

October 22, 1985

File: SGH-2018-WF

Re: Application to Downhole Commingle
State "FU" No. 2
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

Attention: R. L. Stamets, Director

Approval is being requested to downhole commingle the State "FU" No. 2 well in accordance with NMOCD Rule 303C.

This well is located 960' FSL x 1980' FWL, Section 25, T-18-S, R-34-E, Lea County, New Mexico. The well was initially completed in the Bone Springs on September 13, 1979. However, production has steadily declined since that time. On September 25, 1985, the well was recompleted to the Wolfcamp and swab tested. A retrievable bridge plug was set to isolate the Wolfcamp pending approval to downhole commingle these two formations.

An offset well to the State "FU" No. 2 have received approval to downhole commingle the Bone Springs and Wolfcamp formations. This offset well is the:

Amoco Production Company - Operator
State "FU" No. 1
Unit K, Section 25, T-18-S, R-34-E
Administrative Order No. DHC-436

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

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

	<u>DATE</u>	<u>BOPD</u>	<u>BWPD</u>	<u>MCFD</u>	<u>Perforations</u>
Bone Springs	10/9/85	37	64	61	8,334-10,272' (Non-continuous)
Wolfcamp*	9/25/85	14	48	28	10,602-10,646'

*Estimated Wolfcamp production following stimulation. The Wolfcamp was swab tested 13 hours.

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. The proposed commingling of the State "FU" No. 2 Bone Springs and Wolfcamp intervals are directly correlative with the commingled zones in the State "FU" No. 1. The fluids in the State "FU" No. 1 are representative of the fluids in the State "FU" No. 2 and are compatible. See attached results.
4. Both zones will be artificially lifted by beam pump. The estimated bottomhole pressures are as follows:

Bone Springs

Perforations: 8,334-10,272' (Non-continuous)
 Fluid level above pump per sonolog: 10/4/85 = 1930'
 Pump Depth: 10,303'
 Casing Pressure: 32 psi
 Oil Gravity: 35.4° API

$$\text{S.G.} = \frac{141.5}{131.5 + 35.4} = .848 \text{ S.G.} \times .433 \text{ psi/Ft.} = .367 \text{ psi/Ft.}$$

Hydrostatic of Oil = 1930' x .367 psi/Ft. = 708 psi
 Hydrostatic of Gas = (10,303-1,930') x .01 psi/Ft. = 84 psi
 Casing Pressure = 32 psi

Formation Pressure of Bone Springs 824 psi

Wolfcamp

Perforations: 10,602-10,646'
 Fluid Level: 2102' above top Wolfcamp perforation
 Casing Pressure: 0 psi
 Swab test results: 14 BOPD and 48 BWPD
 22.6% oil and 77.4% water
 Oil Gravity = 40° API (Based on offset Wolfcamp oil)

$$\text{S.G.} = \frac{141.5}{131.5 + 40} = .825 \text{ S.G.} \times .433 \text{ psi/Ft.} = .357 \text{ psi/Ft.}$$

$$\begin{aligned} \text{Hydrostatic of Oil} &= 2102' \times .226 \text{ (Oil)} \times .357 \text{ psi/Ft.} &= 170 \text{ psi} \\ \text{Hydrostatic of Water} &= 2102' \times .774 \text{ (Water)} \times .433 \text{ psi/Ft.} &= 704 \text{ psi} \\ \text{Hydrostatic of Gas} &= (10,602 - 2,102') \times .005 \text{ psi/Ft.} &= 42 \text{ psi} \end{aligned}$$

Formation Pressure of Wolfcamp 916 psi

Credit to common datum at 10,303'

$$\frac{916 \text{ psi}}{10,602'} = .086 \text{ psi/Ft.}$$

$$\text{BHP at datum} = 10,303' \times .086 \text{ psi/Ft.} = \underline{886 \text{ psi}}$$

Higher Pressure Zone = 886 psi (Wolfcamp)

Lower Pressure Zone = 824 psi (Bone Springs)

Conclusion: Lower pressure zone is not less than 50% (443 psi) of higher pressure zone.

5. The commingled 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:

	<u>Bone Springs</u>	<u>Wolfcamp</u>	<u>Commingled</u>
Daily Production	37	14	51
Gravity	35.4°	40.0°	36.7°
Value/bbl	\$27.29	\$27.98	\$27.48

6. Recommended oil and gas allocations are as follows:

	<u>Wolfcamp</u>	<u>Bone Springs</u>
Oil	28%	72%
Gas	32%	68%

7. All offset operators have been notified by certified mail. Copy of receipt is attached.
8. Other supporting data attached are production decline curves, ownership plat, C-116, and a list of offset operators and their addresses.

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Should you require additional information regarding this matter, please contact Charles Herring at (505) 393-1781, Extension 252.

Original Signed By
L.R. Smith

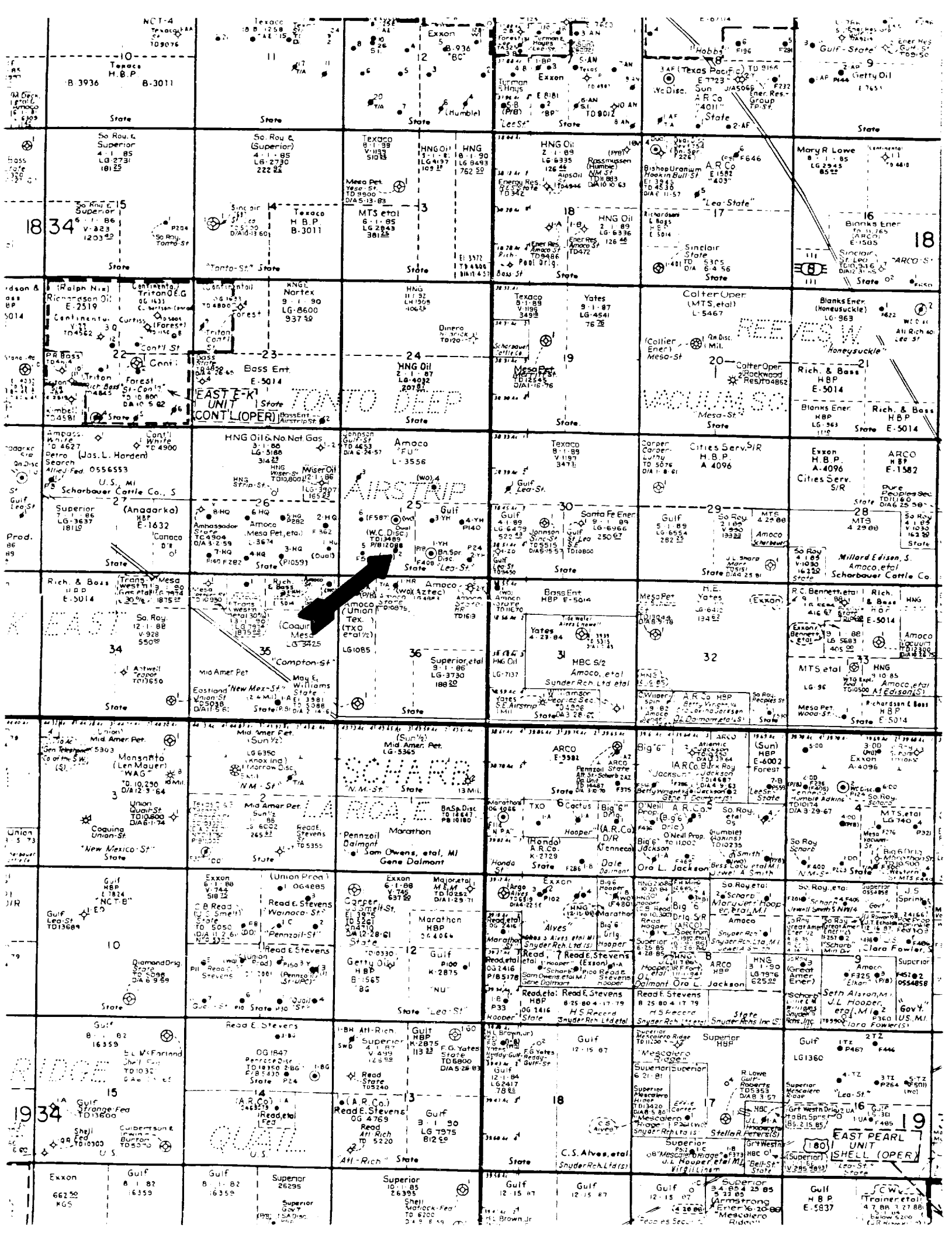
CMH/tjt
APRD03-V

Attachments

cc: State of New Mexico
Energy and Minerals Department
Oil Conservation Division
P. O. Box 1980
Hobbs, NM 88240

OFFSET OPERATOR

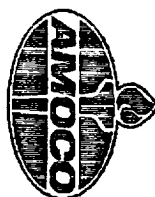
Chevron USA, Inc.
P. O. Box 670
Hobbs, NM 88240
Attention: J. C. Prindle



PLUT 2 20.10.04 TUES 7 RUE, 1984

JOB-RESERVING, SOCO, TULSA CENTER DISPLA VDR 8.2

INDUSTRY PRODUCTION DATA RATE-TIME PLOTS



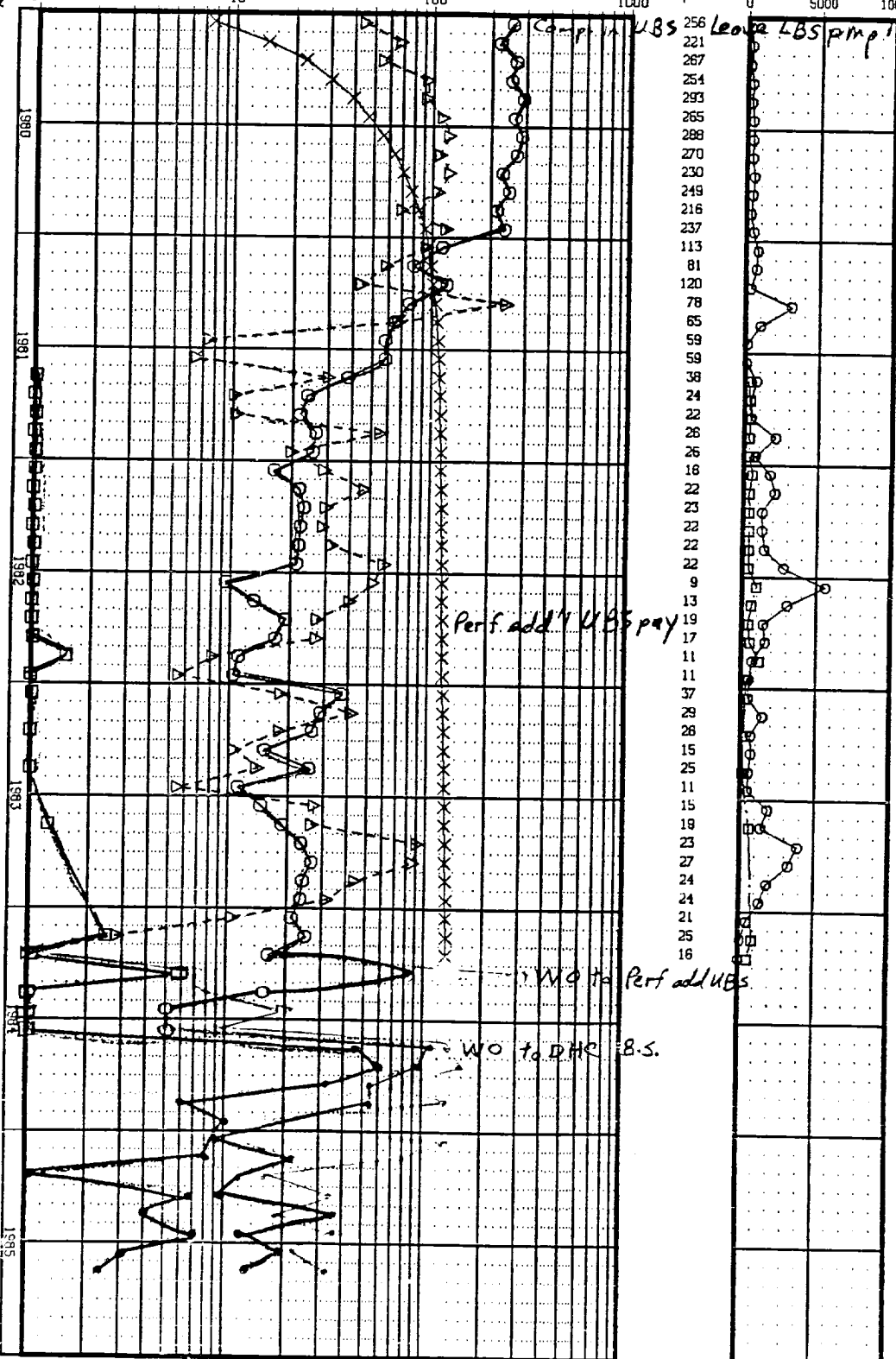
OIL

WELL: STATE FU 000002
 FIELD: AIRSTIP UPPER BONE SPRING UB 008000194 RESERVOIR: UB
 OPERATOR: AMOCO PRODUCTION CO 019922
 STATE: NM 30 COUNTY: LEA
 FIRST PROD LAST PROD 84 03
 REQUESTOR: REL FOR SPERRY LOCATION: HOBBS
 GENID: 4W014626
 COMP DATE: 80 01
 TOT. OIL CUM: 130,791
 TOT. GAS CUM: 79,228
 PERFS:

PERCENT BSW
 FTP IN PSIG
 GOR - CFPB

MAJOR PRODUCT

CUM OIL PROD - BBLs
 GROSS WATER PROD - BWPD
 GROSS GAS PROD - MCFD
 GROSS OIL PROD - BOPD



1984-08-07

TIME

REPORT NUMBER 321

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

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

SCALING INDEX

TEMP

CARBONATE INDEX
CALCIUM CARBONATE SCALING
SULFATE INDEX
CALCIUM SULFATE SCALING

30C
86F
-.20
UNLIKELY
-.36
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: WOLFCAMP
 DATE SAMPLED : 9-2-82

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

		ME/L	MG/L
CATIONS			
CALCIUM	(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)		
BARIIUM	(BA)+2		45.5
MANGANESE	(MN)	NOT RUN	.5

SCALING INDEX

TEMP

CARBONATE INDEX
 CALCIUM CARBONATE SCALING

30C
 86F
 .889
 LIKELY

SULFATE INDEX
 CALCIUM SULFATE SCALING

-1.3
 UNLIKELY

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

CATIONS		ME/L	MG/L
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)		
BARIUM	(BA)+2	.02	392.
MANGANESE	(MN)	NOT RUN	1.5

SCALING INDEX

TEMP

CARBONATE INDEX
CALCIUM CARBONATE SCALING

30C
86F
.479
LIKELY

SULFATE INDEX
CALCIUM SULFATE SCALING

-.35
UNLIKELY

RECEIVED

OCT 25 1985

RECEIVED
HISSEN OFFICE

GAS-OIL RATIO TESTS

Operator		Well		Location		DATE OF TEST	CHOKE SIZE	TBG. PRESS.	DAILY ALLOWABLE	LENGTH OF TEST HOURS	PROD. DURING TEST				Special	
LEASE NAME	WELL NO.	U	S	T	R						WATER BBLs.	GRAV. OIL	OIL BBLs.	GAS M.C.F.	GAS - OIL RATIO CU.FT/BBL	Completion ☐
Ameco Production Company P.O. Box 68, Hobbs, New Mexico 88240	2	N	25	18	34	10-9-85 P			63	24	64		37	61		1649
State FU																

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.

Mail original and one copy of this report to the district office of the New Mexico Oil Conservation Division in accordance with Rule 301 and appropriate pool rules.

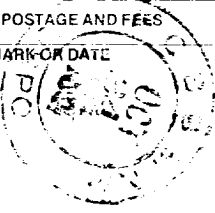
I hereby certify that the above information is true and complete to the best of my knowledge and belief.

James E. Smith
(Signature)
Administrative Analyst
(Title)
10-22-85

P 267 162 771

RECEIPT FOR CERTIFIED MAIL

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

SENT TO		Chevron USA, Inc.	
STREET AND NO.		P.O. Box 670	
P.O. STATE AND ZIP CODE		Hobbs, NM 88240	
POSTAGE		.50	
CONSULT POSTMASTER FOR FEES	CERTIFIED FEE	.75	
	SPECIAL DELIVERY		
	RESTRICTED DELIVERY		
	OPTIONAL SERVICES		
	RETURN RECEIPT SERVICE	.70	
	SHOW TO WHOM AND DATE AND ADDRESS OF DELIVERY		
	SHOW TO WHOM AND DATE AND ADDRESS OF DELIVERY		
	SHOW TO WHOM AND DATE AND ADDRESS OF DELIVERY		
	SHOW TO WHOM AND DATE AND ADDRESS OF DELIVERY		
	SHOW TO WHOM AND DATE AND ADDRESS OF DELIVERY		
TOTAL POSTAGE AND FEES		2.01	
POSTMARK OR DATE			

PS Form 3800, Apr. 1976