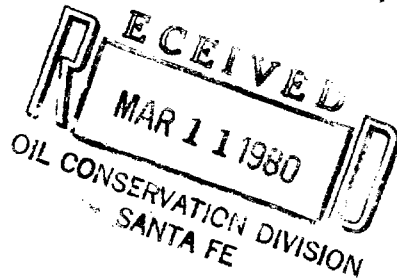




United States Department of the Interior

GEOLOGICAL SURVEY

P. O. Box 26124
Albuquerque, New Mexico 87125



10 MAR 1980

El Paso Natural Gas Company
Attention: Mr. D.N. Canfield
P. O. Box 1492
El Paso, Texas 79978

Case
159

Gentlemen:

Three approved copies of your supplement to the 1980 plan of development for the Lindrith unit area, Rio Arriba County, New Mexico, proposing the drilling of eight Dakota wells are enclosed. Such plan was approved on this date subject to like approval by the appropriate officials of the State of New Mexico.

Sincerely yours,

(ORIG. SGD.) JACK WILLOCK

Oil and Gas Supervisor, SRMA

cc: NMOCD, Santa Fe (ltr only) ← This Copy for



ONE HUNDRED YEARS OF EARTH SCIENCE IN THE PUBLIC SERVICE

State of New Mexico



Commissioner of Public Lands

February 29, 1980

ALEX J. ARMIJO
COMMISSIONER

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

El Paso Natural Gas Company
P. O. Box 1492
El Paso, Texas 79978

159

Re: Lindrith Unit Agreement, I Section
No. 713, Rio Arriba County, New Mexico
REQUEST FOR APPROVAL OF THE TWENTY-
FOURTH EXPANDED PARTICIPATING AREA,
Pictured Cliffs Formation
Effective January 1, 1979

ATTENTION: Mr. James R. Permenter

Gentlemen:

The Commissioner of Public Lands has this date approved the Twenty-Fourth Expanded Participating Area, Pictured Cliffs formation. for the Lindrith Unit, Rio Arriba County, New Mexico. Such approval is subject to like approval by the United States Geological Survey and the New Mexico Oil Conservation Division.

Enclosed is one approved copy for your files.

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/s
encls.

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

State of New Mexico



ALEX J. ARMIJO
COMMISSIONER



Commissioner of Public Lands

February 29, 1980

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

El Paso Natural Gas Company
P. O. Box 1492
El Paso, Texas 79978

59

Re: 1980 Plan of Development (Supplement)
Lindrith "B" Unit
Chacon-Dakota Formation
Rio Arriba County, New Mexico

ATTENTION: Mr. D. N. Canfield

Gentlemen:

The Commissioner of Public Lands has this date approved your Supplement 1980 Plan of Development for the Lindrith Unit, Rio Arriba County, New Mexico. Such plan proposes the drilling of eight Chacon-Dakota wells during 1980. Our approval is subject to like approval by the United States Geological Survey and the New Mexico Oil Conservation Division.

Enclosed is one approved copy for your files.

Please remit a Three (\$3.00) Dollar filing fee.

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/s
encls.
cc:

OCD-Santa Fe, New Mexico
USGS-Roswell, New Mexico
USGS-Albuquerque, New Mexico

OIL CONSERVATION DIVISION

P. O. BOX 2088

SANTA FE, NEW MEXICO 87501

February 20, 1980

El Paso Natural Gas Company
P. O. Box 1492
El Paso, Texas 79978

Attention: D. N. Canfield

Re: Case No. 159
Lindrith Unit
1980 Drilling Program

Gentlemen:

We hereby approve the 1980 Drilling Program for the Lindrith Unit, Rio Arriba County, New Mexico, subject to like approval by the United States Geological Survey and the Commissioner of Public Lands.

One approved copy of the Drilling Program is returned herewith.

Yours very truly,

JOE D. RAMEY
Director

JDR/EP/fd
enc.

cc: U.S.G.S. - Roswell
Commissioner of Public Lands

C
O
P
Y

El Paso NATURAL GAS
COMPANY

P. O. BOX 1492
EL PASO, TEXAS 79978
PHONE: 915-543-2600

January 7, 1980

Regional Oil and Gas Supervisor
United States Geological Survey
Drawer 1857
Roswell, New Mexico 88201

Case 159

Commissioner of Public Lands
State of New Mexico
Post Office Box 1148
Santa Fe, New Mexico 87501

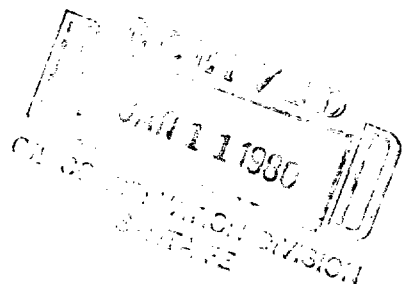
Oil Conservation Division
State of New Mexico
Post Office Box 2088
Santa Fe, New Mexico 87501

Re: Lindrith Unit I Section No. 713
Rio Arriba County, New Mexico
1980 Drilling Program

Gentlemen:

By letter dated December 22, 1978, El Paso Natural Gas Company, as Unit Operator of the Lindrith Unit, filed a Drilling Program covering the subject Unit for the calendar year 1979 providing for the drilling of four (4) Pictured Cliffs wells (#96, #97, #98, #99). All four (4) wells were timely drilled. All four (4) wells were drilled outside the Pictured Cliffs Participating Area and are currently being tested to determine whether each will be commercial, thereby causing an expansion.

Wells #84 (SE/4 Section 36, T-24-N, R-3-W), Com #93 (SE/4 Section 29, T-24-N, R-2-W), #94 (NE/4 Section 18, T-24-N, R-2-W) and #95 (NE/4 Section 10, T-24-N, R-3-W) drilled in 1978 have been declared commercial and will create an expansion of the Pictured Cliffs Participating Area.



As of this date, the total number of wells in the Lindrith Unit is as follows:

Pictured Cliffs (Gas)	84
Pictured Cliffs (Non-commercial)	5
Dakota	1
Gallup	1
Plugged and Abandoned	<u>12</u>
	103

Pursuant to Section 9 of the Lindrith Unit Agreement, El Paso Natural Gas Company, as Unit Operator, is submitting this Drilling Program providing for the drilling of the following wells during the calendar year 1980.

<u>Well</u>	<u>Drilling Block</u>	<u>Formation</u>
#100	SE/4 Sec. 6, T-24-N, R-2-W	Pictured Cliffs
#101	SE/4 Sec. 3, T-24-N, R-3-W	Pictured Cliffs
#102	NW/4 Sec. 11, T-24-N, R-3-W	Pictured Cliffs
#103	SE/4 Sec. 21, T-24-N, R-3-W	Pictured Cliffs

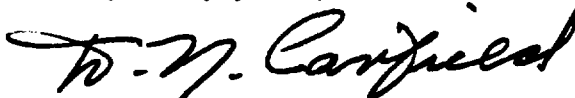
All working interest owners have been contacted, and this Drilling Program reflects their desires. El Paso Natural Gas Company, as Unit Operator, and the working interest owners believe that all current obligations have been satisfied.

El Paso Natural Gas Company, as Unit Operator, plans to drill any offset wells required to prevent drainage of unitized substances and any other wells deemed necessary or desirable by the Unit Operator and the working interest owners.

If this Drilling Program is acceptable, please signify your approval as required under Section 10 of the Unit Agreement in the space provided on the attached sheet and return an approved copy to El Paso Natural Gas Company.

Copies of this letter are being sent to the working interest owners as shown below.

Very truly yours,



D. N. Canfield
Attorney-in-Fact *DCH*

DNC/DCH/sfg
Attachments
Lindrith Unit, 3.0

LINDRITH UNIT
WORKING INTEREST OWNERS

Conoco, Inc.

Mobil Oil Corporation (3)

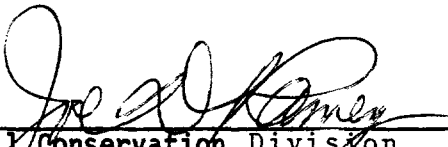
Tenneco Oil Company

APPROVED: _____
Regional Oil & Gas Supervisor
United States Geological Survey
Subject to like approval by the
Commissioner of Public Lands and
the Oil Conservation Division

DATE: _____

APPROVED: _____
Commissioner of Public Lands
Subject to like approval by the
United States Geological Survey
and the Oil Conservation Division

DATE: _____

APPROVED:  _____
Oil Conservation Division
Subject to like approval by the
United States Geological Survey
and the Commissioner of Public Lands

DATE: 2/21/80

The foregoing approvals for the 1980 Drilling Program for the Lindrith Unit
I, Section No. 713, Rio Arriba County, New Mexico.



United States Department of the Interior

GEOLOGICAL SURVEY

P. O. Box 26124
Albuquerque, New Mexico 87125

FEB 04 1980

~~#8~~ 159

El Paso Natural Gas Company
Attention: Mr. D. N. Canfield
P. O. Box 1492
El Paso, Texas 79978

Gentlemen:

Your 1980 plan of development for the Lindrith unit area, Rio Arriba County, New Mexico, has been reviewed by this office.

Your plan as submitted proposes to drill four Pictured Cliffs wells which is hereby approved on this date. However, you are also requested to file a supplement to this plan to cover all drilling and development within this unit area including the Dakota formation. Approval of any application to drill in unit areas by the District Engineer requires that they first be approved in the annual plan of development.

Our approval is subject to like approval by the appropriate New Mexico officials and three approved copies are enclosed herewith.

Sincerely yours,

(ORIG. SCD.) JAMES W. SUTHERLAND

Oil and Gas Supervisor, SRMA

Enclosure

cc: Mobil Oil Corporation
Attention: Mr. S. T. Alexander
Nine Greenway Plaza - Suite 2700
Houston, Texas 77046

NMOC, Santa Fe (1tr only) ✓



ONE HUNDRED YEARS OF EARTH SCIENCE IN THE PUBLIC SERVICE

State of New Mexico



ALEX J. ARMIJO
COMMISSIONER



Commissioner of Public Lands
January 14, 1980

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

159
El Paso Natural Gas Company
P. O. Box 1492
El Paso, Texas 79978

Re: Lindrith Unit
Rio Arriba County, New Mexico
1980 DRILLING PROGRAM

ATTENTION: Mr. D. N. Canfield

Gentlemen:

The Commissioner of Public Lands has this date approved your 1980 Drilling Program, for the Lindrith Unit, Rio Arriba County, New Mexico. Such plan provides for the drilling of wells 100, 101, 102 and well 103. Our approval is subject to like approval by the United States Geological Survey and the New Mexico Oil Conservation Division.

Enclosed is one approved copy for your files.

Please remit a Three (\$3.00) Dollar filing fee.

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/s
encl.
cc:

OCD-Santa Fe, New Mexico
USGS-Roswell, New Mexico
USGS-Albuquerque, New Mexico

El Paso NATURAL GAS
COMPANY

P. O. BOX 1492
EL PASO, TEXAS 79978
PHONE: 915-543-2600

December 21, 1979

159

Regional Oil and Gas Supervisor
United States Geological Survey
Drawer 1857
Roswell, New Mexico 88201

Commissioner of Public Lands
State of New Mexico
Post Office Box 1148
Santa Fe, New Mexico 87501

Oil Conservation Division
State of New Mexico
Post Office Box 2088
Santa Fe, New Mexico 87501

Re: Twenty-Second and Twenty-Third
Expanded Participating Area for the
Lindrith Unit Pictured Cliffs Formation

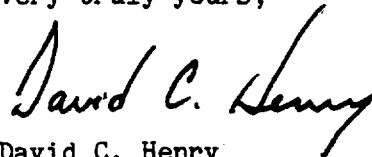
Gentlemen:

Please be advised that the referenced Expansions were approved as indicated below.

United States Geological Survey - November 14, 1979
Oil Conservation Division - August 21, 1979
Commissioner of Public Lands - November 16, 1979

A copy of this letter is being furnished to all working interest owners.

Very truly yours,



David C. Henry
Landman
Land Department
Exploration

DCH/sfg
Lindrith Unit, 4.1, 5.0
cc: All Working Interest Owners

LINDRITH UNIT
WORKING INTEREST OWNERS

Conoco, Inc.

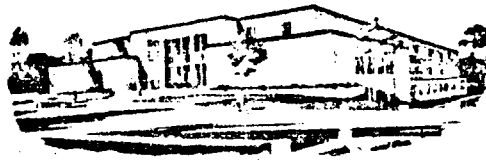
Mobil Oil Corporation (3)

Tenneco Oil Company

State of New Mexico



ALEX J. ARMIJO
COMMISSIONER



Commissioner of Public Lands

November 16, 1979

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

El Paso Natural Gas Company
P. O. Box 1492
El Paso, Texas 79978

159

Re: Lindrith Unit Agreement.
Rio Arriba County, New Mexico
REQUEST FOR APPROVAL OF THE
TWENTY-SECOND AND TWENTY-THIRD
EXPANDED PARTICIPATING AREAS,
Pictured Cliffs Formation
Effective August 1, 1977 &
September 1, 1977 Respectively

ATTENTION: Mr. James R. Permenter

Gentlemen:

The Commissioner of Public Lands has this date approved your Twenty-Second and Twenty-Third Expanded Participating Areas, Pictured Cliffs formation for the Lindrith Unit, Rio Arriba County, New Mexico. This approval is as per your request of July 13, 1979 and your re-submittal of that same date. The USGS gave their approval November 14, 1979 and the OCD on August 21, 1979.

The twenty-second revision adds 160 acres described as the SW/4 Sec. 29, T. 24 N., R. 2 W., N.M.P.M. The twenty-third revision adds another 160 acres described as the SW/4 Sec. 28, T. 24 N., R. 2 W., N.M.P.M.

Enclosed is one approved copy for your files.

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/s
encl.

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



United States Department of the Interior

GEOLOGICAL SURVEY

P. O. Box 26124
Albuquerque, New Mexico 87125

159 NOV 14 1979

El Paso Natural Gas Company
Attention: Mr. James R. Permenter
P. O. Box 1492
El Paso, Texas 79978

Gentlemen:

Your application of July 13, 1978, requesting approval of the twenty-second and twenty-third revisions of the Pictured Cliffs participating area for the Lindrith unit agreement, Rio Arriba County, New Mexico, was approved on this date effective as of August 1, 1977 and September 1, 1977, respectively.

The twenty-second revision adds 160 acres described as the SW $\frac{1}{4}$ sec. 29, T. 24 N., R. 2 W., N.M.P.M. The twenty-third revision adds another 160 acres described as the SW $\frac{1}{4}$ sec. 28, T. 24 N., R. 2 W., N.M.P.M. With these revisions the Pictured Cliffs participating area is enlarged to 12,256.64 acres.

The revisions are based on the information obtained by the completion of unit wells No. 91 and No. 92 located in the SW $\frac{1}{4}$ sec 29 and the SW $\frac{1}{4}$ sec. 28, respectively both in T. 24 N., R. 2 W. Copies of the approved application are being distributed to the appropriate Federal offices and one approved copy is returned herewith. You are requested to furnish the State of New Mexico and all other interested parties with appropriate evidence of this approval.

Sincerely yours,

(ORIG. SCD.) JAMES W. SUTHERLAND

Area Oil and Gas Supervisor, SRMA

cc: NMOCD, Santa Fe (1tr only)✓



ONE HUNDRED YEARS OF EARTH SCIENCE IN THE PUBLIC SERVICE

OIL CONSERVATION DIVISION

P. O. BOX 2088

SANTA FE, NEW MEXICO 87501

August 21, 1979

El Paso Natural Gas Company
P. O. Box 1492
El Paso, Texas 79978

Attention: James R. Permenter

Re: Case No. 159
Lindrith Unit
Twenty-Second and
Twenty-Third Expanded
Participating Areas

Gentlemen:

We hereby approve the Twenty-Second and Twenty-Third Expanded Participating Areas for the Lindrith Unit, Rio Arriba County, New Mexico, subject to like approval by the United States Geological Survey and the Commissioner of Public Lands.

One approved copy of the Expanded Participating Areas is returned herewith.

Yours very truly,

JOE D. RAMEY
Director

JDR/EP/fd
enc.

cc: U.S.G.S. - Roswell
Commissioner of Public Lands

C
O
P
Y

El Paso NATURAL GAS
COMPANY

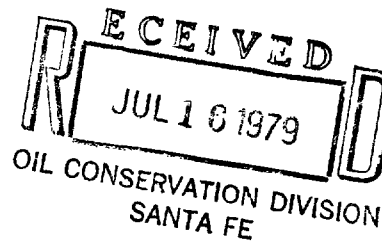
P. O. BOX 1492
EL PASO, TEXAS 79978
PHONE: 915-543-2600

July 13, 1979

Regional Oil and Gas Supervisor
United States Geological Survey
Drawer 1857
Roswell, New Mexico 88201

Commissioner of Public Lands
State of New Mexico
Post Office Box 1148
Santa Fe, New Mexico 87501

Oil Conservation Commission
State of New Mexico
Post Office Box 2088
Santa Fe, New Mexico 87501



Re: Lindrith Unit Agreement,
I Section No. 713
Rio Arriba County, New Mexico
REQUEST FOR APPROVAL OF THE
TWENTY-SECOND AND TWENTY-THIRD
EXPANDED PARTICIPATING AREAS,
Pictured Cliffs Formation
Effective August 1, 1977 &
September 1, 1977 Respectively

Gentlemen:

Pursuant to Section 10 of the Lindrith Unit Agreement, El Paso Natural Gas Company, as Unit Operator, submits for your approval the Twenty-Second & Twenty-Third Expanded Participating Areas for the Pictured Cliffs Formation, Lindrith Unit, Rio Arriba County, New Mexico, which includes in addition to the lands previously submitted, the following selection of lands reasonably estimated to be productive in paying quantities from the Pictured Cliffs Formation:

Twenty-Second Expanded Participating Area - Effective August 1, 1977

<u>Description of Lands</u>	<u>Acres</u>
<u>Township 24 North, Range 2 West, N.M.P.M.</u> Section 29: SW/4	160.00

The lands described above are proven productive by the following:

The Lindrith Unit, #91 Well, located 1130' from the South line and 1800' from the West line of Section 29, Township 24 North, Range 2 West, N.M.P.M., was spudded on June 14, 1977, and completed on July 27, 1977, at a total depth of 3138'. The Pictured Cliffs Formation at the intervals of 3056', 3059', 3070', 3072', 3074', 3083', and 3084' was treated with a sand-water fracturing process on June 27, 1977. The well was shut-in on July 20, 1977, and after being shut-in for seven (7) days, the Pictured Cliffs Formation was tested July 27, 1977, using the Pitot tube method with an after frac guage of 324 MCF/D, with an SIPC of 971 psia. The spacing unit for this well is described as the SW/4 of Section 29, Township 24 North, Range 2 West, N.M.P.M., containing 160.00 acres.

The effective date for the Twenty-Second Expanded Participating Area is determined as August 1, 1977, the first day of the month following the testing of the Lindrith Unit #91 Well.

Twenty Third Expanded Participating Area - Effective September 1, 1977

<u>Description of Lands</u>	<u>Acres</u>
<u>Township 24 North, Range 2 West, N.M.P.M.</u> <u>Section 28: SW/4</u>	160.00

The lands described above are proven productive by the following:

The Lindrith Unit #92 Well, located 1825' from the South line and 1475' from the West line of Section 28, Township 24 North, Range 2 West, N.M.P.M., was spudded on June 19, 1977, and completed on August 29, 1977, at a total depth of 3264'. The Pictured Cliffs Formation at the intervals of 3069', 3073', 3078', 3097', 3100', 3107' 3116', and 3120' was treated with a sand-water fracturing process of July 8, 1977. The well was shut-in on August 22, 1977, and after being shut-in for seven (7) days, the Pictured Cliffs Formation was tested on August 29, 1977 using the Pitot tube method with an after frac guage of 724 MCF/D, with an SIPC of 931 psia. The spacing unit for this well is described as the SW/4 of Section 28, Township 24 North, Range 2 West, N.M.P.M., containing 160.00 acres.

The effective date for the Twenty-Third Expanded Participating Area is determined as September 1, 1977, the first day of the month following the testing of the Lindrith Unit #92 Well.

Attached hereto are Schedules XXIII & XXIV showing the Twenty-Second and Twenty-Third Expanded Participating Areas for the Pictured Cliffs Formation in the Lindrith Unit Area. These schedules describe the Expanded Participating Areas, show the percentage of unitized substances allocated to each unitized tract, and the exact breakdown of percentage allocated to each tract according to the various ownership in said tract.

This application is being re-submitted in compliance with your letter dated September 1, 1978 (copy enclosed herewith) wherein you requested an additional six months of production data for re-evaluation purposes. For such information, please refer to Mr. Adams' letter dated August 22, 1978 (copy attached hereto), in addition to that which follows.

Lindrith Unit Well No. 91 produced 33 M²CF in the 20 month period from September, 1977 to April, 1979. Currently the well is producing 40 MCF/D with this production rate having stabilized, with a relatively slow decline.

Lindrith Unit Well No. 92 had produced 20 M²CF in the 19 month period from October, 1977 to April, 1979. Current production is 22 MCF/D and has stabilized at such rate.

If the Twenty-Second and Twenty-Third Expansions meet with your approval, please indicate such approval in the space provided on the attached sheet, and return an approved copy for our files.

A copy of this letter and attached schedules are being sent to the working interest owners indicated below.

Very truly yours,



James R. Permenter
Manager, Land Contracts
and Titles
Land Department
Exploration

JRP/JLM/sfg
Enclosures
Lindrith Unit 4.1

cc: Continental Oil Company
Post Office Box 460
Hobbs, New Mexico 88240

Attention: Mr. L. P. Thompson

Mobil Oil Company (3)
Post Office Box 633
Midland, Texas 79701

Attention: Mr. J. D. Howard

cc: Tenneco Oil
Suite 1200, Lincoln Tower Building
1860 Lincoln Street
Denver, Colorado 80203

Attention: Mr. D. D. Meyers

For Information Only

Commissioner of Public Lands
State of New Mexico
Post Office Box 1148
Santa Fe, New Mexico 87501

Oil Conservation Commission
State of New Mexico
Post Office Box 2088
Santa Fe, New Mexico 87501

✓
Joe Ramirez
8/21/79

THIS APPROVAL GRANTED SUBJECT TO LINE APPROVAL
BEING GRANTED BY THE UNITED STATES GEOLOGICAL
SURVEY AND BY THE COMMISSIONER OF PUBLIC LANDS
OF THE STATE OF NEW MEXICO.

El Paso NATURAL GAS
COMPANY

P. O. BOX 1492
EL PASO, TEXAS 79978
PHONE: 915-543-2600

August 22, 1978



Mr. Joe D. Ramey, Director
Energy and Minerals Department
P. O. Box 2088
Santa Fe, New Mexico 87501

Dear Mr. Ramey:

In response to your letter of August 14, 1978 to Mr. Permenter, regarding the Lindrith Unit #91 well, we are furnishing as scheduled below, the total history of production from the said well.

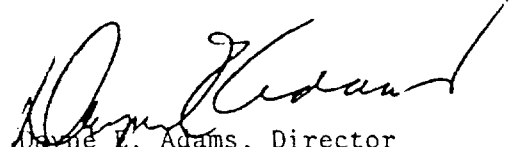
In addition to the production history as listed below, attached you will find the Economic Evaluation Summary Sheet for the Lindrith Unit #91. Listed on this evaluation sheet you will find our estimated present worth of future income discounted at 10% and the actual drilling cost.

Lindrith Unit #91			
<u>Months</u>	<u>Monthly Volume Mcf</u>	<u>Days Operated</u>	<u>Production Rate Mcf/D</u>
SEP 1977	2,536	14.8	171
OCT 1977	2,484	24.9	100
NOV 1977	2,221	24.0	93
DEC 1977	2,195	31.0	71
JAN 1978	2,120	31.0	68
FEB 1978	1,687	28.1	60
MAR 1978	1,852	31.0	60
APR 1978	1,575	30.0	53
MAY 1978	1,586	31.0	51
JUN 1978	1,569	30.1	52
JUL 1978	1,508	31.0	49
Total	21,333	306.9	70

- 2 -

If you have any additional questions, please contact me.

Cordially,



Wayne E. Adams, Director
Reservoir Engineering Dept.

:cc

Attachment

cc: Mr. Dick Isaacks

ECONOMIC EVALUATION SUMMARY SHEET

Lease and Well No. Lindrith Unit #91
 Producing Horizon Pictured Cliffs
 Field South Blanco

Net pay, ft. ()	NA
Average porosity, % ()	NA
Interstitial water saturation, % ()	NA
Gas saturation, % ()	NA
Gas specific gravity	NA
Bottom-hole temperature, °F.	NA
Calculated BHP, psia	NA
Estimated BHP, psia	NA
Gas compressibility, original	NA
Calculated recoverable reserves, M ² cf at 15.025 psia	200
Estimated stabilized deliverability, Mcf/D	67
Estimated average condensate recovery (Bbls./M ² cf)	NA
Estimated gross (8/8) 20 year condensate recovery, Bbls.	NA
Estimated gross (8/8) 20 year gas recovery, M ² cf	152
Net interest (excluding royalty and production payments), %	87.5
Estimated New Mexico production taxes, %	NA
Estimated average gas value per Mcf for 20 year period, \$	1.972
Estimated condensate value (net after trucking expense), \$/Bbl.	NA
Estimated annual operating expense, \$	600
Estimated total net income for 20 year period, \$	250,500
Combined average present worth factor for 20 years (gas and condensate)	NA
Average present worth factor for 20 year gas production (gas only)	.584
Estimated present worth of future income (discounted at 10%), \$	146,300
Estimated average cost of () single completion, \$ (Actual)	66,486
Estimated average cost of the () portion of a	
(-) dual completion in this area, \$	NA

El Paso NATURAL GAS
COMPANY

P. O. BOX 1492
EL PASO, TEXAS 79978
PHONE: 915-543-2600

January 29, 1979

United States Geological Survey
Drawe 1857
Roswell, New Mexico 88201

Commissioner of Public Lands
State of New Mexico
Post Office Box 1148
Santa Fe, New Mexico 87501

Oil Conservation Division ✓
State of New Mexico
Post Office Box 2088
Santa Fe, New Mexico 87501

Re: Lindrith Unit
Rio Arriba County, New Mexico
1979 Drilling Program

Gentlemen:

The 1979 Drilling Program for the referenced unit has been approved as follows:

United States Geological Survey	January 23, 1979
Commissioner of Public Lands	January 17, 1979
Oil Conservation Division	January 16, 1979

A copy of this letter has been furnished to the Lindrith Unit working interest owners.

Very truly yours,

Jeanne L. Morrison

Jeanne L. Morrison
Associate Landman
Land Department
Energy Resource Development

JLM/sfg
Lindrith Unit 3.0, 5.0

LINDRITH UNIT
WORKING INTEREST OWNERS

Continental Oil Company

Mobil Oil Corporation (3)

Tenneco Oil Company



United States Department of the Interior

GEOLOGICAL SURVEY

P. O. Box 26124
Albuquerque, New Mexico 87125

JAN 23 1979

El Paso Natural Gas Company
Attention: Mr. D. N. Canfield
P. O. Box 1492
El Paso, Texas 79978

No. 159

Gentlemen:

Three approved copies of your 1979 plan of development for the Lindrith unit area, Rio Arriba County, New Mexico, are enclosed. Such plan, proposing the drilling of four Pictured Cliffs wells, was approved on this date subject to like approval by the appropriate officials of the State of New Mexico.

Sincerely yours,

(ORIG. SGD.) JAMES W. SUTHERLAND

Oil and Gas Supervisor, SRMA

Enclosures (3)

CC: NMOCD, Santa Fe (1tr. only) ← This Copy for
Com. Pub. Lands, Santa Fe (1tr. only)

December 7, 1978

Regional Oil & Gas Supervisor
United States Geological Survey
Drawer 1857
Roswell, New Mexico 88201

Commissioner of Public Lands
State of New Mexico
Post Office Box 1148
Santa Fe, New Mexico 87501

Oil Conservation Commission
State of New Mexico
Post Office Box 2088
Santa Fe, New Mexico 87501

Re: Designation of Sub-Operator
Lindrith Unit, I Sec. No. 713
Rio Arriba County, New Mexico

Gentlemen:

Enclosed is the Designation of Sub-Operator dated November 30, 1978, wherein El Paso Natural Gas Company, as Operator of the Lindrith Unit, designates Odessa Natural Gas Corporation as Sub-Operator of the oil and gas operating rights under the W/2 Section 34, T-24-N, R-3-W, N.M.P.M., for the purpose of drilling two Dakota wells.

Very truly yours,



James R. Permenter
Manager, Land Contracts
and Titles
Land Department
Energy Resource Development

JRP/JLM/sfg
Enclosures
Lindrith Unit 4.3, 5.0

RECEIVED
OIL CONSERVATION COMMISSION
NOV 14 1978

DESIGNATION OF SUB-OPERATOR

THIS DESIGNATION is made and entered into this 30th day of November, 1978, by and between EL PASO NATURAL GAS COMPANY, a Delaware corporation, whose mailing address is Post Office Box 1492, El Paso, Texas 79999 (hereinafter sometimes referred to as "Operator"); and ODESSA NATURAL CORPORATION, a Texas corporation, whose mailing address is Post Office Box 3908, Odessa, Texas 79760 (hereinafter sometimes referred to as "Sub-Operator");

WHEREAS, Operator is Unit Operator for the Lindrith Unit, I Sec. No. 713, located in Rio Arriba County, New Mexico; and

WHEREAS, Sub-Operator desires to drill two Dakota wells on the following described lands situated in Rio Arriba County, New Mexico pursuant to the provisions of Section Twelve (12) of the Lindrith Unit Agreement, to-wit:

USA SF 078915

Township 24 North, Range 3 West, N.M.P.M.

Section 34: W/2

Containing 320.00 acres, more or less; and

WHEREAS, the above described land is committed to the terms and conditions of the Lindrith Unit Agreement and Lindrith Unit Operating Agreement; and

WHEREAS, Sub-Operator has been furnished Notice of Operator's election not to drill said Dakota wells as Unit Operator under the terms of the Unit Agreement; and

WHEREAS, the necessary concurrence has been obtained from the working interest owners in the above tracts; and

WHEREAS, Sub-Operator has requested that Operator execute this Designation in order that said Dakota wells may be drilled by Sub-Operator.

NOW, THEREFORE, in order to permit Odessa Natural Corporation to drill the above described Dakota wells, El Paso

Natural Gas Company, as Unit Operator of the Lindrith Unit, hereby designates the said Odessa Natural Corporation as Sub-Operator for the sole and only purpose of drilling the said Dakota wells on the above described lands pursuant to Section Twelve (12) of the Lindrith Unit Agreement.

Sub-Operator indicates its acceptance of this Designation by placing its signature in the space provided below and agrees to drill, complete and/or plug and abandon said Dakota wells as a reasonable and prudent operator in accordance with the terms and conditions of the Lindrith Unit Agreement and the Lindrith Unit Operating Agreement, and also agrees to the following conditions:

1. Unit Operator's representative shall approve all casing programs and equipment specifications prior to the drilling of the wells.
2. Notify Operator when drilling operations are commenced.
3. Furnish Operator with complete daily driller's tour report, at Sub-Operator's expense.
4. Furnish Operator with daily reports by telephone call or telegram at Sub-Operator's expense, as to the formation or formations penetrated during the previous day's drilling, the depth at which each formation is encountered, and the depth at which the report is made.
5. Allow representatives of Operator access to the derrick floor at all times.
6. Notify Operator of intentions to core, drillstem test or run well surveys in sufficient time to enable Operator's representatives to be present; and also notify Operator in sufficient time in order that Operator may attend and witness any and all potential tests.
7. Adequately test and/or core all possible productive formations to the satisfaction of Operator upon request.
8. Have any core having shows of oil or gas analyzed by a competent core analysis laboratory, and have such laboratory send three (3) preliminary copies and three (3) final copies of the analysis report to Operator.
9. Furnish Operator three (3) field prints and five (5) final prints of all well surveys made during drilling or upon completion of the well.
10. Furnish Operator a representative and adequate cut of all cores and ditch samples taken during the drill-

ing of the wells.

11. Provide Operator with copies of drilling time records, hole deviation tests and all records required by the governmental agencies having jurisdiction of the wells.

12. Notify Operator of any intention to plug and abandon any well and allow Operator forty-eight (48) hours in which to concur.

13. Sub-Operator shall carry and pay for and file with Operator for its approval proper and acceptable evidence of the following insurance:

a. Workmen's Compensation and/or Employer's Liability Insurance which shall comply with the laws of the State in which this Agreement is to be performed and shall cover all of its employees engaged in the activities to be performed under this Agreement.

b. Automobile Public Liability Insurance with not less than \$100/300,000.00 limits covering bodily injury and death, and property damage with a limit of not less than \$50,000.00 to cover all automotive equipment used in connection with performance of this Agreement.

c. Public Liability Insurance covering activities performed under this Agreement with bodily injury and death limits of \$100,000.00 as to any one person and \$300,000.00 as to any one accident. Property Damage Insurance with limits of \$50,000.00.

14. Furnish the United States Geological Survey and the Oil Conservation Commission of the State of New Mexico all proper and necessary reports and well data in the required numbers and time periods as specified by the United States Geological Survey and the Oil Conservation Commission of the State of New Mexico, with a copy to Operator at the addresses hereinafter provided.

15. Provide the Commissioner of Public Lands of the State of New Mexico with copies of all reports and other well data submitted in accordance with the preceding paragraph.

Sub-Operator shall comply with all applicable laws, rules and regulations of any governmental authority having jurisdiction over operations performed under this Designation, and shall indemnify, protect and hold Operator harmless from and against any and all claims, demands or causes of action for injuries or death to persons or damage to property occurring in connection with or in any manner incident to operations conducted by the Sub-Operator hereunder.

Sub-Operator and Operator agree that Sub-Operator

shall drill and complete or plug and abandon the subject Dakota wells pursuant to the provisions of the Lindrith Unit Operating Agreement.

The drilling of each said Dakota well is subject to approval by the Oil Conservation Commission of the State of New Mexico as to privately owned lands, the Commissioner of Public Lands of the State of New Mexico as to State lands, and the Supervisor of the United States Geological Survey, Roswell, New Mexico, as to Federal and/or Indian lands.

THIS DESIGNATION shall be effective for a period of time not to exceed one hundred eighty (180) days.

THIS DESIGNATION is personal and cannot be assigned in whole or in part by Sub-Operator without the written consent of Operator having first been obtained.

IN WITNESS WHEREOF, this Designation is executed as of the day and year first hereinabove written.

EL PASO NATURAL GAS COMPANY

By

T. W. Bittick
Vice President JTB

OPERATOR

ODESSA NATURAL CORPORATION

By

[Signature]
Vice President

SUB-OPERATOR

STATE OF TEXAS)
) ss.
COUNTY OF EL PASO)

The foregoing instrument was acknowledged before me on this the 30th day of November, 1978 by T. W. BITTICK, Vice President for EL PASO NATURAL GAS COMPANY, a Delaware corporation, on behalf of said corporation.

My Commission Expires:

JOHN F. GRIFF
Notary Public, State of Texas
My commission expires 2/21/80

[Signature]
Notary Public

STATE OF TEXAS)
) ss.
COUNTY OF ECTOR)

The foregoing instrument was acknowledged before me
on this the 4th day of December, 1978
by Roy W. Smith, Jr., Vice President of ODESSA
NATURAL CORPORATION, a Texas corporation, on behalf of said
corporation.

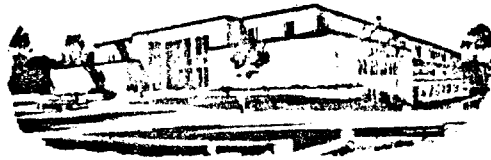
My Commission Expires:

August 17, 1979.

W. L. Ambler
Notary Public

NOTARY PUBLIC
Notary Public, State of Texas
My Commission Expires August 17, 1979

State of New Mexico



Commissioner of Public Lands

January 17, 1979

ALEX J. ARMIJO
COMMISSIONER

P. O. Box 1148
SANTA FE, NEW MEXICO

El Paso Natural Gas Company
P. O. Box 1492
El Paso, Texas 79978

159

Re: Lindrith Unit
Rio Arriba County, New Mexico
1979 DRILLING PROGRAM

ATTENTION: Mr. D. N. Canfield

Gentlemen:

The Commissioner of Public Lands has this date approved your 1979 Drilling Program for the Lindrith Unit, Rio Arriba County, New Mexico. Such plan calls for the drilling of four Pictured Cliffs wells during 1979. This approval is subject to like approval by the United States Geological Survey and the New Mexico Oil Conservation Commission.

Enclosed is one approved copy for your files.

Please remit a Three (\$3.00) Dollar filing fee.

Very truly yours,

ALEX J. ARMIJO
COMMISSIONER OF PUBLIC LANDS

BY:
RAY D. GRAHAM, Director
Oil and Gas Division

AJA/RDG/s
encls.
cc:

OCD-Santa Fe, New Mexico ✓
USGS-Roswell, New Mexico
USGS-Albuquerque, New Mexico

OIL CONSERVATION DIVISION

P. O. BOX 2088

SANTA FE, NEW MEXICO 87501

January 16, 1979

El Paso Natural Gas Company
P. O. Box 1492
El Paso, Texas 79978

Attention: D. N. Canfield

Re: Case No. 159
Lindrith Unit
1979 Drilling Program

Gentlemen:

We hereby approve the 1979 Drilling Program for the Lindrith Unit, Rio Arriba County, New Mexico, subject to like approval by the United States Geological Survey and the Commissioner of Public Lands.

One approved copy of the Drilling Program is returned herewith.

Yours very truly,

JOE D. RAMEY
Director

JDR/LT/fd
enc.

cc: U.S.G.S. - Roswell
Commissioner of Public Lands

C
O
P
Y

El Paso NATURAL GAS
COMPANY

P. O. BOX 1492
EL PASO, TEXAS 79978
PHONE: 915-543-2600

December 22, 1978
JAN 12 1979

United States Geological Survey
Drawer 1857
Roswell, New Mexico 88201

Commissioner of Public Lands
State of New Mexico
Post Office Box 1148
Santa Fe, New Mexico 87501

Oil Conservation Commission
State of New Mexico
Post Office Box 2088
Santa Fe, New Mexico 87501

*Approved
No. 159*

Re: Lindrith Unit I Section No. 713
Rio Arriba County, New Mexico
1979 DRILLING PROGRAM

Gentlemen:

By letter dated January 9, 1978, El Paso Natural Gas Company, as Unit Operator of the Lindrith Unit, filed a Drilling Program covering the subject Unit for the calendar year 1978 providing for the drilling of four (4) Pictured Cliffs wells. All four wells were timely drilled. All four (4) wells were drilled outside the Pictured Cliffs Participating Area and are currently being tested to determine whether or not each will be commercial, thereby causing an expansion.

As of this date, the total number of wells in the Lindrith Unit is as follows:

Pictured Cliffs (Gas)	80
Pictured Cliffs (Non-commercial)	5
Dakota	1
Gallup	1
Plugged and Abandoned	<u>12</u>
	99

Pursuant to Section 9 of the Lindrith Unit Agreement, El Paso Natural Gas Company, as Unit Operator, is submitting this Drilling Program providing for the drilling of the following wells during the calendar year 1979.

<u>Well No.</u>	<u>Drilling Block</u>	<u>Formation</u>
#96	NE/4 Sec. 8, T-24-N, R-2-W	Pictured Cliffs
#97	SW/4 Sec. 9, T-24-N, R-2-W	Pictured Cliffs
#98	SW/4 Sec. 3, T-24-N, R-3-W	Pictured Cliffs
#99	NW/4 Sec. 36, T-24-N, R-3-W	Pictured Cliffs

All working interest owners have been contacted, and this Drilling Program reflects their desires. El Paso Natural Gas Company, as Unit Operator, and the working interest owners believe that all current obligations have been satisfied.

El Paso Natural Gas Company, as unit operator, plans to drill any offset wells required to prevent drainage of unitized substances and any other wells deemed necessary or desirable by the Unit Operator and the working interest owners.

If this Drilling Program is acceptable, please signify your approval as required under Section 10 of the Unit Agreement in the space provided on the attached sheet and return an approved copy to El Paso Natural Gas Company.

Copies of this letter are being sent to the working interest owners shown on the attached sheet.

Very truly yours,



D. N. Canfield *sen*
Director of Land
Energy Resource Development

DNC/JLM/sfg
Attachments
Lindrith Unit, 3.0

cc: Mobil Oil Corporation
Attention: Mr. J. D. Howard
P. O. Box 633
Midland, Texas 79701

Tenneco Oil Company
Attention: Mr. A. D. Rial
Suite 1200, Lincoln Tower Bldg.
1860 Lincoln Street
Denver, Colorado 80203


Continental Oil Company
Attention: Mr. L. P. Thompson
P. O. Box 460
Hobbs, New Mexico 88240

APPROVED: _____
Area Oil & Gas Supervisor
United States Geological Survey
Subject to like approval by the
Commissioner of Public Lands and
the Oil Conservation Commission

DATE: _____

APPROVED: _____
Commissioner of Public Lands
Subject to like approval by the
United States Geological Survey
and the Oil Conservation Commission

DATE: _____

APPROVED:  _____
Oil Conservation Commission
Subject to like approval by the
United States Geological Survey
and the Commissioner of Public Lands

DATE: 1/16/79

The foregoing approvals are for the 1979 Drilling Program for the
Lindrith Unit, I Sec. No. 713, Rio Arriba County, New Mexico.

LINDRITH UNIT
WORKING INTEREST OWNERS

Continental Oil Company

Mobil Oil Corporation (3)

Tenneco Oil Company

December 7, 1978

Regional Oil & Gas Supervisor
United States Geological Survey
Drawer 1857
Roswell, New Mexico 88201

Commissioner of Public Lands
State of New Mexico
Post Office Box 1148
Santa Fe, New Mexico 87501

Oil Conservation Commission
State of New Mexico
Post Office Box 2088
Santa Fe, New Mexico 87501

No. 159

Re: Designation of Sub-Operator
Lindrith Unit, I Sec. No. 713
Rio Arriba County, New Mexico

Gentlemen:

Enclosed is the Designation of Sub-Operator dated November 30, 1978, wherein El Paso Natural Gas Company, as Operator of the Lindrith Unit, designates Odessa Natural Gas Corporation as Sub-Operator of the oil and gas operating rights under the W/2 Section 34, T-24-N, R-3-W, N.M.P.M., for the purpose of drilling two Dakota wells.

Very truly yours,



James R. Permenter
Manager, Land Contracts
and Titles
Land Department
Energy Resource Development

CF Permenter

JRP/JLM/sfg
Enclosures
Lindrith Unit 4.3, 5.0

DESIGNATION OF SUB-OPERATOR

THIS DESIGNATION is made and entered into this 30th day of November, 1978, by and between EL PASO NATURAL GAS COMPANY, a Delaware corporation, whose mailing address is Post Office Box 1492, El Paso, Texas 79999 (hereinafter sometimes referred to as "Operator"); and ODESSA NATURAL CORPORATION, a Texas corporation, whose mailing address is Post Office Box 3908, Odessa, Texas 79760 (hereinafter sometimes referred to as "Sub-Operator");

WHEREAS, Operator is Unit Operator for the Lindrith Unit, I Sec. No. 713, located in Rio Arriba County, New Mexico; and

WHEREAS, Sub-Operator desires to drill two Dakota wells on the following described lands situated in Rio Arriba County, New Mexico pursuant to the provisions of Section Twelve (12) of the Lindrith Unit Agreement, to-wit:

USA SF 078915

Township 24 North, Range 3 West, N.M.P.M.

Section 34: W/2

Containing 320.00 acres, more or less; and

WHEREAS, the above described land is committed to the terms and conditions of the Lindrith Unit Agreement and Lindrith Unit Operating Agreement; and

WHEREAS, Sub-Operator has been furnished Notice of Operator's election not to drill said Dakota wells as Unit Operator under the terms of the Unit Agreement; and

WHEREAS, the necessary concurrence has been obtained from the working interest owners in the above tracts; and

WHEREAS, Sub-Operator has requested that Operator execute this Designation in order that said Dakota wells may be drilled by Sub-Operator.

NOW, THEREFORE, in order to permit Odessa Natural Corporation to drill the above described Dakota wells, El Paso

Natural Gas Company, as Unit Operator of the Lindrith Unit, hereby designates the said Odessa Natural Corporation as Sub-Operator for the sole and only purpose of drilling the said Dakota wells on the above described lands pursuant to Section Twelve (12) of the Lindrith Unit Agreement.

Sub-Operator indicates its acceptance of this Designation by placing its signature in the space provided below and agrees to drill, complete and/or plug and abandon said Dakota wells as a reasonable and prudent operator in accordance with the terms and conditions of the Lindrith Unit Agreement and the Lindrith Unit Operating Agreement, and also agrees to the following conditions:

1. Unit Operator's representative shall approve all casing programs and equipment specifications prior to the drilling of the wells.
2. Notify Operator when drilling operations are commenced.
3. Furnish Operator with complete daily driller's tour report, at Sub-Operator's expense.
4. Furnish Operator with daily reports by telephone call or telegram at Sub-Operator's expense, as to the formation or formations penetrated during the previous day's drilling, the depth at which each formation is encountered, and the depth at which the report is made.
5. Allow representatives of Operator access to the derrick floor at all times.
6. Notify Operator of intentions to core, drillstem test or run well surveys in sufficient time to enable Operator's representatives to be present; and also notify Operator in sufficient time in order that Operator may attend and witness any and all potential tests.
7. Adequately test and/or core all possible productive formations to the satisfaction of Operator upon request.
8. Have any core having shows of oil or gas analyzed by a competent core analysis laboratory, and have such laboratory send three (3) preliminary copies and three (3) final copies of the analysis report to Operator.
9. Furnish Operator three (3) field prints and five (5) final prints of all well surveys made during drilling or upon completion of the well.
10. Furnish Operator a representative and adequate cut of all cores and ditch samples taken during the drill-

ing of the wells.

11. Provide Operator with copies of drilling time records, hole deviation tests and all records required by the governmental agencies having jurisdiction of the wells.

12. Notify Operator of any intention to plug and abandon any well and allow Operator forty-eight (48) hours in which to concur.

13. Sub-Operator shall carry and pay for and file with Operator for its approval proper and acceptable evidence of the following insurance:

a. Workmen's Compensation and/or Employer's Liability Insurance which shall comply with the laws of the State in which this Agreement is to be performed and shall cover all of its employees engaged in the activities to be performed under this Agreement.

b. Automobile Public Liability Insurance with not less than \$100/300,000.00 limits covering bodily injury and death, and property damage with a limit of not less than \$50,000.00 to cover all automotive equipment used in connection with performance of this Agreement.

c. Public Liability Insurance covering activities performed under this Agreement with bodily injury and death limits of \$100,000.00 as to any one person and \$300,000.00 as to any one accident. Property Damage Insurance with limits of \$50,000.00.

14. Furnish the United States Geological Survey and the Oil Conservation Commission of the State of New Mexico all proper and necessary reports and well data in the required numbers and time periods as specified by the United States Geological Survey and the Oil Conservation Commission of the State of New Mexico, with a copy to Operator at the addresses hereinafter provided.

15. Provide the Commissioner of Public Lands of the State of New Mexico with copies of all reports and other well data submitted in accordance with the preceding paragraph.

Sub-Operator shall comply with all applicable laws, rules and regulations of any governmental authority having jurisdiction over operations performed under this Designation, and shall indemnify, protect and hold Operator harmless from and against any and all claims, demands or causes of action for injuries or death to persons or damage to property occurring in connection with or in any manner incident to operations conducted by the Sub-Operator hereunder.

Sub-Operator and Operator agree that Sub-Operator

shall drill and complete or plug and abandon the subject Dakota wells pursuant to the provisions of the Lindrith Unit Operating Agreement.

The drilling of each said Dakota well is subject to approval by the Oil Conservation Commission of the State of New Mexico as to privately owned lands, the Commissioner of Public Lands of the State of New Mexico as to State lands, and the Supervisor of the United States Geological Survey, Roswell, New Mexico, as to Federal and/or Indian lands.

THIS DESIGNATION shall be effective for a period of time not to exceed one hundred eighty (180) days.

THIS DESIGNATION is personal and cannot be assigned in whole or in part by Sub-Operator without the written consent of Operator having first been obtained.

IN WITNESS WHEREOF, this Designation is executed as of the day and year first hereinabove written.

EL PASO NATURAL GAS COMPANY

By

T. W. Bittick
Vice President

JTB

OPERATOR

ODESSA NATURAL CORPORATION

By

[Signature]
Vice President

SUB-OPERATOR

STATE OF TEXAS)
) ss.
COUNTY OF EL PASO)

The foregoing instrument was acknowledged before me on this the 30th day of November, 1978 by T. W. BITTICK, Vice President for EL PASO NATURAL GAS COMPANY, a Delaware corporation, on behalf of said corporation.

My Commission Expires:

NOTARY PUBLIC
My Commission Expires 2-21-80

[Signature]
Notary Public

STATE OF TEXAS)
) ss.
COUNTY OF ECTOR)

The foregoing instrument was acknowledged before me
on this the 4th day of December, 1978
by Roy L. Smith, Jr., Vice President of ODESSA
NATURAL CORPORATION, a Texas corporation, on behalf of said
corporation.

My Commission Expires:

August 17, 1979..

W. W. W. W. W.
Notary Public

NOTARY PUBLIC
Notary Public, State of Texas
My Commission Expires August 17, 1979

OIL CONSERVATION DIVISION

P. O. BOX 2088

SANTA FE, NEW MEXICO 87501

August 14, 1978

El Paso Natural Gas Company
P. O. Box 1492
El Paso, Texas 79978

Attention: James R. Permenter

Re: Case No. 159
Lindrith Unit
Twenty-Third Expanded
Participating Area for
Pictured Cliffs Formation

Gentlemen:

We hereby approve the Twenty-Third Expanded Participating Area for the Pictured Cliffs Formation for the Lindrith Unit, Rio Arriba County, New Mexico, subject to like approval by the United States Geological Survey and the Commissioner of Public Lands.

However, it is unclear whether the Lindrith Unit Well No. 91 can be "reasonably estimated to be productive in paying quantities from the Pictured Cliffs formation." Therefore, the Division is not approving your Twenty-Second expansion at this time. Please resubmit your application when you can furnish us with six months' production history on the well. With that information we should be better able to make a decision approving or not approving the proposed expansion.

Very truly yours,

JOE D. RAMEY
Director

JDR/LT/fd

cc: U.S.G.S. - Roswell
Commissioner of Public Lands

C
O
P
Y

Memo

From

R. L. STAMETS
TECHNICAL
SUPPORT CHIEF

To Lynn

Without info as to the cost of these two wells, monthly operating costs and pressure decline curves on offset wells plus the price per mcf it is difficult to tell if these are commercial wells.

If the wells cost \$100,000 and they made a profit of \$1.00 per mcf it would take 8 years to pay out.

OIL CONSERVATION COMMISSION-SANTA FE

El Paso NATURAL GAS
COMPANY

P. O. BOX 1492
EL PASO, TEXAS 79978
PHONE: 915-543-2600

July 5, 1978

Regional Oil & Gas Supervisor
United States Geological Survey
Drawer 1857
Roswell, New Mexico 88201

Commissioner of Public Lands
State of New Mexico
Post Office Box 1148
Santa Fe, New Mexico 87501

Oil Conservation Commission ✓
State of New Mexico
Post Office Box 2088
Santa Fe, New Mexico 87501

mo. 159

Re: Lindrith Unit Agreement,
I Section No. 713
Rio Arriba County, New Mexico
REQUEST FOR APPROVAL OF THE
TWENTY-SECOND AND TWENTY-THIRD
EXPANDED PARTICIPATING AREAS,
Pictured Cliffs Formation
Effective August 1, 1977 &
September 1, 1977 Respectively

Gentlemen:

Pursuant to Section 10 of the Lindrith Unit Agreement, El Paso Natural Gas Company, as Unit Operator, submits for your approval the Twenty-Second & Twenty-Third Expanded Participating Areas for the Pictured Cliffs Formation, Lindrith Unit, Rio Arriba County, New Mexico, which includes in addition to the lands previously submitted, the following selection of lands reasonably estimated to be productive in paying quantities from the Pictured Cliffs Formation:

Twenty-Second Expanded Participating Area - Effective August 1, 1977

<u>Description of Lands</u>	<u>Acres</u>
<u>Township 24 North, Range 2 West, N.M.P.M.</u> Section 29: SW/4	160.00

The lands described above are proven productive by the following:

The Lindrith Unit, #91 Well, located 1130' from the South line and 1800' from the West line of Section 29, Township 24 North, Range 2 West, N.M.P.M., was spudded on June 14, 1977, and completed on July 27, 1977, at a total depth of 3138'. The Pictured Cliffs Formation at the intervals of 3056', 3059', 3070', 3072', 3074', 3083', and 3084' was treated with a sand-water fracturing process on June 27, 1977. The well was shut-in on July 20, 1977, and after being shut-in for seven (7) days, the Pictured Cliffs Formation was tested July 27, 1977, using the Pitot tube method with an after frac guage of 324 MCF/D, with an SIPC of 971 psia. The spacing unit for this well is described as the SW/4 of Section 29, Township 24 North, Range 2 West, N.M.P.M., containing 160.00 acres.

The effective date for the Twenty-Second Expanded Participating Area is determined as August 1, 1977, the first day of the month following the testing of the Lindrith Unit #91 Well.

23rd Twenty-Third Expanded Participating Area - Effective September 1, 1977

<u>Description of Lands</u>	<u>Acres</u>
<u>Township 24 North, Range 2 West, N.M.P.M.</u> <u>Section 28: SW/4</u>	160.00

The lands described above are proven productive by the following:

The Lindrith Unit #92 Well, located 1825' from the South line and 1475' from the West line of Section 28, Township 24 North, Range 2 West, N.M.P.M., was spudded on June 19, 1977, and completed on August 29, 1977, at a total depth of 3264'. The Pictured Cliffs Formation at the intervals of 3069', 3073', 3078', 3097', 3100', 3107', 3116', and 3120' was treated with a sand-water fracturing process of July 8, 1977. The well was shut-in on August 22, 1977, and after being shut-in for seven (7) days, the Pictured Cliffs Formation was tested on August 29, 1977 using the Pitot tube method with an after frac guage of 724 MCF/D, with an SIPC of 931 psia. The spacing unit for this well is described as the SW/4 of Section 28, Township 24 North, Range 2 West, N.M.P.M., containing 160.00 acres.

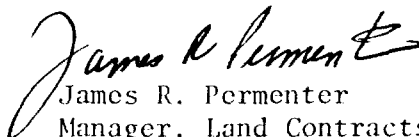
The effective date for the Twenty-Third Expanded Participating Area is determined as September 1, 1977, the first day of the month following the testing of the Lindrith Unit #92 Well.

Attached hereto are Schedules XXIII & XXIV showing the Twenty-Second and Twenty-Third Expanded Participating Areas for the Pictured Cliffs Formation in the Lindrith Unit Area. These schedules describe the Expanded Participating Areas, show the percentage of unitized substances allocated to each unitized tract, and the exact breakdown of percentage allocated to each tract according to the various ownership in said tract.

If the Twenty-Second and Twenty-Third Expansions meet with your approval, please indicate such approval in the space provided on the attached sheet, and return an approved copy for our files.

A copy of this letter and attached schedules are being sent to the working interest owners indicated below.

Very truly yours,



James R. Permenter
Manager, Land Contracts
and Titles
Land Department
Energy Resource Development

JRP/DM/sf

Enclosures

Lindrith Unit 4.1

cc: Continental Oil Company
Post Office Box 460
Hobbs, New Mexico 88240
Attention: Mr. L. P. Thompson

Mobil Oil Company (3)
Post Office Box 633
Midland, Texas 79701
Attention: Mr. J. D. Howard

Tenneco Oil Company
Suite 1200, Lincoln Tower Building
1860 Lincoln Street
Denver, Colorado 80203
Attention: Mr. D. D. Meyers

APPROVED: _____
Regional Oil & Gas Supervisor
United States Geological Survey
Subject to like approval by the
Commissioner of Public Lands and
the Oil Conservation Commission

DATE: _____

APPROVED: _____
Commissioner of Public Lands
Subject to like approval by the
United States Geological Survey
and the Oil Conservation Commission

DATE: _____

APPROVED: _____
Oil Conservation Commission
Subject to like approval by the
United States Geological Survey
and the Commissioner of Public Lands

DATE: _____

EXHIBIT "B"

GEOLOGICAL REPORT CONCERNING

THE TWENTY-THIRD EXPANSION

OF THE PICTURED CLIFFS FORMATION IN THE

EL PASO NATURAL GAS COMPANY

LINDRITH UNIT

EL PASO NATURAL GAS COMPANY

By: R. F. Lemon
R. F. Lemon, Director
Reservoir Engineering Dept.

EXHIBIT "B"

GEOLOGICAL SUMMARY PERTAINING TO THE TWENTY-THIRD EXPANSION OF THE PICTURED CLIFFS PARTICIPATING AREA WITHIN THE LINDRITH UNIT

GENERAL INFORMATION

The Pictured Cliffs formation within the Lindrith Unit of Rio Arriba County, New Mexico is of upper Cretaceous age and is considered to be predominantly sandstone deposited in bands of varying widths. These bands have a northwest-southeast trend and are separated by zones of shaly sandstones and/or bentonitic sandstones. The Pictured Cliffs formation is erratic in development and abrupt "shale-out" of the sand can occur as well as rapid local thickening. This can cause great variance in well potentials as evidenced in the Lindrith Unit Area. Enclosed with this report is a structure map, Exhibit "C", Figure No. 1, and an isopach map as Exhibit "C", Figure No. 2.

TWENTY-THIRD EXPANSION

Effective Date: September 1, 1977

SW/4 Section 28, T-24-N, R-2-W Lindrith No. 92

The Lindrith No. 92 well was tested on August 29, 1977 for an initial wellhead shut-in pressure of 931 psia and an after frac flow gauge of 724 Mcf/D. On the basis of this test, the acreage is proven commercial and should be admitted to the Participating Area. This is further substantiated by the Isopach map, Exhibit "C", Figure No. 2, which shows the above acreage to be located on the established trend of commercial production and to have an average net pay of greater than 10 feet.

SCHEDULE XXIII
TWENTY-SECOND EXPANDED PARTICIPATING AREA FOR THE PICTURED CLIFFS FORMATION
LINDRITH UNIT AREA

TRAL NUMBER	DESCRIPTION	NUMBER OF ACRES	DRILLING BLOCK		PERCENTAGE COMMITTED	PRESENT AC PARTICIPAT
			OWNERSHIP	PERCENTAGE		
3F 078908	T-24-N, R-2-W Sec. 18: Lots 1,2,4, E/2 NW/4, SE/4 SW/4	227.88	Royalty; Working Interest: El Paso Natural Gas Co.; ORRI;	12.50% 75.00% 12.50% 100.00%	12.50% 75.00% 12.50% 100.00%	1.902704%
			TOTAL			
			<u>TRACT 2</u>			
F 078909	T-24-N, R-2-W Sec. 19: Lots 3,4, E/2 SW/4, SE/4 Sec. 20: A11 Sec. 21: S/2 Sec. 30: Lots 1,2, E/2 NW/4, NE/4 T-24-N, R-3-W Sec. 24: E/2 SE/4	1664.29	Royalty; Working Interest: El Paso Natural Gas Co.; ORRI;	12.50% 75.00% 12.50% 100.00%	12.50% 75.00% 12.50% 100.00%	13.896134%
			TOTAL			
			<u>TRACT 3</u>			
078910	T-24-N, R-2-W Sec. 28: NE/4, SE/4, N/2 NW/4 Sec. 29: NE/4 Sec. 30: Lots 3,4, E/2 SW/4, SE/4 Sec. 31: Lots 1,2,3,4, E/2 W/2, E/2 Sec. 32: SE/4, W/2 T-24-N, R-3-W Sec. 24: SW/4, W/2 SE/4	2216.53	Royalty; Working Interest: El Paso Natural Gas Co.; ORRI;	12.50% 75.00% 12.50% 100.00%	12.50% 75.00% 12.50% 100.00%	18.507110%
			TOTAL			
			<u>TRACT 4</u>			

SCHEDULE XXIII

SERIAL NUMBER	DESCRIPTION	NUMBER OF ACRES	DRILLING BLOCK		PERCENTAGE COMMITTED	PRESENT AC PARTICIPATION
			OWNERSHIP	PERCENTAGE		

SF 078912 T-24-N, R-3-W 2080.00

Sec. 10: S/2 Royalty; 12.50% 12.50% 17.367141%

Sec. 11: E/2, E/2 SW/4 Working Interest; 75.00% 75.00%

Sec. 12: SW/4, NW/4 NW/4, E/2 SE/4, NW/4 SE/4 El Paso Natural Gas Co.; 12.50% 12.50%

Sec. 13: E/2 NW/4, NW/4 S/2 SE/4, NW/4 SE/4 ORRI; 100.00% 100.00%

Sec. 14: E/2, S/2 SW/4 NE/4 TOTAL 100.00%

Sec. 24: NW/4, W/2 NE/4, SE/4 NE/4

TRACT 6

TRACT 7

SF 078913 T-24-N, R-3-W 2080.00

Sec. 15: All Royalty; 12.50% 12.50% 17.367141%

Sec. 16: All Working Interest; 75.00% 75.00%

Sec. 21: W/2, NE/4 El Paso Natural Gas Co.; 12.50% 12.50%

Sec. 22: N/2 ORRI; 100.00% 100.00%

TRACT 8

TRACT 9

SF 078914 T-24-N, R-3-W 640.00

Sec. 25: All Royalty; 12.50% 12.50% 5.343736%

Working Interest; 75.00% 75.00%

El Paso Natural Gas Co.; 12.50% 12.50%

ORRI; 100.00% 100.00%

TOTAL 100.00%

TRACT 10

TRACT 11

TRACT 12

TRACT 13

TRACT 14

TRACT 15

TRACT 16

TRACT 17

TRACT 18

TRACT 19

TRACT 20

TRACT 21

TRACT 22

TRACT 23

TRACT 24

333984%

SCHEDULE XXIII

SERIAL NUMBER	DESCRIPTION	NUMBER OF ACRES	DRILLING BLOCK		PERCENTAGE COMMITTED	PRESENT A. PARTICIPA
			OWNERSHIP	PERCENTAGE		
<u>TRACT 16</u>						
ented	T-24-N, R-2-W Sec. 18: Lot 3, NE/4 SW/4	75.96	Royalty; Working Interest: El Paso Natural Gas Co.; ORRI;	12.50% 75.00% 12.50% 100.00%	12.50% 75.00% 12.50% 100.00%	<u>.634235%</u>
<u>TRACT 17</u>						
ented	T-24-N, R-3-W Sec. 9: All	640.00	Royalty; Working Interest: El Paso Natural Gas Co.; ORRI;	12.50% 75.00% 12.50% 100.00%	12.50% 75.00% 12.50% 100.00%	<u>5.343736%</u>
<u>TRACT 18</u>						
ented	T-24-N, R-2-W Sec. 19: Lots 1,2, E/2 NW/4, NE/4	311.98	Royalty; Working Interest: El Paso Natural Gas Co.; ORRI;	12.50% 75.00% 12.50% 100.00%	6.25% 75.00% 12.50% 93.75%	<u>2.604904%</u>
<u>TRACT 19</u>						
ented	T-24-N, R-3-W Sec. 13: SW/4 NW/4, N/2 S/2, S/2 SE/4 Sec. 24: NE/4 NE/4	320.00	Royalty; Working Interest: El Paso Natural Gas Co.; ORRI;	12.50% 75.00% 12.50% 100.00%	12.50% 75.00% 12.50% 100.00%	<u>2.671868%</u>

SCHEDULE XXIII

SERIAL NUMBER	DESCRIPTION	NUMBER OF ACRES	DRILLING BLOCK		PERCENTAGE COMMITTED	PRESENT AC PARTICIPA
			OWNERSHIP	PERCENTAGE		
Patented	T-24-N, R-2-W	160.00	*Royalty; Working Interest: El Paso Natural Gas Co.; ORRI;	12.50%	12.50%	<u>1.335934%</u>
	Sec. 9: NW/4			81.25%	81.25%	
				6.25%	6.25%	
				<u>100.00%</u>	<u>100.00%</u>	
	TOTAL					
			TRACT 24			
Patented	T-24-N, R-3-W	320.00	*Royalty; Working Interest: El Paso Natural Gas Co.; ORRI;	12.50%	00.00%	<u>2.671868%</u>
	Sec. 14: NW/4,			75.00%	75.00%	
	N/2 SW/4			12.50%	12.00%	
				<u>100.00%</u>	<u>87.00%</u>	
	Sec. 11: W/2 SW/4					
			TOTAL			
			TRACT 25			
Patented	T-24-N, R-2-W	160.00	Royalty; Working Interest: El Paso Natural Gas Co.; ORRI;	12.50%	3.125%	<u>1.335934%</u>
	Sec. 21: NW/4			75.00%	75.000%	
				12.50%	12.500%	
				<u>100.00%</u>	<u>90.625%</u>	
	TOTAL					
			TRACT 27			
Patented	T-24-N, R-3-W	160.00	Royalty; Working Interest: El Paso Natural Gas Co.; ORRI;	12.50%	12.50%	<u>1.335934%</u>
	Sec. 12: NE/4 SE/4,			75.00%	75.00%	
	S/2 NW/4,			12.50%	12.50%	
	NE/4 NW/4			<u>100.00%</u>	<u>100.00%</u>	
	TOTAL					

*Royalty interest not committed to Lindrith Unit

SCHEDULE XXIII
 TWENTY-FIRST EXPANDED PARTICIPATING AREA FOR THE PICTURED CLIFFS FORMATION
 LINDRITH UNIT AREA

RECAPITULATION

Description of Lands in Participating Area;

Township 24 North, Range 2 West, N.M.P.M.
Section 9: NW/4
 Section 18: Lots 1,2,3,4, E/2 W/2 (W/2)
 Section 19: A11
 Section 20: A11
 Section 21: W/2, SE/4
 Section 28: N/2, SE/4
 Section 29: N/2, SW/4
 Section 30: A11
 Section 31: A11
 Section 32: SE/4, W/2

Township 24 North, Range 3 West, N.M.P.M.
Section 9: A11
 Section 10: S/2
 Section 11: E/2, SW/4
 Section 12: SE/4, W/2
 Section 13: A11
 Section 14: A11
 Section 15: A11
 Section 16: A11
 Section 21: W/2, NE/4
 Section 22: N/2
 Section 23: N/2, SE/4
 Section 24: A11
 Section 25: A11
 Section 36: NE/4

Total Number of Acres in Participating Area:	12,096.64
Total Number of Acres Participating:	11,976.64

SCHEDULE XXIV
 TWENTY-THIRD EXPANDED PARTICIPATING AREA FOR THE PICTURED CLIFFS FORMATION
 LINDRITH UNIT AREA

TRIAL NUMBER	DESCRIPTION	NUMBER OF ACRES	DRILLING BLOCK		PERCENTAGE COMMITTED	PRESENT A PARTICIPA
			OWNERSHIP	PERCENTAGE		

SF 078908 T-24-N, R-2-W 227.88

Sec. 18: Lots 1,2,4,
 E/2 NW/4,
 SE/4 SW/4

Royalty;
 Working Interest:
 El Paso Natural Gas Co.;
 ORRI;

TOTAL

12.50% 12.50% 1.890079%

75.00% 75.00%
 12.50% 12.50%
 100.00% 100.00%

TRACT 2

TRACT 3

SF 078909 T-24-N, R-2-W 1664.29

Sec. 19: Lots 3,4,
 E/2 SW/4, SE/4

Sec. 20: A11

Sec. 21: S/2

Sec. 30: Lots 1,2, E/2
 NW/4, NE/4

T-24-N, R-3-W

Sec. 24: E/2 SE/4

Royalty;
 Working Interest:
 El Paso Natural Gas Co.;
 ORRI;

TOTAL

12.50% 12.50% 13.803929%

75.00% 75.00%
 12.50% 12.50%
 100.00% 100.00%

SF 078910 T-24-N, R-2-W 2216.53

Sec. 28: NE/4, SE/4,
 N/2 NW/4

Sec. 29: NE/4

Sec. 30: Lots 3,4,
 E/2 SW/4, SE/4

Sec. 31: Lots 1,2,3,4,
 E/2 W/2, E/2

Sec. 32: SE/4, W/2

T-24-N, R-3-W

Sec. 24: SW/4, W/2 SE/4

Royalty;
 Working Interest:
 El Paso Natural Gas Co.;
 ORRI;

TOTAL

12.50% 12.50% 18.384309%

75.00% 75.00%
 12.50% 12.50%
 100.00% 100.00%

TRACT 4

SCHEDULE XXIV

SERIAL NUMBER	DESCRIPTION	NUMBER OF ACRES	DRILLING BLOCK		PERCENTAGE COMMITTED	PRESENT PARTICIPATION
			OWNERSHIP	PERCENTAGE		
SF 078912	T-24-N, R-3-W	2080.00				
	Sec. 10: S/2		Royalty;	12.50%	12.50%	17.251904%
	Sec. 11: E/2, E/2 SW/4		Working Interest:			
	Sec. 12: SW/4, NW/4, NW/4, S/2 SE/4, NW/4 SE/4		El Paso Natural Gas Co.;	75.00%	75.00%	
	Sec. 13: E/2 NW/4, NW/4, NW/4, S/2 SW/4, NE/4		ORRI;	12.50%	12.50%	
SF 078913	Sec. 14: E/2, S/2 SW/4		TOTAL	100.00%	100.00%	
	Sec. 24: NW/4, W/2 NE/4, SE/4 NE/4					
	T-24-N, R-3-W	2080.00				
	Sec. 15: All		Royalty;	12.50%	12.50%	17.251904%
SF 078914	Sec. 16: All		Working Interest:	75.00%	75.00%	
	Sec. 21: W/2, NE/4		El Paso Natural Gas Co.;	12.50%	12.50%	
	Sec. 22: N/2		ORRI;	100.00%	100.00%	
			TOTAL	100.00%	100.00%	
			TRACT 7			
SF 078914	T-24-N, R-3-W	640.00				
	Sec. 25: All		Royalty;	12.50%	12.50%	5.308278%
			Working Interest:			
			El Paso Natural Gas Co.;	75.00%	75.00%	
			ORRI;	12.50%	12.50%	
			TOTAL	100.00%	100.00%	
			TRACT 8			

Effective September 1, 1977

SCHEDULE XXIV

SERIAL NUMBER	DESCRIPTION	NUMBER OF ACRES	DRILLING BLOCK		PERCENTAGE COMMITTED	PRESENT PARTICIP
			OWNERSHIP	PERCENTAGE		
TRACT 9						
SF 078915	T-24-N, R-3-W	640.00	Royalty;	12.50%	12.50%	5.308278%
	Sec. 23: NW/4, E/2		Working Interest:	75.00%	75.00%	
	Sec. 36: NE/4		El Paso Natural Gas Co.;	12.50%	12.50%	
			ORRI;	100.00%	100.00%	
TRACT 13						
Patented	T-24-N, R-2-W	*320.00	Royalty;	9.375%	6.250%	1.990604%
	Sec. 29: NW/4, SW/4		Working Interest:	56.250%	56.250%	
	*Undivided 240.00		El Paso Natural Gas Co.;	25.000%	.000%	
	net acres committed		Felmont Oil Co.;	9.375%	9.375%	
			ORRI;	100.000%	71.875%	
TRACT 13-B						
Patented	T-24-N, R-2-W	*240.00	Royalty;	6.250%	6.250%	.995302%
	Sec. 28: S/2 NW/4, SW/4		Working Interest:	37.500%	37.500%	
	*Undivided 120.00		El Paso Natural Gas Co.;	12.500%	.000%	
	net acres committed		Felmont Oil Co.;	.625%	.000%	
			Jane P. Guild;	.312%	.000%	
			M. Dodge;	25.000%	.000%	
			Wilb & Co.;	6.250%	.000%	
			C. W. Gillette;	4.688%	.000%	
			James S. Gardner,	.625%	.000%	
			Augustus P. Loring, III	6.250%	6.250%	
			ORRI;	100.000%	50.000%	
			TOTAL			

SCHEDULE XXIV

SERIAL NUMBER	DESCRIPTION	NUMBER OF ACRES	DRILLING BLOCK		PERCENTAGE COMMITTED	PRESENT PARTIC
			OWNERSHIP	PERCENTAGE		
Patented	<u>T-24-N, R-2-W</u>	75.96	Royalty;	12.50%	12.50%	<u>.630026%</u>
	<u>Sec. 18: Lot 3,</u>		Working Interest:	75.00%	75.00%	
	NE/4 SW/4		El Paso Natural Gas Co.;	<u>12.50%</u>	<u>12.50%</u>	
			ORRI;	<u>100.00%</u>	<u>100.00%</u>	
			TOTAL			
			<u>TRACT 17</u>			
Patented	<u>T-24-N, R-3-W</u>	640.00	Royalty;	12.50%	12.50%	<u>5.308279%</u>
	<u>Sec. 9: A11</u>		Working Interest:	75.00%	75.00%	
			El Paso Natural Gas Co.;	<u>12.50%</u>	<u>12.50%</u>	
			ORRI;	<u>100.00%</u>	<u>100.00%</u>	
			TOTAL			
			<u>TRACT 18</u>			
Patented	<u>T-24-N, R-2-W</u>	311.98	Royalty;	12.50%	6.25%	<u>2.587620%</u>
	<u>Sec. 19: Lots 1,2,</u>		Working Interest:	75.00%	75.00%	
	E/2 NW/4, NE/4		El Paso Natural Gas Co.;	<u>12.50%</u>	<u>12.50%</u>	
			ORRI;	<u>100.00%</u>	<u>.93.75%</u>	
			TOTAL			
			<u>TRACT 19</u>			
Patented	<u>T-24-N, R-3-W</u>	320.00	Royalty;	12.50%	12.50%	<u>2.654139%</u>
	<u>Sec. 13: SW/4 NW/4,</u>		Working Interest:	75.00%	75.00%	
	N/2 S/2,		El Paso Natural Gas Co.;	<u>12.50%</u>	<u>12.50%</u>	
	S/2 SE/4		ORRI;	<u>100.00%</u>	<u>100.00%</u>	
	<u>Sec. 24: NE/4 NE/4</u>		TOTAL			

SCHEDULE XXIV

SERIAL NUMBER	DESCRIPTION	NUMBER OF ACRES	DRILLING BLOCK		PERCENTAGE COMMITTED	PRESENT PARTIC
			OWNERSHIP	PERCENTAGE		
Patented	<u>T-24-N, R-2-W</u>	160.00	Royalty;	12.50%	12.50%	<u>1.327070%</u>
	Sec. 9: NW/4		Working Interest:			
			El Paso Natural Gas Co.;	81.25%	81.25%	
			ORRI;	6.25%	6.25%	
			TOTAL	<u>100.00%</u>	<u>100.00%</u>	
			<u>TRACT 24</u>			
Patented	<u>T-24-N, R-3-W</u>	320.00	*Royalty;	12.50%	00.00%	<u>2.654139%</u>
	Sec. 14: NW/4,		Working Interest:			
	N/2 SW/4		El Paso Natural Gas Co.;	75.00%	75.00%	
			ORRI;	12.50%	12.00%	
			TOTAL	<u>100.00%</u>	<u>87.00%</u>	
			<u>TRACT 25</u>			
Patented	<u>T-24-N, R-2-W</u>	160.00	Royalty;	12.50%	3.125%	<u>1.327070%</u>
	Sec. 21: NW/4		Working Interest:			
			El Paso Natural Gas Co.;	75.00%	75.000%	
			ORRI;	12.50%	12.500%	
			TOTAL	<u>100.00%</u>	<u>90.625%</u>	
			<u>TRACT 27</u>			
Patented	<u>T-24-N, R-3-W</u>	160.00	Royalty;	12.50%	12.50%	<u>1.327070%</u>
	Sec. 12: NE/4 SE/4,		Working Interest:			
	S/2 NW/4,		El Paso Natural Gas Co.;	75.00%	75.00%	
	NE/4 NW/4		ORRI;	12.50%	12.50%	
			TOTAL	<u>100.00%</u>	<u>100.00%</u>	

*Royalty interest not committed to Lindrith Unit

SCHEDULE XXIV
 TWENTY-FIRST EXPANDED PARTICIPATING AREA FOR THE PICTURED CLIFFS FORMATION
 LINDRITH UNIT AREA

RECAPITULATION

Description of Lands in Participating Area;

Township 24 North, Range 2 West, N.M.P.M.
Section 9: NW/4
 Section 18: Lots 1,2,3,4, E/2 W/2 (W/2)
 Section 19: A11
 Section 20: A11
 Section 21: W/2, SE/4
 Section 23: A11
 Section 29: N/2, SW/4
 Section 30: A11
 Section 31: A11
 Section 32: SE/4, W/2

Township 24 North, Range 3 West, N.M.P.M.
Section 9: A11
 Section 10: S/2
 Section 11: E/2, SW/4
 Section 12: SE/4, W/2
 Section 13: A11
 Section 14: A11
 Section 15: A11
 Section 16: A11
 Section 21: W/2, NE/4
 Section 22: N/2
 Section 23: N/2, SE/4
 Section 24: A11
 Section 25: A11
 Section 36: NE/4

Total Number of Acres in Participating Area:	12,256.64
Total Number of Acres Participating:	12,056.64

EXHIBIT "B"

GEOLOGICAL REPORT CONCERNING

THE TWENTY-SECOND EXPANSION

OF THE PICTURED CLIFFS FORMATION IN THE

EL PASO NATURAL GAS COMPANY

LINDRITH UNIT

EL PASO NATURAL GAS COMPANY

By: R. F. Lemon
R. F. Lemon, Director
Reservoir Engineering Dept.

EXHIBIT "B"

GEOLOGICAL SUMMARY PERTAINING TO THE TWENTY-SECOND EXPANSION OF THE PICTURED CLIFFS PARTICIPATING AREA WITHIN THE LINDRITH UNIT

GENERAL INFORMATION

The Pictured Cliffs formation within the Lindrith Unit of Rio Arriba County, New Mexico is of upper Cretaceous age and is considered to be predominantly sandstone deposited in bands of varying widths. These bands have a northwest-southeast trend and are separated by zones of shaly sandstones and/or bentonitic sandstones. The Pictured Cliffs formation is erratic in development and abrupt "shale-out" of the sand can occur as well as rapid local thickening. This can cause great variance in well potentials as evidenced in the Lindrith Unit Area. Enclosed with this report is a structure map, Exhibit "C", Figure No. 1, and an isopach map as Exhibit "C", Figure No. 2.

TWENTY-SECOND EXPANSION

Effective Date: August 1, 1977

SW/4 Section 29, T-24-N, R-2-W Lindrith No. 91

The Lindrith No. 91 well was tested on July 27, 1977 for an initial wellhead shut-in pressure of 971 psia and an after frac flow gauge of 324 Mcf/D. On the basis of this test, the acreage is proven commercial and should be admitted to the Participating Area. This is further substantiated by the Isopach map, Exhibit "C", Figure No. 2, which shows the above acreage to be located on the established trend of commercial production and to have an average net pay of 7 feet.



United States Department of the Interior

GEOLOGICAL SURVEY

P. O. Box 26124
Albuquerque, New Mexico 87125

SEP 01 1978

El Paso Natural Gas Company
Attention: Mr. James R. Permenter
P. O. Box 1492
El Paso, Texas 79978

no. 159

Gentlemen:

Your application of July 27, 1978 requesting approval of the twenty-second and twenty-third expanded participating areas of the Pictured Cliffs formation for the Lindrith unit agreement, Rio Arriba County, New Mexico, are not being approved at this time.

Data available at this time is not sufficiently definitive to ascertain that unit wells No. 91 and 92 are capable of producing unitized substance in paying quantities from the Pictured Cliffs. Therefore, we request that an additional six-months of production data be obtained for reevaluation of the capability of these wells. If your re-evaluation confirms commercial capability under the terms of the agreement, then please resubmit your application with the supportive data for such determination.

Four copies of the application are returned herewith.

Sincerely yours,

(ORIG. SGD.) JAMES W. SUTHERLAND

Oil and Gas Supervisor, SRWA

Enclosures (4)

cc:

NMOCD, Santa Fe

Com. Pub. Lands, Santa Fe

This Copy for

OIL CONSERVATION DIVISION

P. O. BOX 2088

SANTA FE, NEW MEXICO 87501

August 28, 1978

El Paso Natural Gas Company
P. O. Box 1492
El Paso, Texas 79978

Attention: James R. Permenter

Re: Case No. 159
Lindrith Unit
Twenty-Second Expanded
Participating Area for
Pictured Cliffs Formation

Gentlemen:

We hereby approve the Twenty-Second Expanded Participating Area for the Pictured Cliffs Formation for the Lindrith Unit, Rio Arriba County, New Mexico, subject to like approval by the United States Geological Survey and the Commissioner of Public Lands.

Very truly yours,

JOE D. RAMEY
Director

JDR/LT/fd

cc: U.S.G.S. - Roswell
Commissioner of Public Lands

C
O
P
Y

August 22, 1978

Mr. Joe D. Ramey, Director
Energy and Minerals Department
P. O. Box 2088
Santa Fe, New Mexico 87501

Santa Fe

Dear Mr. Ramey:

In response to your letter of August 14, 1978 to Mr. Permenter, regarding the Lindrith Unit #91 well, we are furnishing as scheduled below, the total history of production from the said well.


In addition to the production history as listed below, attached you will find the Economic Evaluation Summary Sheet for the Lindrith Unit #91. Listed on this evaluation sheet you will find our estimated present worth of future income discounted at 10% and the actual drilling cost.

Lindrith Unit #91			
<u>Months</u>	<u>Monthly Volume Mcf</u>	<u>Days Operated</u>	<u>Production Rate Mcf/D</u>
SEP 1977	2,536	14.8	171
OCT 1977	2,484	24.9	100
NOV 1977	2,221	24.0	93
DEC 1977	2,195	31.0	71
JAN 1978	2,120	31.0	68
FEB 1978	1,687	28.1	60
MAR 1978	1,852	31.0	60
APR 1978	1,575	30.0	53
MAY 1978	1,586	31.0	51
JUN 1978	1,569	30.1	52
JUL 1978	1,508	31.0	49
Total	21,333	306.9	70

Lynn:
Will probably pay out in three years,
so go ahead & extend. JCR

If you have any additional questions, please contact me.

Cordially,



Dayne E. Adams, Director
Reservoir Engineering Dept.

:cc

Attachment

cc: Mr. Dick Isaacks

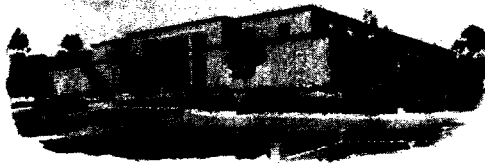
ECONOMIC EVALUATION SUMMARY SHEET

Lease and Well No. Lindrith Unit #91
 Producing Horizon Pictured Cliffs
 Field South Blanco

Net pay, ft. ()	NA
Average porosity, % ()	NA
Interstitial water saturation, % ()	NA
Gas saturation, % ()	NA
Gas specific gravity	NA
Bottom-hole temperature, °F.	NA
Calculated BHP, psia	NA
Estimated BHP, psia	NA
Gas compressibility, original	NA
Calculated recoverable reserves, M ² cf at 15.025 psia	200
Estimated stabilized deliverability, Mcf/D	67
Estimated average condensate recovery (Bbls./M ² cf)	NA
Estimated gross (8/8) 20 year condensate recovery, Bbls.	NA
Estimated gross (8/8) 20 year gas recovery, M ² cf	152
Net interest (excluding royalty and production payments), %	87.5
Estimated New Mexico production taxes, %	NA
Estimated average gas value per Mcf for 20 year period, \$	1.972
Estimated condensate value (net after trucking expense), \$/Bbl.	NA
Estimated annual operating expense, \$	600
Estimated total net income for 20 year period, \$	250,500
Combined average present worth factor for 20 years (gas and condensate)	NA
Average present worth factor for 20 year gas production (gas only)	.584
Estimated present worth of future income (discounted at 10%), \$	146,300
Estimated average cost of () single completion, \$ (Actual)	66,486
Estimated average cost of the () portion of a (-) dual completion in this area, \$	NA

July 21

State of New Mexico



Commissioner of Public Lands

PHIL R. LUCERO
COMMISSIONER

July 19, 1978

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

El Paso Natural Gas Company
P. O. Box 1492
El Paso, Texas 79978

W. 159

Re: Lindrith Unit Agreement
Rio Arriba County, New Mexico
TWENTY-SECOND AND TWENTY-THIRD
EXPANDED PARTICIPATING AREAS,
Pictured Cliffs Formation
Effective August 1, 1977 &
September 1, 1977 respectively

ATTENTION: Mr. James R. Fernanter

Gentlemen:

The Commissioner of Public Lands has this date approved the Twenty-Second and Twenty-Third Expanded Participating Areas, Pictured Cliffs Formation for the Lindrith Unit, Rio Arriba County, New Mexico.

Our approval is subject to like approval by the United States Geological Survey and the New Mexico Oil Conservation Division.

Enclosed is one approved copy for your files.

Very truly yours,

PHIL R. LUCERO
COMMISSIONER OF PUBLIC LANDS

BY:
RAY D. GRANAM, Director
Oil and Gas Division

PRL/RDG/s
encl.
cc:

OCD: Santa Fe, New Mexico ✓
OCS-Roswell, New Mexico
OCS-Albuquerque, New Mexico

July 6, 1978

Regional Oil & Gas Supervisor
United States Geological Survey
Drawer 1857
Roswell, New Mexico 88201

Commissioner of Public Lands
State of New Mexico
Post Office Box 1148
Santa Fe, New Mexico 87501

Oil Conservation Commission ✓
State of New Mexico
Post Office Box 2088
Santa Fe, New Mexico 87501

No. 159

Re: Twenty First Expanded Participating
Area, Pictured Cliffs Formation
Effective January 1, 1977

Gentlemen:

The above captioned Expansion was approved by the regulatory bodies
on the following dates:

1. United States Geological Survey - June 30, 1978
2. Commissioner of Public Lands - November 18, 1977
3. Oil Conservation Commission - November 15, 1977

A copy of this letter is being sent to the working interest owners of
the Lindrith Unit Area.

Very truly yours,



Derold Maney
Landman
Land Department
Energy Resource Development

DM/sfg
Lindrith Unit - 4.1

LINDRITH UNIT
WORKING INTEREST OWNERS

Continental Oil Company

Mobil Oil Corporation (3)

Tenneco Oil Company

July 5, 1978

Regional Oil & Gas Supervisor
United States Geological Survey
Drawer 1857
Roswell, New Mexico 88201

Commissioner of Public Lands
State of New Mexico
Post Office Box 1148
Santa Fe, New Mexico 87501

Oil Conservation Commission
State of New Mexico
Post Office Box 2088
Santa Fe, New Mexico 87501

Mo. 159

Re: Lindrith Unit Agreement,
I Section No. 713
Rio Arriba County, New Mexico
REQUEST FOR APPROVAL OF THE
TWENTY-SECOND AND TWENTY-THIRD
EXPANDED PARTICIPATING AREAS,
Pictured Cliffs Formation
Effective August 1, 1977 &
September 1, 1977 Respectively

Gentlemen:

Pursuant to Section 10 of the Lindrith Unit Agreement, El Paso Natural Gas Company, as Unit Operator, submits for your approval the Twenty-Second & Twenty-Third Expanded Participating Areas for the Pictured Cliffs Formation, Lindrith Unit, Rio Arriba County, New Mexico, which includes in addition to the lands previously submitted, the following selection of lands reasonably estimated to the productive in paying quantities from the Pictured Cliffs Formation:

Twenty-Second Expanded Participating Area - Effective August 1, 1977

<u>Description of Lands</u>	<u>Acres</u>
<u>Township 24 North, Range 2 West, N.M.P.M.</u> Section 29: SW/4	160.00

The lands described above are proven productive by the following:

The Lindrith Unit, #91 Well, located 1130' from the South line and 1800' from the West line of Section 29, Township 24 North, Range 2 West, N.M.P.M., was spudded on June 14, 1977, and completed on July 27, 1977, at a total depth of 3138'. The Pictured Cliffs Formation at the intervals of 3056', 3059', 3070', 3072', 3074', 3083', and 3084' was treated with a sand-water fracturing process on June 27, 1977. The well was shut-in on July 20, 1977, and after being shut-in for seven (7) days, the Pictured Cliffs Formation was tested July 27, 1977, using the Pitot tube method with an after frac guage of 324 MCF/D, with an SIPC of 971 psia. The spacing unit for this well is described as the SW/4 of Section 29, Township 24 North, Range 2 West, N.M.P.M., containing 160.00 acres.

The effective date for the Twenty-Second Expanded Participating Area is determined as August 1, 1977, the first day of the month following the testing of the Lindrith Unit #91 Well.

Twenty-Third Expanded Participating Area - Effective September 1, 1977

<u>Description of Lands</u>	<u>Acres</u>
<u>Township 24 North, Range 2 West, N.M.P.M.</u> Section 28: SW/4	160.00

The lands described above are proven productive by the following:

The Lindrith Unit #92 Well, located 1825' from the South line and 1475' from the West line of Section 28, Township 24 North, Range 2 West, N.M.P.M., was spudded on June 19, 1977, and completed on August 29, 1977, at a total depth of 3264'. The Pictured Cliffs Formation at the intervals of 3069', 3073', 3078', 3097', 3100', 3107', 3116', and 3120' was treated with a sand-water fracturing process of July 8, 1977. The well was shut-in on August 22, 1977, and after being shut-in for seven (7) days, the Pictured Cliffs Formation was tested on August 29, 1977 using the Pitot tube method with an after frac guage of 724 MCF/D, with an SIPC of 931 psia. The spacing unit for this well is described as the SW/4 of Section 28, Township 24 North, Range 2 West, N.M.P.M., containing 160.00 acres.

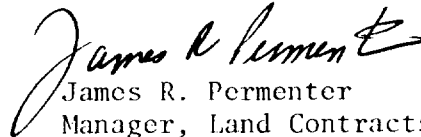
The effective date for the Twenty-Third Expanded Participating Area is determined as September 1, 1977, the first day of the month following the testing of the Lindrith Unit #92 Well.

Attached hereto are Schedules XXIII & XXIV showing the Twenty-Second and Twenty-Third Expanded Participating Areas for the Pictured Cliffs Formation in the Lindrith Unit Area. These schedules describe the Expanded Participating Areas, show the percentage of unitized substances allocated to each unitized tract, and the exact breakdown of percentage allocated to each tract according to the various ownership in said tract.

If the Twenty-Second and Twenty-Third Expansions meet with your approval, please indicate such approval in the space provided on the attached sheet, and return an approved copy for our files.

A copy of this letter and attached schedules are being sent to the working interest owners indicated below.

Very truly yours,



James R. Permenter
Manager, Land Contracts
and Titles
Land Department
Energy Resource Development

JRP/DM/sf

Enclosures

Lindrith Unit 4.1

cc: Continental Oil Company
Post Office Box 460
Hobbs, New Mexico 88240
Attention: Mr. L. P. Thompson

Mobil Oil Company (3)
Post Office Box 633
Midland, Texas 79701
Attention: Mr. J. D. Howard

Tenneco Oil Company
Suite 1200, Lincoln Tower Building
1860 Lincoln Street
Denver, Colorado 80203
Attention: Mr. D. D. Meyers

APPROVED: _____
Regional Oil & Gas Supervisor
United States Geological Survey
Subject to like approval by the
Commissioner of Public Lands and
the Oil Conservation Commission

DATE: _____

APPROVED: _____
Commissioner of Public Lands
Subject to like approval by the
United States Geological Survey
and the Oil Conservation Commission

DATE: _____

APPROVED: _____
Oil Conservation Commission
Subject to like approval by the
United States Geological Survey
and the Commissioner of Public Lands

DATE: _____

SCHEDULE XXIII
 TWENTY-SECOND EXPANDED PARTICIPATING AREA FOR THE PICTURED CLIFFS FORMATION
 LINDRITH UNIT AREA

IAL NUMBER	DESCRIPTION	NUMBER OF ACRES	DRILLING BLOCK		PERCENTAGE COMMITTED	PRESENT AC- PARTICIPAT
			OWNERSHIP	PERCENTAGE		

F 078908	<u>T-24-N, R-2-W</u> 227.88					
	Sec. 18: Lots 1,2,4, E/2 NW/4, SE/4 SW/4		Royalty; Working Interest; El Paso Natural Gas Co.; ORRI;	12.50% 75.00% 12.50% 100.00%	12.50% 75.00% 12.50% 100.00%	1.902704%
			TOTAL			
			<u>TRACT 2</u>			

F 078909	<u>T-24-N, R-2-W</u> 1664.29					
	Sec. 19: Lots 3,4, E/2 SW/4, SE/4		Royalty; Working Interest; El Paso Natural Gas Co.; ORRI;	12.50% 75.00% 12.50% 100.00%	12.50% 75.00% 12.50% 100.00%	13.896134%
	Sec. 20: A11					
	Sec. 21: S/2					
	Sec. 30: Lots 1,2, E/2 NW/4, NE/4		TOTAL			
	<u>T-24-N, R-3-W</u>					
	Sec. 24: E/2 SE/4					
			<u>TRACT 3</u>			

F 078910	<u>T-24-N, R-2-W</u> 2216.53					
	Sec. 28: NE/4, SE/4, N/2 NW/4		Royalty; Working Interest; El Paso Natural Gas Co.; ORRI;	12.50% 75.00% 12.50% 100.00%	12.50% 75.00% 12.50% 100.00%	18.507110%
	Sec. 29: NE/4					
	Sec. 30: Lots 3,4, E/2 SW/4, SE/4		TOTAL			
	Sec. 31: Lots 1,2,3,4, E/2 W/2, E/2					
	Sec. 32: SE/4, W/2					
	<u>T-24-N, R-3-W</u>					
	Sec. 24: SW/4, W/2 SE/4					
			<u>TRACT 4</u>			

SCHEDULE XXIII

TRIAL NUMBER	DESCRIPTION	NUMBER OF ACRES	DRILLING BLOCK		PERCENTAGE COMMITTED	PRESENT AC PARTICIPAT
			OWNERSHIP	PERCENTAGE		

SF 078912 T-24-N, R-3-W 2080.00

Sec. 10: S/2 Royalty; 12.50% 12.50% 17.367141%
 Sec. 11: E/2, E/2 SW/4 Working Interest;
 Sec. 12: SW/4, NW/4 NW/4, El Paso Natural Gas Co.; 75.00% 75.00%
 S/2 SE/4, NW/4 SE/4 ORRI; 12.50% 12.50%
 TOTAL 100.00% 100.00%

Sec. 13: E/2 NW/4, NW/4
 NW/4, S/2 SW/4, NE/4
 Sec. 14: E/2, S/2 SW/4
 Sec. 24: NW/4, W/2 NE/4, SE/4 NE/4

TRACT 7

SF 078913 T-24-N, R-3-W 2080.00

Sec. 15: A11 Royalty; 12.50% 12.50% 17.367141%
 Sec. 16: A11 Working Interest;
 Sec. 21: W/2, NE/4 El Paso Natural Gas Co.; 75.00% 75.00%
 Sec. 22: N/2 ORRI; 12.50% 12.50%
 TOTAL 100.00% 100.00%

TRACT 8

SF 078914 T-24-N, R-3-W 640.00

Sec. 25: A11 Royalty; 12.50% 12.50% 5.343736%
 Working Interest;
 El Paso Natural Gas Co.; 75.00% 75.00%
 ORRI; 12.50% 12.50%
 TOTAL 100.00% 100.00%

SCHEDULE XXIII

IAL NUMBER	DESCRIPTION	NUMBER OF ACRES	DRILLING BLOCK		PERCENTAGE COMMITTED	PRESENT AC PARTICIPAT
			OWNERSHIP	PERCENTAGE		
TRACT 9						
SF 078915	T-24-N, R-3-W	640.00	Royalty;	12.50%	12.50%	5.343736%
	Sec. 23: NW/4, E/2		Working Interest:			
	Sec. 36: NE/4		El Paso Natural Gas Co.;	75.00%	75.00%	
			ORRI;	12.50%	12.50%	
			TOTAL	100.00%	100.00%	
TRACT 13						
Patented	T-24-N, R-2-W	*320.00	Royalty;	9.375%	6.250%	2.003901%
	Sec. 29: NW/4, SW/4		Working Interest:			
	*Undivided 240.00		El Paso Natural Gas Co.;	56.250%	56.250%	
	net acres committed		Felmont Oil Co.;	25.000%	.000%	
			ORRI;	9.375%	9.375%	
			TOTAL	100.000%	71.875%	
TRACT 13-B						
Patented	T-24-N, R-2-W	*80.00	Royalty;	6.250%	6.250%	.333984%
	Sec. 28: S/2 NW/4		Working Interest:			
	*Undivided 40.00		El Paso Natural Gas Co.;	37.500%	37.500%	
	net acres committed		Felmont Oil Co.;	12.500%	.000%	
			Jane P. Guild;	.625%	.000%	
			M. Dodge;	.312%	.000%	
			Wilb & Co.;	25.000%	.000%	
			C. W. Gillette;	6.250%	.000%	
			James S. Gardner,	4.688%	.000%	
			Augustus P. Loring, III	.625%	.000%	
			ORRI;	6.250%	6.250%	
			TOTAL	100.000%	50.000%	

SCHEDULE XIII

SERIAL NUMBER	DESCRIPTION	NUMBER OF ACRES	DRILLING BLOCK		PERCENTAGE COMMITTED	PRESENT A PARTICIPA
			OWNERSHIP	PERCENTAGE		
TRACT 16						
ented	T-24-N, R-2-W Sec. 18: Lot 3, NE/4 SW/4	75.96	Royalty; Working Interest: El Paso Natural Gas Co.; ORRI;	12.50% 75.00% 12.50% 100.00%	12.50% 75.00% 12.50% 100.00%	.634235%
TRACT 17						
ented	T-24-N, R-3-W Sec. 9: A11	640.00	Royalty; Working Interest: El Paso Natural Gas Co.; ORRI;	12.50% 75.00% 12.50% 100.00%	12.50% 75.00% 12.50% 100.00%	5.343736%
TRACT 18						
ented	T-24-N, R-2-W Sec. 19: Lots 1,2, E/2 NW/4, NE/4	311.98	Royalty; Working Interest: El Paso Natural Gas Co.; ORRI;	12.50% 75.00% 12.50% 100.00%	6.25% 75.00% 12.50% 93.75%	2.604904%
TRACT 19						
ented	T-24-N, R-3-W Sec. 13: SW/4 NW/4, N/2 S/2, S/2 SE/4 Sec. 24: NE/4 NE/4	320.00	Royalty; Working Interest: El Paso Natural Gas Co.; ORRI;	12.50% 75.00% 12.50% 100.00%	12.50% 75.00% 12.50% 100.00%	2.671868%

SCHEDULE XXIII

SERIAL NUMBER	DESCRIPTION	NUMBER OF ACRES	DRILLING BLOCK		PERCENTAGE COMMITTED	PRESENT AC PARTICIPA
			OWNERSHIP	PERCENTAGE		
Patented	T-24-N, R-2-W	160.00	Royalty;	12.50%	12.50%	<u>1.335934%</u>
	Sec. 9: NW/4		Working Interest:			
			El Paso Natural Gas Co.;	81.25%	81.25%	
			ORRI;	6.25%	6.25%	
			TOTAL	<u>100.00%</u>	<u>100.00%</u>	
	<u>TRACT 22</u>					
Patented	T-24-N, R-3-W	320.00	*Royalty;	12.50%	00.00%	<u>2.671868%</u>
	Sec. 14: NW/4,		Working Interest:			
	N/2 SW/4		El Paso Natural Gas Co.;	75.00%	75.00%	
			ORRI;	12.50%	12.00%	
			TOTAL	<u>100.00%</u>	<u>87.00%</u>	
	<u>TRACT 25</u>					
Patented	T-24-N, R-2-W	160.00	Royalty;	12.50%	3.125%	<u>1.335934%</u>
	Sec. 21: NW/4		Working Interest:			
			El Paso Natural Gas Co.;	75.00%	75.000%	
			ORRI;	12.50%	12.500%	
			TOTAL	<u>100.00%</u>	<u>90.625%</u>	
	<u>TRACT 27</u>					
Patented	T-24-N, R-3-W	160.00	Royalty;	12.50%	12.50%	<u>1.335934%</u>
	Sec. 12: NE/4 SE/4,		Working Interest:			
	S/2 NW/4,		El Paso Natural Gas Co.;	75.00%	75.00%	
	NE/4 NW/4		ORRI;	12.50%	12.50%	
			TOTAL	<u>100.00%</u>	<u>100.00%</u>	

*Royalty interest not committed to Lindrith Unit

SCHEDULE XXIII
 TWENTY-FIRST EXPANDED PARTICIPATING AREA FOR THE PICTURED CLIFFS FORMATION
 LINDRITH UNIT AREA

RECAPITULATION

Description of Lands in Participating Area;

Township 24 North, Range 2 West, N.M.P.M.
 Section 9: NE/4
 Section 18: Lots 1,2,3,4, E/2 W/2 (W/2)
 Section 19: A11
 Section 20: A11
 Section 21: W/2, SE/4
 Section 28: N/2, SE/4
 Section 29: N/2, SW/4
 Section 30: A11
 Section 31: A11
 Section 32: SE/4, W/2

Township 24 North, Range 3 West, N.M.P.M.
 Section 9: A11
 Section 10: S/2
 Section 11: E/2, SW/4
 Section 12: SE/4, W/2
 Section 13: A11
 Section 14: A11
 Section 15: A11
 Section 16: A11
 Section 21: W/2, NE/4
 Section 22: N/2
 Section 23: N/2, SE/4
 Section 24: A11
 Section 25: A11
 Section 36: NE/4

Total Number of Acres in Participating Area:	12,096.64
Total Number of Acres Participating:	11,976.64

SCHEDULE XXIV
 PARTICIPATING AREA FOR THE PICTURED CLIFFS FORMATION
 LINDRITH UNIT AREA

TRAIL NUMBER	DESCRIPTION	NUMBER OF ACRES	DRILLING BLOCK		PERCENTAGE COMMITTED	PRESENT AS PARTICIPATION
			OWNERSHIP	PERCENTAGE		
SF 078908	<u>T-24-N, R-2-W</u> 227.88					
	Sec. 18: Lots 1,2,4, E/2 NW/4, SE/4 SW/4		Royalty; Working Interest: El Paso Natural Gas Co.; ORRI;	12.50% 75.00% 12.50% <u>100.00%</u>	12.50% 75.00% 12.50% <u>100.00%</u>	<u>1.890079%</u>
			<u>TRACT 2</u>			
SF 078909	<u>T-24-N, R-2-W</u> 1664.29					
	Sec. 19: Lots 3,4, E/2 SW/4, SE/4		Royalty; Working Interest: El Paso Natural Gas Co.; ORRI;	12.50% 75.00% 12.50% <u>100.00%</u>	12.50% 75.00% 12.50% <u>100.00%</u>	<u>13.803929%</u>
	Sec. 20: A11					
	Sec. 21: S/2					
	Sec. 30: Lots 1,2, E/2 NW/4, NE/4					
	<u>T-24-N, R-3-W</u>					
	Sec. 24: E/2 SE/4					
			<u>TRACT 3</u>			
SF 078910	<u>T-24-N, R-2-W</u> 2216.53					
	Sec. 28: NE/4, SE/4, N/2 NW/4		Royalty; Working Interest: El Paso Natural Gas Co.; ORRI;	12.50% 75.00% 12.50% <u>100.00%</u>	12.50% 75.00% 12.50% <u>100.00%</u>	<u>18.384309%</u>
	Sec. 29: NE/4					
	Sec. 30: Lots 3,4, E/2 SW/4, SE/4					
	Sec. 31: Lots 1,2,3,4, E/2 W/2, E/2					
	Sec. 32: SE/4, W/2					
	<u>T-24-N, R-3-W</u>					
	Sec. 24: SW/4, W/2 SE/4					
			<u>TRACT 4</u>			

SCHEDULE XXIV

SERIAL NUMBER	DESCRIPTION	NUMBER OF ACRES	DRILLING BLOCK		PERCENTAGE COMMITTED	PRESENT PARTICIPATION
			OWNERSHIP	PERCENTAGE		
<u>TRACT 6</u>						
SF 078912	T-24-N, R-3-W	2080.00	Royalty;	12.50%	12.50%	17.251904%
	Sec. 10: S/2		Working Interest:			
	Sec. 11: E/2, E/2 SW/4		EI Paso Natural Gas Co.;	75.00%	75.00%	
	Sec. 12: SW/4, NW/4, NW/4,		ORRI;	12.50%	12.50%	
	S/2 SE/4, NW/4 SE/4		TOTAL	100.00%	100.00%	
	Sec. 13: E/2 NW/4, NW/4					
	NW/4, S/2 SW/4,					
	NE/4					
	Sec. 14: E/2, S/2 SW/4					
	Sec. 24: NW/4, W/2 NE/4,					
	SE/4 NE/4					
<u>TRACT 7</u>						
SF 078913	T-24-N, R-3-W	2080.00	Royalty;	12.50%	12.50%	17.251904%
	Sec. 15: A11		Working Interest:			
	Sec. 16: A11		EI Paso Natural Gas Co.;	75.00%	75.00%	
	Sec. 21: W/2, NE/4		ORRI;	12.50%	12.50%	
	Sec. 22: N/2		TOTAL	100.00%	100.00%	
<u>TRACT 8</u>						
SF 078914	T-24-N, R-3-W	640.00	Royalty;	12.50%	12.50%	5.308278%
	Sec. 25: A11		Working Interest:			
			EI Paso Natural Gas Co.;	75.00%	75.00%	
			ORRI;	12.50%	12.50%	
			TOTAL	100.00%	100.00%	

Effective September 1, 1977

SCHEDULE XXIV

SERIAL NUMBER	DESCRIPTION	NUMBER OF ACRES	DRILLING BLOCK		PERCENTAGE COMMITTED	PRESENT PARTICIP
			OWNERSHIP	PERCENTAGE		

SF 078915

T-24-N, R-3-W 640.00
Sec. 23: NW/4, E/2
Sec. 36: NE/4

Royalty;
 Working Interest:
 El Paso Natural Gas Co.;
 ORRI;
 TOTAL

12.50%
 75.00%
 12.50%
100.00%

12.50%
 75.00%
 12.50%
100.00%

TRACT 9

Patented

T-24-N, R-2-W *320.00
Sec. 29: NW/4, SW/4
 *Undivided 240.00
 net acres committed

Royalty;
 Working Interest:
 El Paso Natural Gas Co.;
 Felmont Oil Co.;
 ORRI;

TOTAL

9.375%
 56.250%
 25.000%
 9.375%
100.000%

6.250%
 56.250%
 .000%
 9.375%
71.875%

TRACT 13

Patented

T-24-N, R-2-W *240.00
Sec. 28: S/2 NW/4, SW/4
 *Undivided 120.00
 net acres committed

Royalty;
 Working Interest:
 El Paso Natural Gas Co.;
 Felmont Oil Co.;
 Jane P. Guild;
 M. Dodge;
 Wilb & Co;
 C. W. Gillette;
 James S. Gardner,
 Augustus P. Loring, III
 ORRI;

TOTAL

6.250%
 37.500%
 12.500%
 .625%
 .312%
 25.000%
 6.250%
 4.688%
 .625%
 6.250%
100.000%

6.250%
 37.500%
 .000%
 .000%
 .000%
 .000%
 .000%
 .000%
 .000%
 6.250%
50.000%

.995302%

SCHEDULE XXIV

SERIAL NUMBER	DESCRIPTION	NUMBER OF ACRES	DRILLING BLOCK		PERCENTAGE COMMITTED	PRESENT PARTIC
			OWNERSHIP	PERCENTAGE		
Patented	<u>T-24-N, R-2-W</u>	75.96	Royalty;	12.50%	12.50%	<u>.630026%</u>
	Sec. 18: Lot 3,		Working Interest:			
	NE/4 SW/4		El Paso Natural Gas Co.;	75.00%	75.00%	
			ORRI;	12.50%	12.50%	
			TOTAL	<u>100.00%</u>	<u>100.00%</u>	
<u>TRACT 16</u>						
Patented	<u>T-24-N, R-3-W</u>	640.00	Royalty;	12.50%	12.50%	<u>5.308279%</u>
	Sec. 9: All		Working Interest:			
			El Paso Natural Gas Co.;	75.00%	75.00%	
			ORRI;	12.50%	12.50%	
			TOTAL	<u>100.00%</u>	<u>100.00%</u>	
<u>TRACT 17</u>						
Patented	<u>T-24-N, R-2-W</u>	311.98	Royalty;	12.50%	6.25%	<u>2.587620%</u>
	Sec. 19: Lots 1, 2,		Working Interest:			
	E/2 NW/4, NE/4		El Paso Natural Gas Co.;	75.00%	75.00%	
			ORRI;	12.50%	12.50%	
			TOTAL	<u>100.00%</u>	<u>.93.75%</u>	
<u>TRACT 18</u>						
Patented	<u>T-24-N, R-3-W</u>	320.00	Royalty;	12.50%	12.50%	<u>2.654139%</u>
	Sec. 13: SW/4 NW/4,		Working Interest:			
	N/2 S/2,		El Paso Natural Gas Co.;	75.00%	75.00%	
	S/2 SE/4		ORRI;	12.50%	12.50%	
	Sec. 24: NE/4 NE/4		TOTAL	<u>100.00%</u>	<u>100.00%</u>	

SCHEDULE XXIV

SERIAL NUMBER	DESCRIPTION	NUMBER OF ACRES	DRILLING BLOCK		PERCENTAGE COMMITTED	PRESENT PARTIC
			OWNERSHIP	PERCENTAGE		
Patented	<u>T-24-N, R-2-W</u>	160.00	Royalty;	12.50%	12.50%	1.327070%
	<u>Sec. 9: NW/4</u>		Working Interest:	81.25%	81.25%	
			El Paso Natural Gas Co.;	6.25%	6.25%	
			ORRI;	<u>100.00%</u>	<u>100.00%</u>	
			TOTAL			
Patented	<u>T-24-N, R-3-W</u>	320.00	*Royalty;	12.50%	00.00%	2.654139%
	<u>Sec. 14: NW/4,</u>		Working Interest:	75.00%	75.00%	
	N/2 SW/4		El Paso Natural Gas Co.;	12.50%	12.00%	
			ORRI;	<u>100.00%</u>	<u>87.00%</u>	
	Sec. 11: W/2 SW/4		TOTAL			
Patented	<u>T-24-N, R-2-W</u>	160.00	Royalty;	12.50%	3.125%	1.327070%
	<u>Sec. 21: NW/4</u>		Working Interest:	75.00%	75.000%	
			El Paso Natural Gas Co.;	12.50%	12.500%	
			ORRI;	<u>100.00%</u>	<u>.90.625%</u>	
			TOTAL			
Patented	<u>T-24-N, R-3-W</u>	160.00	Royalty;	12.50%	12.50%	1.327070%
	<u>Sec. 12: NE/4 SE/4,</u>		Working Interest:	75.00%	75.00%	
	S/2 NW/4,		El Paso Natural Gas Co.;	12.50%	12.50%	
	NE/4 NW/4		ORRI;	<u>100.00%</u>	<u>100.00%</u>	
			TOTAL			

*Royalty interest not committed to Lindrith Unit

SCHEDULE XXIV
 TWENTY-FIRST EXPANDED PARTICIPATING AREA FOR THE PICTURED CLIFFS FORMATION
 LINDRITH UNIT AREA

RECAPITULATION

Description of Lands in Participating Area;

Township 24 North, Range 2 West, N.M.P.M.
 Section 9: NW/4
 Section 18: Lots 1,2,3,4, E/2 W/2 (W/2)
 Section 19: A11
 Section 20: A11
 Section 21: W/2, SE/4
 Section 23: A11
 Section 29: N/2, SW/4
 Section 30: A11
 Section 31: A11
 Section 32: SE/4, W/2

Township 24 North, Range 3 West, N.M.P.M.
 Section 9: A11
 Section 10: S/2
 Section 11: E/2, SW/4
 Section 12: SE/4, W/2
 Section 13: A11
 Section 14: A11
 Section 15: A11
 Section 16: A11
 Section 21: W/2, NE/4
 Section 22: N/2
 Section 23: N/2, SE/4
 Section 24: A11
 Section 25: A11
 Section 36: NE/4

Total Number of Acres in Participating Area:	12,256.64
Total Number of Acres Participating:	12,056.64

EXHIBIT "B"

GEOLOGICAL REPORT CONCERNING

THE TWENTY-SECOND EXPANSION

OF THE PICTURED CLIFFS FORMATION IN THE

EL PASO NATURAL GAS COMPANY

LINDRITH UNIT

EL PASO NATURAL GAS COMPANY

By: R. F. Lemon
R. F. Lemon, Director
Reservoir Engineering Dept.

EXHIBIT "B"

GEOLOGICAL SUMMARY PERTAINING TO THE TWENTY-SECOND EXPANSION OF THE PICTURED CLIFFS PARTICIPATING AREA WITHIN THE LINDRITH UNIT

GENERAL INFORMATION

The Pictured Cliffs formation within the Lindrith Unit of Rio Arriba County, New Mexico is of upper Cretaceous age and is considered to be predominantly sandstone deposited in bands of varying widths. These bands have a northwest-southeast trend and are separated by zones of shaly sandstones and/or bentonitic sandstones. The Pictured Cliffs formation is erratic in development and abrupt "shale-out" of the sand can occur as well as rapid local thickening. This can cause great variance in well potentials as evidenced in the Lindrith Unit Area. Enclosed with this report is a structure map, Exhibit "C", Figure No. 1, and an isopach map as Exhibit "C", Figure No. 2.

TWENTY-SECOND EXPANSION

Effective Date: August 1, 1977

SW/4 Section 29, T-24-N, R-2-W Lindrith No. 91

The Lindrith No. 91 well was tested on July 27, 1977 for an initial wellhead shut-in pressure of 971 psia and an after frac flow gauge of 324 Mcf/D. On the basis of this test, the acreage is proven commercial and should be admitted to the Participating Area. This is further substantiated by the Isopach map, Exhibit "C", Figure No. 2, which shows the above acreage to be located on the established trend of commercial production and to have an average net pay of 7 feet.