



Amoco Production Company (USA)

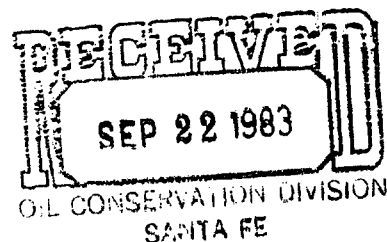
Post Office Box 68
Hobbs, New Mexico 88240

S. J. Okerson
District Superintendent

September 19, 1983

File: SJ0-1845-WF

Re: Application to Wellbore Commingle
State "FU" No. 1
Upper Bone Springs and Wolfcamp Oil Pools
Lea County, New Mexico



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

Gentlemen:

Approval is hereby requested to downhole commingle the State "FU" No. 1 in accordance with NMOCD Rule 303-C.

This well is located 1980' FSL x 1980' FWL, Section 25, T-18-S, R-34-E, Lea County, New Mexico. It was originally completed in the Airstrip Wolfcamp (oil), but was temporarily abandoned in September, 1979, because of low productivity. This well is now producing from the Airstrip Upper Bone Springs (oil) which is currently using artificial lift. Attached is an ownership map showing the subject well and offset operator.

In support of our request, we submit the following facts:

1. The latest 24 hour productivity tests are as follows:

	Date	BOPD	BWPD	MCFPD	Perforations
Bone Springs	8-27-83	18	8	69	9,182'-9,390'
Wolfcamp*		25	5	50	10,533'-10,156'

* Estimated Wolfcamp production following stimulation

2. Neither zone produces more water than the combined oil limit as determined in Rule 303, paragraph C, Section 1-a(1) and a(3).

3. A water analysis was run on the State "FU" No. 1 Bone Springs and the State "HR" No. 1 Wolfcamp*. The results found that the commingled fluids from these two zones will be compatible (Test results attached).

* State "HR" No. 1 Wolfcamp - This well was used for Wolfcamp characteristics due to its close proximity to the State "FU" No. 1.

4. Both zones will be artificially lifted. The estimated bottom hole pressures are as follows:

Upper Bone Springs

(9,182'-9,390')

Sonologged: 7-9-83 = 1,198'

Pump: Set at 9,460'

July 1983 Production: 20 BO and 6 BW
76.9% oil and 23.1% water

Casing Pressure: 1 psi

Oil Gravity: 35.5° API

$$\begin{aligned} \text{SG} &= \frac{141.5}{131.5 + 35.5 \text{ API}} = .847 \text{ SG} \times .433 \text{ PSI/ft} = .367 \text{ PSI/ft} \\ 1,198' \times .769 &= 921.3' \text{ oil} \times .367 \text{ PSI/ft} = 338 \text{ PSI} \\ 1,198' \times .231 &= 276.7' \text{ water} \times .433 \text{ PSI/ft} = 120 \text{ PSI} \\ (9,460' - 1,198') \times .01 &\text{ PSI/ft gas} = 82.6 \text{ PSI} \\ \text{Casing Pressure} &= 1.0 \text{ PSI} \\ &= \underline{\underline{541.6 \text{ PSI}}} \end{aligned}$$

Wolfcamp

(10,533'-10,656')

Sonolog: 5-29-79 = 430' (2 months prior to shut in)

May 1979 Production: 27 BO and 3 BW
90% oil and 10% water

Pump: Set at 10,669'

$$\begin{aligned} \text{SG} &= \frac{14.5}{131.5 + 39.1 \text{ API}} = .829 \text{ SG} \times .433 \text{ PSI/ft} = .359 \text{ PSI/ft} \\ 490' \times .90 &= 387' \times .359 \text{ PSI/ft} = 138.9 \text{ PSI Oil} \\ 430' \times .10 &= 43' \times .433 \text{ PSI/ft} = 18.6 \text{ PSI Water} \\ (10,669' - 430') \times .012 &\text{ PSI/ft} = 123.0 \text{ PSI Gas} \\ \text{Casing Pressure} &= 38.0 \text{ PSI} \\ &= \underline{\underline{318.5 \text{ PSI}}} \end{aligned}$$

Based on talks with Steve White 11/4/83 this pressure is low because the equilibrium hydrostatic head had not been established.

Correct to common datum at the bottom of Upper Bone Springs perfs 9,390'.

$$318.5 \text{ PSI} / 10,656' = .02988 \text{ PSI/ft}$$

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$$9,390' - 10,656' = -1,266'$$
$$.02988 \times -1,266' = -37.8 \text{ PSI}$$

$$318.5 \text{ PSI} - 37.8 \text{ PSI} = 280.7 \text{ PSI (Wolfcamp)}$$

Conclusion: Upper Bone Springs BHP = 541.6 PSI
Wolfcamp BHP = 280.7 PSI

The lower pressured zone is not less than 50% of the higher pressure zone.

5. The commercial value of the commingled production will be approximately the same as the total value of the segregated production. Production data from the two zones are as follows:

State "FU" No. 1

	Bone Springs	Wolfcamp	Commingled
Daily Production	18	25	43
Gravity	35.7°	38.8°	37.2
Value/Bbl	\$29.90	\$29.96	\$29.93

*Value of commingled
oil is slightly
less.*

6. Recommended oil and gas allotments are as follows:

	Wolfcamp	Bone Springs
Oil	47%	53%
Gas	67%	33%

7. All offset operators have been notified by registered mail.
8. Other supporting data attached are production decline curves and gas oil ratio tests for both zones. Also, a copy of C-115 for the Wolfcamp at the time it was temporarily abandoned.

If additional information is required, contact Charles Herring at (505) 393-1781.

Yours very truly,

D. J. Ollerum

Attachments

P 267 164 396

RECEIPT FOR CERTIFIED MAIL

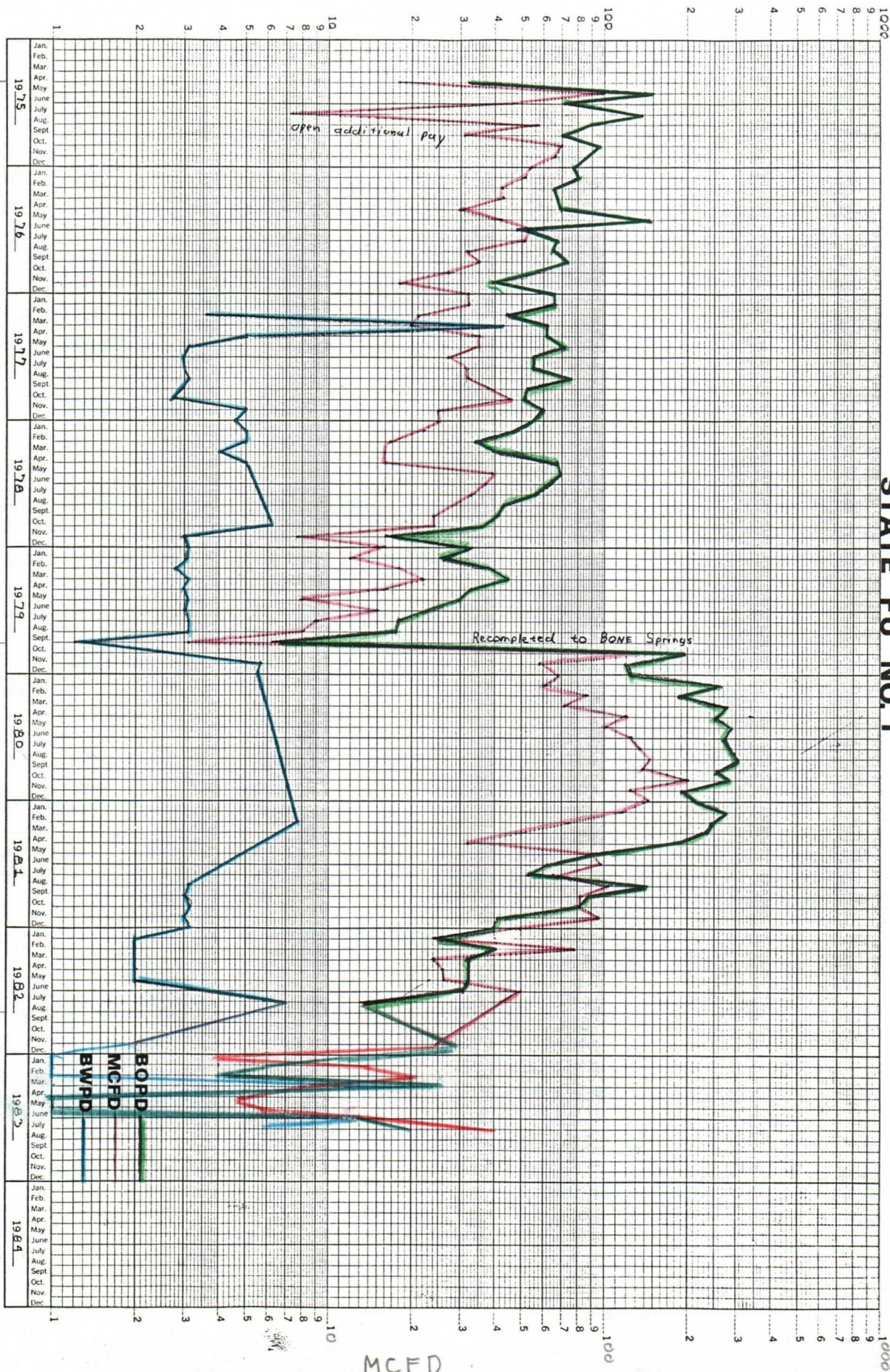
NO INSURANCE COVERAGE PROVIDED—
NOT FOR INTERNATIONAL MAIL
(See Reverse)

SENT TO		Gulf Oil Exp. & Prod. Co.	
STREET AND NO.		P.O. Box 1150	
P.O., STATE AND ZIP CODE		Midland, TX 79702	
POSTAGE		\$ 54	
CERTIFIED FEE		75 ¢	
SPECIAL DELIVERY		¢	
RESTRICTED DELIVERY		¢	
CONSULT POSTMASTER FOR FEES OPTIONAL SERVICES RETURN RECEIPT SERVICE	SHOW TO WHOM AND DATE DELIVERED	60 ¢	
	SHOW TO WHOM, DATE, AND ADDRESS OF DELIVERY	¢	
	SHOW TO WHOM AND DATE DELIVERED WITH RESTRICTED DELIVERY	¢	
	SHOW TO WHOM, DATE AND ADDRESS OF DELIVERY WITH RESTRICTED DELIVERY	¢	
	TOTAL POSTAGE AND FEES		\$ 1.89
POSTMARK OR DATE			
			

PS Form 3800, Apr. 1976.

BBLs/DAY

STATE "FU" NO. 1



Wolfcamp

Bone Springs

MCFD

UNICHEM INTERNATIONAL

601 NORTH LEECH

P.O. BOX 1499

HOBBS, NEW MEXICO 88240

COMPANY : AMOCO
DATE : 9-7-82
FIELD, LEASE & WELL : STATE FU#1
SAMPLING POINT: UPPER BONE SPRINGS
DATE SAMPLED : 9-2-82

SPECIFIC GRAVITY = 1.055
TOTAL DISSOLVED SOLIDS = 81879
PH = 4.47

		ME/L	MG/L
CATIONS			
CALCIUM	(CA)+2	720	14428.
MAGNESIUM	(MG)+2	230	2795.
SODIUM	(NA).CALC.	527.	12129.
ANIONS			
BICARBONATE	(HCO3)-1	0	0
CARBONATE	(CO3)-2	0	0
HYDROXIDE	(OH)-1	0	0
SULFATE	(SO4)-2	11.1	537.
CHLORIDES	(CL)-1	1466.	51988.
DISSOLVED GASES			
CARBON DIOXIDE	(CO2)	NOT RUN	
HYDROGEN SULFIDE	(H2S)	NOT RUN	
OXYGEN	(O2)	NOT RUN	
IRON(TOTAL)	(FE)		740
BARIUM	(BA)+2	.03	2.5
MANGANESE	(MN)	NOT RUN	

SCALING INDEX	TEMP
	30C
	86F
CARBONATE INDEX	-.20
CALCIUM CARBONATE SCALING	UNLIKELY
SULFATE INDEX	-.36
CALCIUM SULFATE SCALING	UNLIKELY

UNICHEM INTERNATIONAL

601 NORTH LEECH

P.O. BOX 1499

HOBBS, NEW MEXICO 88240

COMPANY : AMOCO
 DATE : 9-7-82
 FIELD LEASE & WELL : STATE HR#1.
 SAMPLING POINT: WOLF CAMP
 DATE SAMPLED : 9-2-82

SPECIFIC GRAVITY = 1.084
 TOTAL DISSOLVED SOLIDS = 124195
 pH = 6.2

		ME/L	MG/L
CATIONS			
ALCIUM	(CA)+2	140	2805.
MAGNESIUM	(MG)+2	100	1215.
SODIUM	(NA), CALC.	1904.	43774.
ANIONS			
BICARBONATE	(HCO3)-1	1.6	97.6
CARBONATE	(CO3)-2	0	0
HYDROXIDE	(OH)-1	0	0
SULFATE	(SO4)-2	27.4	1319.
CHLORIDES	(CL)-1	2115	74983.
DISSOLVED GASES			
CARBON DIOXIDE	(CO2)	NOT RUN	
HYDROGEN SULFIDE	(H2S)	NOT RUN	
OXYGEN	(O2)	NOT RUN	
IRON(TOTAL)	(FE)		45.5
BARIUM	(BA)+2		.5
MANGANESE	(MN)	NOT RUN	

SCALING INDEX

TEMP

30C
 86F
 .889

LIKELY

-1.3
 UNLIKELY

CARBONATE INDEX
 ALCIUM CARBONATE SCALING

SULFATE INDEX
 ALCIUM SULFATE SCALING

UNICHEM INTERNATIONAL

601 NORTH LEECH

P.O. BOX 1499

HOBBS, NEW MEXICO 88240

COMPANY : AMOCO
DATE : 9-7-82
FIELD, LEASE & WELL : STATE FU#1 50% & STATE HR#1 50%
SAMPLING POINT:
DATE SAMPLED : 9-2-82

SPECIFIC GRAVITY = 1.069
TOTAL DISSOLVED SOLIDS = 103044
PH = 5.33

		ME/L	MG/L
CATIONS			
CALCIUM	(CA)+2	430	8617.
MAGNESIUM	(MG)+2	165	2013
SODIUM	(NA), CALC.	1215.	27951.
ANIONS			
BICARBONATE	(HCO3)-1	.8	48.8
CARBONATE	(CO3)-2	0	0
HYDROXIDE	(OH)-1	0	0
SULFATE	(SO4)-2	19.3	928.
CHLORIDES	(CL)-1	1790.	63485.
DISSOLVED GASES			
CARBON DIOXIDE	(CO2)	NOT RUN	
HYDROGEN SULFIDE	(H2S)	NOT RUN	
OXYGEN	(O2)	NOT RUN	
IRON(TOTAL)	(FE)		392.
BARIUM	(BA)+2	.02	1.5
MANGANESE	(MN)	NOT RUN	

SCALING INDEX	TEMP
	30C
	86F
CARBONATE INDEX	.479
CALCIUM CARBONATE SCALING	LIKELY
SULFATE INDEX	-.35
CALCIUM SULFATE SCALING	UNLIKELY

UNICHEM INTERNATIONAL

601 NORTH LEECH

P.O. BOX 1499

HOBBES, NEW MEXICO 88240

COMPANY : AMOCO

DATE : 9-7-82

FIELD, LEASE & WELL : STATE FU#1 38% & STATE HR#1 62%

SAMPLING POINT:

DATE SAMPLED : 9-2-82

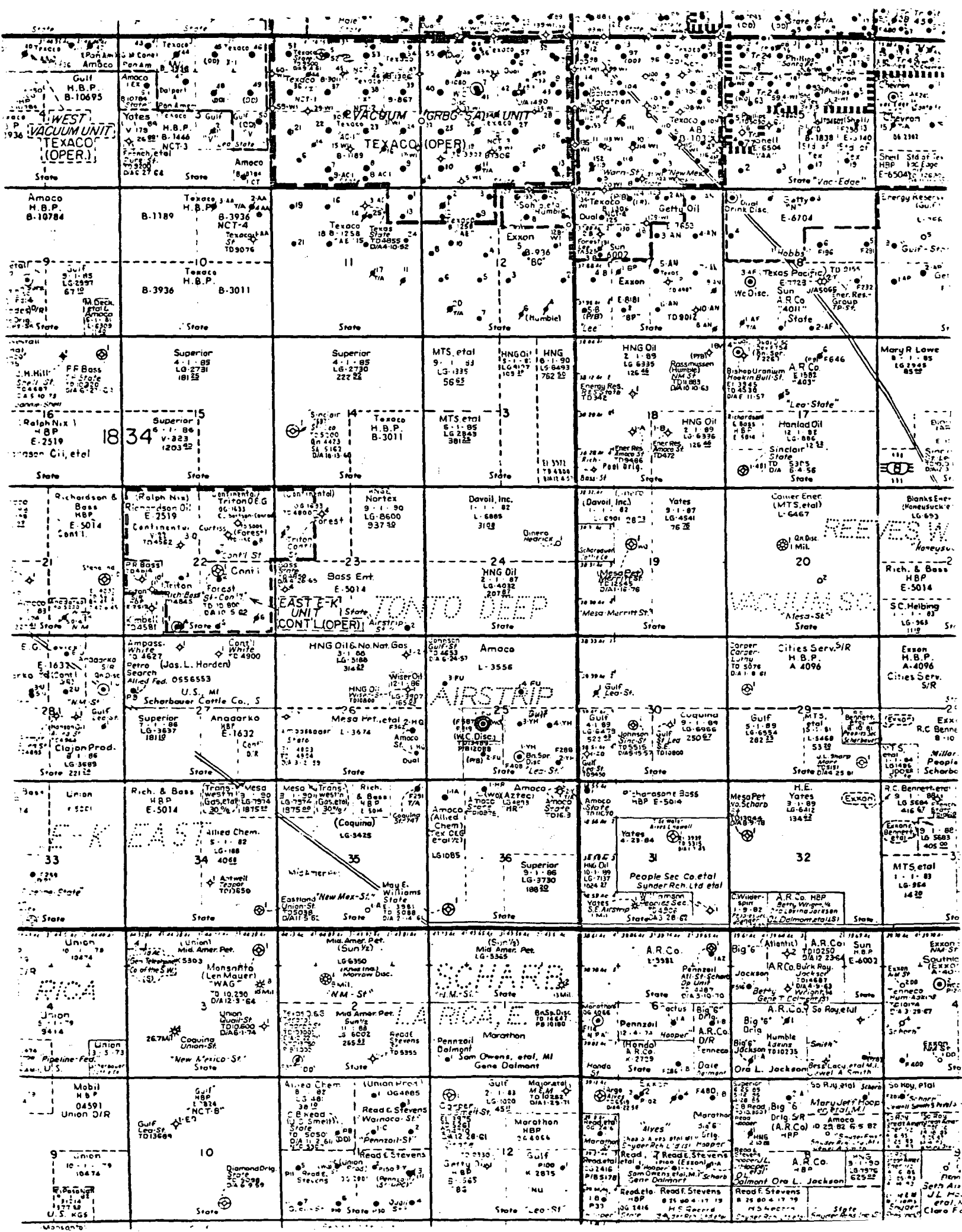
SPECIFIC GRAVITY = 1.073

TOTAL DISSOLVED SOLIDS = 108122

PH = 5.54

		ME/L	MG/L
CATIONS			
CALCIUM	(CA)+2	360.	7222.
MAGNESIUM	(MG)+2	149.	1822.
SODIUM	(NA), CALC.	1381.	31749.
ANIONS			
BICARBONATE	(HCO3)-1	.99	60.5
CARBONATE	(CO3)-2	0	0
HYDROXIDE	(OH)-1	0	0
SULFATE	(SO4)-2	21.2	1022.
CHLORIDES	(CL)-1	1868.	66245.
DISSOLVED GASES			
CARBON DIOXIDE	(CO2)	NOT RUN	
HYDROGEN SULFIDE	(H2S)	NOT RUN	
OXYGEN	(O2)	NOT RUN	
IRON(TOTAL)	(FE)		309.
BARIUM	(BA)+2	.01	1.2
MANGANESE	(MN)	NOT RUN	

SCALING INDEX	TEMP
	30C
	86F
CARBONATE INDEX	.618
CALCIUM CARBONATE SCALING	LIKELY
SULFATE INDEX	-.45
CALCIUM SULFATE SCALING	UNLIKELY



GAS-OIL RATIO TESTS

Operator		Pool		County		Lea									
AMOCO Production Co.		Airstrip Upper Bone Springs													
Address		P.O. Box 68, Hobbs New Mexico 88240		TYPE OF TEST - (X)		Scheduled ☐ Special ☐									
LEASE NAME	WELL NO.	LOCATION				DATE OF TEST	CHOKE SIZE	TEG. PRESS.	DAILY ALLOW. ABLG.	LENGTH OF TEST HOURS	PROD. DURING TEST				GAS - OIL RATIO CU.FT/BSL
		U	S	T	R						WATER GALS.	CRAV. OIL GALS.	GAS M.C.F.		
State FU	1	G	25	18	34	8-27-83	P		23	24	8		18	69	3833

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. Operator is encouraged to take advantage of this 25 percent tolerance in order that well can be assigned increased allowables when authorized by the Division.

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.

Well original and one copy of this report to the district office of the New Mexico Oil Conservation Division in accordance with Rule 331 and appropriate pool rules.

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

0+2: NMOC-D-Hobbs

1-File 533.11

1-LRB

Administrative Analyst

9-13-83

Amoco Production Company

P. O. Box 68 Hobbs, NM

88240

AUG 1979

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ORIGINAL TO CCC SANTA FE
ONE COPY TO CCC DIST. OFF.
ONE COPY TO TRANSPORTER
(Rev. 3-1-77)

WELL NAME (Underline)

*Please Name

WELL NO UNIT SEC TWP RNG

LEASE NAME - Include State Land Lease Number or Federal Lease Number

AIRSTRIP-MOLFCAMP - OIL

State FU L-3553
1 K 25 18 34

WELL STATUS		INJECTION		TOTAL LIQUIDS PRODUCED		DISPOSITION OF GAS				DISPOSITION OF OIL					
VOLUME	PRESS.	MONTHLY OIL ALLOWABLE	ACTUAL BARRELS OF WATER PRODUCED	GAS PRODUCED (MCF)	DAYS PROD.	SOLID	TRANS-PORTER		OTHER	C O D	OIL ON HAND AT BEG. OF MONTH	BARRELS TO TRANS-PORTER	OTHER	C O D	OIL ON HAND AT END OF MONTH

P			2821	523	93	253	31				253	14	262	352	AMO	433
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DISTRIBUTION (13)

NMOCC, SF 1-NMOCC, H 1-File 1-PR Bass 1-Amoco Tks 1-Mesa Petro 1-Tex. Oil & Gas 1-Superior (Midland) 1-Permian Tks
Southland Royalty 1-Transwestern 1-Pacific 1-North 50

STATUS CODE

F.....FLOWING
P.....PUMPING
G.....GAS LIFT
S.....SHUT IN
A.....ABANDONED
O.....ON
N.....NUED

"OTHER" GAS DISPOSITION CODE
X.....USED OFF LEASE
D.....USED FOR DRILLING
G.....GAS LIFT
L.....LOST (MCF ESTIMATED)
E.....EXPLANATION ATTACHED
R.....REPRESSURING OR
P.....PRESSURE MAINTENANCE
V.....VENTED
U.....USED ON LEASE

"OTHER" OIL DISPOSITION CODE
C.....CIRCULATING OIL
L.....LOST
S.....SEDIMENTATION (GSEM)
E.....EXPLANATION ATTACHED

I HEREBY CERTIFY THAT THE INFORMATION GIVEN IS TRUE AND COMPLETE TO THE BEST OF MY KNOWLEDGE

DENNIS R. EVANS

Asst. Administrative Analyst

Dennis Evans