

BEFORE THE OIL CONSERVATION COMMISSION OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE APPLICATION)
OF CONTINENTAL OIL COMPANY FOR)
AN ADMINISTRATIVE ORDER APPROVING)
COMMINGLING OF PRODUCTION IN)
JICARILLA 22 WELL NO. 4 LOCATED)
IN THE UNDESIGNATED GALLUP AND)
UNDESIGNATED DAKOTA POOLS, RIO)
ARRIBA COUNTY, NEW MEXICO)

CAUSE NO. _____
ORDER NO. _____
DOCKET NO. _____

A P P L I C A T I O N



COMES NOW CONTINENTAL OIL COMPANY, a Delaware corporation, (hereinafter called "Applicant"), authorized to do business in the State of New Mexico, and makes application to the Secretary-Director of the State of New Mexico Oil Conservation Commission for approval to commingle in the well bore the Undesignated Gallup and the Undesignated Dakota zones in the dually completed Jicarilla 22 Well No. 4 in accordance with Rule 303 C as set out in Case No. 4104, Order No. R-3845.

In support of this application, Applicant respectfully states and shows as follows:

1. Attached as Exhibit "A" is a map showing all drilling, producing and plugged and abandoned wells in the sixteen section Continental Oil Company West Lindrith Block which is outlined in red. The red arrow on Exhibit "A" points to Jicarilla 22 Lease, Well No. 4, located in the SE $\frac{1}{4}$ of Section 15, Township 25 North, Range 4 West, Rio Arriba County, New Mexico.

2. Applicant operates eleven (11) dually completed Gallup-Dakota wells in the West Lindrith Block and has location for over forty (40) additional similar wells on 160 acre spacing. The present wells as now operated are commingled down hole in accordance with Rule 112 A, Section VI. The average projected ultimate recovery from the aforementioned eleven wells is 60,000 barrels of oil and 450 MMCF gas using present producing methods. The eleven wells on an average will fail by \$6,000 per well to repay drilling, completing and operating costs. This payout basis is before federal income taxes.

3. The present method of operating commingled zones in the aforementioned wells will lead to early abandonment of the wells due to uneconomic low rates of production.

4. Applicant's engineers have calculated that by removing the present check valve, gas lift valve and packer from the well bore, shown on Exhibit "B", attached, the operating pressure can be reduced and both daily production and ultimate oil recovery can be increased. The production from Jicarilla 22 Well No. 4 during July, 1970, totaled 669 barrels of oil and 7,698 MCF of gas. It is estimated that if this application is approved, production from the well will increase to 30 barrels of oil per day. Reserves will be increased by 18,000 barrels of oil. With such increases in production and reserves, the Jicarilla commingled wells would return a small profit to the owner prior to abandonment. If proposed improved stimulation procedures are successful and the present type of commingling application is approved for all of the aforementioned eleven wells, Continental Oil Company has plans to drill an additional ten wells on the West Lindrith Block after the economic projections are confirmed through actual production.

5. Removal of the packer, gas lift valve and check valve from the well bore and equipping Jicarilla 22 Well No. 4 as shown on Exhibit "C", will enable the operator to operate the well five additional producing days per year and reduce operating costs by an estimated \$500 per year. The present packer leakage tests with the contract wire line services required for such tests now require an average of five days down time and the aforementioned \$500 for contract services. Elimination of the packer leakage tests requirement by the Commission will increase the profitability of operations in the West Lindrith Area.

6. Continental Oil Company, whose address is 152 North Durbin Street, Casper, Wyoming 82601, is the operator of the well for which this application is made.

7. The Jicarilla 22 Lease covers a four section block of Jicarilla Apache Indian leases including Sections 15, 16, 21 and 22, Township 25 North, Range 4 West, Rio Arriba County, New Mexico. Jicarilla 22 Well No. 4 is located 2080 feet from the south line and 2290 feet from the east line of Section 15, Township 25 North, Range 4 West, Rio Arriba County.

8. Jicarilla 22 Well No. 4 is completed in the Undesignated Gallup and Undesignated Dakota pools. Both zones are classified as oil producing zones. The well is now commingled in accordance with the New Mexico Oil Conservation Commission Order No. MC-1872.

9. Attached as Exhibits "D₁" and "D₂" are C-116 forms for 24 hour productivity tests dated August 8, 1970 for the Gallup and Dakota zones. The tests are the latest tests in Applicant's file for the Jicarilla 22 Well No. 4.

10. Attached as Exhibits "E₁", "E₂" and "E₃" are production decline curves for Jicarilla 22 Well No. 4. Exhibit "E₁" is a curve for the Dakota zone; Exhibit "E₂" is a curve for the Gallup zone; and Exhibit "E₃" is a production decline curve for the total production from the well. The curves show both oil and gas production.

11. Jicarilla 22 Well No. 4 is now artificially lifted from both zones through use of an intermittent plunger lift. The estimated shut-in stabilized bottom hole pressure is 1,500 psi for the Gallup zone and 2,100 psi for the Dakota zone. The operating bottom hole pressure for a similar installation has been measured at Jicarilla 28 Well No. 6. There the operating pressure, at 7,188 feet KB, was found to vary from a low of 425 psi to a high of 850 psi during operation of the plunger lift and gas lift valves. Applicant states that due to the extremely low permeability values for both zones, no significant volume of oil or gas will migrate from the high pressure Dakota zone to the lower pressure Gallup zone during normal operations or when the well is shut-in for short periods during emergencies.

12. Oil produced from the Gallup zone has a gravity of 44.9 degrees API and oil from the Dakota zone has a gravity of 46.8 degrees API. The two crude oils are compatible in the well bore and they have been produced as a commingled stream in the past with no problems.

13. Continental Oil Company owns all of the working interest for the Gallup and Dakota zones under the Jicarilla 22 Lease. The Jicarilla Apache Indian Tribe retained a 12½ percent royalty interest under the Jicarilla 22 Lease. There are no overriding royalty interest owners for the subject lease. The ownership of the royalty interest and the working interest for both the Gallup and Dakota production from the Jicarilla 22 Lease is common.

14. Attached as Exhibit "F" is a computation showing that the value of the commingled production will not be less than the sum of the values of the individual streams. This computation is similar to computations submitted to the Commission for previous applications.

15. Applicant states that in its opinion down hole commingling of production from the Gallup and Dakota zones, as herein proposed, will not in any way jeopardize the efficiency of any future secondary recovery operation for either the Gallup or Dakota zones.

16. Applicant has notified all offset operators and the United States Geological Survey of this application in writing by mailing such parties copies of this application at the same time the application was mailed to the New Mexico Oil Conservation Commission.

17. Granting the application herein requested will be in the public interests, protect correlative rights and increase the ultimate recovery of valuable natural resources.

For the foregoing reasons, Applicant hereby requests approval of the down hole commingling of production in the well bore at Jicarilla 22 Well No. 4.

WHEREFORE, Applicant requests that this matter be considered by the Secretary-Director of the New Mexico Oil Conservation Commission and that this application be granted.

Respectfully submitted,

CONTINENTAL OIL COMPANY

By W. C. Blackburn

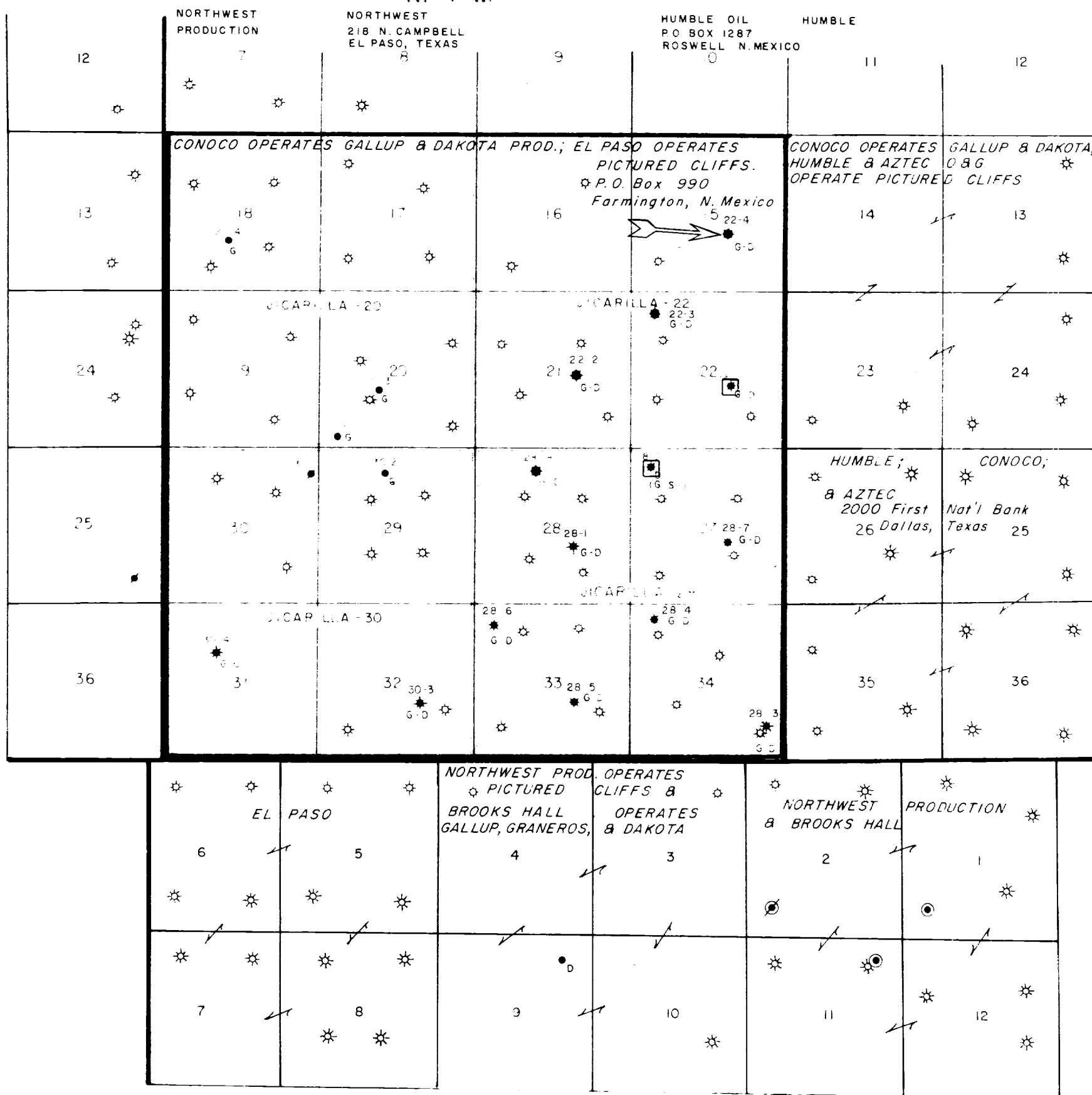
W. C. Blackburn
Division Manager

Subscribed and sworn to before me this 4th day of September, 1970, by W. C. Blackburn

My commission expires September 23, 1971

Mary J. Chapman
Notary Public

R. 4 W.



- LEGEND -

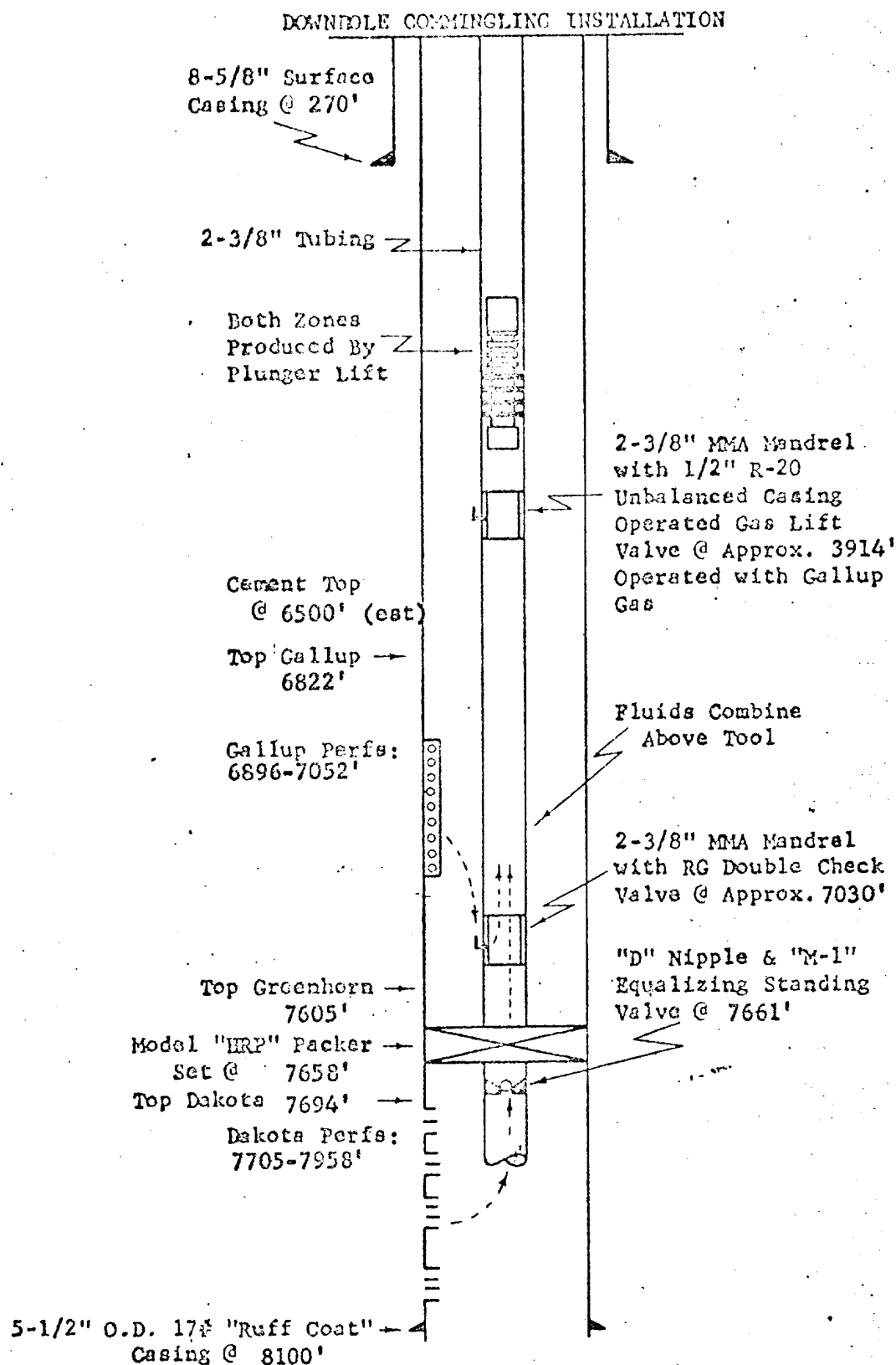
- GALLUP PRODUCING WELL
- DAKOTA PRODUCING WELL
- ★ GALLUP (Oil) - CHAPRA (Gas) DUAL
- ★ GALLUP (Oil) - DAKOTA (Oil) DUAL
- ★ GAS PRODUCING WELL (PICTURED CLIFFS)
- ✂ SHUT-IN WELL
- DUAL GALLUP - GRANEROS
- ✂ GALLUP (Oil) - DAKOTA (Oil) - Separate Strings of Casing.

WEST LINDRITH BLOCK

JICARILLA APACHE LEASES
Rio Arriba County, New Mexico

EXHIBIT "A"

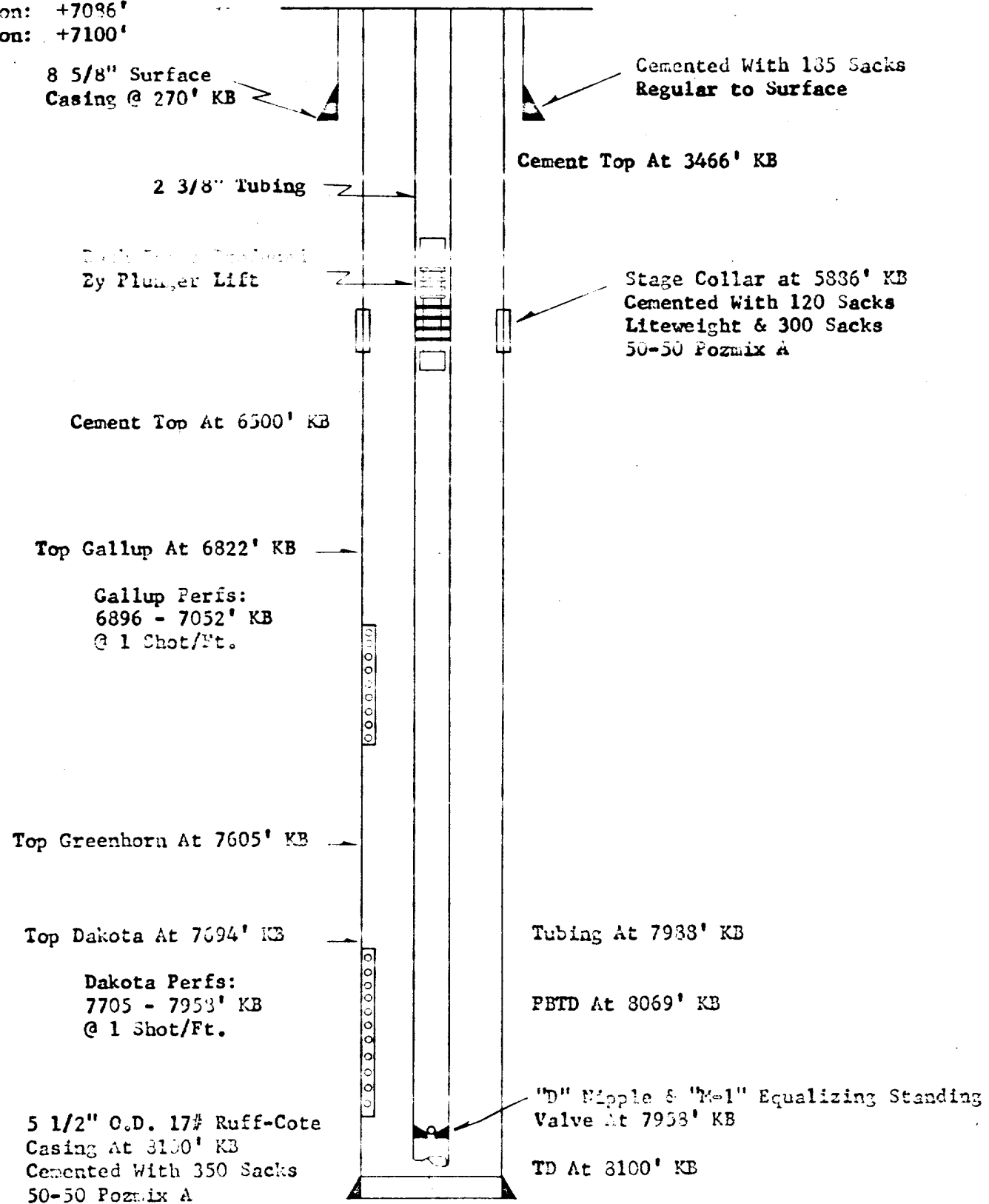
Engineer: J.A. Mazza Drawn By: N. 12-7
PRODUCTION DEPARTMENT 1-9
CONTINENTAL OIL COMPANY 8-0



CONTINENTAL OIL COMPANY PRODUCTION DEPARTMENT CASPER DIVISION		
Field/Unit: WEST LINDRITH		
Structure:	Exhibit B	Contour Int.
Isapach:		Contour Int.
Other:	Downhole Commingling Installation - Jicarilla 22-4 Well.	
County: Rio Arriba	State: New Mexico	
Engineer: J. A. Morra	Geology by:	Date:
Drafted by: RWJ	Well Status Posted to:	10-14-69
SCALE: 1" = 100' No Scale		

**PROPOSED
DOWNHOLE COMMINGLING INSTALLATION**

GL Elevation: +7086'
KB Elevation: +7100'



Centralizers Located 10' & 60' Above Casing Setting Depth and 90' Thereafter to 6770' KB; Also One Centralizer 30' Above and 30' Below Stage Collar.

CONTINENTAL OIL COMPANY
PRODUCTION DEPARTMENT
Casper, Wyoming



WEST LINDRITH
EXHIBIT "C"

Proposed Downhole Commingling Installation—Jicarilla 22-4

County: Rio Arriba

State: New Mexico

Engineer: J. A. Martin

Draftsman: B. B.

Date: 8-24-50

Scale: 1" = 100'

Well Status: Pooled to

NEW MEXICO OIL CONSERVATION COMMISSION
GAS-OIL RATIO TESTS

Form No. 1-1-65

Operator		Pool		County		Location									
Continental Oil Company		Undesignated Gallup		Rio Arriba											
District		Type of Test - (X)		Scheduled		Specimen									
152 North Durbin, Casper, Wyoming 82601		TEST - (X)		X		Specimen									
LEASE NAME	WELL NO.	LOCATION				DATE OF TEST	TYPE OF TEST	CHOKED SIZE	T.B.G. PRESS.	DAILY ALLOW-ABLE	LENGTH OF TEST HOURS	PROD. DURING TEST			GAS - OIL RATIO
		U	S	T	R							WATER DULS.	GRAV. OIL DULS.	GAS M.C.F.	
Jicarilla 22	1	J	22	25N	4W	8-02-70	F				24	0	6	160	30000
	2	J	21	25N	4W	8-04-70	F				24	0	19	55	2895
	3	D	22	25N	4W	8-06-70	F				24	0	2	44	22000
	4	J	15	25N	4W	8-08-70	F				24	0	16	106	6625

EXHIBIT "D₁"

I hereby certify that the above information is true and complete to the best of my knowledge and belief.

Original signed by
C. H. GARNER

Senior Analyst

8-27-70

(Date)

No well will be assigned an allowable greater than the amount of oil produced on the official test.
During gas-oil ratio test, each well shall be produced at a rate not exceeding the top unit allowable for the pool in which well is located by more than 25 percent. Operation is encouraged to take advantage of this 25 percent tolerance in order that well can be assigned increased allowable when authorized by the Commission.
Gas volumes must be reported in MCF measured at a pressure base of 15.025 psia and a temperature of 60° F. Specific gravity base will be 0.60.
Report casing pressure in lieu of tubing pressure for any well producing through casing.
Mail original and one copy of this report to the district office of the New Mexico Oil Conservation Commission in accordance with Rule 301 and appropriate pool rules.

EMOCC(2), File, WB

NEW MEXICO OIL CONSERVATION COMMISSION
GAS-OIL RATIO TESTS

Form
Revised 1-1-65

Operator <u>Continental Oil Company</u>		Pool <u></u>		County <u>Rio Arriba</u>	
Address <u>152 North Durbin, Casper, Wyoming 82601</u>		Undesignated <u>Dakota</u>		Special <input type="checkbox"/>	
		Type of Test - (X) <input checked="" type="checkbox"/>		Completion <input type="checkbox"/>	
		Scheduled <input checked="" type="checkbox"/>			

LEASE NAME	WELL NO.	LOCATION				DATE OF TEST	TYPE OF TEST	CHOKE SIZE	TBG. PRESS.	DAILY ALLOW-ABLE	LENGTH OF TEST HOURS	PROD. DURING TEST				GAS - OIL RATIO CU.FT./BBL.
		U	S	T	R							WATER BBL.S.	GRAV. OIL BBL.S.	OIL BBL.S.	GAS M.C.F.	
Jicarilla 22	1	J	22	25N	4W	8-02-70	F				24	30	4	60	15000	
	2	J	21	25N	4W	8-04-70	F				24	5	14	271	19359	
	3	D	22	25N	4W	8-06-70	F				24	3	18	196	10689	
	4	J	15	25N	4W	8-08-70	F				24	5	22	160	7273	

EXHIBIT "D₂"

I hereby certify that the above information is true and complete to the best of my knowledge and belief.

No well will be assigned an allowable greater than the amount of oil produced on the official test.
 During gas-oil ratio tests, each well shall be produced at a rate not exceeding the top unit allowable for the pool in which well is located by more than 25 percent. Operation is encouraged to take advantage of this 25 percent tolerance in order that well can be assigned increased allowable when authorized by the Commission.
 Gas volumes must be reported in MCF measured at a pressure base of 15.025 psia and a temperature of 60° F. Specific gravity base will be 0.60.
 Report casing pressure in lieu of tubing pressure for any well producing through casing.
 Mail original and one copy of this report to the district office of the New Mexico Oil Conservation Commission in accordance with Rule 303 and appropriate pool rules.

Original signed by
GILBERT L.
 (Signature)
Senior Analyst
 (Title)
8-27-70
 (Date)

DMCCC(2), file, WS

CONFIDENTIAL
10000-00 CASPER DIVISION

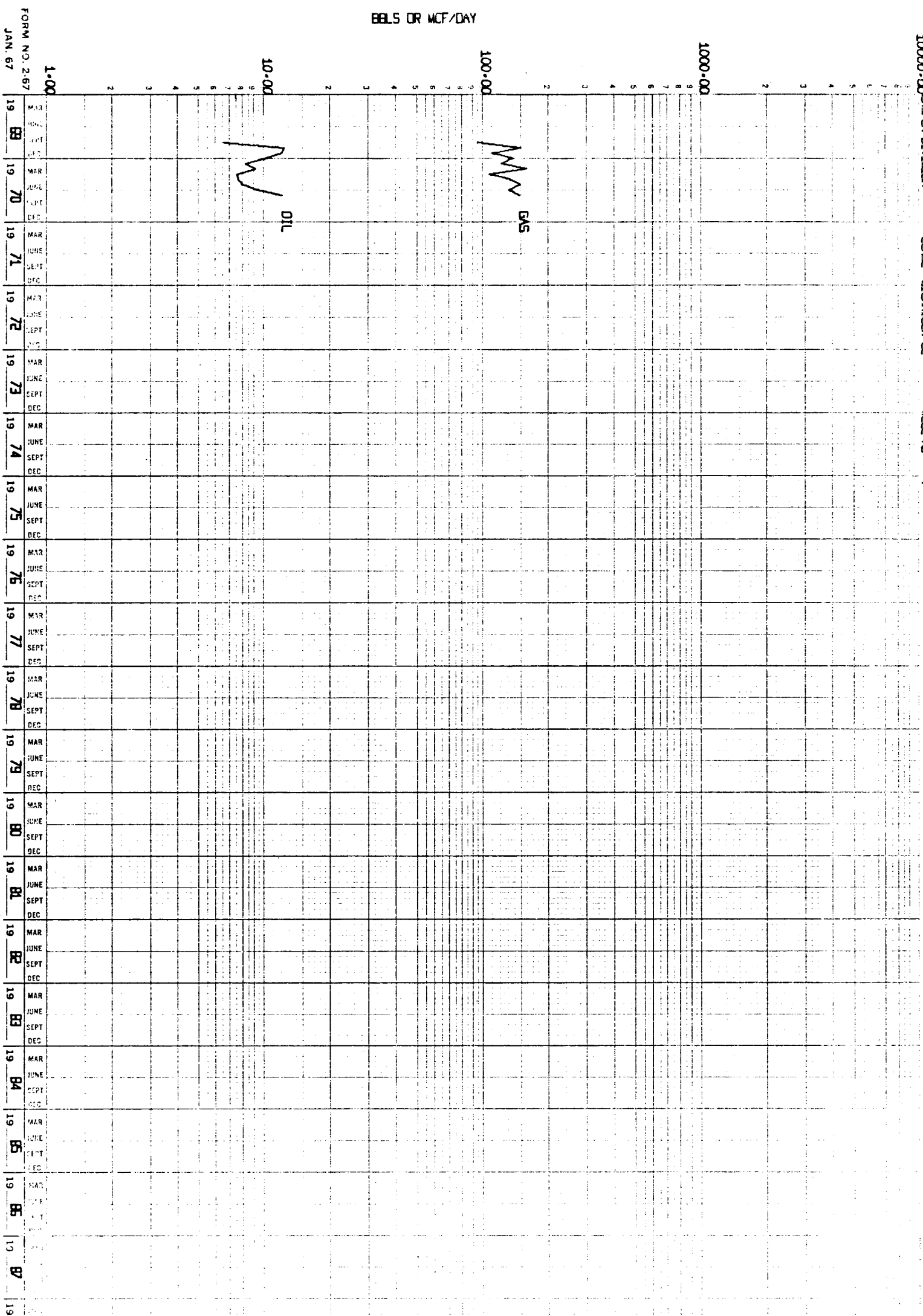
STATE. NEW MEXICO
LEASE. JOURNAL 22

FIELD. WEST LINCOLN
MEL. NO. 4

RESERVOIR - UNDESIGNATED DAMUTA

EXHIBIT E

BBL5 OR MCF/DAY



CONTINENTAL OIL CO. STATE, NEW MEXICO FIELD, WEST LINDRITH
10000-00 CASPER DIVISION LEASE, JICORILLA 22 WELL NO. 4 RESERVOIR, UNCONFINATED GULLP

EXHIBIT E2

BBL5 OR MCF/DAY

FORM NO. 2-67					
JAN. 67					
19	B8	MAR FINE SEPT DEC			
19	70	MAR JUNE SEPT DEC			
19	71	MAR JUNE SEPT DEC			
19	72	MAR JUNE SEPT DEC			
19	73	MAR JUNE SEPT DEC			
19	74	MAR JUNE SEPT DEC			
19	75	MAR JUNE SEPT DEC			
19	76	MAR JUNE SEPT DEC			
19	77	MAR JUNE SEPT DEC			
19	78	MAR JUNE SEPT DEC			
19	79	MAR JUNE SEPT DEC			
19	80	MAR JUNE SEPT DEC			
19	81	MAR JUNE SEPT DEC			
19	82	MAR JUNE SEPT DEC			
19	83	MAR JUNE SEPT DEC			
19	84	MAR JUNE SEPT DEC			
19	85	MAR JUNE SEPT DEC			
19	86	MAR JUNE SEPT DEC			
19	87	MAR JUNE SEPT DEC			
19	88	MAR JUNE SEPT DEC			

10000-00	CASPER DIVISION	STATE - NEW MEXICO	FIELD - WEST LINCOLN	RESERVOIR - DAWG-5 GULLIP
		LEASE - JOURNAL 22	WELL NO. 4	

EXHIBIT E3

BBL5 OR MCF/DAY

FORM NO. 2-67
JAN. 67

19	68	MAR	JUNE	SEPT	DEC
19	70	MAR	JUNE	SEPT	DEC
19	71	MAR	JUNE	SEPT	DEC
19	72	MAR	JUNE	SEPT	DEC
19	73	MAR	JUNE	SEPT	DEC
19	74	MAR	JUNE	SEPT	DEC
19	75	MAR	JUNE	SEPT	DEC
19	76	MAR	JUNE	SEPT	DEC
19	77	MAR	JUNE	SEPT	DEC
19	78	MAR	JUNE	SEPT	DEC
19	79	MAR	JUNE	SEPT	DEC
19	80	MAR	JUNE	SEPT	DEC
19	81	MAR	JUNE	SEPT	DEC
19	82	MAR	JUNE	SEPT	DEC
19	83	MAR	JUNE	SEPT	DEC
19	84	MAR	JUNE	SEPT	DEC
19	85	MAR	JUNE	SEPT	DEC
19	86	MAR	JUNE	SEPT	DEC
19	87	MAR	JUNE	SEPT	DEC
19	88	MAR	JUNE	SEPT	DEC

JICARILLA 22 WELL NO. 4
 UNIT LETTER J, SECTION 15, T25N, R4W
 RIO ARriba COUNTY, NEW MEXICO

Commingling Data
Month of July, 1970

<u>Producing Data</u>	<u>Gravity</u>	<u>Value</u>	<u>Volume</u>	
Gallup	44.9	\$2.85	290 BOPM	43.3%
Dakota	46.8	2.85	379 BOPM	56.65%
Commingled	45.7	2.85	669 BOPM	

Crude Purchaser: Shell Pipeline Company - Farmington, New Mexico

Royalty Interest Owner: Jicarilla Apache Tribe

Date: September 3, 1970