very truly,

Charles F. Blackwood

Charles F. Blackwood

CFB:jw

ECONOMIC EVALUATION OF
NORTHEAST BLANCO UNIT FRUITLAND-PICTURED CLIFFS WELLS

Northeast Blanco Unit
Well No. 202
NE/4 Sec. 11 T31N R7W
San Juan Co. New Mexico

Completed August 7, 1979

Perforations 3372, 82, 92, 3306, 18, 3402, 12, 20, 28, 40, 46, 52, 74
Initial Potential Test 5033 Mcfpd.

1981 Production (Mcf.)

January	7798	July	5057
February	5959	August	4682
March	9338	September	shut in
April	7308	October	7853
May	6371	November	6590
June	shut in	December	5145

Cumulative production through December 1981 173,856 Mcf.

The actual cost of this well was \$157,882. \$113,677 of that amount was intangible expense and \$44,205 was equipment.

The average gas price received to date has been approximately \$3.00 Mcf. The Fruitland and Pictured Cliffs reservoirs are now designated as "tight reservoirs" and this well is eligible to receive twice the category 103 price retroactively. This means that the average final price will become \$6.00 per Mcf. for production prior to 1982.

Economics to date.

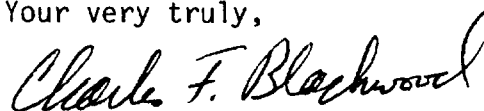
Well cost	\$157,882
Operating costs	<u>6,721</u>
Total Costs through	
December 31, 1981	\$164,603

Income @ \$6.00 per Mcf. x 173,856	\$1,043,136
less Royalty plus O. R. R. 17.8418%	(186,114)
less Taxes 9%	<u>(93,882)</u>
Net Income	\$ 763,140
Less Costs	(164,603)
Net Profit to	
1/1/82	\$ 598,537

This well has paid out and made a profit of approximately \$600,000.

It is continuing to produce approximately 170 Mcfpd. and has estimated remaining recoverable reserves of 1,000,000 Mcf.

Your very truly,



Charles F. Blackwood

CFB:jw

ECONOMIC EVALUATION OF THE
NORTHEAST BLANCO UNIT FRUITLAND-PICTURED CLIFFS WELLS

Northeast Blanco Unit
Well No. 203
990 FNL, 1490 FWL
Sec. 11 T31N R7W
San Juan Co., New Mexico

Completed August 14, 1979
Reworked and recompleted July 17, 1980
Perforations now open 3368-92
Deliverability test after rework 18 Mcfpd.

The NEBU 203 Well is located 160' west of the NEBU Well No. 43A. The Open Hole Logs on the No. 43A are those used to estimate porosity, water saturation, gas saturation etc. because of the lack of adequate Open Hole Logs for the NEBU 203 Well.

This well was originally tested at a flow rate of 2250 Mcfpd from Fruitland perforations @ 3368-92 and Pictured Cliffs perforations at 3456, 78, 82, 3506, 18, 26, 34, 40, 54, 62, 78 and 88. After being shut in awaiting pipeline connection, the well was connected and began producing in December 1979. First production was disappointing as water had entered the hole and was causing production problems. In July of 1979 the well was reworked. A copy of the Workover Report is attached.

The production from the Fruitland perforations alone (after July 1980) has been disappointing. The NEBU 203 Well has produced a total of 9862 Mcf. to December 31, 1981 and is currently just about logged off with water. 1981 December sales were only 89 Mcf., approximately 3,000 cubic feet per day.

It appears from a comparison of the logs of the NEBU 43A Well (160') from the NEBU 65 Well adjacent to the NEBU 202 Well, that we need to rework or redrill this well in order to recover the reserves in place. The NEBU 202 Well, the direct east offset to the NEBU 203 Well is located on the same tract, now has some owners and has produced enough gas already to pay out both the 202 and 203 Wells. The logs of the NEBU #202 and 203 Wells show similar characteristics as do the logs of the twin wells, the No. 65 and No. 43-A open hole logs.

The gas reserves in place under the NEBU No. 203 Well 160 acres of the NW/4 of Sec. 11, T31N, R7W can be recovered in several ways. The NEBU Well No. 203 could be reworked by squeezing all current perforations and then re-perforating and recompleting the interval from 3480 to 3540. This 60 foot interval contains approximately 55 feet of gas bearing sandstone with an average porosity of 8% with approximately 50% water saturation. This same interval produces over 150 Mcfpd. in the direct offset the NEBU #202.

The estimated cost of a workover of this sort is \$80,000.

The total cost of the NEBU #203 Well to date is \$242,469 which included \$195,573 intangible expense, \$40,175 equipment and \$6,721 operating. The total cost after

a workover is expected to be \$322,469. The #203 Well has sold 9,862 Mcf. to December 31, 1981. The average price per Mcf. which will ultimately be paid for this 9,862 Mcf., is approximately \$6.50 per Mcf. This is because the Fruitland and Pictured Cliffs reservoirs have finally been designated "tight reservoirs" in this area and the category 107 price will apply to all of the wells production. The income to the NEBU #203 Well to January, 1982 will therefore be approximately:

\$6.50 x 9862	\$ 64,103
Less Royalty and O. R. R. @ .178418	(11,437)
Less Taxes @ 9%	(5,769)
	<u>\$ 46,897</u>
Total estimated costs including W. O.	322,469
Total costs to recover to payout	\$275,572

Economic estimates for #203 well

A volumetric estimate of gas reserves recoverable from the NW/4 of Sec. 11, T31N, R7W San Juan County, New Mexico has been made. The following estimates and assumptions were used:

Net feet of pay	55 ft. from 3480-3550
Average Porosity	8%
Average Water Saturation	50%
Estimated Recovery Factor	60%
Estimated BHP	1400#
Measured SIP	1290#
Z = .8 estimated	

Gas Calculations:

$$43560 \times .08 (1-.5) = 1742 \text{ cubic ft./acre ft.}$$

$$\text{Bg.} = \frac{35.35 \times 1400}{.8 \times 600} = \frac{49490}{480} = 103 \text{ scft./cuft.}$$

$$\text{Gas in Place} = 1742 \times 103 \times 55 \times 160 = 1,578,948 \text{ Mcf.}$$

$$\text{Recoverable Reserves} = 60\% \times 1,578,948 = 947,369 \text{ Mct.}$$

round off to -- 900,000 Mcf.

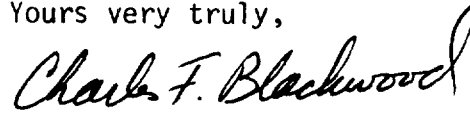
Estimated Production

<u>Year</u>	<u>Mcf.</u>	<u>Price</u>	<u>Gross Income</u>	<u>Net Income</u> (.731582)	<u>Disc. Factor</u> @ 15%	<u>Net Income</u> <u>Discounted</u>
1982	60,000	7.08	428,800	313,702	.87	272,920
1983	57,000	7.79	444,030	324,844	.76	246,881
1984	54,150	8.57	464,065	339,502	.66	224,071
1985	51,442	9.42	484,583	354,512	.57	202,072
1986	48,870	10.37	506,782	370,753	.50	185,376
1987	46,427	11.40	529,268	388,203	.43	166,497
1988	44,105	12.54	553,077	404,621	.38	153,756
1989	41,900	13.80	578,220	423,015	.33	139,595
1990	39,805	15.18	604,240	442,051	.28	123,774

A comparison of estimated future net income with the remaining costs to be paid out shows that payout will occur in one year.

The considerable remaining recoverable reserves make this a much better than commercial undertaking.

Yours very truly,

A handwritten signature in cursive script that reads "Charles F. Blackwood". The signature is written in dark ink and is positioned above the printed name.

Charles F. Blackwood

CFB:jw

BLACKWOOD & NICHOLS CO., LTD.

P. O. BOX 1237
DURANGO, COLORADO 81301

(303) 247-0728

Drilling Report - Pictured Cliffs (Workover)

Northeast Blanco Unit Well No. 203

LOCATION: 990' F/NL - 1490' F/WL
Sec. 11-T31N-R7W
San Juan County, New Mex.
Elevation: 6546' GL

- 7-11-80 3630' PBTB. Moved Drake Well Services' rig on location and rigging up.
- 7-12-80 3630' PBTB. Finished rigging up.
- 7-13-80 3630' PBTB. Pulled 114 jts. 2 3/8" 4.7# J-55 EUE tubing. Ran Blue Jet Inc.'s Gamma Ray and Neutron Logs. Ran Baker Oil Tools Model E Control Valve, Collar Locator and 4 1/2" Retrievamatic; set at 3496'. Opened control valve, slight amount of gas through tubing; preparing to run swab.
- 7-14-80 3630' PBTB. Ran swab. Well making water and small amount of gas.
- 7-15-80 3630' PBTB. Reset Packer at 3459', making water through tubing and between the tubing and 4 1/2" casing. Reset Packer at 3393'. Well making water through tubing. Dry gas between tubing and 4 1/2" casing. Ran Baker cement retainer on wireline; set at 3409'. Preparing to go in hole with tubing, clean out with supply gas and run tubing.
- 7-16-80 3630' PBTB. Went in hole with tubing and bit, found water at 1500'. Went in hole with Baker Retrievamatic Packer Set at 3270', well flowed gas and slight mist. Reset Packer at 3405', pressured up to 2000 PSI for 10 minutes, held OK. Went in hole with tubing and bit, blowing well with supply gas. Well making a slight mist of water.
- 7-17-80 3630' PBTB. Cleaned out with gas. Well making a small amount of water. Reran 108 jts. 2 3/8" 4.7# J-55 EUE tubing; 3356' landed at 3366'. Seating nipple at 3318'. Released Rig.

ECONOMIC EVALUATION OF THE
NORTHEAST BLANCO UNIT FRUITLAND-PICTURED CLIFFS WELLS

Northeast Blanco Unit
Well No. 204
SE/4 Sec. 10 T31N R7W
San Juan Co., New Mexico

Completed August 22, 1979
Perforations 3404 - 98
3518 - 3598

Initial Potential Test 4476 Mcfpd.

1981 Production (Mcf.)

January	6341	July	1762
February	4043	August	7223
March	5995	September	3111
April	4720	October	5775
May	4457	November	5971
June	shut in	December	5715

Cumulative production through December 31, 1981 179,478 Mcf.

The actual cost of this well was \$153,515. \$112,980 of that amount was intangible expense and \$40,535 was equipment.

The average gas price received to date has been approximately \$3.00 per Mcf. The Fruitland and Pictured Cliffs reservoirs are now designated as "tight reservoirs" and this well is now eligible to receive twice the category 103 price retroactively. This means that the average final price will become \$6.00 per Mcf. for production prior to 1982

Economics to date:

Well cost	\$153,515
Operating costs	7,109
Total costs	<u>\$160,624</u>

Income @ \$6.00 per Mcf x 179,478 Mcf	\$1,076,868
less Royalty plus O. R. R. @ .126709	(136,449)
less Taxes @ 9%	(96,918)
Net Income	<u>\$ 843,501</u>
Less Costs	(160,624)
Net Profit to 1/1/82	\$ 682,877

This well has paid out and made a profit of approximately \$680,000.

It is continuing to produce approximately 190 Mcfpd. and has estimated remaining recoverable reserves of 1,100,000 Mcf.

Yours very truly,

Charles F. Blackwood

Charles F. Blackwood



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Program AID - KNOWN AND CONSISTENT LITHOLOGY

Using the following logs:

INDUCTION ELECTRICAL LOG AND COMPENSATED DENSITY LOG GR

COMPANY BLACKWOOD & NICHOLS CO. LTD

WELL N. E. B. U. NO. 43A

FIELD BLANCO PICTURED CLIFFS

COUNTY SAN JUAN STATE NEW MEXICO

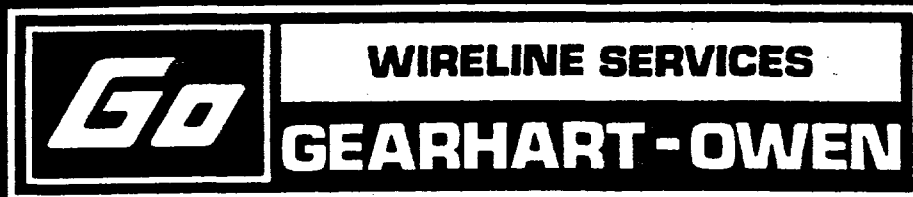
DATE 10-20-23-78 NUMBER _____

LOCATION 990' FNL x 1450' FWL

11-31N-7W

ELEV. 6544 KB 6557 DF 6558 GL 6544

Laserlog presentations are computed using
Direct Digital Well Log data.



**COMPUTED FROM
DIRECT DIGITAL WELL LOGS**

Program **AID - KNOWN AND CONSISTENT LITHOLOGY**

Using the following logs:

INDUCTION ELECTRICAL LOG AND COMPENSATED DENSITY LOG:GR

COMPANY BLACKWOOD & NICHOLS CO. LTD

WELL N. E. B. U. # 64

FIELD BLANCO PICTURED CLIFFS & MESA VERDE

COUNTY SAN JUAN STATE NEW MEXICO

DATE 10-11-14-78 NUMBER _____

LOCATION 790'ESL x 990'FWL

10-31N-7W

ELEV. 6624 KB 6637 DF 6636 GL 6624

Laserlog presentations are computed using
Direct Digital Well Log data.

BLACKWOOD & NICHOLS Co., LTD.

2013 FIRST NATIONAL CENTER WEST
OKLAHOMA CITY, OKLAHOMA 73102

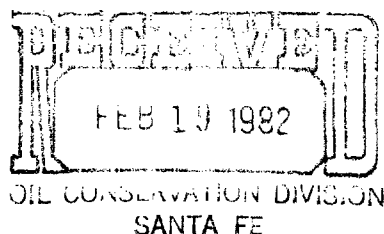
405 235-8505

February 9, 1982

United States Department of the Interior
Office of the Secretary
Minerals Management Service
South Central Region
P. O. Box 26124
Albuquerque, New Mexico 87125

State of New Mexico
Commissioner of Public Lands
Attention: Mr. Ray D. Graham
P. O. Box 1148
Santa Fe, New Mexico 87501

State of New Mexico
Oil Conservation Commission
Attention: Mr. Joe Ramey
P. O. Box 2088
Santa, New Mexico 87501



Gentlemen:

Re: Northeast Blanco Unit
#1 - Sec. No. 929
San Juan and Rio Arriba Counties
New Mexico

APPLICATION FOR APPROVAL OF INITIAL
PARTICIPATING AREA FOR THE FRUIT-
LAND AND PICTURED CLIFFS FORMATION
Effective December 12, 1979

Blackwood and Nichols Co., Ltd., as unit operator for the Northeast Blanco unit agreement, pursuant to the provisions of section 11 thereof, respectfully submits for your approval the selection of the following described lands to constitute the initial participating area for the Fruitland-Pictured Cliffs producing zone or formation, to wit:

All of sections 1, 11, 12, 13, 14, 15, and 16
the south half of sections 9 and 10 in the
Township 31N, Range 7W, New Mexico Principal
Meridian containing 4847.08 acres.

The interval from the top of the Fruitland Formation to the base of the Pictured Cliffs Formation is shown on the cross sections submitted with the geological and engineering report. Gas is currently being produced in paying quantities from the Fruitland and Pictured Cliffs Formations underlying the proposed initial participating area. New Mexico Oil Conservation Division Order #5772 and subsequent extensions established the South Los Pinos Fruitland-Pictured Cliffs Pool which allows downhole commingling and production from the Fruitland and Pictured Cliffs Formations. N. E. B. U. Wells No. 202 and 204 are producing commingled from both the Fruitland and Pictured Cliffs Formations.

In support of this application, the following numbered items are attached hereto and made a part hereof:

- (1) An ownership map showing thereon the boundaries of the unit area and the proposed initial participating area. (Exhibit A)
- (2) A schedule showing the lands entitled to participation in the unitized substances produced from the Fruitland-Pictured Cliffs Formations with the percentage of participation of each lease or tract indicated thereon. (Exhibit B)
- (3) Table 1 - Well Data Sheet.

The applicant is submitting separately in triplicate a geological and engineering report with accompanying geologic maps and cross sections supporting and justifying the proposed selection of the participating area.

This proposed initial participating area is predicated upon the knowledge and information first obtained upon the completion in paying quantities under the terms of the unit agreement on unit wells Nos. 201, 202, 203, 204, 205, 206 and 208 which produced from the Fruitland and Pictured Cliffs Formations. Table 1 of the geological and engineering report gives details on the completion and testing of each of these wells. The effective date of this initial area shall be December 12, 1979 of the unit agreement.

Consequently, applicant respectfully requests your approval of the hereinabove selection of lands to constitute the initial Fruitland-Pictured Cliffs participating area to be effective December 12, 1979. Please indicate your approval in the space provided on the attached sheet and return an approved copy hereof for our files.

Copies of this letter and the schedules are being sent to the Working Interest Owners as shown on the attached sheet.

Dated this February 10, 1982.



Charles F. Blackwood
General Partner

Approved: _____ Date: _____

United States Department of the Interior
Office of the Secretary
Minerals Management Service
Subject to like approval by The Commissioner of Public Lands and
Oil Conservation Division.

Approved: _____ Date: _____

Commissioner of Public Lands
State of New Mexico
Subject to like approval by The United States Geological Survey
and Oil Conservation Division

Approved: W. Perry Pearce Date: 2/19/82

Oil Conservation Division
State of New Mexico
Subject to like approval by the United States Geological Survey
and Commissioner of Public Lands

The above approvals are for the Northeast Blanco Unit Agreement No. 1, Section 929,
San Juan and Rio Arriba Counties, New Mexico, initial participating area Fruit-
land-Pictured Cliffs Formations.

NORTHEAST BLANCO UNIT-FRUITLAND-PICTURED CLIFFS

Drilling and Completion Data

Table No. 1

N.E.B.U. Well No.	Location	Elevation	Drilling Commenced	Well Completed	Production Casing	Perforation	Stimulation Produce	Fruitland Top	Pictured Cliffs Top	Initial Flow Mcfpd	Initial SIP
201	990 FSL, 1030 1030 FWL Sec 9 T 31N, R 7W	6652 GL 6665 KB	6-30-79	7-24-79	3750	344-59 3560-3640	27090 gals gelled wtr 1,200,000 cu ft N2 140,000# 10- 20 Sd	3255	3567	1508	1550
201 Reworked	Same as above	6652 GL 6665 KB	6-30-79	7-25-80	Cement Retainer 3536	3482-94	Versagel Fractured 30,350 gals wtr & 30,000# 10-20 sd	3255	3567	37 (most recent deliv. test)	1152
202	1070 FNL, 1760 FEL, Sec 11 T31N, R 7W	6445 GL 6457 KB	8-2-79	8-7-79	3595	3372,82,92 3306,18, 3402,12,20, 28,40,46, 52,74	48000 gals gelled wtr 80,000# 10-20 Sd	3081	3364	5033	850
203	990 FNL, 1490 FWL Sec 11 T31N, R7W	6546 GL 6559 KB	7-28-79	8-14-79	3670	3456-3588 (P.C.) 3368-92 Fruitland	20,200 gals gelled wtr 926,000 cu ft N2 100,000 # 10-20 Sd	3157	3436	2250	1290

Table No. 1 Continued

N.E.B.U. Well No.	Location	Elevation	Drilling Commenced	Well Completed	Production Casing	Perforation	Stimulation Produce	Fruitland Top	Pictured Cliffs Top	Initial Flow McFpd	Initial SIP
203 Reworked	Same as above	6546 GL 6559 KB	7-28-79	7-17-80	Cement Retainer @3409	3368-92	Cleaned up interval with supply gas	3157	3436	18	1162
204	830 FSL, 990FWL Sec 1, T. 31N, R-7W	6546 GL. 6559 KB	8-9-79	8-22-79	3686	3404-98 3518 to 3598	48,078 gals gelled wtr 75,000# 10-20 sand	3165	3475	4476	1420
205	1180 FSL, 925FEL Sec 10, T31N, R7W	6560 GL 6572 KB	7-22-79	8-7-79	3660	3464 to 3586	62,394 Gals foam 100,000# 10-20 Sd	3148	3450	1014	1410
205 Reworked	Same as above	6560 GL 6572 KB		7-20-80	Cement Retainer @3430	3350-62	Versage1 Fractured 300 gals 15 % Hcl. 28,640 gals wtr. 30,000# 10-20 Sd.	3148	3450	55 (most recent deliv. test)	1012
206	790 FSL, 1190 FWL, Sec 10 T31N, R7W	6625 GL 6637 KB	3-19-81	6-8-81	3690	3518 to 3549	49,980 gals gelled wtr, and 84,968# 10-20 sand	3207	3506	890	1340
208	790 FSL, 1750 FWL, Sec 12 T31N, R7W	6541 GL 6554 KB	4-2-81	6-5-81	3674	3477 to 3570	52,329 gals gelled wtr, and 75,000 lbs. 20-40 sand	3015	3425	3425	1440

EXHIBIT "B"
 REVISED FEBRUARY 11, 1982

SCHEDULE SHOWING THE PERCENTAGE AND KIND OF OWNERSHIP OF OIL AND GAS INTERESTS
 IN ALL LANDS IN THE NORTHEAST BLANCO UNIT AGREEMENT
 IN THE FRUITLAND & PICTURE CLIFFS FORMATIONS

TRACT NO.	LEASE NO. AND/OR TYPE OF LAND	DESCRIPTION	PARTICIPATING ACRES	PERCENT OF PARTICIPATION FOR TRACT	PERCENT OF PARTICIPATION	WORKING INTEREST OWNER	PERCENT OF ROYALTY	PERCENT OF ORRI
19	NM 03356 FEDERAL	T31N R7W Sec. 14: W $\frac{1}{2}$ W $\frac{1}{2}$, SE $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 15: ALL	840	17.33002%	9.95921%	Blackwood & Nichols Co., Ltd. 86.485606% x 81.745283% of 25/32 +81.745283% of 7/256 Subject to excess ORRI to: Agnes M. Morgan 81.745283% of 1/2 of 1/8 of 8/8 of 7/256 Agnes M. Morgan, Trustee 81.745283% of 1/2 of 1/8 of 8/8 of 7/256	USA 12 $\frac{1}{2}$ %	5%
					2.22402%	Devon-Blanco, Ltd. 86.485606% x 18.254717 of 25/32 +18.254717% of 7/256 Subject to excess ORRI to: Agnes M. Morgan 18.254717% of 1/2 of 1/8 of 8/8 of 7/256 Agnes M. Morgan, Trustee 18.254717% of 1/2 of 1/8 of 8/8 of 7/256		
					1.56813%	Westland Oil Development Corporation 11.582241% of 25/32		
					.16297%	Thayer H. Laurie 1.203736% of 25/32		
					.09862%	Thayer H. Laurie & David N. Mills, Trustees .728417% of 25/32		
					3.31707%	Morris & Burk, Ltd. 49/256		

TRACT NO.	LEASE NO. AND/OR TYPE OF LAND	DESCRIPTION	PARTICIPATING ACRES	PERCENT OF PARTICIPATION FOR TRACT	PERCENT OF PARTICIPATION	WORKING INTEREST OWNER	PERCENT OF ROYALTY	PERCENT OF ORRI
21-A	NM 03356 FEDERAL	T31N R7W Sec. 1: Lots 6, 7, 8 E $\frac{1}{2}$ SE $\frac{1}{4}$ Sec. 10: S $\frac{1}{2}$ Sec. 11: N $\frac{1}{2}$, N $\frac{1}{2}$ SW $\frac{1}{4}$, SW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 12: E $\frac{1}{2}$, S $\frac{1}{2}$ NW $\frac{1}{4}$, E $\frac{1}{2}$ SW $\frac{1}{4}$ Sec. 13: ALL Sec. 14: E $\frac{1}{2}$, E $\frac{1}{2}$ SW $\frac{1}{4}$	2396.77	49.44771%	28.41659%	Blackwood & Nichols Co., +81.745283% of 25/32 Ltd. Subject to excess ORRI to: Agnes M. Morgan 81.745283% of 1/2 of 1/8 of 8/8 of 7/256 Agnes M. Morgan, Trustee 81.745283% of 1/2 of 1/8 of 8/8 of 7/256	USA 12 $\frac{1}{2}$ %	5%
					6.34577%	Devon-Blanco, Ltd. 86.485606% x 18.254717% of 25/32 +18.254717% of 7/256 Subject to excess ORRI to: Agnes M. Morgan 18.254717% of 1/2 of 1/8 of 8/8 of 7/256 Agnes M. Morgan, Trustee 18.254717% of 1/2 of 1/8 of 8/8 of 7/256		
					4.47434%	Westland Oil Development Corporation 11.582241% of 25/32		
					.46502%	Thayer H. Laurie 1.203736% of 25/32		
					.28139%	Thayer H. Laurie & David N. Mills, Trustees .728417% of 25/32		
					9.46460%	Morris & Burk, Ltd. 49/256		

TRACT NO.	LEASE NO. AND/OR TYPE OF LAND	DESCRIPTION	PARTICIPATING ACRES	PERCENT OF PARTICIPATION FOR TRACT	PERCENT OF PARTICIPATION	WORKING INTEREST OWNER	PERCENT OF ROYALTY	PERCENT OF ORRI
23	FEDERAL	T31N R7W Sec. 1: Lot 5	10.31	.21271%	.05183%	Blackwood & Nichols Co., Ltd. 29.805862% x 81.745283%	12½%	NONE
					.01157%	Devon-Blanco, Ltd. 29.805862% x 18.254717%		
					.07014%	Amoco Production Co. 32.975933%		
					.04509%	El Paso Natural Gas Co. 21.199416%		
					.00104%	The Wiser Oil Company .488466%		
					.00056%	Jacquelyn M. Williams .260911%		
					.00183%	Texaco, Inc. .861600%		
					.00021%	H.H. Phillips .096160%		
					.00002%	Jane Phillips Ladouceur .008792%		
					.00002%	Winnie H. Phillips, Est. .010990%		
					.00002%	H.H. Phillips, Jr. .008792%		
					.00012%	Castle, Inc. .054949%		
					.00012%	Wintergreen Energy Corp. .057696%		
					.00002%	Susanna Phillips Kelly .008792%		
					.00306%	Tenneco Oil Company 1.440596%		
					.00306%	Continental Oil Company 1.440595%		
					.01178%	Northwest Pipeline Corp. 5.536260%		
					.01051%	Westland Oil Development Corp. 4.940999%		
					.00105%	Thayer H. Laurie .492448%		
					.00066%	Thayer H. Laurie & David N. Mills, Trustees .310743%		

TRACT NO.	LEASE NO. AND/OR TYPE OF LAND	DESCRIPTION	PARTICIPATING ACRES	PERCENT OF PARTICIPATION FOR TRACT	PERCENT OF PARTICIPATION	WORKING INTEREST OWNER	PERCENT OF ROYALTY	PERCENT OF ORRI
24	E 3150-1 STATE	<u>T31N R7W</u> Sec. 16: NE $\frac{1}{2}$ NE $\frac{1}{4}$, NE $\frac{1}{2}$ NW $\frac{1}{4}$, NE $\frac{1}{2}$ SW $\frac{1}{4}$, SE $\frac{1}{4}$	320	6.60191%	6.60191%	E1 Paso Natural Gas Company	A11	12 $\frac{1}{2}$ % 5%
25	E 3707-4 STATE	<u>T31N R7W</u> Sec. 16: SW $\frac{1}{2}$ NE $\frac{1}{4}$	40	.82524%	.82524%	Northwest Pipeline Corporation	A11	12 $\frac{1}{2}$ % 5%
26	E 178-1 STATE	<u>T31N R7W</u> Sec. 16: W $\frac{1}{2}$ W $\frac{1}{2}$	160	3.30096%	1.65048%	Amoco Production Co.	1/2	12 $\frac{1}{2}$ % NONE
					.94850%	Blackwood & Nichols Co., Ltd. 86.485606 x 81.745283% of 25/64 +81.745283% of 7/512 Subject to excess ORRI to: Agnes M. Morgan 81.745283% of 1/2 of 1/8 of 8/8 of 7/512 Agnes M. Morgan, Trustee 81.745283% of 1/2 of 1/8 of 8/8 of 7/512		
					.21181%	Devon-Blanco, Ltd. 86.485606% x 18.254717% of 25/64 +18.254717% of 7/512 Subject to excess ORRI to: Agnes M. Morgan 18.254717% of 1/2 of 1/8 of 8/8 of 7/512 Agnes M. Morgan, Trustee 18.254717% of 1/2 of 1/8 of 8/8 of 7/512		
					.14935%	Westland Oil Development Corporation	11.582241% of 25/64	
					.01552	Thayer H. Laurie	1.203736% of 25/64	

TRACT NO.	LEASE NO. AND/OR TYPE OF LAND	DESCRIPTION	PARTICIPATING ACRES	PERCENT OF PARTICIPATION FOR TRACT	PERCENT OF PARTICIPATION	WORKING INTEREST OWNER	PERCENT OF ROYALTY	PERCENT OF ORR I
27	E 5382	T31N R7W Sec. 16:	120	2.47572%	2.47572%	Thayer H. Laurie .728417% of 25/64 & David N. Mills, Trustees Morris & Burk, Ltd. 49/512 Texaco, Inc. A11	12½%	NONE
		SE¼ NE¼, SE¼ NW¼, SE¼ SW¼			.31591%			
46	PATENTED LANDS	T31N R7W Sec. 11:	320	6.60191%	6.60191%	Northwest Pipeline Corp. A11 Subject to ORRI as to Oil and payments out of gas payable to Phillips Petroleum Company as set out in certain Sublease and Operating Agreement executed between said parties under date of February 23, 1955, and to T.H. McElvain as set out in that certain Sublease and Operating Agreement executed between said parties under date of September 1, 1955		
		SE¼ SW¼, SE¼						
		Sec. 12: W¼ SE¼ Sec. 14: NE¼ NW¼						
47	PATENTED LANDS	T31N R7W Sec. 1:	320	6.60191%	3.30096%	Amoco Production Co. 1/2 Blackwood & Nichols Co., 86.485606% x +81.745283% of 25/64 Ltd. +81.745283% of 7/512 Subject to excess ORRI to: Agnes M. Morgan 18.254717% of 1/2 of 1/8 of 8/8 of 7/512 Agnes M. Morgan, Trustee 18.254717% of 1/2 of 1/8 of 8/8 of 7/512	1.89700%	
		SW¼, W¼ SE¼ N¼ NW¼						

TRACT NO.	LEASE NO. AND/OR TYPE OF LAND	DESCRIPTION	PARTICIPATING ACRES	PERCENT OF PARTICIPATION FOR TRACT	PERCENT OF PARTICIPATION	WORKING INTEREST OWNER	PERCENT OF ROYALTY	PERCENT OF ORRI
48	PATENTED LANDS	T31N R7W Sec. 9: S $\frac{1}{2}$	320	6.60191%	3.30096%	Amoco Production Co. 1/2	12 $\frac{1}{2}$ %	NONE
					1.89700%	Blackwood & Nichols Co., Ltd. 86.485606% x 81.745283% of 25/64 +81.745283% of 7/512 Subject to excess ORRI to: Agnes M. Morgan 18.254717% of 1/2 of 1/8 of 8/8 of 7/512 Agnes M. Morgan, Trustee 18.254717% of 1/2 of 1/8 of 8/8 of 7/512		
					.63182%	Morris & Burk, Ltd. 49/512		
					.29869%	Westland Oil Development Corporation 11.582241% of 25/64		
					.03104%	Thayer H. Laurie 1.203736% of 25/64		
					.01878%	Thayer H. Laurie and David N. Mills, Trustees .728417% of 25/64		

TRACT NO.	LEASE NO. AND/OR TYPE OF LAND	DESCRIPTION	PARTICIPATING ACRES	PERCENT OF PARTICIPATION FOR TRACT	PERCENT OF PARTICIPATION	WORKING INTEREST OWNER	PERCENT OF ROYALTY	PERCENT OF ORRI	
				.42362%		Devon- Blanco, Ltd. +18.254717% of 7/512 Subject to excess ORRI to: Agnes M. Morgan 18.254717% of 1/2 of 1/8 of 8/8 of 7/512 Agnes M. Morgan, Trustee 18.254717% of 1/2 of 1/8 of 8/8 of 7/512	86.485606% x 18.254717% of 25/64 +18.254717% of 7/512		
				.29869%		Westland Oil Development Corporation	11.582241% of 25/64		
				.03104%		Thayer H. Laurie	1.203736% of 25/64		
				.01878%		Thayer H. Laurie & David N. Mills, Trustees	.728417% of 25/64		
				.63182%		Morris & Burk, Ltd.	49/512		
<u>R E C A P I T U L A T I O N</u>									
			<u>LAND ACRES</u>			<u>PERCENTAGE OF UNIT AREA</u>			
			Federal	3,247.08		66.99044%			
			State	640.00		13.20383%			
			Patented	960.00		19.80573%			
			Total Unit Area	<u>4,847.08</u>		<u>100.00000%</u>			

GEOLOGICAL AND ENGINEERING REPORT
FRUITLAND AND PICTURED CLIFF FORMATIONS
NORTHEAST BLANCO UNIT - SAN JUAN
AND RIO ARRIBA COUNTIES, NEW MEXICO

The formation of a participating area for the Fruitland and Pictured Cliffs producing zone in the Northeast Blanco Unit, San Juan and Rio Arriba Counties, New Mexico.

The Northeast Blanco Unit was formed in 1952 to explore and develop hydrocarbon reserves in the San Juan Basin. Test wells drilled from 1952 to 1960 established production from the Mesaverde reservoir under the entire 33,500 acre area. A few Dakota wells were drilled and completed, however, they were considered to be non-commercial at the time and no Dakota participating area has been formed.

In 1979 five shallow tests were drilled inside the north boundary of the Northeast Blanco Unit. These test wells were drilled by the individual tract owners. All five tests were completed as gas producers. Two additional shallow wells were drilled and completed in 1981. A summary of the drilling and completion information is shown on the attached Table No. 1 (Northeast Blanco Unit Fruitland-Pictured Cliffs Drilling and Completion Data)

Geological and Engineering Data has been compiled for the Northeast Blanco Unit Area pertaining to the Fruitland and Pictured Cliffs Reservoirs. Cross Sections have been prepared which show that the Fruitland and Pictured Cliffs Formations contain several sandstones throughout the entire Northeast Blanco Unit Area which have produced natural gas wherever they have been tested. See Cross Sections A-A', B-B' & C-C'. At this time Fruitland and Pictured Cliffs Producing Wells have only been completed in the northern part of the Northeast Blanco Unit. This area where Fruitland-Pictured Cliffs Wells are located is that recommended to be the initial participating area. An isopochous map of the Fruitland-Pictured Cliff interval is enclosed.

One well completed in 1952 by Phillips Petroleum located just outside the Northeast Blanco Unit area in the NE/4 of Sec. 17, T31N, R7W has produced over 1,000,000,000 cubic feet of gas. This well, now designated the Northwest Pipeline #6-17 Well San Juan Unit 32-7, produced small quantities of natural gas

during the early years of its production. In 1953 the 6-17 Well averaged 27 Mcfpd. The 1974 production for the 6-17 Well averaged 55 Mcfpd. or twice the 1953 volume. In 1979 the 6-17 Well averaged 125 Mcfpd. The fact that this well has produced over 1,000,000 Mcf of gas, has lost less than 100 psig of shut-in pressure and is still producing over 100 Mcfpd., was the main reason we started testing the Fruitland-Pictured Cliffs Formations in the northern part of the Northeast Blanco Unit.

The Tenneco State #3 in the SE/4 of Sec. 2-T31N-R7W is completed in and producing from the Fruitland -Pictured Cliffs Formations. The Tenneco State #2 Well located in the SW/4 of Sec. 2-T31N-R7W also produces from both the Fruitland and Pictured Cliffs Formations.

The Tenneco #3 Well located in the NE/4 of Sec. 10-T31N-R7W is producing from the Fruitland and Pictured Cliffs Formations commingled. The Tenneco Yeager #4 Well located in the NW of Sec. 10-T31N-R7W is producing from the Fruitland and Pictured Cliffs Formations commingled.

The Fruitland and Pictured Cliffs Formations contain gas bearing sandstones, shales and coal seams throughout the proposed initial participating area. All the test wells drilled to date in the area have been completed in one or both of the formations.

The productive capacity varies greatly from well to well. Some wells produce less than 20 Mcfpd while the best produces over 200 Mcfpd. The reasons for this wide difference in productive capacities are several. The coal seams and sandstones both contain producible gas. The thickness, porosity, permeability and water saturations vary from location to location. The permeability is extremely low even in the best developed reservoir rocks. (Both zones have been designated tight reservoirs with average permeabilities of less than 0.1 md. per ft.) The water saturations are high and it is difficult, if not impossible to interpret the logs accurately enough to determine which zones will produce only gas (no water). Coal seams which may contain fresh water have evidently caused several completion problems. Some wells have been completed flowing dry gas and have later produced low gas volumes with fresh water. We believe that in some of the wells fractures induced during stimulation may have reached a fresh water bearing coal seam at the base of the Fruitland Formation.

The average productive capacity of all the Fruitland Pictured Cliffs Wells in the proposed initial participating area is enough to make the recommended initial participating area a commercial success. We expect to improve our logging, evaluation and completion techniques to the point where each well would produce over 100 Mcfpd.

The State of New Mexico has by Case No. 6250 Order #R5772 and subsequent extensions defined the South Los Pinos Fruitland Pictured Cliffs Pool to cover much of the area contained in the requested new initial participating area of the Fruitland Pictured Cliffs Formations. Order #R5772 allows production to be commingled within the well bore from the Fruitland and Pictured Cliffs Formations in this area. Several of the Northeast Blanco Unit Wells are completed in both the Fruitland and Pictured Cliffs Formations and commingled. (See Table #1). Tenneco wells north of the proposed initial participating area are producing commingled downhole from the Fruitland and Pictured Cliffs Formations.

In summary it can be stated that natural gas bearing sandstones, coal seams and shales of the Fruitland and Pictured Cliffs Formations underly the entire proposed initial participating area. All Fruitland and or Pictured Cliffs tests drilled to date on this proposed initial participating area have been completed and are producing natural gas from one or both of the formations. The average production from the 7 wells in the proposed initial participating area is at a commercial rate.

We expect to improve the average quality of future wells in the area by employing drilling, logging, and completion techniques which will help in reducing the quantity of water produced and increase the gas volumes.

Charles F. Blackwood

NORTHEAST BLANCO UNIT-FRUITLAND-PICTURED CLIFFS

Drilling and Completion Data

Table No. 1

N.E.B.U. Well No.	Location	Elevation	Drilling Commenced	Well Completed	Production Casing	Perforation	Stimulation Produce	Fruitland	Pictured	Initial	Initial
								Top	Cliffs	Flow	SIP
								Top	Top	Mcfpd	
201	990 FSL, 1030 1030 FWL Sec 9 T 31N, R 7W	6652 GL 6665 KB	6-30-79	7-24-79	3750	344-59 3560-3640	27090 gals gelled wtr 1,200,000 cu ft N2 140,000# 10- 20 Sd	3255	3567	1508	1550
201 Reworked	Same as above	6652 GL 6665 KB	6-30-79	7-25-80	Cement Retainer 3536	3482-94	Versagel Fractured 30,350 gals wtr & 30,000# 10-20 sd	3255	3567	37	1152
							(most recent deliv. test)				
202	1070 FNL, 1760 FEL, Sec 11 T31N, R 7W	6445 GL 6457 KB	8-2-79	8-7-79	3595	3372,82,92 3306,18, 3402,12,20, 28,40,46, 52,74	48000 gals gelled wtr 80,000# 10-20 Sd	3081	3364	5033	850
203	990 FNL, 1490 FWL Sec 11 T31N, R7W	6546 GL 6559 KB	7-28-79	8-14-79	3670	3456-3588 (P.C.) 3368-92 Fruitland	20,200 gals gelled wtr 926,000 cu ft N2 100,000# 10-20 Sd	3157	3436	2250	1290

Table No. 1 Continued

N.E.B.U. Well No.	Location	Elevation	Drilling Commenced	Well Completed	Production Casing	Perforation	Stimulation Produce	Fruitland Top	Pictured Cliffs Top	Initial Flow Mcfpd	Initial SIP
203 Reworked	Same as above	6546 GL 6559 KB	7-28-79	7-17-80	Cement Retainer @3409	3368-92	Cleaned up interval with supply gas	3157	3436	18	1162
204	830 FSL,990FWL Sec 1, T. 31N, R-7W	6546 GL. 6559 KB	8-9-79	8-22-79	3686	3404-98 3518 to 3598	48,078 gals gelled wtr 75,000# 10-20 sand	3165	3475	4476	1420
205	1180 FSL,925FEL Sec 10, T31N, R7W	6560 GL 6572 KB	7-22-79	8-7-79	3660	3464 to 3586	62,394 Gals Foam 100,000# 10-20 Sd	3148	3450	1014	1410
205 Reworked	Same as above	6560 GL 6572 KB		7-20-80	Cement Retainer @3430	3350-62	Versagel Fractured 300 gals 15 % Hcl.28,640 gals wtr. 30,000# 10-20 Sd.	3148	3450	55 (most recent deliv. test)	1012
206	790 FSL,1190 FWL,Sec 10 T31N, R7W	6625 GL 6637 KB	3-19-81	6-8-81	3690	3518 to 3549	49,980 gals gelled wtr, and 84,968# 10-20 sand	3207	3506	890	1340
208	790 FSL,1750 FWL,Sec 12 T31N R7W	6541 GL 6554 KB	4-2-81	6-5-81	3674	3477 to 3570	52,329 gals gelled wtr, and 75,000 lbs. 20-40 sand	3015	3425	3425	1440

EXHIBIT "B"
 REVISED FEBRUARY 11, 1982

SCHEDULE SHOWING THE PERCENTAGE AND KIND OF OWNERSHIP OF OIL AND GAS INTERESTS
 IN ALL LANDS IN THE NORTHEAST BLANCO UNIT AGREEMENT
 IN THE FRUITLAND & PICTURE CLIFFS FORMATIONS

TRACT NO.	LEASE NO. AND/OR TYPE OF LAND	DESCRIPTION	PERCENT OF PARTICIPATION		WORKING INTEREST OWNER	PERCENT OF ROYALTY	PERCENT OF ORRI
			ACRES	FOR TRACT			
19	NM 03356 FEDERAL	T31N R7W Sec. 14: W $\frac{1}{2}$ W $\frac{1}{2}$, SE $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 15: ALL	840	17.33002%	Blackwood & Nichols Co., Ltd. +81.745283% of 7/256 Subject to excess ORRI to: Agnes M. Morgan 81.745283% of 1/2 of 1/8 of 8/8 of 7/256 Agnes M. Morgan, Trustee 81.745283% of 1/2 of 1/8 of 8/8 of 7/256	USA 12 $\frac{1}{2}$ %	5%
				2.22402%	Devon-Blanco, Ltd. 86.485606% x 18.254717% of 25/32 +18.254717% of 7/256 Subject to excess ORRI to: Agnes M. Morgan 18.254717% of 1/2 of 1/8 of 8/8 of 7/256 Agnes M. Morgan, Trustee 18.254717% of 1/2 of 1/8 of 8/8 of 7/256		
				1.56813%	Westland Oil Development Corporation	11.582241% of 25/32	
				.16297%	Thayer H. Laurie	1.203736% of 25/32	
				.09862%	Thayer H. Laurie & David N. Mills, Trustees	.728417% of 25/32	
				3.31707%	Morris & Burk, Ltd.	49/256	

TRACT NO.	LEASE NO. AND/OR TYPE OF LAND	DESCRIPTION	PARTICIPATING ACRES	PERCENT OF PARTICIPATION FOR TRACT	PERCENT OF PARTICIPATION	WORKING INTEREST OWNER	PERCENT OF ROYALTY	PERCENT OF ORRI
21-A	NM 03356 FEDERAL	T31N R7W	2396.77	49.44771%	28.41659%	Blackwood & Nichols Co., Ltd. 86.485606% x 81.745283% of 25/32 +81.745283% of 7/256 Subject to excess ORRI to: Agnes M. Morgan 81.745283% of 1/2 of 1/8 of 8/8 of 7/256 Agnes M. Morgan, Trustee 81.745283% of 1/2 of 1/8 of 8/8 of 7/256	USA 12½%	5%
		Sec. 1: Lots 6, 7, 8						
		Sec. 10: S½ E½ SE½						
		Sec. 11: N½, N½ SW½, SW½ SW½						
		Sec. 12: E½, S½ NW½, E½ SW½						
Sec. 13: ALL								
		Sec. 14: E½, E½ SW½						
					6.34577%	Devon-Blanco, Ltd. 86.485606% x 18.254717% of 25/32 +18.254717% of 7/256 Subject to excess ORRI to: Agnes M. Morgan 18.254717% of 1/2 of 1/8 of 8/8 of 7/256 Agnes M. Morgan, Trustee 18.254717% of 1/2 of 1/8 of 8/8 of 7/256		
					4.47434%	Westland Oil Development Corporation	11.582241% of 25/32	
					.46502%	Thayer H. Laurie	1.203736% of 25/32	
					.28139%	Thayer H. Laurie & David N. Mills, Trustees	.728417% of 25/32	
					9.46460%	Morris & Burk, Ltd.	49/256	

TRACT NO.	LEASE NO. AND/OR TYPE OF LAND	DESCRIPTION	PARTICIPATING ACRES	PERCENT OF PARTICIPATION FOR TRACT	PERCENT OF PARTICIPATION	WORKING INTEREST OWNER	PERCENT OF ROYALTY	PERCENT OF ORRI
23	FEDERAL	<u>T31N R7W</u> Sec. 1: Lot 5	10.31	.21271%	.05183%	Blackwood & Nichols Co., Ltd. 29.805862% x 81.745283%	12½%	NONE
					.01157%	Devon-Blanco, Ltd. 29.805862% x 18.254717%		
					.07014%	Amoco Production Co. 32.975933%		
					.04509%	EI Paso Natural Gas Co. 21.199416%		
					.00104%	The Wiser Oil Company .488466%		
					.00056%	Jacquelyn M. Williams .260911%		
					.00183%	Texaco, Inc. .861600%		
					.00021%	H.H. Phillips .096160%		
					.00002%	Jane Phillips Ladauceur .008792%		
					.00002%	Winnie H. Phillips, Est. .010990%		
					.00002%	H.H. Phillips, Jr. .008792%		
					.00012%	Castle, Inc. .054949%		
					.00012%	Wintergreen Energy Corp. .057696%		
					.00002%	Susanna Phillips Kelly .008792%		
					.00306%	Tenneco Oil Company 1.440596%		
					.00306%	Continental Oil Company 1.440595%		
					.01178%	Northwest Pipeline Corp. 5.536260%		
					.01051%	Westland Oil Development Corp. 4.940999%		
					.00105%	Thayer H. Laurie .492448%		
					.00066%	Thayer H. Laurie & David N. Mills, Trustees .310743%		

Revised February 11, 1982

TRACT NO.	LEASE NO. AND/OR TYPE OF LAND	DESCRIPTION	PARTICIPATING ACRES	PERCENT OF PARTICIPATION FOR TRACT	PERCENT OF PARTICIPATION	WORKING INTEREST OWNER	PERCENT OF ROYALTY	PERCENT OF ORRI
24	E 3150-1 STATE	T31N R7W Sec. 16: N $\frac{1}{2}$ NE $\frac{1}{4}$, NE $\frac{1}{4}$ NW $\frac{1}{4}$, NE $\frac{1}{4}$ SW $\frac{1}{4}$, SE $\frac{1}{4}$	320	6.60191%	6.60191%	E1 Paso Natural Gas Company	A11	12 $\frac{1}{2}$ % 5%
25	E 3707-4 STATE	T31N R7W Sec. 16: SW $\frac{1}{4}$ NE $\frac{1}{4}$	40	.82524%	.82524%	Northwest Pipeline Corporation	A11	12 $\frac{1}{2}$ % 5%
26	E 178-1 STATE	T31N R7W Sec. 16: W $\frac{1}{2}$ W $\frac{1}{2}$	160	3.30096%	1.65048%	Amoco Production Co.	1/2	12 $\frac{1}{2}$ % NONE
					.94850%	Blackwood & Nichols Co., Ltd.	86.485606 x 81.745283% of 25/64 +81.745283% of 7/512	
					.21181%	Subject to excess ORRI to: Agnes M. Morgan 18.254717% of 1/2 of 1/8 of 8/8 of 7/512 Agnes M. Morgan, Trustee 18.254717% of 1/2 of 1/8 of 8/8 of 7/512		
					.14935%	Devon-Blanco, Ltd.	86.485606% x 18.254717% of 25/64 +18.254717% of 7/512	
					.01552	Westland Oil Development Corporation	11.582241% of 25/64	
					.01552	Thayer H. Laurie	1.203736% of 25/64	

TRACT NO.	LEASE NO. AND/OR TYPE OF LAND	DESCRIPTION	PARTICIPATING ACRES	PERCENT OF PARTICIPATION FOR TRACT	PERCENT OF PARTICIPATION	WORKING INTEREST OWNER	PERCENT OF ROYALTY	PERCENT OF ORRI
27	E 5382	T31N R7W Sec. 16: SE $\frac{1}{4}$ NE $\frac{1}{4}$, SE $\frac{1}{4}$ NW $\frac{1}{4}$, SE $\frac{1}{4}$ SW $\frac{1}{4}$	120	2.47572%	2.47572%	.00939% Thayer H. Laurie & David N. Mills, Trustees Morris & Burk, Ltd. 49/512 Texaco, Inc. All A11	12 $\frac{1}{2}$ %	NONE
46	PATENTED LANDS	T31N R7W Sec. 11: SE $\frac{1}{4}$ SW $\frac{1}{4}$, SE $\frac{1}{4}$ Sec. 12: W $\frac{1}{2}$ SE $\frac{1}{4}$ Sec. 14: NE $\frac{1}{4}$ NW $\frac{1}{4}$	320	6.60191%	6.60191%	Northwest Pipeline Corp. All Subject to ORRI as to Oil and payments out of gas payable to Phillips Petroleum Company as set out in certain Sublease and Operating Agreement executed between said parties under date of February 23, 1955, and to T.H. McElvain as set out in that certain Sublease and Operating Agreement executed between said parties under date of September 1, 1955		
47	PATENTED LANDS	T31N R7W Sec. 1: SW $\frac{1}{4}$, W $\frac{1}{2}$ SE $\frac{1}{4}$ Sec. 12: N $\frac{1}{2}$ NW $\frac{1}{4}$	320	6.60191%	3.30096% 1.89700%	Amoco Production Co. 1/2 Blackwood & 86.485606% x Nichols Co., 81.745283% of 25/64 +81.745283% of 7/512 Ltd. Subject to excess ORRI to: Agnes M. Morgan 18.254717% of 1/2 of 1/8 of 8/8 of 7/512 Agnes M. Morgan, Trustee 18.254717% of 1/2 of 1/8 of 8/8 of 7/512		

TRACT NO.	LEASE NO. AND/OR TYPE OF LAND	DESCRIPTION	PARTICIPATING ACRES	PERCENT OF PARTICIPATION FOR TRACT	PERCENT OF PARTICIPATION	WORKING INTEREST OWNER	PERCENT OF ROYALTY	PERCENT OF ORRI
48	PATENTED LANDS	T31N R7W Sec. 9: S $\frac{1}{2}$	320	6.60191%	3.30096%	Amoco Production Co. 1/2	12 $\frac{1}{2}$ %	NONE
					1.89700%	Blackwood & Nichols Co., Ltd. 86.485606% x 81.745283% of 25/64 +81.745283% of 7/512 Subject to excess ORRI to: Agnes M. Morgan 18.254717% of 1/2 of 1/8 of 8/8 of 7/512 Agnes M. Morgan, Trustee 18.254717% of 1/2 of 1/8 of 8/8 of 7/512		
					.63182%	Morris & Burk, Ltd. 49/512		
					.29869%	Westland Oil Development Corporation 11.582241% of 25/64		
					.03104%	Thayer H. Laurie 1.203736% of 25/64		
					.01878%	Thayer H. Laurie and David N. Mills, Trustees .728417% of 25/64		

TRACT NO.	LEASE NO. AND/OR TYPE OF LAND	DESCRIPTION	PARTICIPATING ACRES	PERCENT OF PARTICIPATION FOR TRACT	PERCENT OF PARTICIPATION	WORKING INTEREST OWNER	PERCENT OF ROYALTY	PERCENT OF ORR 1	
				.42362%		Devon- Blanco, Ltd. +18.254717% of 7/512 Subject to excess ORR 1 to: Agnes M. Morgan 18.254717% of 1/2 of 1/8 of 8/8 of 7/512 Agnes M. Morgan, Trustee 18.254717% of 1/2 of 1/8 of 8/8 of 7/512	86.485606% x 18.254717% of 25/64 +18.254717% of 7/512		
				.29869%		Westland Oil Development Corporation	11.582241% of 25/64		
				.03104%		Thayer H. Laurie	1.203736% of 25/64		
				.01878%		Thayer H. Laurie & David N. Mills, Trustees	.728417% of 25/64		
				.63182%		Morris & Burk, Ltd.	49/512		
<u>R E C A P I T U L A T I O N</u>									
			<u>LAND ACRES</u>			<u>PERCENTAGE OF UNIT AREA</u>			
			Federal	3,247.08		66.99044%			
			State	640.00		13.20383%			
			Patented	960.00		19.80573%			
			Total Unit Area	<u>4,847.08</u>		<u>100.00000%</u>			