



STATE OF NEW MEXICO  
ENERGY AND MINERALS DEPARTMENT  
OIL CONSERVATION DIVISION

BRUCE KING  
GOVERNOR

December 6, 1982

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

EL PASO EXPLORATION COMPANY  
P.O. Box 1492  
El Paso, Texas 79978

ATTENTION: James R. Permenter

RE: Lindrith Unit Agreement  
Twenty-fifth, Twenty-sixth,  
and Twenty-seventh Expanded  
Participating Area  
Pictured Cliffs Formation  
Rio Arriba County, NM

Dear Mr. Permenter:

Enclosed please find an approved copy of the material referenced above.  
Such approval is contingent upon like approval by the Commissioner of  
Public Lands and the U. S. Minerals Management Service.

Sincerely,

A handwritten signature in black ink, appearing to read "Roy E. Johnson", with a long horizontal flourish extending to the right.

Roy E. Johnson  
Petroleum Geologist

REJ/dp

cc: Commissioner of Public Lands - Santa Fe  
Minerals Management Service - Albuquerque  
OCD District Office

*Hold 3*  
*call about*  
*surface 9*

**El Paso**  
Exploration Company

Case # 157  
R# 774

P. O. BOX 1492  
EL PASO, TEXAS 79978  
PHONE: 915-541-2600

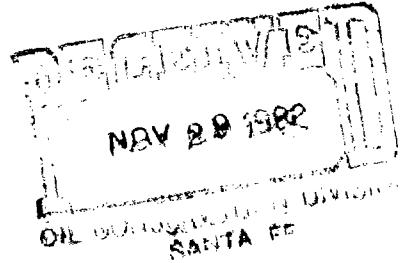
*File*

November 22, 1982

Minerals Management Service  
South Central Region  
505 Marquette Avenue, N.W., Suite 815  
Albuquerque, New Mexico 87102

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 Agreement, I Section  
No. 713, Rio Arriba County, New Mexico  
REQUEST FOR APPROVAL OF THE TWENTY-FIFTH,  
TWENTY-SIXTH AND TWENTY-SEVENTH  
EXPANDED PARTICIPATING AREAS,  
Pictured Cliffs Formation, Effective  
November 1, 1979, January 1, 1981,  
and July 1, 1981, 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-Fifth, Twenty-Sixth and Twenty-Seventh 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 lands reasonably estimated to be productive in paying quantities from the Pictured Cliffs Formation.

Twenty-Fifth Expanded Participating Area - Effective November 1, 1979

<u>Description of Lands</u>	<u>Acres</u>
<u>Township 24 North, Range 2 West</u> Section 8: NE/4	160.00
<u>Township 24 North, Range 3 West</u> Section 3: SW/4	160.00
Section 36: NW/4	160.00

The lands described above are proven productive by the following:

The Lindrith Unit #96 Well, located 1130' from the North line and 1450' from the East line of Section 8, Township 24 North, Range 2 West, N.M.P.M., was spudded on August 6, 1979, and completed on October 4, 1979, at a plugged back depth of 3453'. The Pictured Cliffs Formation at the intervals of 3324', 3330', 3346', 3352', 3364', 3377', and 3384' was treated with a sand-water fracturing process on September 7, 1979. The well was shut-in on September 27, 1979, and after being shut-in for seven (7) days, the Pictured Cliffs Formation was tested on October 4, 1979, using the Pitot tube method with an after frac gauge of 264 MCF/D, with an SIPC of 725 psia. The spacing unit for this well is described as the NE/4 of Section 8, Township 24 North, Range 2 West, N.M.P.M., containing 160.00 acres.

The Lindrith Unit #98 Well, located 1165' from the South line and 1450' from the West line of Section 3, Township 24 North, Range 3 West, N.M.P.M., was spudded on July 31, 1979, and completed on October 4, 1979, at a plugged back depth of 3464'. The Pictured Cliffs Formation at the selected intervals between 3347' and 3372' was treated with a sand-water fracturing process on September 14, 1979. The well was shut-in on September 14, 1979, and after being shut-in for twenty (20) days, the Pictured Cliffs Formation was tested on October 4, 1979, using the Pitot tube method with an after frac gauge of 1505 MCF/D, with an SIPC of 984 psia. The spacing unit for this well is described as the SW/4 of Section 3, Township 24 North, Range 3 West, N.M.P.M., containing 160.00 acres.

The Lindrith Unit #99 Well, located 810' from the North line and 1760' from the West line of Section 36, Township 24 North, Range 3 West, N.M.P.M., was spudded on August 20, 1979, and completed on October 4, 1979, at a plugged back depth of 3320'. The Pictured Cliffs Formation at the selected intervals between 3180' and 3226' was treated with a sand-water fracturing process on September 14, 1979. The well was shut-in on September 14, 1979, and after being shut-in for twenty (20) days, the Pictured Cliffs Formation was tested on October 4, 1979, using the Pitot tube method with an after frac gauge of 2039 MCF/D, with an SIPC of 890 psia. The spacing unit for this well is described as the NW/4 of Section 36, Township 24 North, Range 3 West, N.M.P.M., containing 160.00 acres.

Twenty-Sixth Expanded Participating Area - Effective January 1, 1981

<u>Description of Lands</u>	<u>Acres</u>
<u>Township 24 North, Range 2 West</u>	
Section 6: SE/4	160.00
Section 17: W/2	320.00 *
Section 33: N/2	320.00

\*A portion of these lands are not committed to the Lindrith Unit.

<u>Township 24 North, Range 3 West</u>	
Section 3: SE/4	160.00
Section 11: NW/4	160.00
Section 21: SE/4	160.00

The lands described above are proven productive by the following:

The Lindrith Unit #100 Well, located 800' from the South line and 700' from the East line of Section 6, Township 24 North, Range 2 West, N.M.P.M., was spudded on October 4, 1980, and completed on December 30, 1980, at a plugged back depth of 3367'. The Pictured Cliffs Formation at the selected intervals between 3282' and 3301' was treated with a sand-water fracturing process on December 10, 1980. The well was shut-in on December 23, 1980, and after being shut-in for seven (7) days, the Pictured Cliffs Formation was tested on December 30, 1980, using the Pitot tube method with an after frac gauge of 615 MCF/D, with an SIPC of 869 psia and an SIPT of 867 psia. The spacing unit for this well is described as the SE/4 of Section 6, Township 24 North, Range 2 West, N.M.P.M., containing 160.00 acres.

The Lindrith Unit #101 Well, located 870' from the South line and 1540' from the East line of Section 3, Township 24 North, Range 3 West, N.M.P.M., was spudded on September 18, 1980, and completed on December 22, 1980, at a plugged back depth of 3538'. The Pictured Cliffs Formation at the selected intervals between 3386' and 3448' was treated with a sand-water fracturing process on December 6, 1980. The well was shut-in on December 15, 1980, and after being shut-in for seven (7) days, the Pictured Cliffs Formation was tested on December 22, 1979, using the Pitot tube method with an after frac gauge of 217 MCF/D, with an SIPC of 905 psia and an SIPT of 901 psia. The spacing unit for this well is described as the SE/4 of Section 3, Township 24 North, Range 3 West, N.M.P.M., containing 160.00 acres.

The Lindrith Unit #102 Well, located 1520' from the West line and 810' from the North line of Section 11, Township 24 North, Range 3 West, N.M.P.M., was spudded on September 12, 1980, and completed on December 22, 1980, at a plugged back depth of 3308'. The Pictured Cliffs Formation at the selected intervals between 3194' and 3258' was treated with a sand-water fracturing process on December 4, 1980. The well was shut-in on December 6, 1980, and after being shut-in for sixteen (16) days, the Pictured Cliffs Formation was tested on December 22, 1979, using the Pitot tube method with an after frac gauge of 461 MCF/D, with an SIPC of 977 psia and an SIPT of 974 psia. The spacing unit for this well is described as the NW/4 of Section 11, Township 24 North, Range 3 West, N.M.P.M., containing 160.00 acres.

The Lindrith Unit #103 Well, located 1780' from the South line and 1650' from the East line of Section 21, Township 24 North, Range 3 West, N.M.P.M., was spudded on September 26, 1980, and completed on December 22, 1980, at a plugged back depth of 3283'. The Pictured Cliffs Formation at the selected intervals between 3229' and 3267' was treated with a sand-water fracturing process on December 8, 1980. The well was shut-in on December 10, 1980, and after being shut-in for twelve (12) days, the Pictured Cliffs Formation was tested on December 22, 1979, using the Pitot tube method with an after frac gauge of 217 MCF/D, with an SIPC of 975 psia and an SIPT of 974 psia. The spacing unit for this well is described as the SE/4 of Section 21, Township 24 North, Range 3 West, N.M.P.M., containing 160.00 acres.

The Jelly Dog Jerry #1 Well, located 1520' from the North line and 1850' from the West line of Section 33, Township 24 North, Range 2 West, N.M.P.M., was spudded on September 24, 1980, and completed on November 29, 1980, at a total depth of 3200'. The Pictured Cliffs Formation at the selected intervals between 2988' and 3023' was treated with a sand-water fracturing process on November 25, 1980. The well was shut-in on November 29, 1980, and after being shut-in for seven (7) days, the Pictured Cliffs Formation was tested on December 6, 1980, using the Pitot tube method with an after frac gauge of 1127 MCF/D, with an SIPC of 882 psia and an SIPT of 882 psia. The spacing unit for this well is described as the NW/4 of Section 33, Township 24 North, Range 2 West, N.M.P.M., containing 160.00 acres.

The Jelly Dog Jerry #2 Well, located 1520' from the North line and 1850' from the East line of Section 33, Township 24 North, Range 2 West, N.M.P.M., was spudded on October 4, 1980, and completed on November 28, 1979, at a total depth of 3130'. The Pictured Cliffs Formation at the selected intervals between 2989' and 3044' was treated with a sand-water fracturing process on November 25, 1980. The well was shut-in on November 28, 1980, and after being shut-in for eight (8) days, the Pictured Cliffs Formation was tested on December 6, 1980, using the Pitot tube method with an after frac gauge of 945 MCF/D, with an SIPC of 915 psia and an SIPT of 830 psia. The spacing unit for this well is described as the NE/4 of Section 33, Township 24 North, Range 2 West, N.M.P.M., containing 160.00 acres.

The Lindrith Unit JoAnn's Jewel #2 Well, located 1790' from the South line and 790' from the West line of Section 17, Township 24 North, Range 2 West, N.M.P.M., was spudded on October 22, 1980, and completed on December 6, 1980, at a total depth of 3260'. The Pictured Cliffs Formation at the intervals of 3146', 3148', 3150', 3152', 3169', 3171', 3173', 3175', 3177', 3179', and 3181' was treated with a sand-water fracturing process on December 5, 1980. The well was shut-in on December 6, 1980, and after being shut-in for twelve (12) days, the Pictured Cliffs Formation was tested on December 18, 1980, using the Pitot tube method with an after frac gauge of 2098 MCF/D, with an SIPC of 955 psia and an SIPT of 955 psia. The spacing unit for this well is described as the SW/4 of Section 17, Township 24 North, Range 2 West, N.M.P.M., containing 160.00 acres. Only the S/2 of the SW/4 is within the Lindrith Unit.

The Lindrith Unit Di's Delight #1 Well, located 1850' from the North line and 790' from the West line of Section 17, Township 24 North, Range 2 West, N.M.P.M., was spudded on October 30, 1980, and completed on December 11, 1980, at a total depth of 3200'. The Pictured Cliffs Formation at the intervals of 3093', 3095', 3097', 3099', 3113', 3115', 3122', 3126', 3128', 3130', 3132', 3134', 3136', and 3150' was treated with a sand-water fracturing process on December 5, 1980. The well was shut-in on December 11, 1980, and after being shut-in for seven (7) days, the Pictured Cliffs Formation was tested on December 18, 1980, using the Pitot tube method with an after frac gauge of 589 MCF/D, with an SIPC of 822 psia and an SIPT of 817 psia. The spacing unit for this well is described as the NW/4 of Section 17, Township 24 North, Range 2 West, N.M.P.M., containing 160.00 acres. Only the N/2 of the NW/4 is within the Lindrith Unit.

Twenty-Seventh Expanded Participating Area - Effective July 1, 1981

<u>Description of Lands</u>	<u>Acres</u>
<u>Township 24 North, Range 2 West</u> Section 18: SE/4	160.00
<u>Township 24 North, Range 3 West</u> Section 22: SW/4	160.00

The lands described above are proven productive by the following:

The Lindrith Unit #104 Well, located 940' from the South line and 1600' from the East line of Section 18, Township 24 North, Range 2 West, N.M.P.M., was spudded on May 7, 1981, and completed on June 11, 1981, at a plugged back depth of 3308'. The Pictured Cliffs Formation at the intervals of 3167', 3199', 3236', 3247', 3252', 3258', 3268', and 3273' was treated with a sand-water fracturing process on May 21, 1981. The well was shut-in on May 23, 1981, and after being shut-in for eighteen (18) days, the Pictured Cliffs Formation was tested on June 11, 1981, using the Pitot tube method with an after frac gauge of 247 MCF/D, with an SIPC of 972 psia and an SIPT of 972 psia. The spacing unit for this well is described as the SE/4 of Section 18, Township 24 North, Range 2 West, N.M.P.M., containing 160.00 acres.

The Lindrith Unit #107 Well, located 1840' from the South line and 1040' from the West line of Section 22, Township 24 North, Range 3 West, N.M.P.M., was spudded on May 14, 1981, and completed on June 11, 1981, at a plugged back depth of 3373'. The Pictured Cliffs Formation at the intervals of 3192', 3196', 3202', 3234', 3238', and 3242' was treated with a sand-water fracturing process on May 23, 1981. The well was shut-in on May 24, 1981, and after being shut-in for seventeen (17) days, the Pictured Cliffs Formation was tested on June 11, 1981, using the Pitot tube method with an after frac gauge of 331 MCF/D, with an SIPC of 994 psia and an SIPT of 986 psia. The spacing unit for this well is described as the SW/4 of Section 22, Township 24 North, Range 3 West, N.M.P.M., containing 160.00 acres.

The effective dates for the Twenty-Fifth, Twenty-Sixth and Twenty-Seventh Expanded Participating Areas are determined as November 1, 1979, January 1, 1981, and July 1, 1981, respectively, the first day of the month following the testing of the above-referenced wells.

Regulatory Agencies  
November 22, 1982  
Page Seven

Attached hereto are Schedules XXVI, XXVII and XXVIII showing the Twenty-Fifth, Twenty-Sixth and Twenty-Seventh 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 varied ownership in said tract.

Attached also in support of these Expansions are the following Exhibits which are made a part hereof.

Exhibit "A"

Ownership maps reflecting the boundaries of the Lindrith Unit and the proposed Twenty-Fifth, Twenty-Sixth and Twenty-Seventh Expanded Participating Areas, Pictured Cliffs Formation.

Exhibit "B"

Geological Report on the Twenty-Fifth, Twenty-Sixth and Twenty-Seventh Expanded Participating Areas, Pictured Cliffs Formation.

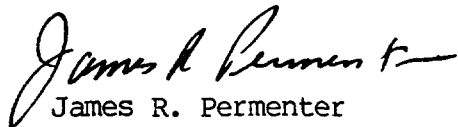
Exhibit "C"

Structural contour and Isopach maps

If the Twenty-Fifth, Twenty-Sixth and Twenty-Seventh Expansions meet with your approval, please indicate such approval in the space provided on the attached sheet and return an approved copy for our records.

A copy of this letter and attached Schedules XXVI, XXVII and XXVIII are being sent to the working interest owners shown on the attached sheet.

Very truly yours,



James R. Permenter  
Director, Land Administration  
Land Department *mtb*

JRP:MLB:ljg  
Enclosures  
Lindrith Unit, 4.1



APPROVED:

Minerals Management Service  
(Subject to like approval by the  
Commissioner of Public Lands and  
the Oil Conservation Division)

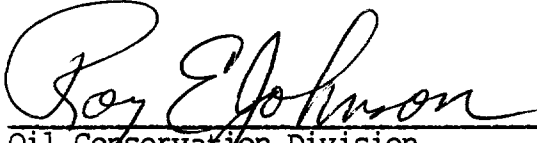
DATED: \_\_\_\_\_

APPROVED:

Commissioner of Public Lands  
(Subject to like approval by the  
Minerals Management Service and  
the Oil Conservation Division)

DATED: \_\_\_\_\_

APPROVED:

  
Oil Conservation Division  
(Subject to like approval by the  
Minerals Management Service and  
the Commissioner of Public Lands)

DATED: 12-6-82

The foregoing approvals are for the Twenty-Fifth, Twenty-Sixth and Twenty-Seventh Expanded Participating Areas for the Pictured Cliffs Formation, effective November 1, 1979, January 1, 1981, and July 1, 1981, respectively, under the Lindrith Unit Area I, Section No. 713, Rio Arriba County, New Mexico.

LINDRITH UNIT  
WORKING INTEREST OWNERS

Conoco, Inc.

Mobil Oil Corporation (3)

Tenneco Oil Company

EXHIBIT "B"

GEOLOGICAL REPORT CONCERNING

THE TWENTY-FIFTH AND TWENTY-SIXTH EXPANSIONS

OF THE PICTURED CLIFFS FORMATION IN THE

EL PASO NATURAL GAS COMPANY

LINDRITH UNIT

EL PASO NATURAL GAS COMPANY

By: D. E. Adams  
D. E. Adams, Director  
Reservoir Engineering Dept.

## EXHIBIT "B"

### GEOLOGICAL SUMMARY PERTAINING TO THE TWENTY-FIFTH AND TWENTY-SIXTH EXPANSIONS OF THE PICTURED CLIFFS PARTICIPATING AREA WITHIN THE LINDRITH UNIT

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#### 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-FIFTH EXPANSION

Effective Date: November 1, 1979

#### Participating Acreage:

NE/4 Section 8	T-24-N, R-2-W	Lindrith Unit #96
SW/4 Section 3	T-24-N, R-3-W	Lindrith Unit #98
NW/4 Section 36	T-24-N, R-3-W	Lindrith Unit #99

The Lindrith No. 96, No. 98 and No. 99 were tested on October 4, 1979 for initial wellhead shut-in pressures of 725 psia, 984 psia and 890 psia, respectively, and after frac gauges of 264 Mcf/D, 1,505 Mcf/D and 2,039 Mcf/D, respectively. On the basis of these tests and production data, the acreage is proven commercial and should be admitted to the participating area.

The proposed unit expansion is further substantiated by the isopach, Exhibit "C", Figure No. 2, which shows the above acreage to be located on the established trend of commercial production and to have average net pay of greater than 10 feet.

TWENTY-SIXTH EXPANSION

Effective Date: January 1, 1981

Participating Acreage:

SE/4 Section 6	T-24-N, R-2-W	Lindrith Unit #100
SE/4 Section 3	T-24-N, R-3-W	Lindrith Unit #101
NW/4 Section 11	T-24-N, R-3-W	Lindrith Unit #102
SE/4 Section 21	T-24-N, R-3-W	Lindrith Unit #103
NW/4 Section 33	T-24-N, R-2-W	Jelly Dog Jerry #1
NE/4 Section 33	T-24-N, R-2-W	Jelly Dog Jerry #2
* SW/4 Section 17	T-24-N, R-2-W	Jo Ann's Jewel #2
* NW/4 Section 17	T-24-N, R-2-W	DI's Delight #1

\* A portion of this acreage is not committed to the Lindrith Unit.

The following Lindrith Unit wells were tested for wellhead shut-in pressures and after frac gauges on the dates shown in the following table.

	<u>Test Date</u>	<u>SIP (PSIA)</u>	<u>After Frac Gauge (Mcf/D)</u>
Lindrith Unit #100	12-30-80	869	615
Lindrith Unit #101	12-22-80	905	217
Lindrith Unit #102	12-22-80	977	461
Lindrith Unit #103	12-22-80	974	217
Jelly Dog Jerry #1	12- 6-80	882	1,127
Jelly Dog Jerry #2	12- 6-80	915	945
Jo Ann's Jewel #2	12-18-80	955	2,098
DI's Delight #1	12-18-80	822	589

On the basis of the above tests and available production data, the subject acreage is proven commercial and should be admitted to the participating area.

The proposed unit expansion is further substantiated by the isopach map, Exhibit "C", Figure No. 2, which shows the subject acreage to be located on the established trend of commercial production and to have average net pay greater than 10 feet.