

# United States Department of the Interior

GEOLOGICAL SURVEY South Central Region P. 0. Box 26124 Albuquerque, New Mexico 87125 CC

MAY 29 1980

#6182

JUN

SANTA F:

Union Oil Company of California Attention: Richard R. Oelze 500 North Marienfeld Midland, Texas 79701

Gentlemen:

The Consent to Ratification and Joinder to the Laguna Deep Unit Agreement by Amoco Production Company, submitted to this office with your transmittal letter of February 12, 1980, is accepted for record purposes. Two signed copies are enclosed.

> Sincerely yours, (ORIG. SGD.) JACK WILLOCK

FOR Floyd L. Stelzer Acting Deputy Conservation Manager Oil and Gas

Enclosures 2

í

cc: NMOCD, Santa Fe/



# United States Department of the Interior

GEOLOGICAL SURVEY Conservation Division P. O. Box 26124 Albuquerque, New Mexico 87125

2 5 FEB 1980

6182

Union Oil Company of California Attention: Mr. Richard R. Oelze P. O. Box 671 Midland, Texas 79702

Gentlemen:

Your application of April 6, 1979 requesting approval of the initial Morrow participating area for the Laguna Deep unit agreement, Lea County, New Mexico, was approved by the Oil and Gas Supervisor, U.S. Geological Survey, effective as of January 7, 1979.

The application proposes 640.00 acres which embraces all of sec. 35, T. 19 S., R. 33 E., N.M.P.M. as the initial Morrow participating area. Such participating area is based on the completion of well No. 1 in the SW4NE4 sec. 35 on January 7, 1979 as the discovery well and determined to be commercial as a paying well pursuant to section 9 of the unit agreement by letter of April 11, 1979.

Copies of the approved application are being distributed to the appropriate Federal offices and one copy is returned herewith. You are requested to furnish the State of New Mexico and all interested parties with evidence of this approval.

Sincerely yours,

(ORIG. SGD.) JACK WILLOCK

James W. Sutherland Oil and Gas Supervisor, SRMA

Enclosure

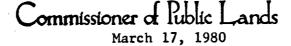
cc: NMOCD, Santa Fe



ONE HUNDRED YEARS OF EARTH SCIENCE IN THE PUBLIC SERVICE







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

Union Oil Company of California 500 North Marienfeld Midland, Texas 79701

6152-

Re: Laguna Deep Unit Lea County, New Mexico 1980 PLAN OF DEVELOPMENT AND OPERATION

ATTENTION: Mr. Richard R. Oelze

Gentlemen:

The Commissioner of Public Lands has this date approved your 1980 Plan of Development and Operation for the Laguna Deep Unit, Lea County, New Mexico. Such plan proposes the drilling of a Morrow well in Section 35, Township 19 South, Range 33 East. 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.

Your Three (\$3.00) Dollar filing fee has been received.

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-USGS

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



ALEX J. ARMIJO



# United States Department of the Interior

GEOLOGICAL SURVEY

P. O. Box 26124 Albuquerque, New Mexico 87125

0/1 F23 2 0 FEB 1980 6182

Union Oil Company of California Attention: Mr. Richard R. Oelze P. O. Box 671 Midland, Texas 79702

Gentlemen:

Two approved copies of your 1980 plan of development for the Laguna Deep unit area, Lea County, New Maxico, proposing the drilling of a Morrow well in sec. 35, T. 19 S., R. 33 E., 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

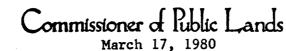
Enclosure

cc: NMOCD, Santa Fe (ltr only)



State of New Mexico





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

Union Oil Company of California 500 North Marienfeld Midland, Texas 79701

6182

Re: Laguna Deep Unit Laguna Prospect (7729) Lea County, New Mexico Initial Morrow Participating area

ATTENTION: Mr. Richard R. Oelze

Gentlemen:

The Commissioner of Public Lands Lands has this date approved the Initial Morrow Participating Area for the Laguna Deep Unit, Lea County, New Mexico. The USGS gave their approval February 25, 1980.

By your letter of March 11, 1980, you have advised this office that the effective date of this participating area is February 9, 1979 and not January 7, 1979.

Enclosed is one approved copy for your records.

Your Three (\$3.00) Dollar filing fee has been received.

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



ALEX J. ARMIJO

# OIL CONSERVATION DIVISION P. O. BOX 2088 SANTA FE, NEW MEXICO 87501

April 2, 1980

Union Oil Company of California 500 North Marienfeld Midland, Texas 79701

Attention: Richard R. Oelze

Re: Case No. 6182 Laguna Deep Unit 1980 Plan of Development and Operation

Gentlemen:

• 121 ±+

We hereby approve the 1980 Plan of Development and Operation for the Laguna Deep Unit, Lea County, New Mexico, subject to like approval by the United States Geological Survey and the Commissioner of Public Lands.

One approved copy of the Plan of Development and Operation is returned herewith.

Yours very truly,

JOE D. RAMEY Director

JDR/EP/fd enc.

cc: U.S.G.S. - Roswell Commissioner of Public Lands Union Oil and Gas Division: Central Region

Union Oil Company of California 500 North Marienfeld, Midland, Texas 79701 P.O. Box 671, Midland, Texas 79702 Telephone (915) 682-9731

February 11, 1980

Robert V. Lockhart District Land Manager Midland District

6152

Oil Conservation Division Energy and Minerals Department P. O. Box 2088 Santa Fe, New Mexico 87501

Attn: Mr. Joe D. Ramey, Director

Gentlemen:

Laguna Deep Unit Lea County, New Mexico T-19 & 20-S, R-33-E, NMPM

Enclosed for your review please find one (1) copy of Union Oil Company of California's "1980 Plan of Development and Operation for Laguna Deep Unit Area."

Union, as Operator, respectfully requests your consideration and approval of this plan. Should you have any additional questions, please contact the undersigned.

Sincerely yours, OIL COMPANY OF CALIFORNIA Trehard K. Cu.

Richard R. Oelze Landman

RRO/sb

Encl: (1)

#### 1980 PLAN OF DEVELOPMENT AND OPERATION

FOR

OIL CC

## LAGUNA DEEP UNIT AREA

#### LEA COUNTY, NEW MEXICO

TO: The Director Oil Conservation Division Energy and Minerals Department P. O. Box 2088 Santa Fe, New Mexico 87501

Union Oil Company of California, as Unit Operator for the Laguna Deep Unit Area, pursuant to the provisions of Section 10 of the Unit Agreement for Development and Operation of the Laguna Deep Unit Area, dated June 22, 1978 (No. 14-08-0001-16905), respectfully submits for the approval of the Director, Oil Conservation Division, or its duly authorized representative, this 1980 Plan of Development and Operation for the Laguna Deep Unit Area. This plan is for the period ending December 31, 1980.

#### SUMMARY OF 1979 and 1980 OPERATIONS TO DATE

In our 1979 Plan of Development and Operation you were informed that the Laguna Deep Unit Federal Well No. 1, located 1650' FNL and 1980' FEL Section 35, T-19-S, R-33-E, Lea County, New Mexico, was drilled to a total depth on January 5, 1979, at 14,753'. By respective letters dated April 11, 1979, and April 17, 1979, the Oil and Gas Supervisor, U.S.G.S., and the Commissioner of Public Lands, concurred with our determination the #1 Well did qualify as a Unit Well and validated the Unit Area. A gas contract was finalized August 1, 1979, and initial delivery was made at 2:00 P.M., September 24, 1979. On October 12, 1979, application was made to the Supervisor for Approval of the Initial Participating Area of the Morrow Formation, Laguna Deep Unit.

The Laguna Deep Unit Federal Well No. 2 was spudded on November 8, 1979, at 990' FSL and 1980' FWL Section 26, T-19-S, R-33-E, Lea County, New Mexico. This test was drilled to a total depth of 13,490' on January 4, 1980. The lower Morrow was perforated January 21, 1980, at an interval between 13,381'-13,390' and on January 23, 1980, this Morrow interval was flowed at a stabilized rate of 2,000 MCFD at 1700 PSI FTP for 7 hours then SI. The well produced condensate at the rate of 108 BPD during this 7 hour flow period. SITP (12 hours) was 3900 PSI. The well is currently shut-in awaiting a pipeline connection. We expect to finalize a gas contract within the next 45-60 day period and proceed with connecting the well to a sales outlet. We are presently drafting our determination letter seeking the Director's concurrence that the #2 Well does qualify as a Unit Well. A revised Participating Area request will be submitted following the #2 Well determination.

### PLAN OF DEVELOPMENT AND OPERATION FOR REMAINDER OF 1980

During the year 1980, we are proposing a third Morrow Well to be commenced in the first half of 1980 and to be located in the SW/4 Section 35, T-19-S, R-33-E, Lea County, New Mexico. Additional studies and evaluations will be made based on monitorings of the Laguna Deep Unit Federal Well No.'s 1 & 2, and the proposed test in SW/4 Section 35. Our plan may be modified or supplemented from time to time with the approval of the Conservation Director when necessary to meet changed conditions or to protect the interest of all parties to the Unit agreement.

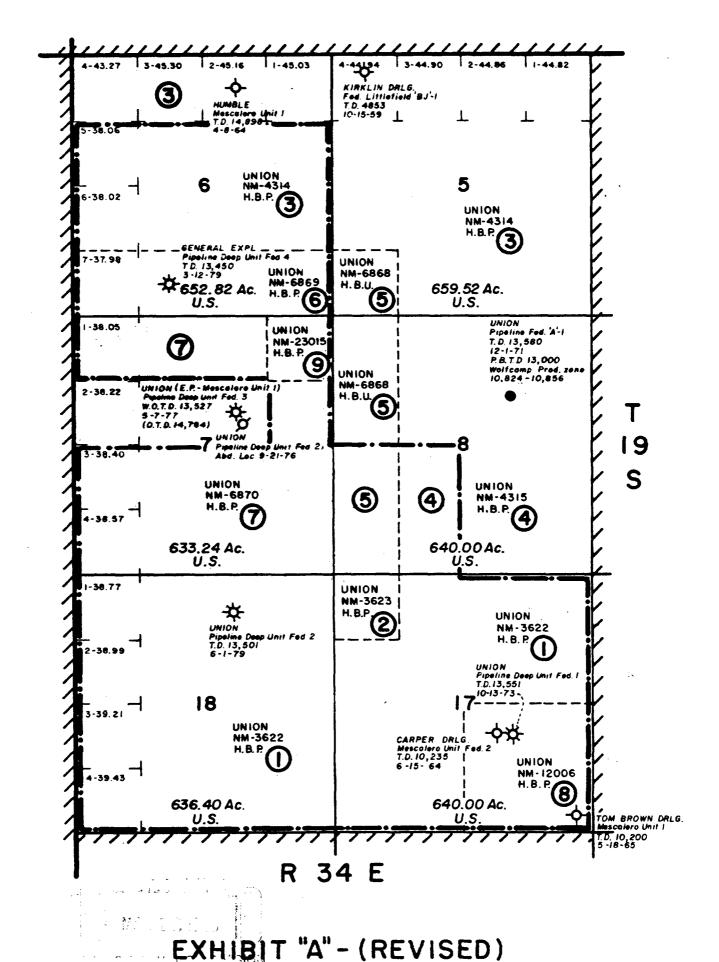
Your assistance in expediting approval of this Plan of Development and Operation will be greatly appreciated.

Submitted this \_\_\_\_\_\_ day of \_\_\_\_\_\_,1980

UNION OIL COMPANY OF CALIFORNIA

District Land Manager

ON Constitution District Energy and Miceral's Department



LAND OWNERSHIP MAP - PIPELINE DEEP UNIT (AS CONTRACTED EFFECTIVE SEPTEMBER 1, 1979) LEA COUNTY, NEW MEXICO

2

ORIGINAL UNIT BOUNDARY REVISED UNIT BOUNDARY & PARTICIPATING AREA

TRACT -NUMBER-INDEX TO EXHIBIT "B"

SCALE: 1" = 2000'

		2 1	TRACT
	Sec. 6:	Sec. 17: Sec. 18: Sec. 17:	DESCRIPTION OF LAND FEDERAL LAN
	Lots 5,6, S/2 NE/4, SE/4 NW/4 NE/4 SW/4, N/2 SE/4	NE/4, E/2 NW/4, SW/4 NW/4, SW/4 Lots 1,2,3,4, E/2, E/2 W/2 NW/4 NW/4	TON
	316.08	1076.40 40.00	NUMBER OF ACRES
	NM-4314 1-31-78	NM-3622 12-31-79 NM-3623 10-31-77	PIPELINE DEE TOW AS CONTR SERIAL NO. & EXPIRATION DATE OF LEASE
<b>`</b>	USA - All (12.5%)	UȘA - All (12.5%) USA - All (12.5%)	REVISED EXHIBIT "B" E DEEP UNIT AREA - LEA C TOWNSHIP 19 South, Range CONTRACTED EFFECTIVE SEPTE BASIC ROYALTY E AND OWNERSHIP PERCENTAGE
	Union Oil Company of California	Union Oil Company of California Union Oil Company of California	"B" LEA COUNTY, NEW MEXICO Range 34 East SEPTEMBER 1, 1979 LESSEE OF RECORD
	Wm. A.Jurklewicz 3%	Easton E. Brodsky 5% Lucretia G. Goldsmith	OVERRIDING ROYALTY OR PRODUCTION PAYMENT & PERCENTAGES
.0244043 Gifford E. Joseph .0069726 Kenai Oil & Gas, Inc. .0150563 Frank O. Elliott Living Trust .0619828	FROM SURFACE TO 13,245 <u>FEET</u> Sunmark Expl. Company .1416750 Martin B. Seretean .0244043 B. Jackson Bandy	Union: All 5% Union: All	WORKING INT. AND PERCENTAGE

Page -1- of 6

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DESCRIPTION	NUMBER	SERIAL NO. &	BASIC ROYALTY	LESSEE	OVERRIDING ROYALTY	WORKING INT.
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						McKay 011 Corp .0212513
						Resource Part- ners .0070837
						C&K Petroleum, Inc. .0070837
				-		Frederick H. Prince .0354188
			*		·	Robert E. Landreth .0177094
						C.W. Trainer .0333334
				÷		David M. Trainer .0333333
						Marvin C. Gross

Page -2-

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6		S		4							TRACT	
Sec. 6: Lot 7, SE/4 SW/4, S/2 SE/4		Sec. 8: W/2 SW/4		Sec. 8: E/2 SW/4	-					FEDERAL LANDS -	DESCRIPTION OF LAND	
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Union 011 Company of California		Union Oil Company of California	-	Union Oil Company of California			÷			<ul> <li>Image: Compared to the second second</li></ul>	LESSEE OF RECORD	COUN e 34 EMBE
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DESCRIPTION OF TRACT LAND	NUMBER OF ACRES	SERIAL NO. & EXPIRATION DATE OF LEASE	&         BASIC ROYALTY         LESSE           DATE         AND OWNERSHIP         OF           PERCENTAGE         RECOR	LESSEE OF RECORD	OVERRIDING ROYALTY OR PRODUCTION PAYMENT & PERCENTAGES	WORKING INT. AND PERCENTAGE
FEDERAL LANDS	- (Continued)					FROM SURFACE TO 13,245 FEET
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						B. Jackson Bandy .0244043
						Gifford E. Joseph .0069726
÷	· · ·					Kenai 011 & Gas, Inc. .0150563
						Frank O. Elliott Living Trust .0619828
			<b>y</b> ,			Edna Ione Hall Living Trust .0619828
		·				McKay Oil Corp .0212513
						Resource Part- ners .0070837

Page -4-

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Union Oil and Gas Division: Central Region

Union Oil Company of California 500 North Marienfeld, Midland, Texas 79701 P.O. Box 671, Midland, Texas 79702 Telephone (915) 682-9731



SANTA FE

February 12, 1980

Robert V. Lockhart District Land Manager Midland District

Care 1.182

Oil Conservation Division Energy and Minerals Department P. O. Box 2088 Santa Fe, New Mexico 87501

Attn: Mr. Joe D. Ramey, Director

Gentlemen:

Laguna Deep Unit Lea County, New Mexico

In connection with the captioned unit, we are enclosing for your approval and file, one (1) xerox copy of "Consent to Ratification and Joinder to the Laguna Deep Unit Agreement", signed June 13, 1979, by Amoco Production Company.

The foregoing instrument gives consent to the late ratifications of overriding royalty interest owners (Elizabeth Bate Brady, et al), copies which were transmitted to your office on May 17, 1979.

We are still awaiting Four (4) ORRI owner ratifications under Tract One and will provide you with the necessary copies when they become available to us.

Please advise the undersigned if you have any questions or need anything further in this regard.

Sincerely yours, OIL COMPANY OF CALIFORNIA

Richard R. Oelze Landman

RRO/sb Encl: (1) CONSENT TO RATIFICATION AND JOINDER TO THE LAGUNA DEEP UNIT AGREEMENT DATED FEBRUARY 2, 1978 DESIGNATED NO. 14-08-0001-16905 LEA COUNTY, NEW MEXICO

The undersigned working interest owner in the Laguna Deep Unit Agreement and the Unit Operating Agreement, hereby consents to the joinder of the overriding royalty interests of Elizabeth Bate Brady; Ethel B. Bate; Deborah Bate McDaniels; Virginia W. Hess, Trustee, and R. W. Hess, Trustee; in Tract No. 1, described as:

Township 19 South, Range 33 East

Section 26: SW/4

to said Unit Agreement.

Date: June 13, 1979

AMDOO PRODUCTION COMPANY APPROVED as By Attorney-(In-Fact C. N. Menninger P. O. Box 3092 Address: Houston, Texas 77001

WORKING INTEREST OWNER

STATE OF TEXAS, Į Į Į Į ss. COUNTY OF HARRIS. The foregoing instrument was acknowledged before me this  $/3^{\nu_h}$  day Sune, 1979, by C. N. Menninger of (Attorney-in-Fact of AMDOO PRODUCTION COMPANY, a Delaware corpor-

ation, on behalf of said corporation.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal the day and year above written.

aticia a. Drown

My Commission expires:

PATRICIA A. BROWN Notary Public in Harris County for the State of Taxag 2.2.81 My F

CONSENT TO RATIFICATION AND JOINDER TO THE LAGUNA DEEP UNIT AGREEMENT DATED FEBRUARY 2, 1978 DESIGNATED NO. 14-08-0001-16905 LEA COUNTY, NEW MEXICO

The undersigned working interest owner in the Laguna Deep Unit Agreement and the Unit Operating Agreement, hereby consents to the joinder of the overriding royalty interests of Elizabeth Bate Brady; Ethel B. Bate; Deborah Bate McDaniels; Virginia W. Hess, Trustee, and R. W. Hess, Trustee; in Tract No. 1, described as:

Township 19 South, Range 33 East

Section 26: SW/4

to said Unit Agreement.

June 13, 1979 Date:\_

AMDOO PRODUCTION COMPANY APPROVED QS By Attorney-In-Fact C. N. Menninger Ρ. Address: Box 3092 0. 77001 Houston Texas

WORKING INTEREST OWNER

STATE OF TEXAS, Ĩ SS. COUNTY OF HARRIS. The foregoing instrument was acknowledged before me this 13th day Sune, 1979, by C. N. Menninger of (Attorney-in-Fact of AMDOO PRODUCTION COMPANY, a Delaware corpor-

ation, on behalf of said corporation.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal the day and year above written.

<u>atricia a.</u> Drown

My Commission expires:

PATRICIA A. BROWN Notary Public in Harris County for the State of Toxas







P. O. BOX 1148 SANTA FE, NEW MEXICO

ALEX J. ARMIJO COMMISSIONER

> Union Oil Company of California P. O. Box 671 Midland, Texas 79702

6182

Re: Laguna Deep Unit Lea County, New Mexico 1979 PLAN OF DEVELOPMENT

ATTENTION: Mr. Richard R. Oelze

Gentlemen:

The Commissioner of Public Lands has this date approved your 1979 Plan of Development for the Laguna Deep Unit, Lea County, New Mexico. Such plan proposes the drilling of a well in the SW/4 Section 26, Township 19 South, Range 33 East. The USGS gave their approval August 9, 1979.

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

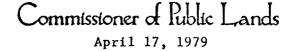
AJA/RDG/s encl.

cc:

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







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

Union Oil Company of California P. O. Box 671 Midland, Texas 79702

6182

Re: Laguna Deep Unit Eddy County, New Mexico Laguna Prospect (7729)

ATTENTION: Mr. Robert V. Lockhart

Gentlemen:

We are in receipt of your letter of March 16, 1979, together with a copy of your letter to the USGS dated March 14, 1979, and other attachments pertaining to the Laguna Deep Unit well No. 1 located in the SW/4NE/4 of Section 35, Township 19 South, Range 33 East.

We concur with your determination that such well is capable of producing unitized substances in paying quantities. The USGS concured with your determination by their letter of April 11, 1979. This office also concurs with the USGS that you must submit an application for the initial Morrow participating area.

Very truly yours,

ALEX J. ARMIJO COMMISSIONER OF PUBLIC LANDS

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

AJA/RDG/s

cc:

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



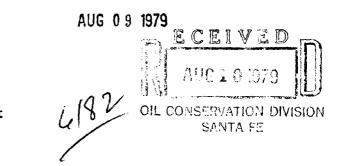
ALEX J. ARMIJO

COMMISSIONER



United States Department of the Interior

GEOLOGICAL SURVEY P. O. Box 26124 Albuquerque, New Mexico 87125



Union Oil Company of California Attention: Mr. Robert V. Lockhart P. O. Box 671 Midland, Texas 79702

Gentlemen:

On this date, your 1979 plan of development and operation for the Laguna Deep unit area, Lea County, New Mexico, wherein you propose to drill a well in the SW4 section 26, T. 19 S., R. 33 E., N.M.P.M., was approved. Such approval is subject to like approval by the appropriate State officials.

One approved copy is enclosed.

Sincerely yours,

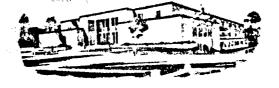
(ORIG. SGD.) JACK WILLOCK

Jack Willock Acting Oil and Gas Supervisor, SRMA

Enclosure

cc: <u>NMOCD, Santa Fe</u> Comm. Pub. Lands, Santa Fe







ALEX J. ARMIJO COMMISSIONER Commissioner of Public Lands May 23, 1979

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

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6182

Union Oil Company of California 500 North Marienfeld Midland, Texas 79701

> Re: Laguna Deep Unit Lea County, New Mexico

ATTENTION: Mr. Richard R. Oelze

Gentlemen:

We are in receipt of your letter dated May 17, 1979, together with Ratifications and Joinders of Royalty and Overriding Royalty Interest Owners as follows:

- 1. Elizabeth Bate Brady
- 2. Ethel B. Bate
- 3. Deborah Bate McDaniels
- 4. Virginia W. Hess and R. W. Hess

These instruments have this date been approved and filed in the unit agreement file.

Very truly yours,

ALEX J. ARMIJO COMMISSIONER OF PUBLIC LANDS

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

AJA/RDG/s 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

August 21, 1979

Union Oil Company of California P. O. Box 671 Midland, Texas 79701

Attention: Richard R. Oelze

Re: Case No. 6182 Laguna Deep Unit 1979 Plan of Development and Operation

Gentlemen:

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We hereby approve the 1979 Plan of Development and Operation for the Laguna Deep Unit, Lea County, New Mexico, subject to like approval by the United States Geological Survey and the Commissioner of Public Lands.

One approved copy of the Plan is returned herewith.

Yours very truly,

JOE D. RAMEY Director

JDR/EP/fd enc.

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

Union Oil and Gas Division: Central Region

Union Oil Company of California 500 North Marienfeld, Midland, Texas 79701 P.O. Box 671, Midland, Texas 79702 Telephone (915) 682-9731

Case 1/82

August 14, 1979

Robert V. Lockhart District Land Manager Midland District

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Oil Conservation Division Energy and Minerals Department P. O. Box 2088 Santa Fe, New Mexico 87501

Attn: Mr. Joe D. Ramey, Director

Gentlemen:

Laguna Deep Unit Lea County, New Mexico T-19 & 20-S, R-33-E, N.M.P.M.

Enclosed for your review please find two (2) copies of Union Oil Company of California's "1979 Plan of Development and Operation for Laguna Deep Unit Area." One copy included herein has been approved by the U. S. Geological Survey, effective August 9, 1979.

Union, as Operator, respectfully requests your consideration and approval of this plan. Should you have any additional questions, please contact the undersigned.

> Sincerely yours, UNION OIL COMPANY OF CALIFORNIA

Richard R. Oelze Landman

RRO/mw Encl.

approved & F

# LAGUNA DEEP UNIT AREA

LEA COUNTY, NEW MEXICO

TO: The Director Oil Conservation Division Energy & Minerals Department P. O. Box 2088 Santa Fe, New Mexico 87501

13 23 UNION OIL COMPANY OF CALIFORNIA, as Unit Operator for the Laguna Deep Unit Area, pursuant to the provisions of Section 10 of the Unit Agreement for Development and Operation of the Laguna Deep Unit Area, dated June 22, 1978 (No. 14-08-0001-16905), respectfully submits for the approval of the Director, Oil Conservation Division, or its duly authorized representative, this 1979 Plan of Development and Operation for the Laguna Deep Unit Area. This plan is for the period ending December 31, 1979.

#### SUMMARY OF 1978 AND 1979 OPERATIONS TO DATE

On July 29, 1978, the Laguna Deep Unit Federal Well No. 1 was spudded at 1650' FNL and 1980' FEL Section 35, T-19-S, R-33-E, Lea County, New Mexico. This test was drilled to a total depth on January 5, 1979, at 14,753'. The lower Morrow was perforated February 3, 1979, at an interval between 13,365' - 13,369' and on February 10, 1979, this Morrow interval was flowed at a stabilized rate of 2040 MCFD at 940 PSI FTP for 6 hours then SI. The well produced condensate at the rate of 82 BPD during this 6 hour flow period. SITP (48 hours) was 4250 PSI. The well is currently SI waiting on a pipeline connection. Our gas department has been negotiating several gas contracts with various parties interested in this area. We expect to finalize a contract within the next 45-60 day period and proceed with connecting the well to a sales outlet. After producing the well for approximately two months we will file a request for initial participating area. By respective letters dated April 11, 1979, and April 17, 1979, the 0il and Gas Supervisor, USCS, and the Commissioner of Public Lands, State of New Mexico concurred with our determination the #1 Well did qualify as a unit well and validated the unit area.

# PLAN OF DEVELOPMENT AND OPERATION FOR REMAINDER OF 1979

For the remainder of the year 1979, we are scheduled to present to our management for last quarter review, a plan for the drilling of an offset well in SW/4 Section 26, T-19-S, R-33-E, Lea County, New Mexico. Additional studies and evaluations will be made pending the outcome of the Laguna Deep Unit Federal Well No. 1 and Union Oil Company of California's proposed test in Section 26. Our plan may be modified or supplemented from time to time with the approval of the Oil Conservation Division Director when necessary to meet changed conditions or to protect the interest of all parties to the unit agreement.

Your assistance in expediting approval of this Plan of Development and Operation will be greatly appreciated.

Submitted this 31 day of May 1979.

UNION OIL COMPANY OF CALIFORNIA

By:

District Land Manager

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THIS APPROVAL GRANTED SUBJECT TO LIKE **EPROVAL** BEING GRANTED BY THE UNHED STATES GROUGICAL: SURVEY AND BY THE COMMISSIONER OF PUBLICANUS OF THE STATE OF NEW MEXICO.

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United States Department of the Interior

GEOLOGICAL SURVEY P. O. Box 26124 Albuquerque, New Mexico 87125

APR 11 1979

OIL CO.VSERVAT of Celifornia Union MA Atta: Hr. Moberts DA Loekhart P. Q. Box 671 Midland, Texas 79702

6182

Gentlemen:

Your letter of March 14, 1975 indicates that as unit operator of the Laguna Deep unit agreement, Les Geomty, New Maxiee, you have determined that unit well No. 1 in the MMdHE's sec. 35, T. 19 S., R. 33 K., H.H.P.H., is appable of producing unitized substances in paying quantities.

Unit well No. 1 was tested January 7, 1979 for a calculated flow of 2,040 HCF/Day from the Lower Norrow interval 13,365 - 13,369 feet.

This office concurs with your determination that such wall is capable of producing unitized substances in paying quantities from the Lower Morrow formation pursuant to Section 9 of the unit agreement. You are also requested, pursuant to Section 11 of the unit agreement, to submit an application for the initial Norrow participating area embracing those Lands ressonably proven expable of producing from the Morrow in paying quantities at your earliest convenience.

Sincerely yours,

(ORIG. SGD.) JAMES W. SUTHERLAND

011 and Gas Supervisor, SRMA

cc: BLM, Santa Fe (ltr only) Com. Pub. Lands, Santa Fe (ltr only) NMOCD (ltr only)

Union Oil and Gas Division: Central Region

Union Oil Company of California 500 North Marienfeld, Midland, Texas 79701 Telephone (915) 682-9731

Mailing Address: P. O. Box 671 Midland, Texas 79702

OIL CONSERVATION DIVISION

ECEIVED

**Midland District** 

May 17, 1979

Oil Conservation Division Energy and Minerals Department P. O. Box 2088 Santa Fe, New Mexico 87501

Attn: Mr. Joe D. Ramey, Director

Gentlemen:

Case No. 6182 Order No. R-5684 Laguna Deep Unit Lea County, New Mexico

In connection with the captioned unit, we are enclosing for your approval and file the following "Royalty and Overriding Royalty Interest Owner" Ratification and Joinders.

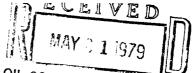
Elizabeth Bate Brady (Tract One), granted 1/4 of 1 1/2% of 8/8 by virtue of instrument dated 8-1-78; Ethel B. Bate (Tract One), granted 1/4 of 1 1/2% of 8/8 by virtue of instrument dated 8-1-78; Deborah Bate McDaniels (Tract One), granted 1/4 of 1 1/2% of 8/8 by virtue of instrument dated 8-1-78; Virginia W. Hess and R. W. Hess, Trustees under Agreement dated April 10, 1972 (Tract One).

With this mailing, our records indicate four (4) outstanding ratifications under Tract One; when these become available to us, we will forward you a copy at that time. Please feel free to call if you have any further questions in this regard.

Sincerely yours

Richard R. Oelze Landman

RRO/jr Encls.



L CONSERVATION DIVISION

SANTA FE CONSENT, RATIFICATION AND JOINDER OF LAGUNA DEEP UNIT AGREEMENT LEA COUNTY, NEW MEXICO

(Royalty and Overriding Royalty Interest Owner)

KNOW ALL MEN BY THESE PRESENTS, THAT:

WHEREAS, a certain instrument entitled UNIT AGREEMENT FOR THE DEVELOP-MENT AND OPERATION OF THE LAGUNA DEEP UNIT AREA, LEA COUNTY, NEW MEXICO, has been executed as of the 2nd day of February, 1978, by various persons conducting operations with respect to the Laguna Deep Unit Area, located in Lea County, New Mexico, as more particularly described in said Agreement; and

WHEREAS, the Unit Agreement, by Exhibit "A", shows on a map the boundary lines of the Unit Area and the Tracts therein and, by Exhibit "B", describes each Tract within the Unit Area; and

WHEREAS, the Unit Agreement provides that a person may become a party thereto by signing an instrument agreeing to be bound by the provisions thereof; and

WHEREAS, the undersigned (whether one or more) is, or claims to be, the owner of a royalty and/or overriding royalty interest in one or more of the Tracts described in Exhibit "B" of the Unit Agreement.

NOW, THEREFORE, the undersigned (whether one or more), for and in consideration of the premises and the benefits anticipated to accrue under said agreement, does hereby agree to become a party to and to be bound by the provisions of the said Unit Agreement, and the undersigned does hereby agree that the parties to said agreement are those persons signing the originals of said instruments, counterparts thereof, or other instruments agreeing to be bound by the provisions thereof. The undersigned does also hereby acknowledge receipt of a true copy of the said Unit Agreement.

IN WITNESS WHEREOF, the undersigned has executed this instrument on the date set forth opposite the undersigned's signature.

Date: Ipril 34, 1979	Sight Kall Brady
Address: 5/25 Sakdall an	
isondand fills	(Royalty or Overriding Royalty OWNER)
STATE OF <u>A</u> SS.	(Individual) $T_{\nu}$
The foregoing instrument was ach <u>(pi)</u> , 19 <u>9</u> , by <u>Eliza</u>	cnowledged before me this <u>y</u> day of the Brady
My Commission expires: 2 - 4 - 83	Notary Public / Jakin
	OFFICIAL SEAL JUNE GAYLE YAKOS NOTARY PUBLIC - CALIFORNIA
STATE OF SS.	(Corporate) Notary Bond Filed in Los Angeles county My Commission Expires February 4, 1983
The foregoing instrument was ach , 19, by	knowledged before me this day of
a of corporation, of	on behalf of said corporation.
My Commission expires:	

Notary Public



CONSENT, RATIFICATION AND GOUNDERLIOF DIVISION LAGUNA DEEP UNIT AGREEMENTA FE LEA COUNTY, NEW MEXICO

(Royalty and Overriding Royalty Interest Owner)

KNOW ALL MEN BY THESE PRESENTS, THAT:

WHEREAS, a certain instrument entitled UNIT AGREEMENT FOR THE DEVELOP-MENT AND OPERATION OF THE LAGUNA DEEP UNIT AREA, LEA COUNTY, NEW MEXICO, has been executed as of the 2nd day of February, 1978, by various persons conducting operations with respect to the Laguna Deep Unit Area, located in Lea County, New Mexico, as more particularly described in said Agreement; and

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WHEREAS, the undersigned (whether one or more) is, or claims to be, the owner of a royalty and/or overriding royalty interest in one or more of the Tracts described in Exhibit "B" of the Unit Agreement.

NOW, THEREFORE, the undersigned (whether one or more), for and in consideration of the premises and the benefits anticipated to accrue under said agreement, does hereby agree to become a party to and to be bound by the provisions of the said Unit Agreement, and the undersigned does hereby agree that the parties to said agreement are those persons signing the originals of said instruments, counterparts thereof, or other instruments agreeing to be bound by the provisions thereof. The undersigned does also hereby acknowledge receipt of a true copy of the said Unit Agreement.

IN WITNESS WHEREOF, the undersigned has executed this instrument on the date set forth opposite the undersigned's signature.

Date: <u>april 18, 1979</u>	Ettel B. Bate
Address: 933 M. M. Daweel	
Phoenie az. 85007	(Royalty or Overriding Royalty OWNER)
COUNTY OF Mancopa	(Individual)
The foregoing instrument was ackn , 19_79, by	bowledged before me this 18th day of 6the B. Bate
My Commission expires: My Commission Expires Fob. 7, 1933	Notary Public John
STATE OF § SS.	(Corporate)
, 19, by of	nowledged before me this day of,
a corporation, or	behalf of said corporation.
My Commission expires:	Notary Public

CONSENT, RATIFICATION OKNONIOINDER OF LAGUNA DEEP UNIT AGREEMENTION DIVISION NEW MEXICONTA FE

(Royalty and Overriding Royalty Interest Owner)

### KNOW ALL MEN BY THESE PRESENTS, THAT:

WHEREAS, a certain instrument entitled UNIT AGREEMENT FOR THE DEVELOP-MENT AND OPERATION OF THE LAGUNA DEEP UNIT AREA, LEA COUNTY, NEW MEXICO. has been executed as of the 2nd day of February, 1978, by various persons conducting operations with respect to the Laguna Deep Unit Area, located in Lea County, New Mexico, as more particularly described in said Agreement; and

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WHEREAS, the undersigned (whether one or more) is, or claims to be, the owner of a royalty and/or overriding royalty interest in one or more of the Tracts described in Exhibit "B" of the Unit Agreement.

NOW, THEREFORE, the undersigned (whether one or more), for and in con-sideration of the premises and the benefits anticipated to accrue under said agreement, does hereby agree to become a party to and to be bound by the provisions of the said Unit Agreement, and the undersigned does hereby agree that the parties to said agreement are those persons signing the originals of said instruments, counterparts thereof, or other instruments agreeing to be bound by the provisions thereof. The undersigned does also hereby acknowledge receipt of a true copy of the said Unit Agreement.

IN WITNESS WHEREOF, the undersigned has executed this instrument on the

date set forth opposite the undersigned's signature. Virgenia W. Here Trester Date: (2kril. 9, 1979 Muters Address: 2627 Beekman RE emply lugora 85016 (Royalty or Overriding Royalty OWNER) STATE OF <u>ARIZONA</u> SS. (Individual) The foregoing instrument, was acknowledged before me this  $\frac{9/h}{M}$  day of  $\frac{19/9}{19}$ , by  $\frac{1}{1000}$ ,  $\frac{1000}{1000}$ Rotary Public Jaylor My Commission expires: STATE OF SS. (Corporate) The foregoing instrument was acknowledged before me this day of а My Commission expires: Notary Public

Union Oil and Gas Division: Central Region

Union Oil Company of California 500 North Marienfeld, Midland, Texas 79701 P.O. Box 671, Midland, Texas 79702 Telephone (915) 682-9731

March 16, 1979

Oil Conservation Division of the Energy and Minerals Department State of New Mexico P. O. Box 2088 Santa Fe, New Mexico 87501

Attention: Joe D. Ramey, Director

- No. 6182

Gentlemen:

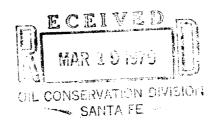
Laguna Deep Unit Eddy County, New Mexico Laguna Prospect (7729)

Enclosed for your review and file is a copy of Union Oil Company of California's letter dated March 14, 1979, and attachments thereto, requesting validation from the U.S.G.S. for the Union operated Laguna Deep Unit Area. You will be furnished with a copy of the Survey's decision as soon as it becomes available. If anything further is required, please advise me accordingly.

Very truly yours,

Robert V. Lockhart District Land Manager

RVL/bh Encls.



Robert V. Lockhart District Land Manager Midland District

Union Oil and Gas Division: Central Region

Union Oil Company of California 500 North Marienfeld, Midland, Texas 79701 P.O. Box 671, Midland, Texas 79702 Telephone (915) 682-9731

UN 186

March 14, 1979

Regional Manager Conservation Division United States Geological Survey Denver, Colorado 80202

Attn: Supervisor United States Geological Survey P. O. Box 1857 Roswell, New Mexico 88201

Gentlemen:

SUBJECT:

Validation of Laguna Deep Unit Area Lea County, New Mexico

Union Oil Company of California respectfully requests validation of our Laguna Deep Unit Area based on the discovery of commercial hydrocarbons in the middle and lower Morrow Sands in our Laguna Deep Unit Federal Well No. 1.

In support of this application we are enclosing the following in triplicate:

- 1. A brief drilling history of the Laguna Deep Unit Federal Well No. 1.
- 2. A gas analysis taken from our Pipeline Federal Well No. 1, located in Sec. 4, T-19S, R-34E, Lea County, New Mexico for calculation of initial gas formation volume factor. A gas analysis was not taken from the Laguna Deep Unit Federal No. 1.
- 3. A computer calculation of flowing and static bottom hole pressure for the subject well.
- 4. Volumetric calculations for gas in place for the zone of completion, as well as four (4) additional intervals, not perforated, which are believed to be productive.
- 5. A Development Well Analysis form, which shows the economics of the subject well, using reserves for only the current zone of completion.
- 6. Copies of the CNL-FDC logs and Dual Laterolog which indicate, in red, the current zone of completion, and proposed zones of completions.

Robert V. Lockhart District Land Manager Midland District Conservation Division United States Geological Survey March 14, 1979 Page 2 Validation of Laguna Deep Unit Area

7. A map of the area, showing the subject well location and surrounding acreage.

Note that the enclosed economic evaluation uses the total cost for this well, which was drilled to, and tested the Silurian. This cost of \$1,738,000 compares to our estimated cost of \$1,100,000 for future Morrow wells, therefore economics for future wells will be greatly enhanced by reduced drilling costs.

We believe the enclosed engineering data demonstrates Morrow gas and condensate reserves sufficient to produce in paying quantities, and which will allow recovery of all costs of drilling, completing, and producing operations, with a reasonable profit, as defined in Section 9 of the Unit Agreement. The subject well is currently shut-in. Negotiations are underway for a gas sales contract, which may or may not be completed prior to the expiration of the Tract 3: Lease NM-9992, which expires 7-31-79.

If you need any additional information, or have any questions, please notify the undersigned.

Very truly yours,

UNION OIL COMPANY OF CALIFORNIA

Robert V. Lockhart District Land Manager

RVL/bh Attachments

# DRILLING HISTORY UNION OIL COMPANY OF CALIFORNIA LAGUNA DEEP UNIT FEDERAL WELL NO. 1

- 7-29-78 Spudded well at 1650' FNL and 1980 FEL Section 25 T-19S R-33E Lea County, New Mexico set 30" conductor pipe at 47'
- 8-7-78 Drilled 26" hole to 1370' ran 20" casing to 1370'
- 8-15-78 Drilled 17-1/2" hole to 3095' ran 13-3/8" casing to 3095'
- 8-28-78 Drilled 12-1/4" hole to 5278' ran 9-5/8" casing to 5278'
- 11-2-78 Drilled 8-1/2" hole to 14348' ran 5-1/2" casing to 14348'
- 1-5-79 Drilled 4-3/4" hole to TD-14753' ran 3-1/3" casing as liner 14753-14224'
- 1-16-79 Perf'd lower Silurian 14704-710' A/600 gallons 15% HCL swabbed water
- 1-22-79 Set CMT retainer at 14700' squeezed w/30 sx
- 1-24-79 Perf'd upper Silurian at 14676-684', 14656-58', 14610-12' 14580-84' A/600 gallons 15% HCL swabbed water.
- 1-29-79 Set CMT ret at 13986' squeezed w/35sxs below ret.
- **2-3-79** Perf lower Morrow w/l JSPF at 13365-13369'. GTS in 4 hours
- 2-7-79 SITP 4250 48 hours
- 2-10-79 SITP 4250 psi/42 hours flw'd well 6 hours last 5 hours Gas rate 2040 MCFGPD w/940 psi FTP sep press 450 psi. Prod. 17 BC + Tr water 24 hour rate (82 BC + 2 BW) Cond GR-58° at 56° F Gas GR-.672
- **2-11-79** SI waiting on pipeline connection.

# CALCULATION OF GAS PROPERTIES

Flash Gas From High Perssure Seperator Pipeline Federal Well No. 1 La Rica (Morrow) Field Lea County, New Mexico Sec 4 T-19S R-34E

COMPONENT	MOL%	MOLECULAR WT	Pc Psia	Tc DR	<u>(1x2)</u>	<u>(1x3)</u>	<u>(1x4)</u>
Methane, $C^1$	84.31	16.04	673.1	343.2	13.52	567.49	289.35
Ethane, C <sup>2</sup>	8.96	30.07	708.3	549.9	2.69	63.46	49.27
Propane, C <sup>3</sup>	3.51	44.09	617.4	666.0	1.55	21.67	23.38
Iso-Butane, C	<sup>4</sup> .44	58.12	529.1	734.6	.26	2.33	3.23
N-Butane	.80	58.12	550.1	765.7	.46	4.40	6.13
Iso-Pentane	.20	72.15	483.5	829.6	.14	. 97	1.66
N-Pentane	.17	72.15	489.8	846.2	.12	.83	1.44
Hexane		86.17	440.1	914.2	.08	.396	.823
Heptanes	.07	100.2	395.9	972.4	.07	.28	.68
Carbon Dioxid	e .66	44.01	1070.2	547.5	.29	7.06	3.61
Nitrogen	.79	28.02	492.2	227.0	.22	3.89	1.79
· · ·				19.	412315	672.78	381.36
	· · ·						

- Sg = MOL. WT. GAS = 19.41 = .670MOL. WT. AIR 28.97
- $Pc = 672.78 \qquad Pr = \frac{5758.94}{672.78} = 8.56 \qquad Z = 1.043$
- $Tc = 381.36 \qquad Tr = \frac{629}{381.36} = 1.65$

 $Bgi = \frac{Vsc}{Vr} = \frac{Pr Tsc}{Z Tr Psc} = \frac{(5759) (520)}{(1.043) (629) (15.025)} = 303.81 \frac{SCF}{RCF}$ 

# LAGUNA NO.1 PT.1

### PRESSURE VS DEPTH TUBING FLOW

FLOWING SURFACE PRESSURE (PSIA)	940.0000
FLOWING BOTTOM HOLE PRESSURE (PSIA)	1360.9375
FLOW RATE (MMCF/DAY)	1.9810
SURFACE TEMPERATURE (DEG.F)	<b>60.0</b> 000
BOTTOM HOLE TEMPERATURE (DEG.F)	169.0000
DRY GAS GRAVITY (S.G.(AIR=1))	0.6720
CONDENSATE GRAVITY (SP. GRA OR DEG API)	
PRODUCING GAS/OIL RATIO (CU. FT./BBL)	0
WET GAS GRAVITY (S.G.(AIR=1))	0.6720
FIRST TUBING I.D. (INCHES)	2.4410
FIRST TUBING O.D. (INCHES)	2.8750
FIRST TUBING LENGTH (FEET)	13060.0000
SECOND TUBING LENGTH (FEET)	13060.0000
SECOND TUBING I.D. (INCHES)	
TUBING LENGTH/TOTAL DEPTH	*****

DEPTH	PRESSURE	GRADIENT
(FEET)	(PSIA)	(PSI/FT)
	~~~~~~~	
		•
0	940	0
687	961	0.0310
1375	983	0.0312
2062	1004	0.0313
2749	1026	0.0315
3437	1048	0.0316
4124	1070	0.0317
4812	1091	0.0319
5499	1113	0.0320
6186	1135	0.0321
6874	1158	0.0322
7561	1180	0.0324
8248	1202	0.0325
8936	1225	0.0326
9623	1247	0.0327
10311	1270	0.0329
10998	1292	0.0330
11685	1315	0.0331
12373	1338	0.0332
13060	1361	0.0334
FINAL Z	0.880017	
P/Z =	1546	

RDR/FEB 19,1979

# LAGUNA NO.1 PT.1

## PRESSURE VS DEPTH FOR STATIC CONDITIONS

SHUT IN SURFACE PRESSURE (PSIA)	4250.000
SHUT IN BOTTOM HOLE PRESSURE (PSIA)	5758.944
SURFACE TEMPERATURE (DEG.F)	60.000
BOTTOM HOLE TEMPERATURE (DEG.F)	169.000
DRY GAS GRAVITY (S.G.(AIR=1))	0.672
CONDENSATE GRAVITY (SP. GRA OR DEG API)	
PRODUCING GAS/OIL RATIO (CU. FT./BBL)	0
WET GAS GRAVITY (S.G.(AIR=1))	0.672
FIRST TUBING I.D. (INCHES)	2.441
FIRST TUBING O.D. (INCHES)	2.875
FIRST TUBING LENGTH (FEET)	13060.000
SECOND TUBING LENGTH (FEET)	13060.000
SECOND TUBING I.D. (INCHES)	
TUBING LENGTH/TOTAL DEPTH	1.000

DEPTH	PRESSURE	GRADIENT
(FEET)	(PSIA)	(PSI/FT)
0	4250	0
687	4334	0.1218
1375	4417	0.1207
2062	4499	0.1200
2749	4581	0.1192
3437	4663	0.1185
4124	4744	0.1178
4812	4824	0.1172
5499	4904	0.1165
6186	4984	0.1159
6874	5063	0.1152
7561	5142	0.1146
8248	5220	0.1141
8936	5298	0.1135
9623	5376	0.1130
10311	5453	0.1124
10998	5530	0.1119
11685	5607	0.1114
12373	5683	0.1110
13060	5759	0.1105
FINAL Z	1.044520	
P/Z =	5513	

D	n	R /	۲r (	F I	3	1	Q	1	Q	7 (	2
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1.0000

L 10 NAME LAGUNA NO.1 PT.1 20 B .672 1.981 60 169 940 4250 13060 13060 30 2.441 1.0 G 0.007 0.0064 A 0 2.875 40 M 20 .5 0 1 END END OF DATA

L

## VOLUMETRIC CALCULATIONS OF GAS IN PLACE MORROW FORMATION

Open Perfs - 13365 - 13369' - Lower Morrow Acres = 640Porosity,  $\phi = 5.5\%$ Bgi = 303.8 SCF/RCFWater Saturation, Sw = 22% Net pay, h = 6'**R.E.** = 85% Recovery Factor GIP = (43560) (Acres) (h) ( $\phi$ ) (1-Sw) (Bg) = (43560) (640) (6) (.055) (1 - .22) (303.8) = 2.18 BCF = (2.18 BCF)(.85) = 1.853 BCF of Recoverable Gas **Proposed Perforated Intervals** Sw = 30%h = 6' 13146-50'  $\phi = 9.7\%$ GIP = (43560) (640) (6) (.097) (1 - .3) (303.8)= 3.45 BCF = (3.45 BCF) (.85) = 2.93 BCF of Recoverable Gas  $\phi = 11.2\%$  Sw - 46% h = 4' 13115-118'  $\begin{array}{l} \textbf{GIP} = (43560) \ (640) \ (4) \ (.112) \ (1 - .46) \ (303.8) \\ = 2.05 \ \text{BCF} = \ (2.05) \ (.85) = 1.74 \ \text{BCF} \ \text{of Recoverable Gas} \end{array}$ Sw = 27%h = 3'  $\phi = 10\%$ 13108 - 109' GIP = (43560) (640) (3) (.10) (1 - .27) (303.8)= 1.85 BCF = (1.85) (.85) = 1.58 BCF of Recoverable Gas  $13005 - 013' \phi = 13.6\%$ Sw = 23%h = 11' GIP = (43560) (640) (11) (.136) (1 - .23) (303.8)= 9.76 BCF = (9.76) (.85) = 8.29 BCF of Recoverable Gas Additional Total Recoverable Gas From The Proposed Perforated Intervals

INTERVAL	RECOVERABLE GAS
13146-150' 13115-118' 13108-09' 13005-013'	2.94 BCF 1.74 BCF 1.58 BCF 8.29 BCF
13003-013	14.54 BCF Recoverable Gas From Proposed Perfs

Total Recoverable Gas From The Laguna Deep Unit Federal Well No. 1:

Rec. Gas From Proposed Perfs + Rec. Gas From Existing Perfs

14.54 BCF + 1.85 BCF = 16.39 BCF Total Rec. Gas

#### DEVELOPMENT WELL ANALYSIS ACTUAL

				*				
WELL: LAGUNA DEEP U FIELD: UNDESIGNATED FORMATION: MORROW		RAL N	O P E	NO: 3840 RATOR: UN 14,753 FT	ION OIL			LI
UOCO INTEREST: GROSS	5 74.17	2	NET	60.84%				
UC	CO INTERI	EST	TO	TAL				
COSTS AFE COST, \$ DRY HOLE COST, \$ CASH RISK, \$	1,289,2 879,0 879,0	593	1,738,0	000				1 <sup>3</sup>
RESERVES GWG-MMCF CND-MSTB NET PAY, FT.	1,1		1,3	853 35 6				
ACRES MCF/AC. FT. INITIAL RATE GWG, MCF/DAY	1,2							
CND, BBL/DAY	*****	49 E	CONOMICS	80				
UOCO AVERAGE EXP \$/M DIRECT INDIRECT OVERHEAD UNIT CHARGE	342	GWG,	\$/MCF	INITIAL 2.29 13.50	6.00	MAX 3.00	84	
PROJECTION EFFECT	IVE DATE	3/79	9	*** BFI		NTEREST A.	*** FIT	
GROSS AFTER ROYALTY, TOTAL EXPENSE, MŞ TOTAL INVESTMENT (DE UNDISC. CASH FLOW, M Ş PROFIT / Ş TOTAL I PRESENT WORTH AT 102 PROFITABILITY INDEX ROI (RATE OF RETURN) PAYOUT, YEARS LIFE, YEARS	VELOPMENT IS NVESTMENT AT 5%		<b>T),</b> M\$	1	,225 253 ,297 ,675 1.29 ,119 1.05 25.0 1.5 11		917 0.71 494 0.52 25.0 2.2	•

REMARKS: ECOMONICS BASED ON TOTAL WELL COSTS TO DATE AND ACTUAL PRODUCTION RATES DURING A 6 HOUR FLOW TEST.

BY: MM

.

DATE: 03/06/79 6:38 AM

r <sup>i</sup>

0.001

135.635

LEASE TOTAL

LAGUNA DEEP UNIT FED NO.1

TYPE	03/06/79 6:	38 AM			
YEAR	GAR	TOTAL EXP	TOTAL INV	CASH-BT	CASH-AT
1979	909,662	59,130	1,296,547	-446,015	-546,404
1980	762,372	50,879		711,493	429,066
1981	508,373	35,468		472,905	299,127
1982	349,726	25,944		323,782	218,001
1983	243,421	19,661		223,760	161,381
1984-90	450,996	61,930		389,066	356,166
TOTAL	3,224,550	253,012	1,296,547	1,674,991	917.337

TYPE _03/06/79 6	5 :	: 3	8	AM	
------------------	-----	-----	---	----	--

32.5 4	O Dourd Root					
YEAR	GROSS GWG	NET GWG	GWG SOLD	TOT GAS SLD	GROSS COND	
1979 1739m	cr/0 529.075	321,884	321,884	321,884	18,762	13.97
1980 1214	443,180	269,626	269,626	269,626	11,100	14.81
1981 817	298.143	181,387	181,387	181,387	3,694	15.70
1982 550	200,571	122,025	122,025	122,025	1,193	16.63
1983	134,931	82,090	82,090	82,090	250	17.69
1984-90	247,098	150,333	150,333	150,333		
TOTAL	1,852,998	1,127,345	1,127,345	1,127,345	34,999	

### TYPE 03/06/79 6:38 AM

YEAR	NET COND
1979	11,415
1980	6,753
1981	2,248
1982	726
1983	152
1984-90	
TOTAL	21,294

Option: PWROR

**INVESTMENT PARAMETERS EFFECTIVE DATE: 3/79** 

	PRESENT	WORTH	· · · · ·			
	BEFORE TAX	AFTER TAX	В	EFORE TAX	AFTER TAX	
5 %	1,364,429	678,839	RATE OF RETURN	66.0	33.2	
10%	1,118,842	494,138	PROFITABILITY INDEX	0.86	0.38	
20%	756,739	228,117	PAYOUT, YRS	1.5	2 . 2	
50%	172,522	-186,956	INITIAL INVESTMENT	1,296	1,296,546	
	10%	BEFORE TAX 5% 1,364,429 10% 1,118,842 20% 756,739	BEFORE TAXAFTER TAX5%1,364,429678,83910%1,118,842494,13820%756,739228,117	BEFORE TAX         AFTER TAX         B           5%         1,364,429         678,839         RATE OF RETURN           10%         1,118,842         494,138         PROFITABILITY INDEX           20%         756,739         228,117         PAYOUT,YRS	5%       1,364,429       678,839       RATE OF RETURN       66.0         10%       1,118,842       494,138       PROFITABILITY INDEX       0.86         20%       756,739       228,117       PAYOUT,YRS       1.5	

Option: AFE

E LAGUNADH.DATA OLD E L 10 NAME LAGUNA DEEP UNIT FED NO.1, 33 MM 20 GWG RSRV 1.853E6 379 30 ONCE 60222 379 40 DIST 1000 479 50 COND RSRV 35000 379 60 ONCE 2400 379 70 DECLN .500 479 71 ONCE 1200 380 72 DIST 30 480 80 GWGPR ONCE 2.29 379 90 INCLN .06 479 100 CAPCY 3.00 479 110 CNDPR ONCE 13.50 379 120 INCLN .06 479 130 CAPCY 18.00 479 140 GRINT HOLD .7417313 379 150 NTINT HOLD .6083898 379 170 OPEX ONCE 350 379 171 INCLN .06 479 180 INVT ONCE 1196000 379 **190 INVI ONCE 552000 379** 200 %IND HOLD .09 379 210 E LAGUNAA.DATA OLD END OF DATA END READY E LAGUNAA.DATA OLD E L 10 2. LAGUNA DEEP UNIT FEDERAL NO.1, 384014 20 UNDESIGNATED, UNION OIL COMPANY OF CALIFORNIA, MORROW 30 DEPTH 14753 13365 40 PAY 6 50 ACRES 640 60 INTEREST .7417313 .6083898 70 PRICE GWG(2.29) COND(13.50) 80 RATE GWG(1981) COND(80) 90 AFE 1738000 1186000 1186000 100 REMARKS ECOMONICS BASED ON TOTAL WELL COSTS TO DATE AND ACTUAL 110 REMARKS PRODUCTION RATES DURING A 6 HOUR FLOW TEST. 120 BY MM END OF DATA END READY

