### LLANO, INC.

Lusk Strawn Deep Unit
Pressure Maintenance Project
Lea & Eddy Counties, New Mexico

Exhibits 1-16

NMOCC Hearing

October 8, 1975

Ex. No. 5

BEFORE EXAMINER STAMETS tates OIL CONSERVATION COMMISSION

CASE NO.

IN RESERVATION COMMISSION

Submitted by

Hearing Date

CASE TO COMMISSION

Submitted by

The state of the commission of the

BEFORE EXAMINERS TWINE IS tates Department of the Interior

GEOLOGICAL SURVEY Denver Federal Center Denver, Colorado 80225

DECEIVE Ber 6, 1973

DEC 1 0 1973

Hinkle, Bondurant, Cox & Eaton P. O. Box 10 Roswell, New Mexico 88201

RINKLE, BONDURANT, DEX & SATEN RISWELL, NEW MEXICO

Gentlemen:

Your application filed October 23, 1973, on behalf of Llano, Inc., requests the designation of the Lusk Strawn Deep unit area embracing 20,863.88 acres, Lea and Eddy Counties, New Mexico, as logically subject to operation under the unitization provisions of the Mineral Leasing Act, as amended. The proposed unit area embraces 18,581.60 acres (89.06 percent) of Federal land and 2,282.28 acres (10.94 percent) of New Mexico State land.

Unitization is for the purpose of conducting secondary recovery operations by injecting extraneous gas and will be limited to the Strawn zone of Pennsylvanian age defined by Section 2(g) of the unit agreement. The proposed unit area has been developed by 65 wells completed in the formation to be unitized. Participation will be based on a single phase formula consisting of 5 percent surface acres, 20 percent productive acres, and 75 percent net acre-feet. You estimate that secondary recovery operations will result in the recovery of an additional 10,175,000 total equivalent barrels of oil.

The land requested, as outlined on your plat marked "Exhibit A, Lusk Strawn Deep Unit, Lea and Eddy Counties, New Mexico" is hereby designated as a logical unit area. The designation of the Lusk Strawn Deep Unit is granted provided the Lusk Deep and Plains unit agreements, which are wholly within the proposed unit area, are amended to eliminate the Strawn zone of Pennsylvanian age prior to filing the proposed unit agreement for final approval. Your proposed form of unit agreement will be acceptable if modified as indicated. One marked copy of the form is returned herewith and one copy is being sent to the Oil and Gas Supervisor, Roswell, New Mexico. We hereby concur in the Supervisor's recommendation that the proposed basis for allocating unitized production be accepted.

The format of the sample exhibits attached to the 1968 reprint of the Form of Unit Agreement for Unproved Areas should be followed closely, including the latest status of all acreage, in the preparation of Exhibits A, B, and C.

In the absence of any objection not now apparent, a duly executed agreement conformed to the returned copy and approved by the appropriate officials of the State of New Mexico will be approved if submitted in approvable status within a reasonable period of time. However, the right is reserved to deny approval of any executed agreement that, in our opinion, does not have full commitment of sufficient lands to afford effective control of operations in the unit area.

As the unit area contains State of New Mexico lands, we are sending a copy of this letter to the Commissioner of Public Lands of the State of New Mexico in Santa Fe. Please contract the State of New Mexico before soliciting joinders, regardless of prior contacts with or clearances from the State.

Sincerely yours,

Being H. Dform

Conservation Manager, Central Region For the Director



# United States Department of the Interion United States

GEOLOGICAL SURVEY Denver Federal Center Denver, Colorado 80225

JAN 2 1 1974

BUKLE, BENGURANT, COX & EATEN RUSWELL, NEW MEXICO

JAN 18 1974

Mr. Clarence E. Hinkle
Hinkle, Bondurant, Cox and Eaton
P.O. Box 10
Roswell, New Mexico 88201

Dear Mr. Hinkle:

Your letter of December 14, 1973, requests preliminary approval for the text of two separately proposed amendments, one each to the Lusk Deep unit agreement and to the Plains unit agreement, both in Lea County, New Mexico, and for a proposed form of Consent and Ratification to each such amendment.

The proposed amendments are designed to eliminate the Strawn formation from both the Lusk Deep and Plains unit agreements while maintaining each such agreement with respect to all other formations. Such action is necessary to facilitate the commitment of certain interests in both the Lusk Deep and Plains unit areas to the Lusk Strawn Deep unit agreement.

The proposed amendments and forms of "Consent and Ratification" are satisfactory to this office and such amendments, properly executed on the proposed signatory instruments, should be filed concurrently with the request for final approval of the Lusk Strawn Deep unit agreement.

Sincerely yours,

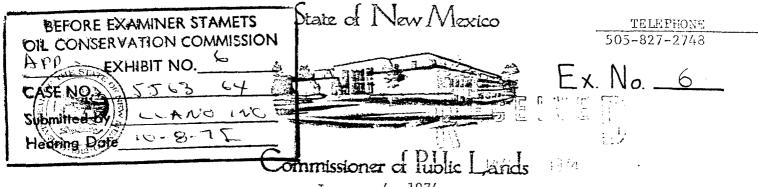
Conservation Manager, Central Region

For the Director

cc:

El Paso Products Company P.O. Box 3986 Odessa, Texas 79760

Perry R. Bass Fort Worth National Bank Bldg. Fort Worth, Texas 76102



ALEX J. ARMIJO COMMISSIONER January 4, 1974

MAKE, ESSERANT, COX & MATCH SANTA FE, NEW MEXICO MOSNELL NEW MEXICO

Hinkle, Bondurant, Cox & Eaton 600 Hinkle Building
P. O. Box 10
Roswell, New Mexico 88201

Re: Llano, Inc.'s

Proposed Lusk Strawn Deep Unit Lea and Eddy Counties, New Mexico

ATTENTION: Mr. Clarence E. Hinkle

Gentlemen:

We have reviewed the proposed unexecuted copy of unit agreement, Exhibits "A" and "B" for the Lusk Strawn Deep Unit. The form of agreement meets with the requirements of the Commissioner of Public Lands with a few minor changes as outlined below.

Under Section 24 (EFFECTIVE DATE AND TERM), lines 1 and 6, page 26, we would like for you to change the wording from "can be produced" to "are produced". Enclosed is copy of page 26 reflecting such change.

Your Exhibits "A" and "B" require a few changes also. Under Tract 95 the Lessee of Record should be Cities Service Oil Company, under Tract 100 the new Lease is LG-1477 which was bought by Amoco Production Company, under Tract 105 it should show assignment one and is owned by Hanland Oil Corporation, under Tract 107 it should show assignment one and is owned by Coronet Trading Corporation. Enclosed are pages 10 and 11 of the Exhibit "B" reflecting such changes.

Your proposed agreement has this date been approved as to Form and Content, subject to the changes as outlined in Paragraphs 2 and 3.

Upon submitting the unit for final approval the following are required by this office.

- 1. Application for final approval stating all Tracts committed and tracts not committed.
- 2. Two executed copies of Unit Agreement-one must be an original.
- 3. One executed copy of Operating Agreement, with ratifications
- 4. Two copies of all ratifications from Lessees of Record and Working Interest Owners, one must be an original.

Hinkle, Bondurant, Cox & Eaton January 4, 1974 Page 2.

5. Final Drafts of Exhibits "A" and "B".

We are in receipt of your Two Hundred and Thirty (\$230.00) Dollars for the filing fee, however, the filing fee is ten dollars for each section or fraction part thereof, whether the acreage is federal, state or privately owned. Therefore, please remit another Two Hundred and Thirty (\$230.00) Dollars.

If we may be of further help please do not hesitate to call on us.

Very truly yours,

RAY D. GRAHAM, Director Oil and Gas Division

AJA/RDG/s encls.

cc:

United States Geological Survey

P. O. Drawer 1857 Roswell, New Mexico

(ATTENTION: Mr. Carl Traywick)

### State of New Mexico



## Commissioner of Public Lands

January 11, 1974

TELEPHONE 505-827-2748 JAN 12 1974

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SANTA FE, NEW MEXICO

Hinkle, Bondurant, Cox & Eaton 600 Hinkle Building P. O. Box 10 Roswell, New Mexico 88201

> Re: Llano Inc. 's proposed Lusk Strawn Deep Unit, Lea and Eddy Counties, New Mexico

Dear Mr. Hinkle:

ALEX J. ARMIJO COMMISSIONER

> Please refer to our letter of January 4, 1974, concerning suggested changes in the proposed subject unit agreement. Paragraph 2 of said letter requested changes in lines 1 and 6, on page 26, from the wording "can be produced" to "are produced".

Due to the terms and regulations of Federal leases and Unit Agreements, we are hereby withdrawing this requested change and concent to the wording "can be produced" to be left in the Unit Agreement insofar as it effects this Unit Agreement.

Very truly yours,

RAY D. GRAHAM, Director Oil and Gas Division

AJA/RDG/s

cc:

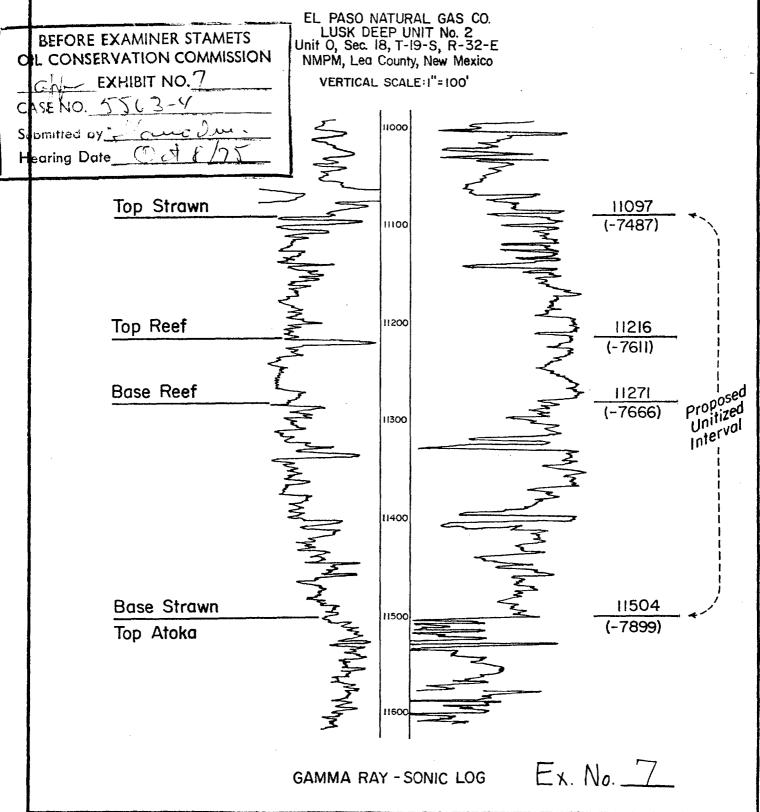
Llano, Inc. P. O. Drawer 1320 Hobbs, New Mexico 88240

United States Geological Survey P. O. Drawer 1857 Roswell, New Mexico 88201 (ATTENTION: Mr. Carl Traywick)

#### TYPE LOG OF THE INTERVAL OF UNITIZATION

LUSK STRAWN DEEP UNIT PRESSURE MAINTENANCE PROJECT EDDY & LEA COUNTIES, NEW MEXICO

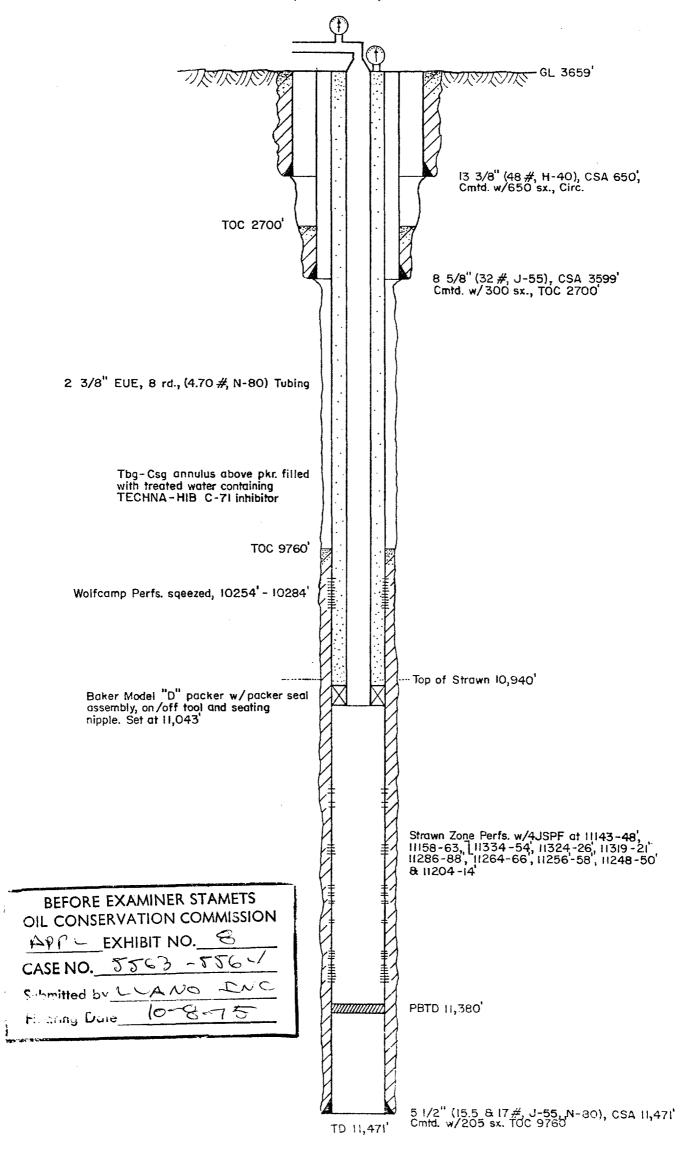
# RECOMMENDED VERTICAL INTERVAL OF UNITIZATION



# LLANO, INC LUSK STRAWN DEEP UNIT PROPOSED INITIAL INJECTOR

Ex. No. 8

TENNECO OIL COMPANY
CONTINENTAL FEDERAL UNIT "A" No. 1
1980' FNL & 1650' FEL, Sec. 6, T-19-S, R-32-E
NMPM, LEA COUNTY, NEW MEXICO



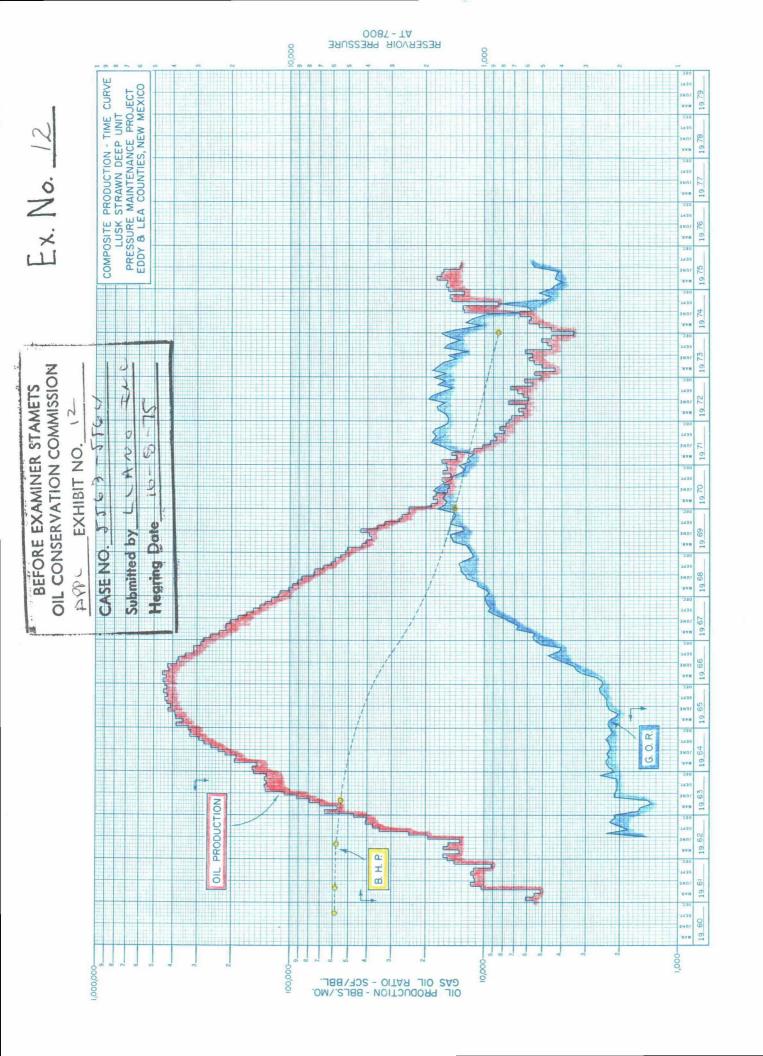
#### LLANO, INC. LUSK STRAWN DEEP UNI

# LUSK STRAWN DEEP UNIT PROPOSED INITIAL INJECTOR

Ex. No. 9

TENNECO OIL COMPANY CONTINENTAL FEDERAL COM. No. I 660 FSL & 1980 FEL, Sec. 6, T-19-S, R-32-E NMPM, LEA COUNTY, NEW MEXICO

	Φ	
TOC 2675'		8 5/8" (32 #, J-55) CSA 3802' Cmtd. w/300'sx., TOC 2675'
2 3/8" EUE, 8 rd. (4.70 #, N-80) Tubing	;	5 weet ges no corresion
Tbg-Csg annulus above pkr. filled with treated water containing TECHNA - HIB C-71 inhibitor		
Baker Model "F" packer w/packer seal assembly, on/off tool and seating nipple. Set at 11,186		Top of Strawn 11,122'
BEFORE EXAMINER STAMETS OIL CONSERVATION COMMISSION  APPL TYPIC NC 9  Inited by LCANO INC  Hearing Date 19-8-75		Strawn Zone Perfs. w/8JSPF at II,286, 87, 88, 89, 90, 91 and II,292'  PBTD II,331'  4 1/2" (II.6 #, J-55, N-80) CSA II,369' Cmtd. w/250 sx. TOC 9970'
	TD 11,370	70' Cmtd. w/250 sx. TOC 9970'



# LUSK STRAWN DEEP UNIT Lea and Eddy Counties, New Mexico GENERAL DATA

Age	Reservoir		Strawn Ree	f
Name	Age		Pennsylvan	ian
Discovery Date Discovery Well Current Wells (August 1, 1975) Strawn Producing Shut-Down 16 P & A D & A 28 D & A 27  Current Reservoir Producting Rate - August 1, 1975 Cummulative Production Total Reservoir - August 1, 1975 Cummulative Production Total Reservoir - August 1, 1975 Cummulative Production Big Eddy Unit Proposed Unit Areal Extent Productive Area, Unit Reservoir Volume, Unit Average Net Productive Thickness, Unit Reservoir Temperature Reservoir Temperature Reservoir Temperature Reservoir Pressure, Initial @ - 7800' Saturation Pressure, @ 169° F  Fluid Properties: FVF @ Initial Pressure FVF @ Saturation Pressure Initial Gravity of the Oil, API Initial Solution GOR  Reservoir Rock Properties: Porosity Interstitial Water Saturation Average Permeability  Oil Water Contracts - Eastern Flank Southeastern  October, 1960 E1 Paso Products Lusk Deep A-1 E1 Paso Products 15, 24 28 28 28 28 28 27  Current Reservoir Production Big Eddy Unit 459,000 BELS Coutheastern  October, 1960 E1 Paso Products Lusk Deep A-1 E1 Paso Products 13, 268 BBL/Month 146 148,470,000 BBLS 148,011,000 149,470,0			11,300'	
Discovery Well	•			960
Current Wells  (August 1, 1975) Strawn  Producing Shut-Down 16 P & A 28 D & A 27  Current Reservoir Producing Rate - August 1, 1975  Cummulative Production Total Reservoir - August 1, 1975  Cummulative Production Lusk Strawn Deep Unit Cummulative Production Big Eddy Unit Proposed Unit Areal Extent Productive Area, Unit Reservoir Volume, Unit Average Net Productive Thickness, Unit Reservoir Temperature Reservoir Pressure, Initial @ - 7800' Saturation Pressure, @ 169°F  Fluid Properties: FVF @ Initial Pressure FVF @ Saturation Pressure Initial Gravity of the Oil, API Initial Solution GOR  Reservoir Rock Properties: Porosity Interstitial Water Saturation Average Permeability  Producing 23 Shut-Down 16 P & A 28 D & A 27  13,268 BBL/Month 148,410,000 BBLS 14,470,000 BBLS 11,461.12 Acres 12,848.00 Acre-ft 169.0°F 1473 psi  Fluid Properties: FVF @ Initial Pressure 2.152 2.254 4.173 psi  Fluid Properties: FVF @ Saturation Pressure 1.1,461.12 Acres 12,548.00 Acre-ft 149.0°F 1473 psi  Fluid Properties: FVF @ Initial Pressure 2.152 2.254 4.173 psi  Fluid Properties: FVF @ Initial Pressure 2.254 4.85 percent 30.40 percent 30.40 percent 30.40 percent 30.40 percent 4.85 percent 30.40 percent 4.85 percent 30.40 percent 4.86			El Paso Pro	oducts Lusk Deep A-l
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P & A D & A 28 D & A 27  Current Reservoir Producing Rate - August 1, 1975  Cummulative Production Total Reservoir - August 1, 1975  Cummulative Production Lusk Strawn Deep Unit 18,011,000  Cummulative Production Big Eddy Unit 459,000  Proposed Unit Areal Extent 20,863.88 Acres Productive Area,Unit 11,461.12 Acres Reservoir Volume, Unit 352,848.00 Acre-ft. Average Net Productive Thickness, Unit 30.79 Feet Reservoir Temperature 169.0°F  Reservoir Pressure, Initial @ - 7800' 5862 psi 4173 psi  Fluid Properties: 7VF @ Initial Pressure 169°F 4173 psi  Fluid Properties: 2.254  Initial Gravity of the Oil, API 48  Initial Solution GOR 2359-1  Reservoir Rock Properties: 9070 4,85 percent 10,400 percent 21.60 millidarcies  Oil Water Contracts - Eastern Flank 7950  Southeastern 8000	(August 1, 1975) Strawn	Producing	<b>2</b> 3	
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Initial Solution GOR  Reservoir Rock Properties: Porosity Interstitial Water Saturation Average Permeability  Oil Water Contracts - Eastern Flank Southeastern  2359-1  4.85 percent 30.40 percent 21.60 millidarcies				2.254
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Average Permeability  21.60 millidarcies  Oil Water Contracts - Eastern Flank Southeastern  7950 8000		_		<del>-</del>
Oil Water Contracts - Eastern Flank 7950 Southeastern 8000		ion		
Southeastern 8000	Average Permeability			21.60 millidarcies
Southeastern 8000	Oil Water Contracts - Eastern	Flank		7950
Southern 7915	Southern			7915
Southwest 8000				

BEFORE EXAMINER STAMETS OIL CONSERVATION COMMISSION
<u>Αββρ EXHIBIT NO. 13</u> CASE NO. 5163 5564
Submitted by LLAND FNC
Hearing Date 10-8-75

# LUSK STRAWN DEEP UNIT Lea and Eddy Counties, New Mexico LLANO, INC.

#### CALCULATIONS OF ORIGINAL OIL-IN-PLACE, BY:

#### I. MATERIAL BALANCE:

Composite Compressibility =  $Ce = \frac{CoSo + CwSw + Cf}{So}$ 

Co @ 5017 psi (average pressure orig. to bubble point =  $26.0 \times 10^{-6}$  Cw @ 5017 psi and  $169^{\circ}$  F =  $3.2 \times 10^{-6}$  Cf, Penn Reef, porosity 4.85% =  $6.5 \times 10^{-6}$  Sw = .304, So = .696

Ce =  $((26)(0.696) + (3.2)(0.304) + 6.5) \times 10^{-6}$  = 36.7 x 10<sup>-6</sup>

 $N = \frac{NpBo + (Wp-We)}{Ce (Pi-Pbp) Boi}$ 

N = Original Oil-in-Place

Np = Production to Bp =  $3.2 \times 10^6$ 

Bo = FVF @ Bp = 2.254

Wp = Water Prod = 0

We = Influx = 0

Ce = Composite Compressibility

Pi = Orig. press = 5862

Pbp = Bubble point

Press = 4173

Boi = Initial FVF = 2.152

$$N = \frac{3.2 \times 10^{6} \times 2.254 + 0}{36.7 \times 10^{-6} (5862 - 4173) \times 2.152} = \frac{7.2128 \times 10^{6}}{133394.5 \times 10^{-6}} = 54.1 \text{ Million Barrels}$$

#### II. VOLUMETRIC:

Porosity = 4.85% Sw = 30.40% Boi = 2.152

Reservoir Volume = 363493 AF Total Lusk Strawn Deep Unit = 352848 AF or 97.1%

 $\frac{7758 \times 1-\text{Sw} \times \emptyset}{\text{Boi}} = \text{BBLS/AF Original-in-Place}$ 

 $\frac{7758 \times .696 \times .0485}{2.152} = 122$ 

BEFORE EXAMINER STAMETS
OIL CONSERVATION COMMISSION

APPC EXHIBIT NO. 14

CASE NO. 5763 5564

Submitted by 660 2000

Hearing Date 10-8-75

TOTAL RESERVOIR:

363493 x 122 = 44.2 Million Barrels Original-in-Place

LUSK STRAWN DEEP UNIT AREA:

352848 x 122 = 43.0 Million Barrels Original-in-Place

NOTE: Elected to use material balance calculation of 54.1 Million Barrels as Original Oil-in-Place.

#### LUSK STRAWN DEEP UNIT - PRESSURE MAINTENANCE PROJECT Lea and Eddy Counties, New Mexico

## 1000's Stock Tank Barrels Estimated Additional Recovery by Pressure Maintenance

•		% 00IP	Cum. %
Original Oil-in-Place	54,100	100.0	34.1
Cumulative Recovery August 1, 1975	18,470	34.1	
Remaining Oil-in-Place	35,630	65.9	
Future Primary Recovery August 1, 1975	498	0.9	35.0
Future Pressure Maintenance Recovery Oil	4,762	8.8	43.8
Future Recovery, NGL	3,756	6.9	50.7
Total Future Recovery Oil, NGL	9,016	16.6	~

Increase Due to Unitization and Pressure Maintenance Project 9016-498=15.7% 54100

(Excluding 1,444,000 BBLS NGL From Extraneous Gas)

NOTE: Above determination predicates a cycling rate of 60 MMCFD with reservoir operating at 4000 psi with cumulative injection of 345 BCF over a 16 year period.

BEFORE EXAMINER STAMETS OIL CONSERVATION COMMISSION
EXHIBIT NO. 15
CASE NO. 5563-4
Submitted by face che
Hearing Date CAS 775

#### LUSK STRAWN DEEP UNIT - PRESSURE MAINTENANCE PROJECT Lea and Eddy Counties, New Mexico

#### Estimated Future Production @ 60 MMCFD Injection 1000's Barrels

Year	(1) Crude Oil Unit Recovery	(2) Natural Gas Liquids Plant Recovery	(3) NGL To Unit	(4) Oil and NGL To Unit
1	200	244(5)	- No bu	V 200
2	350	(00(3)	- 0 tu	1 350
3	760	(00)2	- acl	760
4	785	400(5)	- 0 tu	785
5	815	567	255	1070
6	550	500	225	775
7	390	444	200	590
8	280	422	190	470
9	220	400	180	400
10	190	378	170	360
11	170	356	160	330
12	150	356	160	310
13	130	222	100	230
14	120	111	50	170
15.	100	-	-	100
16	50	me .	₩	50
Total	5260	5200	1690	6950
		100 loplant prod		

- (1) Includes primary and pressure maintenance recoveries.(2) Total liquids recovered in Plant.

- (3) Allocation of 45% of plant liquids to unit.(4) Total recovery to unit: column (1) plus column (3).
- (5) Liquids recovered from extraneous gas total 1,444,000 BBLS as a result of implementation of project.

#### Economics Accruing to Unit

Average Annual	Rate of Return, %	14.0
Payout Period,	Years	4.5
Number of Time	s Investment Returned	1.5

BEFORE EXAMINER STAMETS OIL CONSERVATION COMMISSION
CANA EXHIBIT NO.
CASE NO. 5563-4
Submitted by Flancolm.
Hearing Date 8 7 1

Ex. No. 16

00	<b>(2)</b>	ر 😉	lcoustic=(	Gamma	-Calip	er Log
ILE NO		_YAAAMC	TENNECO OI	L-CÓMPANY		
	l w	ELL	USA CONTIN	ENTAL "A"	NQ I	
	FI	ELD	LUSK STRAW	<u> </u>		
-	1   0	YTAUC	LEA	ST	ATE NEV	MEXICO
	10	CATION-	1980' FNL.	1650 FE		Other Services
	SE	6	TWP 19-5	RGE 12	LE	
						Elevations
log Medsured fro	M KELLY	BUSHING	16,8 Fr. A	Elev Dove Permane	nt Dotum D	# 3675.0
Log Medsured fro Drilling Measured Date	M KELLY d from KEL 9-1-6	BUSHING LY BUSHING	16,8 Fr. A	Elev Dove Permane	nt Dotum D	8 <u></u> # 3675.0
Log Medsured fro Drilling Measured Data Run No.	m KELLY d from KEL 9-3-6 ONE	BUSHING LY BUSHING	16,8 Fr. A	Elev.	nt Dotum D	8 <u></u> # 3675.0
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Log Medsured fro Drilling Measured Date Run No. Total Depth Drill Total Depth PGJ SorramLaggedInter	9-1-6 ONE 11436 C 11438	BUSHING LY BUSHING	16,8 Fr. A	Elev.	nt Dotum D	8 <u></u> # 3675.0
Log Medsured fro Drilling Measured Date Run No. Total Depth Drill Total Depth PGA SorromLaggediner Casing Dniller	9-1-6 ONE ler 11436 AC 11438 resi 11432 3599	BUSHING LY BUSHING	16,8 Fr. A	Elev.	nt Dotum D	8 <u></u> # 3675.0
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Log Medsured fro Drilling Measured Date Run No. Total Depth Drill Total Depth PGA SorromLaggediner Casing Dniller	9-1-6 ONE Nor 11436 AC 11438 Trai 11432 3599	BUSHING LY BUSHING	16,8 Fr. A	Elav.	nt Dotum D	8 <u></u> # 3675.0
Log Mediured fro Drilling Measures Date Run No. Total Depth Drill Total Depth PGA Sotrom Loggedines Casing Driller Casing PGAC Footage Logged Mud Type	9-3-6 ONE 11436 AC 11438 Troi 11432 3599 11432 SALT	BUSHING LY BUSHING	16,8 Fr. A	Elav.	nt Dotum D	8 <u></u> # 3675.0
Log Mediured fro Drilling Measures Date Run No. Total Depth Drill Total Depth PGA Sorran Logged Inter Caung Driller Caung PGAC Fnotage Logged Mud Type Density Visc	9-3-6 9-3-6 9-3-6 9-3-6 9-3-6 9-3-9 11438 11432 3599 11432 3594 11432 5ALT	BUSHING LY BUSHING	16,8 Fr. A	Elav.	nt Dotum D	8 <u></u> # 3675.0
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Reproduced By

West Joses Electrical Log Service

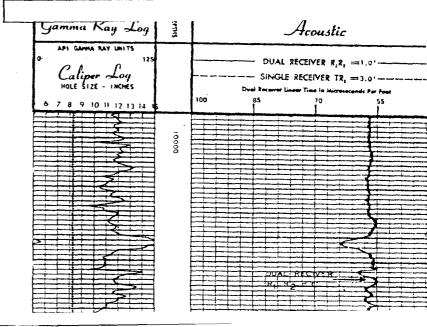
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REFERENCE H4904K

(ELSI)

18 completion record

SPUD DATE		
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DST RECORD	L71, 140.	



	ONIC LOG-GAMMA RAE:
	WITTH CALIFOR  LIMBERGER VIELE SURVEYING COURFORATION  Houston, Toxorb
COMPANY_TENY	NECO OIL COMPANY
FIELD LUSH	CONTINENTAL 1
VOLTANA TOCATION 660	STATE   NEW MEXICO
Permanent Datums GROUNG LEVEL	19-5 Rge. 32-E  Elev. 3654-5  Elev., K.S. 3672-6  D.F. 3671  G.L. 3654-5
Date 7-3-64  Run No. ONE Depth—Driller 11370 Depth—lagger 11372  Bimlag interval 11363 Top Lag Interval 118 Casing—Driller 8-5/81*3333	
Cosing—Logger 3802 Bit Size 7-7/8" Type Fluid in Hole CHEH GCL  Dens. Visc. 9 6 19	
PH   Fluid Loss   10 5   12 2ml Source of Sample   C  REULATED R.   @ Mean. Temp.   05   690 ° Fl Rel   @ Meas. Temp.   725   691 ° Fl Rel   @ Meas. Temp.   12   691 ° Fl Source Rel Rel   M   M   R.   @ Best   52   @ 1 LB° Fl	m
Time Since Cire.  Max. Rec. Tomp. 148 F Equip. Location 2524   ART. Recorded By VANN Witnessed By EATON-DESAOI	SR-COLLINS
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CALIPER HOLE DIAM. IN INCHES	
RECORDED 7' SHALLOW	

### LUSK STRAWN DEEP UNIT PROJECT AREA

Recommendations for Special Rules and Regulations for the - Llano, Inc. Lusk Strawn Deep Unit Pressure Maintenance Project and Unit Area:

- Rec. 1. Rules and regulations for Lusk Strawn Pool outside of project area be retained as written in Order No. R-2175-B.
- Rec. 2. The project area of the Llano, Inc. Lusk Strawn Deep Unit consisting of 1760 Acres shall be described as follows:

#### LEA COUNTY, NEW MEXICO

#### Township 18 South, Range 32 East, NMPM

Section 31: SE/4 Section 32: SW/4

#### Township 19 South, Range 32 East, NMPM

Section 5: W/2
Section 6: E/2
Section 7: N/2
Section 8: W/2

#### EDDY COUNTY, NEW MEXICO

#### Township 19 South, Range 31 East, NMPM

#### Section 12: NE/4

- Rec. 3. The allowable for the project shall be the sum of the allowables of the several wells within the project area including those wells which are shut-in, curtailed or used as injection wells. Allowables for all wells shall be determined as hereafter prescribed.
- Rec. 4. Allowables for injection, shut-in or curtailed wells may be transferred to producing wells in the interest of performance efficiencies.
- Rec. 5. The allowable assigned to any injection well on a 160 Acre proration unit shall be top unit allowable for the Lusk Strawn Pool.

- Rec. 6. The allowable assigned to any well which is shut-in or curtailed in accordance with Rec. 4. above which allowable is to be transferred to any well or wells within the project area for production, shall in no event be greater than its ability to produce during the test period prescribed in Rec. 7., below, nor will it be any greater than the top unit allowable for the Pool during the month of transfer, whichever is less.
- Rec. 7. The allowable assigned to any well which is shut-in or curtailed in accordance with Rec. 4. above shall be determined by a 24 hour test at a stabilized production rate which shall be the final 24 hour period of a 72 hour test during which time the well shall be produced under constant conditions. The daily tolerance limitation set forth in Commission Rule 502-I-a and the limiting GOR, if any, shall be waived during such tests. The Lusk Strawn Deep Unit project operator shall notify all operators offsetting the well, as well as the Commission, of the exact time such tests are to be conducted. Tests may be witnessed by representatives of offset operators and the Commission.
- Rec. 8. The allowable assigned to each producing well in the project area shall be equal to the well's ability to produce or to top unit allowable for the Lusk Strawn Pool, whichever is less, provided that any producing well or wells within the project area which evidence substantial response to gas injection shall be permitted to produce up to the project allowable or any proportion thereof. Each producing well within the project area shall be exempt from the Lusk Strawn Pool limiting gas-oil-ratio of 4000 1.
- Rec. 9. The conversion of additional producing or shut-in wells to injection and the expansion of the project area shall be by application and through administrative approval procedures of the Commission.