

Case No
4693-
4694

Large Exhibits



-2-
CASE NO. 4693
Order No. R-

(5) That in February, 1972, there were 14 wells completed in the Morrow formation within the above-described area, ^{and} connected to gas transportation facilities.

(6) That in February, 1972, 11 of the wells were connected only to the Transwestern Pipeline Company gas gathering system, that 2 of the wells were connected only to the Llano, Inc. gas gathering system, and that one of the wells was connected to both systems.

(7) That the South Carlsbad Field comprises the South Carlsbad-Atoka, South Carlsbad-Strawn, and South Carlsbad-Morrow Gas Pools.

(8) That the capacity of the Transwestern system serving the South Carlsbad Field is 90,000 MCF per day.

(9) That the capacity of the Llano system serving the South Carlsbad Field is 30,000 MCF per day.

(10) That the Transwestern system that takes gas from the South Carlsbad-Morrow Gas Pool also takes gas from the South Carlsbad-Strawn and South Carlsbad-Atoka Gas Pools.

(11) That the Llano system that takes gas from the South Carlsbad-Morrow Gas Pool also takes gas from the South Carlsbad-Strawn Gas Pool.

That at the time of this hearing, the most recent month for which production figures were available, is February, 1972.

(12) That there is evidence that additional wells have been connected to gas transportation facilities in the South Carlsbad-Strawn Gas Pool and the South Carlsbad-Atoka Gas Pool after February, 1972, and prior to the time of this hearing.

(13) That there is no evidence that the number of wells producing in the South Carlsbad-Strawn Gas Pool has been substantially altered after February, 1972.

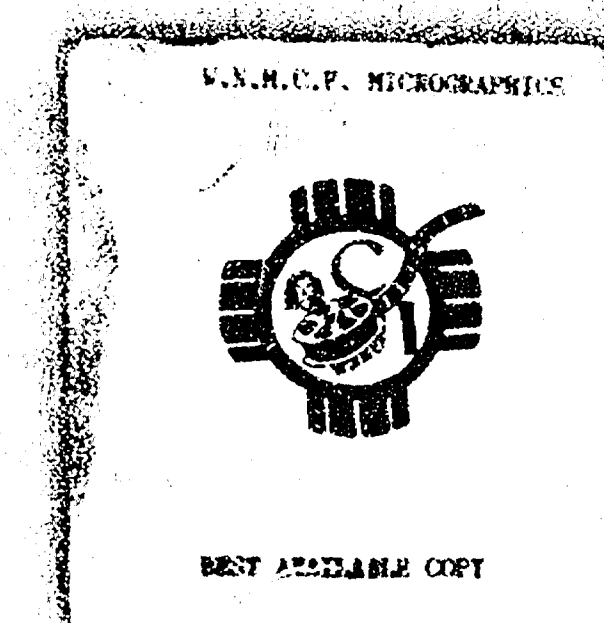
(14) That it can reasonably be inferred that the production characteristics of the wells in the South Carlsbad-Strawn Gas Pool are substantially the same as they were in February, 1972.

(15) That at the time of the hearing of this case, the Transwestern system was purchasing approximately 41,000 MCF of gas per day from the three pools combined.

(16) That in February, 1972, the Transwestern system purchased an average of 27,972 MCF of gas per day from the South Carlsbad-Morrow Gas Pool (41,195 - 29).

(17) That in February, 1972, the Transwestern system purchased an average of 10,144 MCF of gas per day from the one well in the South Carlsbad-Strawn Gas Pool connected to its system, (30,466 - 29).

(18) That at the time of this hearing, Transwestern was purchasing gas from three wells producing from the South Carlsbad-Strawn Gas Pool, and one well producing from the South Carlsbad-Atoka Gas Pool and that it was purchasing from the South Carlsbad-Morrow Gas Pool.



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CASE NO. 4693
Order No. 8

(15) That at the time of the hearing the additional wells producing from the South Carlsbad-Strawn Gas Pool had been connected to Transwestern's system.

(16) That considering the fact that Transwestern's system is taking gas from four wells in the South Carlsbad-Strawn, and South Carlsbad-Atoka Gas Pool, its capacity to take gas from the South Carlsbad-Morrow Gas Pool is substantially less than 90,000 MCF of gas per day.

(17) That in February, 1972, the Llano system purchased an average of 2,937 MCF of gas per day from the South Carlsbad-Morrow Gas Pool. (22,814 - 29).

(18) That at the time of this hearing, Plains was purchasing gas from three wells producing from the South Carlsbad-Strawn Gas Pool and three wells producing from the South Carlsbad-Morrow Gas Pool.

its capacity to take gas from the South Carlsbad-Morrow Gas Pool is substantially less than 90,000 MCF of gas per day.

(19) That the combined capacity of the two systems for gas from the South Carlsbad-Morrow Gas Pool is substantially less than 120,000 MCF of gas per day.

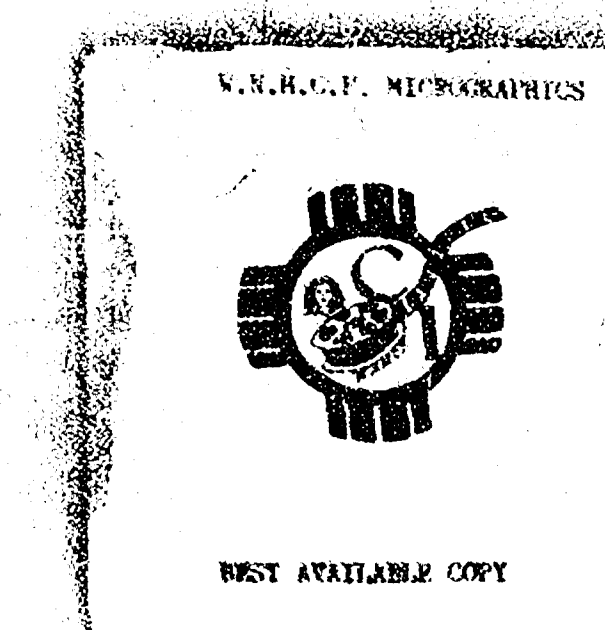
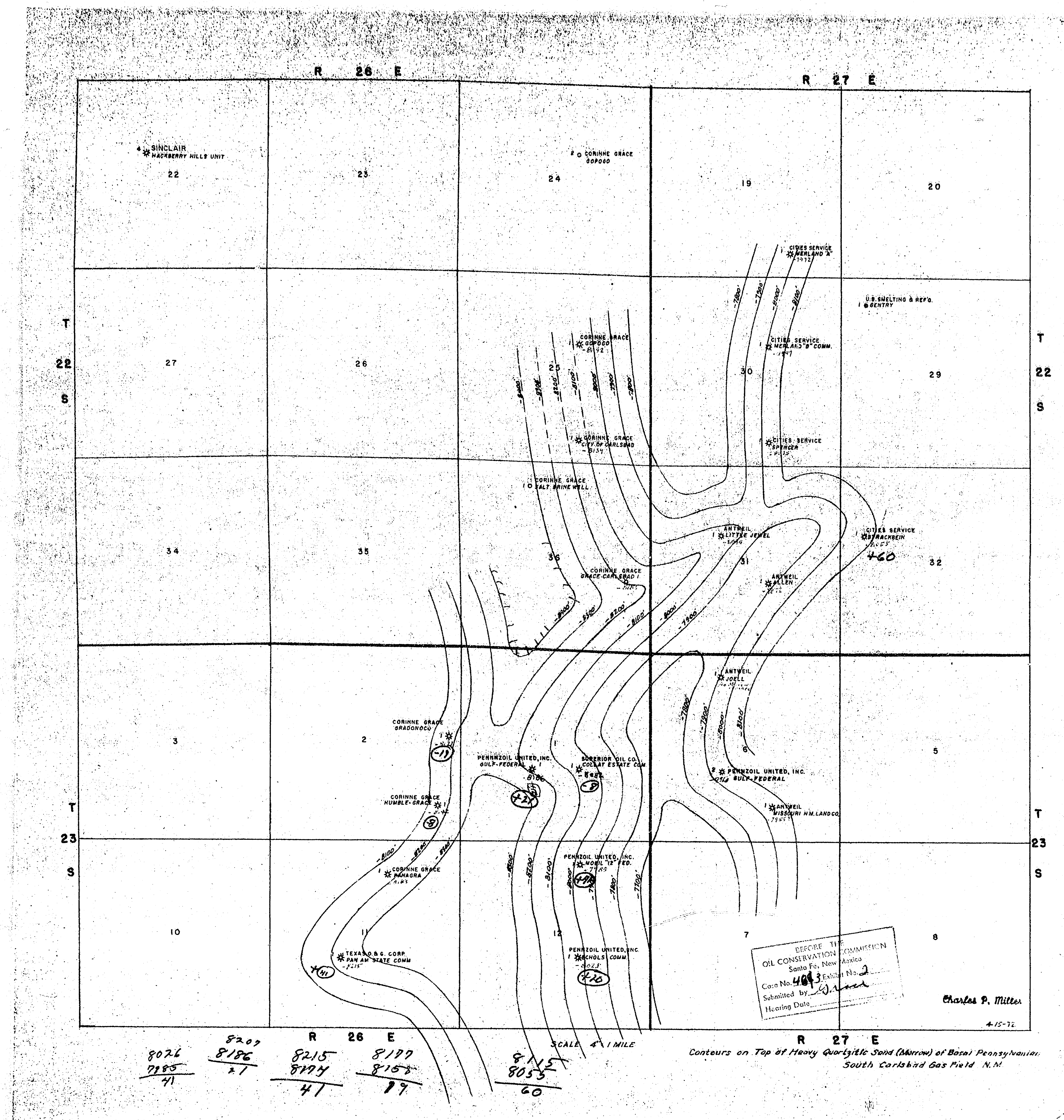
(20) That the absolute pressure of the gas in the South Carlsbad-Strawn Gas Pool connected to gas transportation facilities in February, 1972, ranges from a low of 2,965 psi to a high of 4,397 psi; that the average of said pressure was 3,681 psi.

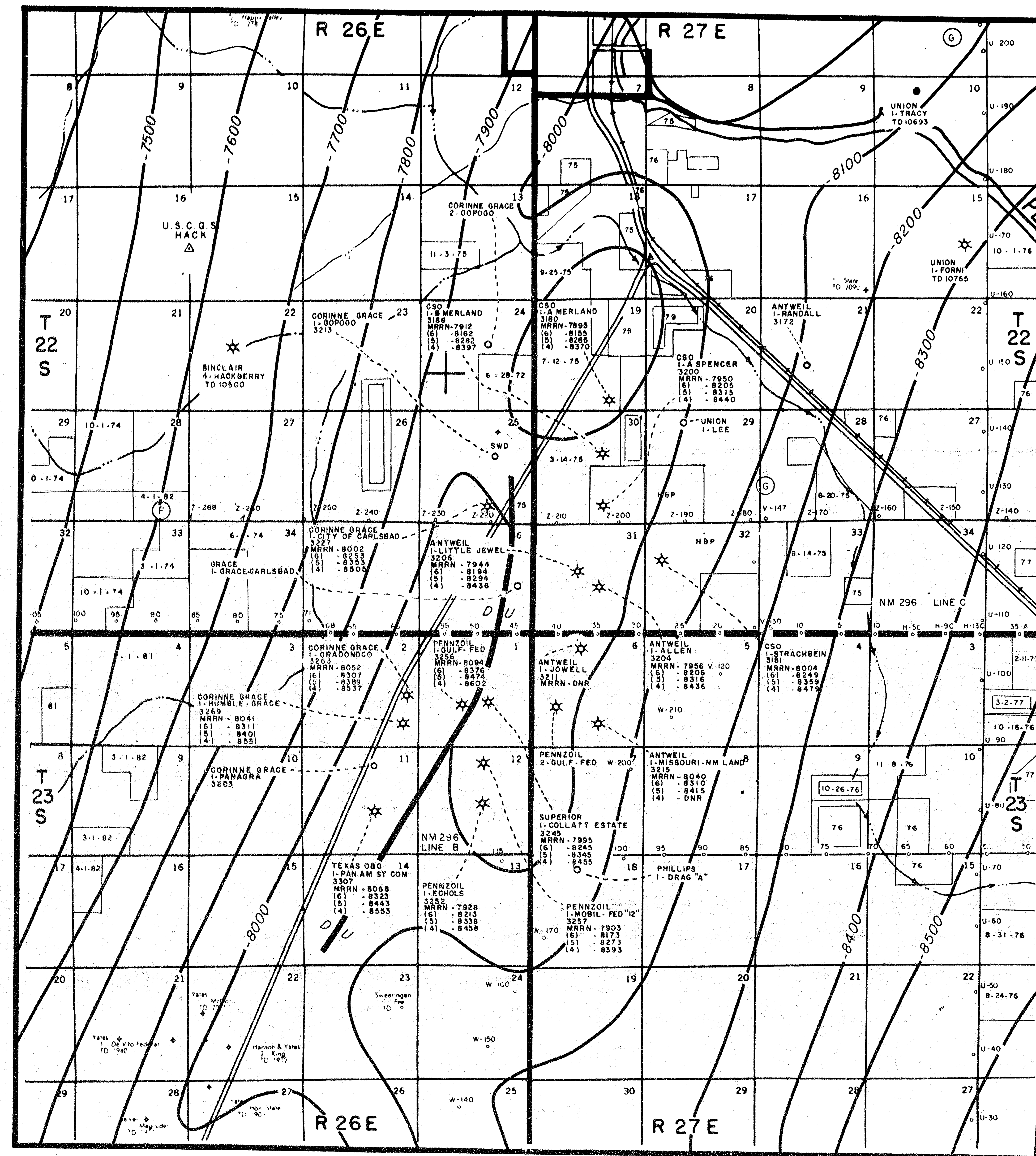
(21) That considering the nature of the South Carlsbad-Morrow Gas Pool reservoir and the high pressure existing in the pool, the daily deliverability of wells at 850 psi is substantially the same as it would be at 720 psi or 900 psi.

(22) That the combined producing capacity of the eleven South Carlsbad-Morrow wells connected only to the Transwestern system in February, 1972, at 850 psi is approximately 86,650 MCF per day; that the capacity of said wells at absolute open flow is approximately 97,423 MCF per day.

(23) That the combined producing capacity of the two South Carlsbad-Morrow wells connected only to the Llano system in February, 1972, at 850 psi is approximately 18,200 MCF per day; that the capacity of said wells at absolute open flow is approximately 19,240 MCF per day.







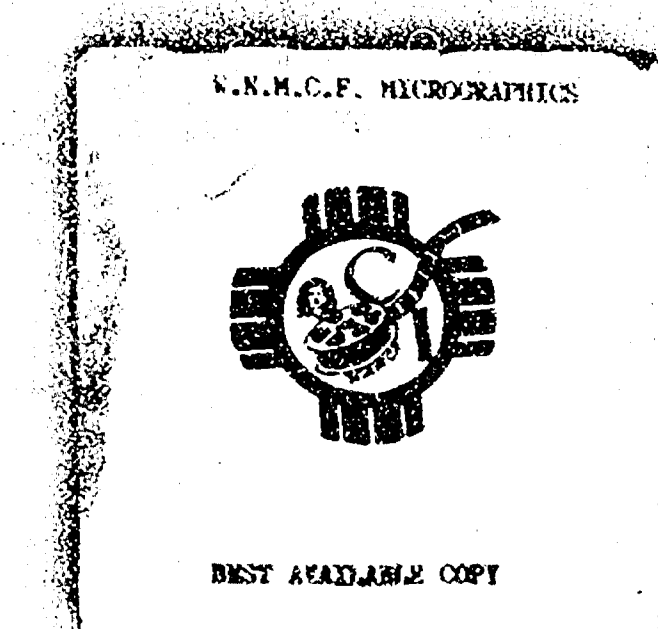
CITIES SERVICE OIL COMPANY
SOUTHWESTERN REGION
MIDLAND TEXAS

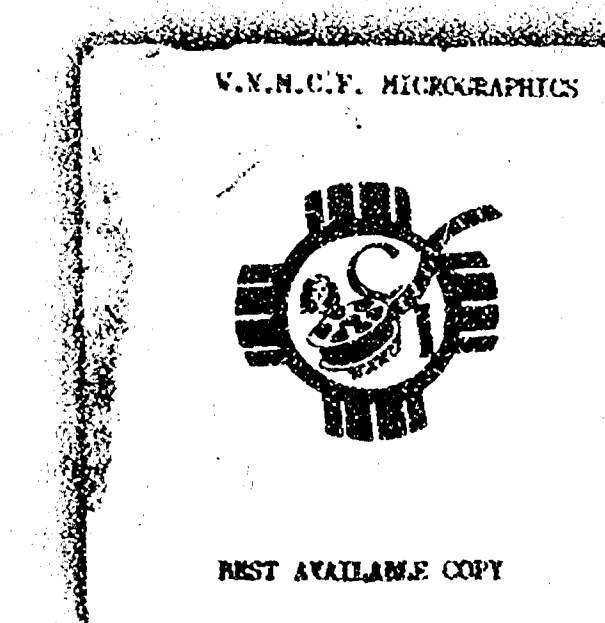
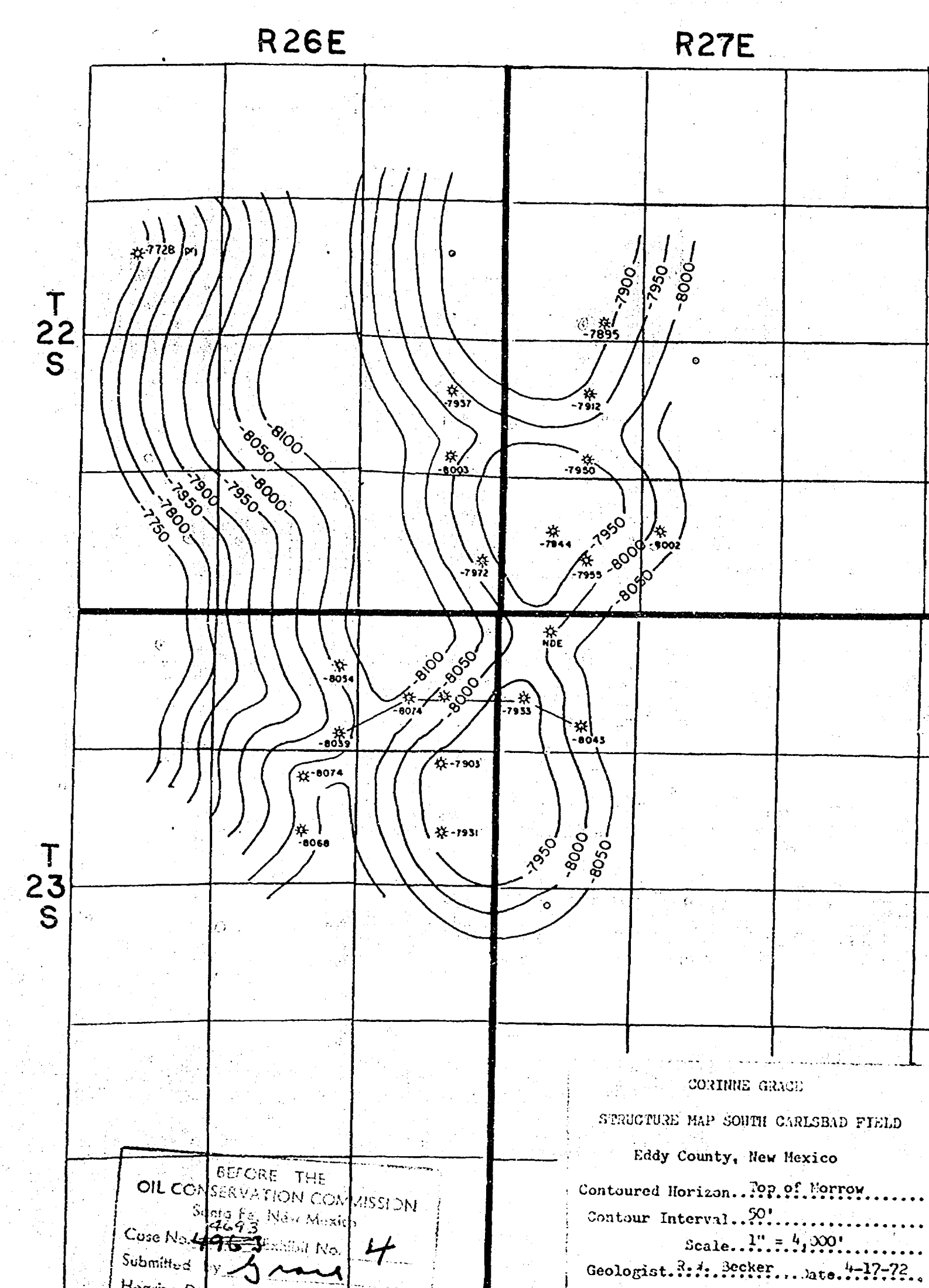
SOUTH CARLSBAD FIELD
Eddy County, New Mexico
MORROW STRUCTURE

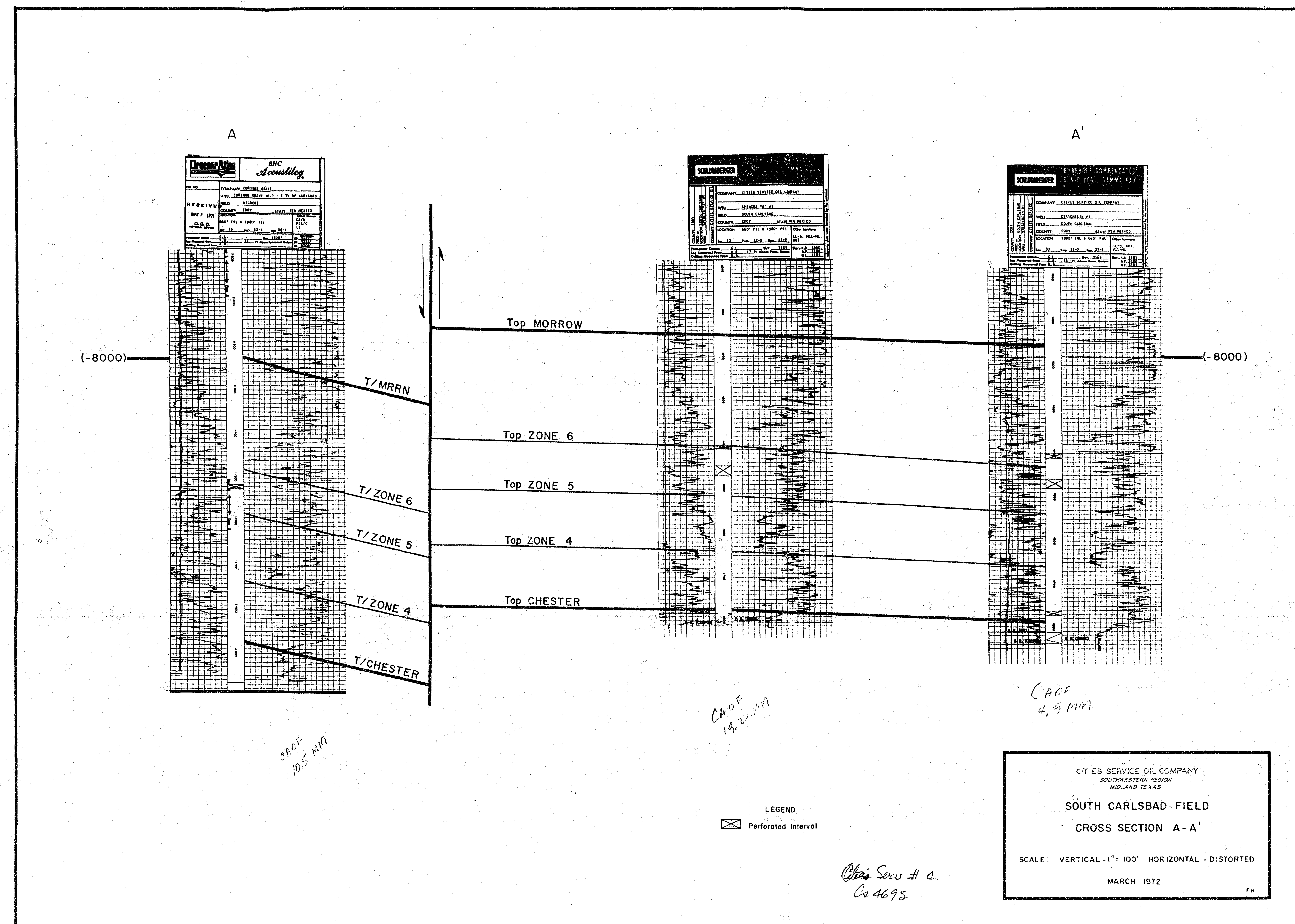
SCALE: 1" = 2000' C.I. = 100' DATE: APRIL, 1972

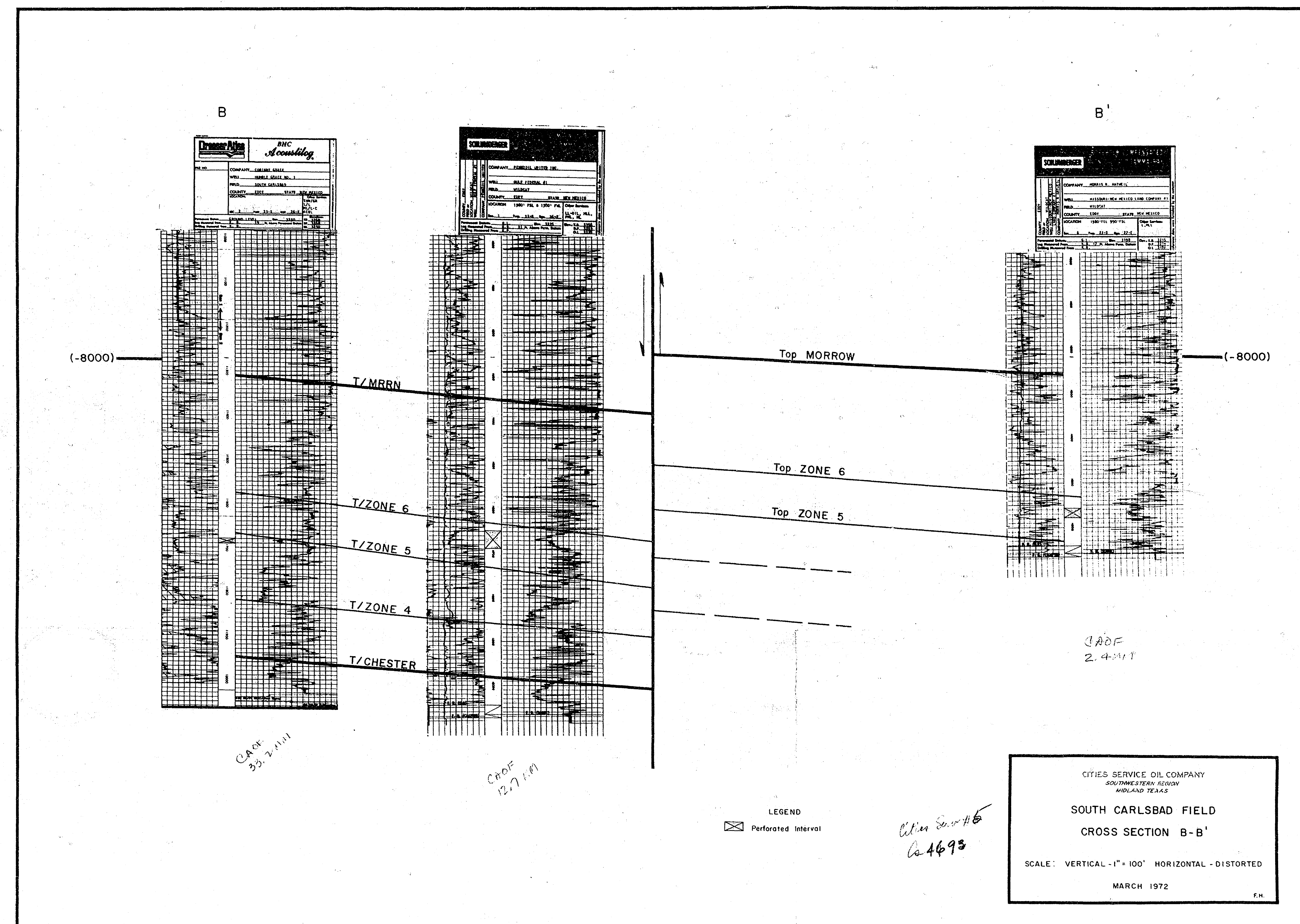
BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 2652 Exhibit No. 3
Submitted by *C.S.O.*
Hearing Date *4/18/72*

F.H.

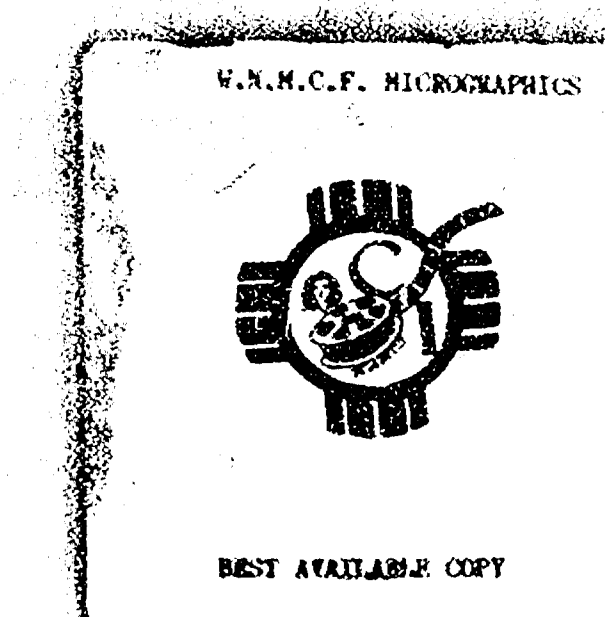






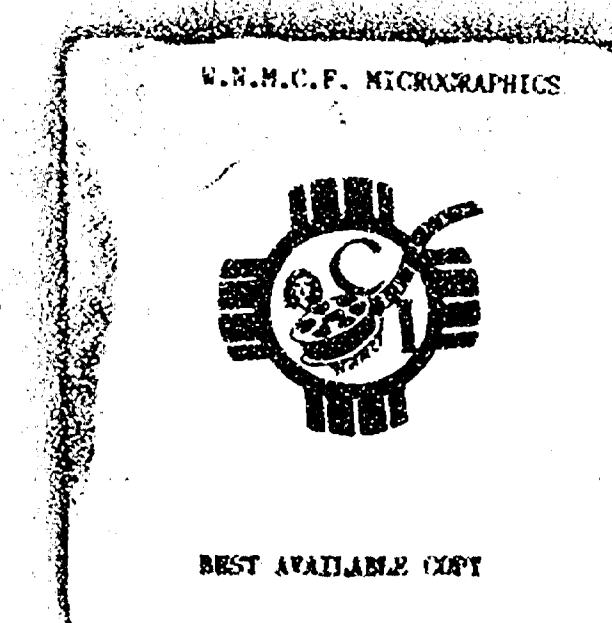


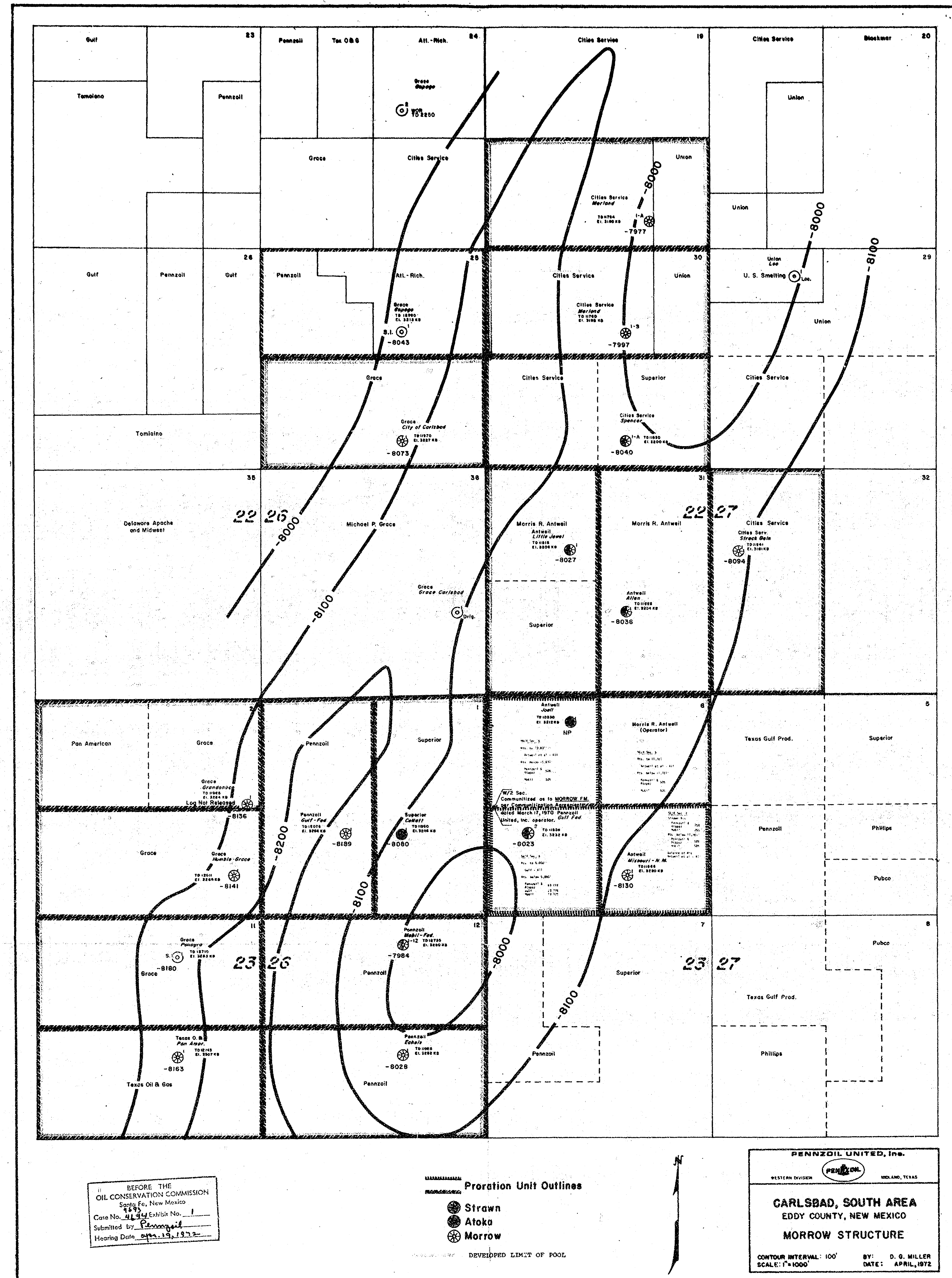
EXTRAPOLATION OF PRODUCTION RESULTS BASED ON ESTIMATED NOVEMBER, 1972, PRODUCTION OF 18 WELLS (LISTING CONTAINS ONLY NON-MARGINAL WELLS AFTER FIRST CLASSIFICATION)												
AC. FACTOR	SOUTH CARLEIGH-HORROW NON- MARGINAL-PRODUCED WELLS	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	
.97	Llano-Little Jewel 1											
	P 21-22-27											
	Production	154,555	154,555	154,555	154,555	154,555	154,555	154,555	154,555	154,555	154,555	
	Allowable	100,255	100,255	100,255	100,255	100,255	100,255	100,255	100,255	100,255	100,255	
1.00	Grace-City of Carlsbad 1											
	O 25-22-26											
	Production	294,916	294,916	294,916	294,916	294,916	294,916	294,916	294,916	294,916	294,916	
	Allowable	103,356	103,356	103,356	103,356	103,356	103,356	103,356	103,356	103,356	103,356	
.51	Grace-Gradonoco 1											
	H 2-23-26											
	Production	92,728	92,728	92,728	92,728	92,728	92,728	92,728	92,728	92,728	92,728	
	Allowable	63,047	63,047	63,047	63,047	63,047	63,047	63,047	63,047	63,047	63,047	
1.00	Grace-Ogogo #2											
	G 24-22-26											
	Production	515,033	515,033	515,033	515,033	515,033	515,033	515,033	515,033	515,033	515,033	
	Allowable	103,356	103,356	103,356	103,356	103,356	103,356	103,356	103,356	103,356	103,356	
.98	Cities Serv-Merland B-1											
	G 30-22-27											
	Production	105,605	105,605	105,605	105,605	105,605	105,605	105,605	105,605	105,605	105,605	
	Allowable	101,288	101,288	101,288	101,288	101,288	101,288	101,288	101,288	101,288	101,288	
.98	Cities Serv-Spencer A 1											
	O 30-22-27											
	Production	136,497	136,497	136,497	136,497	136,497	136,497	136,497	136,497	136,497	136,497	
	Allowable	101,288	101,288	101,288	101,288	101,288	101,288	101,288	101,288	101,288	101,288	

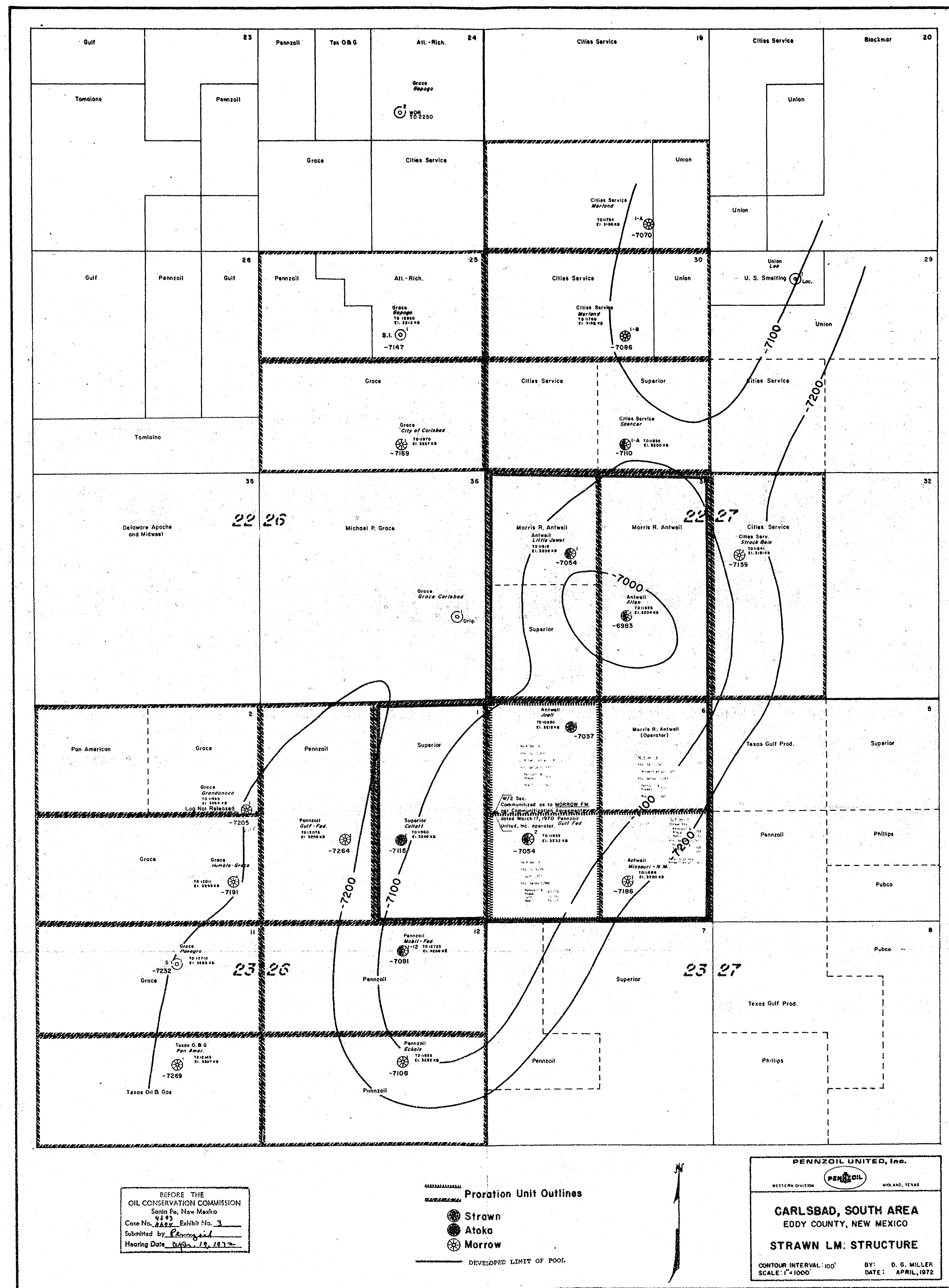


JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	1975 JANUARY	CURTAINMENT	1-1-75 CLASSIFICATION
154,555 H	154,555 H	154,555 H	154,555 H	154,555 H	154,555 H	154,555 H		M
294,916 404,974 386,593+	294,916 404,974 496,651+	294,916 404,974 606,709+	294,916 404,974 716,767+	294,916 404,974 826,825+	294,916 404,974 936,883+	294,916 404,974 936,883+		N
92,728 183,369 H	92,728 183,369 H	92,728 183,369 H	92,728 183,369 H	92,728 183,369 H	92,728 183,369 H	92,728 183,369 H		M
515,033 606,974 2,187,785-	515,033 606,974 2,297,843-	515,033 606,974 2,407,901-	515,033 606,974 2,517,959-	515,033 606,974 2,628,017-	515,033 606,974 2,738,075-	515,033 606,974 2,848,133-	551,010-	N
105,605 H	105,605 H	105,605 H	105,605 H	105,605 H	105,605 H	105,605 H		M
136,497 H	136,497 H	136,497 H	136,497 H	136,497 H	136,497 H	136,497 H		M

JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	1974 JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE
154,555 H	154,555 H	154,555 H	154,555 H	154,555 H	154,555 H	154,555 H	154,555 H	154,555 H	154,555 H	154,555 H	154,555 H
294,916 352,632 (57,716+) 979,002-	294,916 352,632 922,002-	294,916 352,632 864,286-	294,916 352,632 806,570-	294,916 352,632 748,864-	294,916 352,632 691,138-R Redist: 307,325+	294,916 352,632 633,422-	294,916 404,974 163,697-	294,916 404,974 51,639-	294,916 404,974 56,439+	294,916 404,974 164,477+	294,916 404,974 278,334+
92,728 183,369 (90,644+) 161,445+	92,728 183,369 252,086+	92,728 183,369 342,727+	92,728 183,369 433,368+	92,728 183,369 524,009+	92,728 183,369 614,650+	92,728 183,369 H	92,728 183,369 H	92,728 183,369 H	92,728 183,369 H	92,728 183,369 H	92,728 183,369 H
515,033 559,632 (155,401-) 1,977,765-	515,033 559,632 2,288,567-	515,033 559,632 2,443,968-	515,033 559,632 2,599,378-	515,033 559,632 2,754,789-	515,033 559,632 2,910,200- Redist: 307,325	515,033 559,632 3,065,611-	515,033 559,632 3,221,022-	515,033 559,632 3,376,433-	515,033 559,632 3,531,844-	515,033 559,632 3,687,255-	515,033 559,632 3,842,666-
105,605 H	105,605 H	105,605 H	105,605 H	105,605 H	105,605 H	105,605 H	105,605 H	105,605 H	105,605 H	105,605 H	105,605 H
136,497 H	136,497 H	136,497 H	136,497 H	136,497 H	136,497 H	136,497 H	136,497 H	136,497 H	136,497 H	136,497 H	136,497 H







Schlumberger BOREHOLE COMPENSATED SONIC LOG - GAMMA RAY

COUNTY: EDOKY LOCATION: COLLATY ESTATE COMPANY: THE SUPERIOR OIL COMPANY

WELL: COLLATY ESTATE FIELD: SOUTH CARLSBAD FIELD AREA

COUNTY: EDOKY STATE: NEW MEXICO

LOCATION: 19801 FSL & 19801 FEL

Sec. 1 Twp. 22-S Rge. 26-E

Permanent Datum: G.L. Elev. 3225

Log Measured From: N.S. 20 Ft. Above Perm. Datum Elev. K.B. 2245

Drilling Measured From: K.B. Elev. 3245

Date: 9-28/29-69 11-15-69

Run No. ONE 100

Depth—Driller: 9659 11350

Depth—Log: 9659 11352

Brn. Log Interval: 9657 11350

Top Log Interval: 0 9650

Counting—Driller: 11.75 @ 1950 8.98 @ 9659

Counting—Log: 10.5 9650

Bit Size: 10 5/8 7 1/2

Type Fluid in Hole: OIL 100 SOLIDS

Dens. Visc. 9.5 41 5 10.2 1.47

pH Fluid Loss: 9 4.8 10 5.3

Source of Sample: FLOW LINE

Flow Line Temp.: 55.8 80.4 96.8 61.4

Surf. Temp.: 55.8 78.4 60.8 59.4

Surf. Temp.: 55.8 78.4 60.8 59.4

Source Rec. Temp.: 55.8 78.4 60.8 59.4

Time Since Circ.: 5 HOURS 6 HOURS

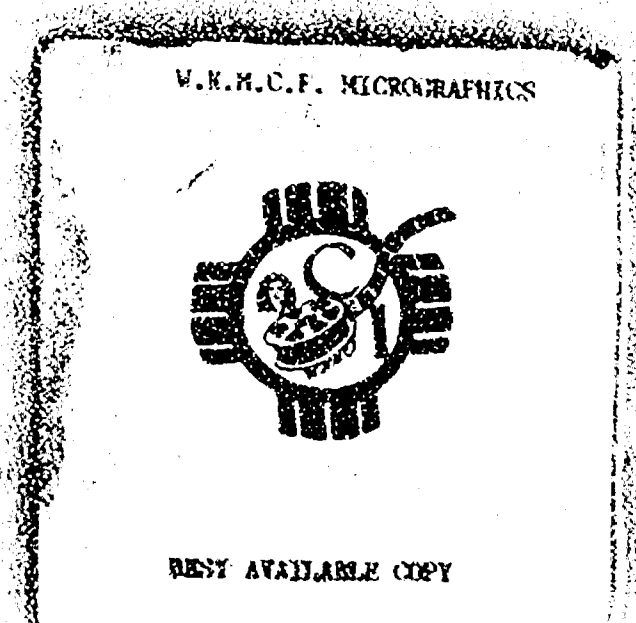
Max. Rec. Temp.: 55.8 78.4 60.8 59.4

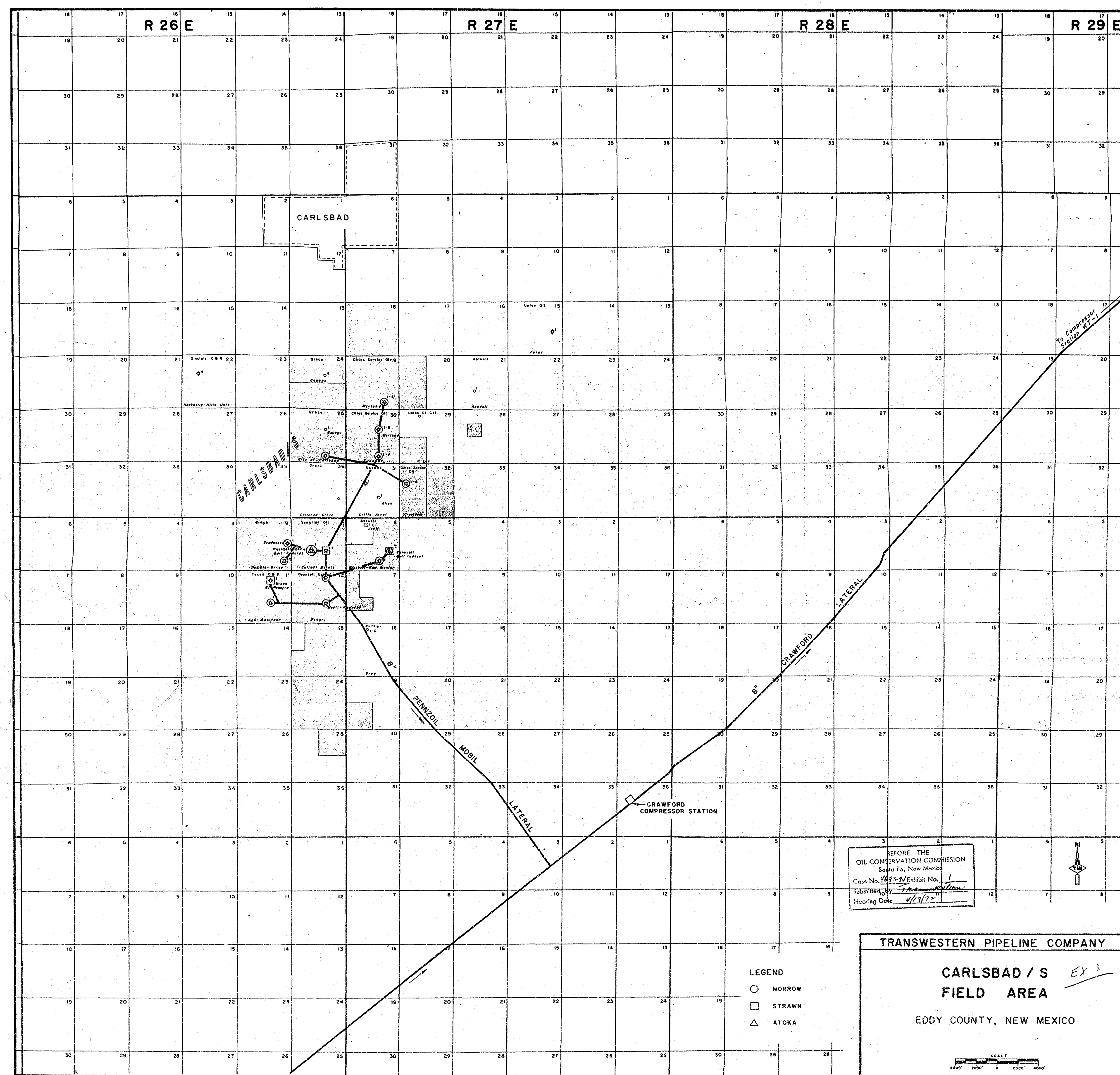
Equipment Location: 3701 HOBBS 3701 HOBBS

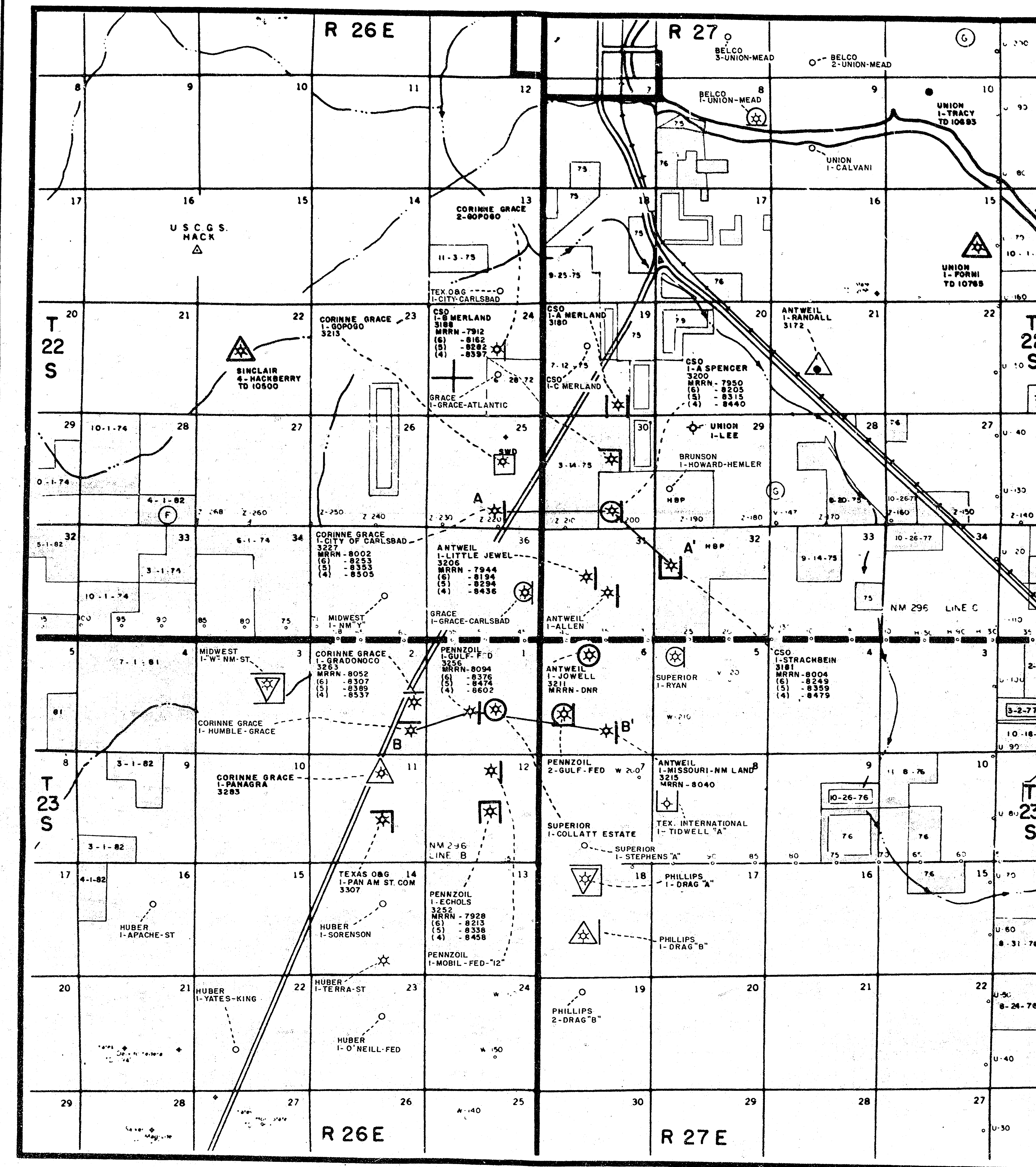
Recorded By: KADNER KADNER

Witnessed By: CLAY CLAY

Remarks: The well name, location and formation reference data were furnished by the customer.







- ▲ ATOKA PRODUCER
 ▲ CANYON PRODUCER
 ★ STRAWN PRODUCER
 ★ ZONE 7 PRODUCER
 ★ ZONE 6 PRODUCER
 ★ ZONE 5 PRODUCER
 ★ ZONE 4 PRODUCER
 A—A' LINE OF CROSS SECTION
 B—B' LINE OF CROSS SECTION

C. L. Jones #1
 1000' 0.00
 March 1, 1973

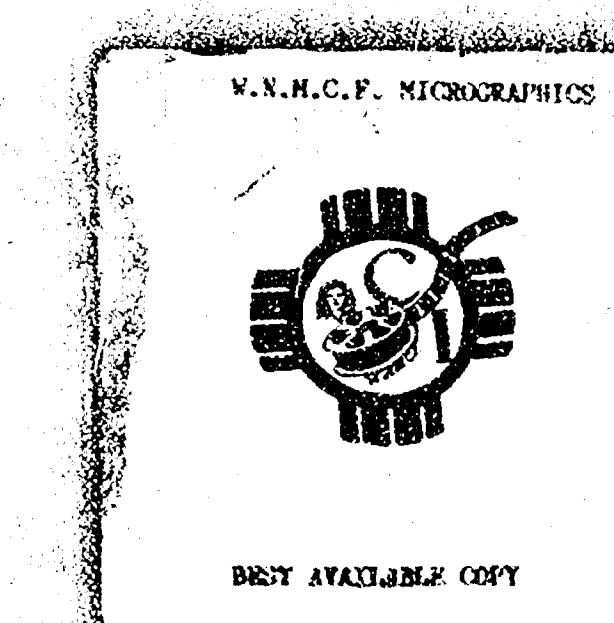
CITIES SERVICE OIL COMPANY
 SOUTHWESTERN REGION
 MIDLAND TEXAS
 SOUTH CARLSBAD FIELD
 Eddy County, New Mexico

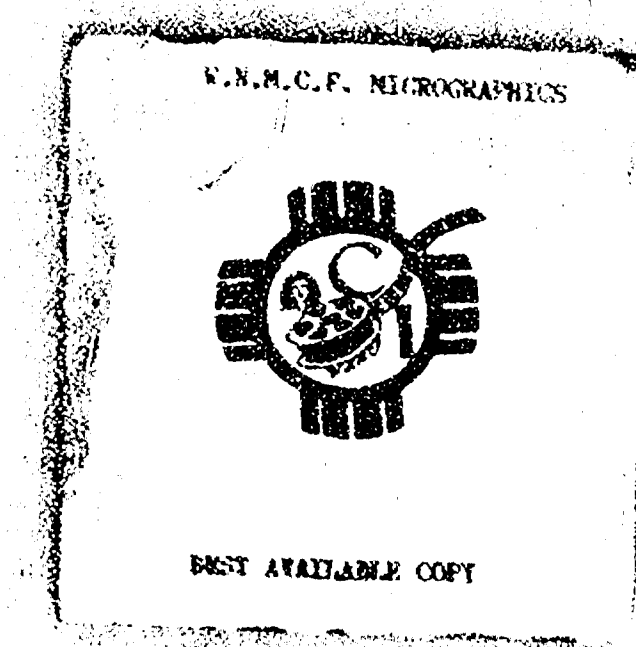
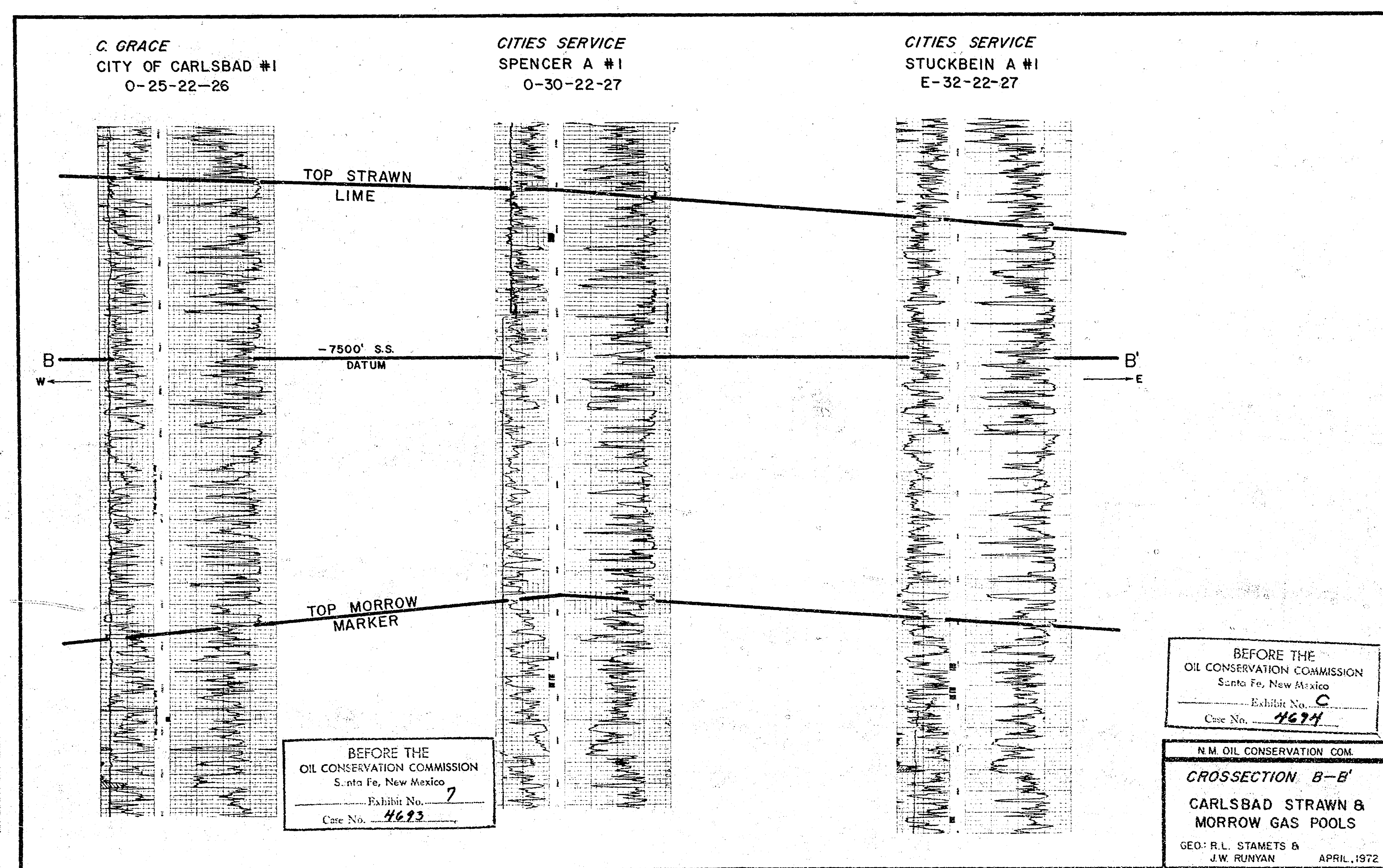
INDEX MAP

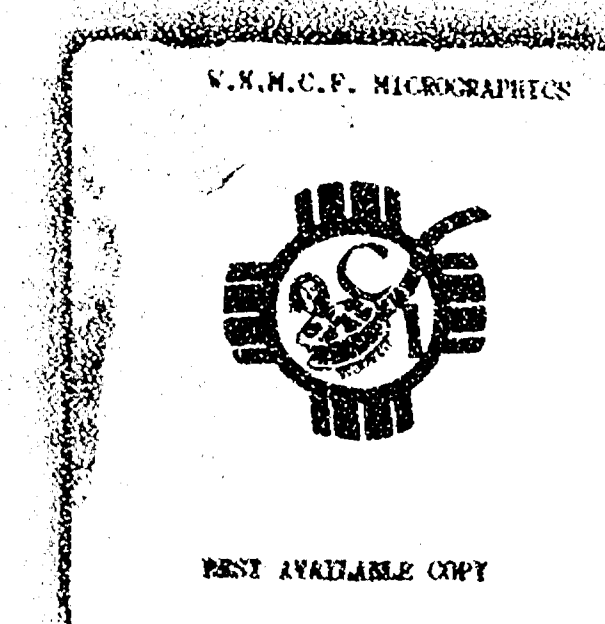
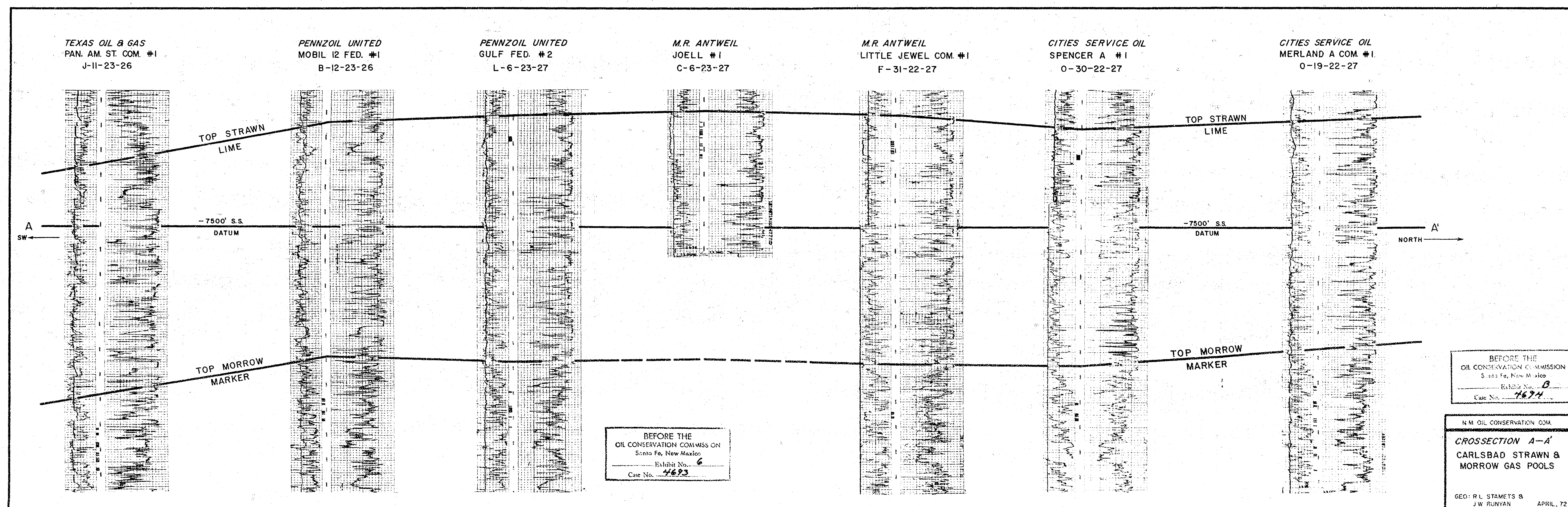
SCALE: 1" = 2000'

DATE: MARCH, 1973

F.H.







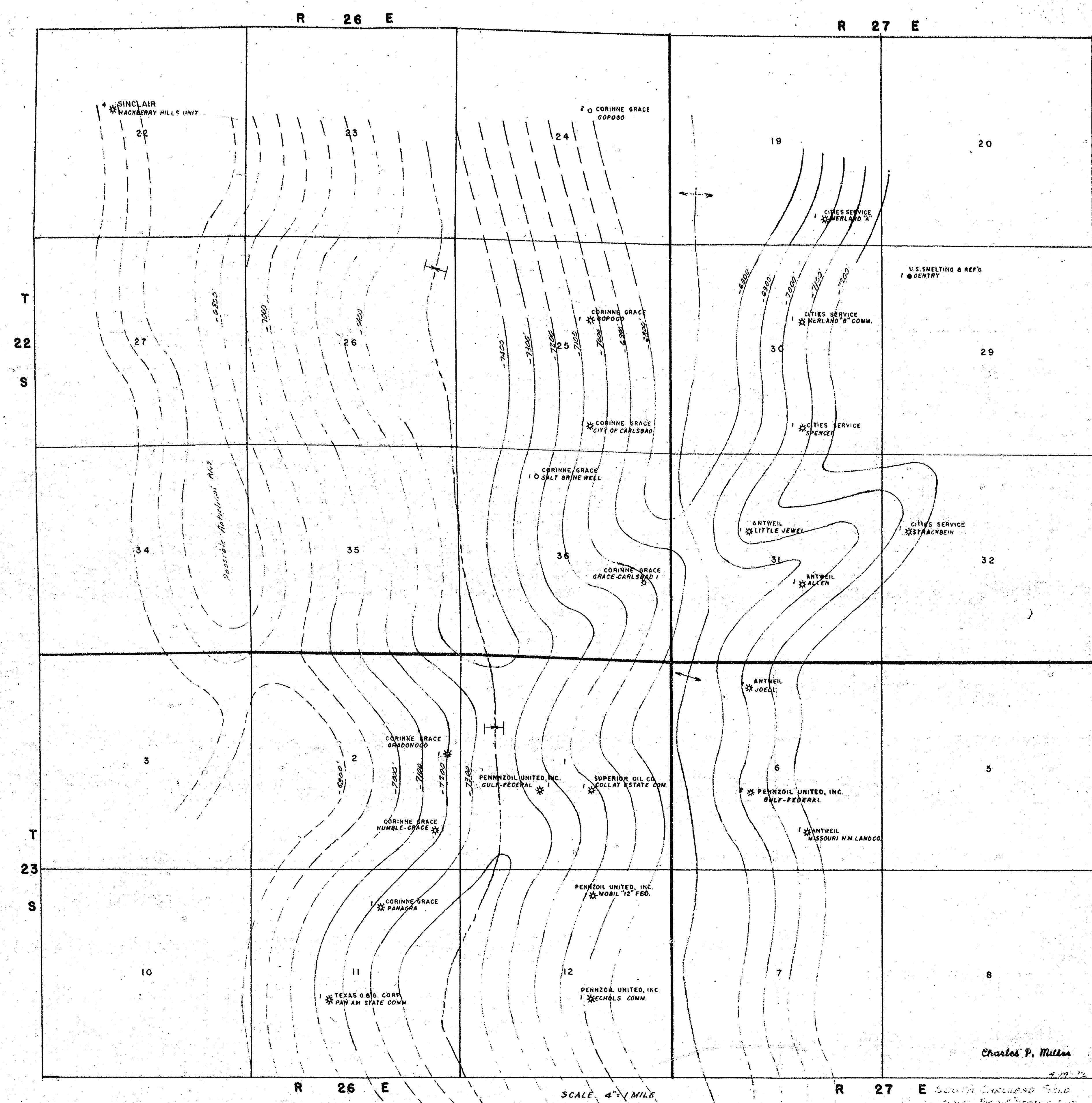
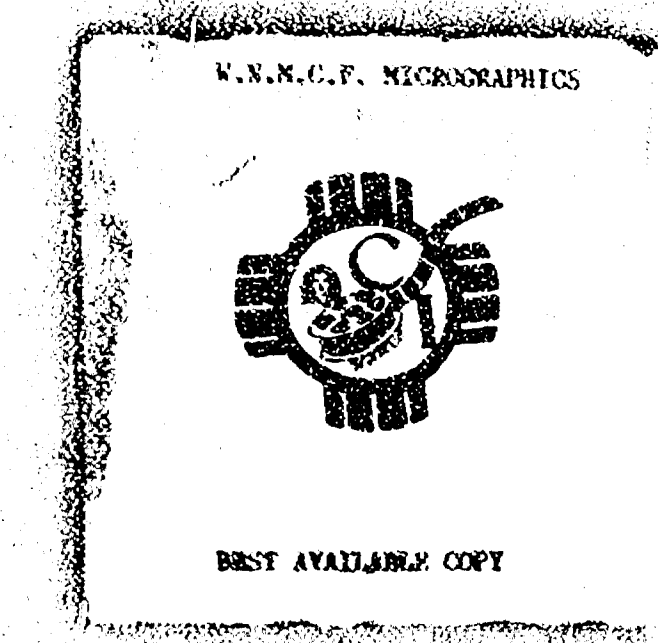
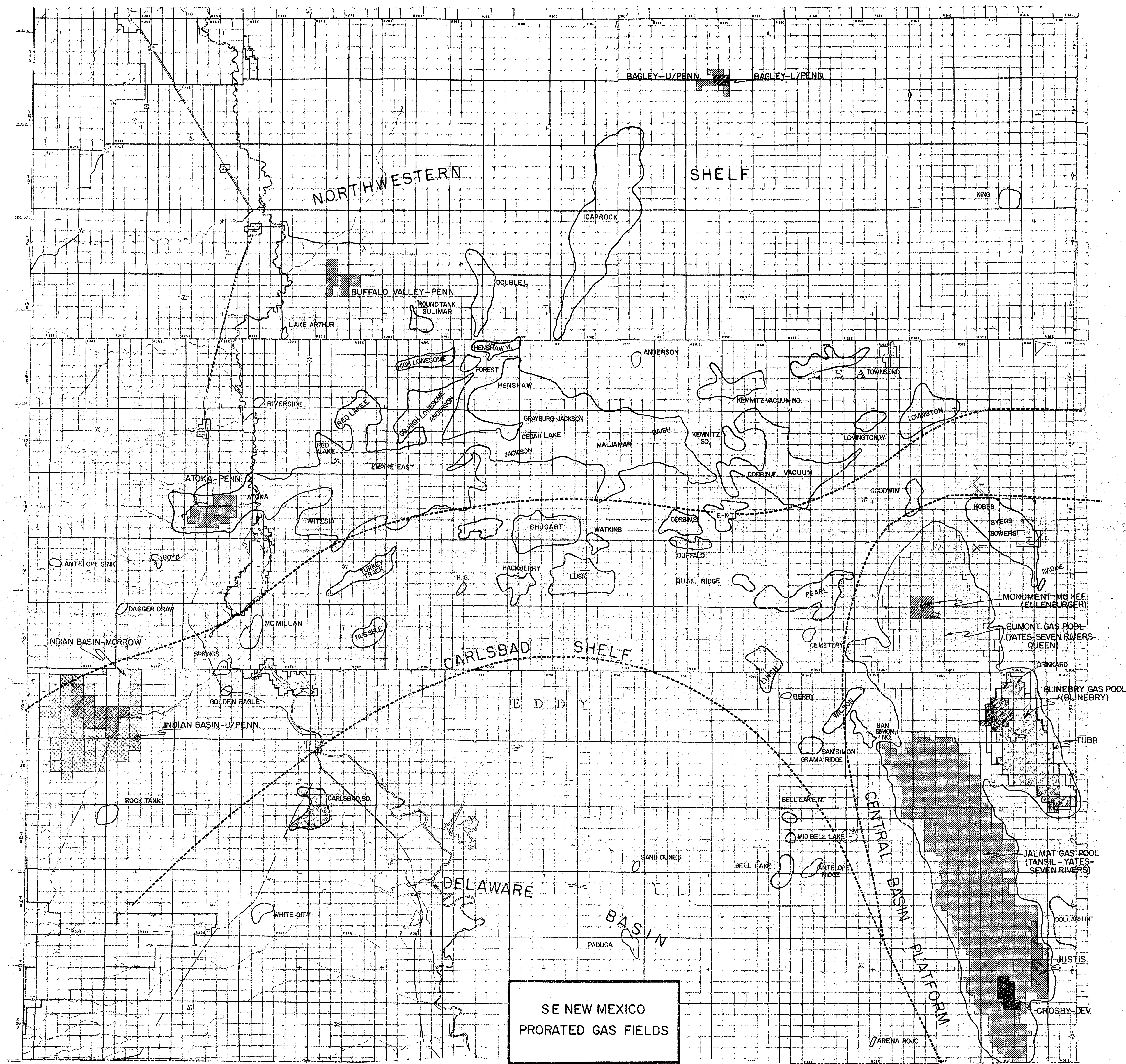


FIGURE 1-2
OIL CONSERVATION COMMISSION
Case No. 1000
Submitted by [Signature]
Hearing Date





ALLOWABLE ALLOCATION FORMULA
SOUTH CARLEBAD STRAIN
Based on Field Allowable = 18 MCFFD

Well Provision Unit	Acreage Allocation			Productive Area Reserve Allocation				Total Field Reserve Allocation			
	Acres	%	MCFFD	Reserves MCFFD	%	Allowable MCFFD	Difference MCFFD	Reserves MCFFD	%	Allowable MCFFD	Difference MCFFD
MORRIS R. ANTWELL											
Allen E/2 Sec. 31	320	14.665	2,640	16,846	23.87	4,297	-1657	17,026	22.19	3,994	-1354
Little Jewel W/2 Sec. 31	320	14.665	2,640	19,850	28.13	5,063	-2423	19,850	25.87	4,657	-2017
Joell N/2 Sec. 6	320	14.665	2,640	12,565	17.81	3,208	-566	13,134	17.12	3,082	-442
Subtotal	960	43.995	7,920	49,259	69.81	12,566	-4646	50,010	65.18	11,733	-3813
SUPERIOR											
Collatt E/2 Sec. 1	320	14.665	2,640	10,259	14.54	2,617	+ 23	10,689	13.93	2,507	+ 133
PENNSYLV											
Gulf-Federal S/2 Sec. 6	262*	12.007	2,160	3,014	4.27	769	+1391	4,760	6.20	1,116	+1044
CITIES SERVICE											
Spencer "A" S/2 Sec. 30	320	14.665	2,640	3,563	5.05	909	+1731	5,339	6.96	1,253	+1387
GRACE											
Carlsbad-Grace E/2 Sec. 36	320	14.665	2,640	4,471	6.33	1,132	+1501	5,928	7.73	1,391	+1249
TOTAL	2,182	100.000	18,000	70,568	100.00	18,000		76,726	100.00	18,000	

*Penalized to 82% of acreage.

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 4674 Exhibit No. 10
Submitted by: *Antwell*
Hearing Date: 4/19

EX-10

DETERMINED PORE VOLUMES
SOUTH CARLEBAD STRAIN

Well Provision Unit	Total Field			Productive Area		
	Pore Volume ac-ft.	%	Total Field	Pore Volume ac-ft.	%	Total Field
MORRIS R. ANTWELL						
Allen E/2 Sec. 31	1,706	22.19	18.84	1,688	23.87	23.14
Little Jewel W/2 Sec. 31	1,989	25.87	21.96	1,989	28.13	27.27
Joell N/2 Sec. 6	1,316	17.12	10.53	1,359	17.81	17.26
Subtotal	5,011	65.18	55.33	4,936	69.81	67.67
SUPERIOR						
Collatt E/2 Sec. 1	1,071	13.93	11.82	1,028	14.54	14.09
PENNSYLV						
Gulf-Federal S/2 Sec. 6	477	6.20	5.26	102	4.27	4.14
CITIES SERVICE						
Spencer "A" S/2 Sec. 30	535	6.96	5.91	357	5.05	4.89
GRACE						
Carlsbad-Grace E/2 Sec. 36	594	7.73	6.56	558	6.33	6.33
Total Developed	7,588	100.00	84.88	7,071	100.00	91.13
Total Undeveloped	1,369		15.12	229		3.07
TOTAL	8,957		100.00	7,295		100.00

*PRODUCTIVE AREA - Considered as only that area within the 2.0 net porosity-foot contour on 150-volume map.

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 4674 Exhibit No. 8
Submitted by: *Antwell*
Hearing Date: 4/19

EX-8

CALCULATED RESERVES
SOUTH CARLEBAD STRAIN
Considering Productive Area Pore Volumes

Well Provision Unit	Pore Volume Acres-Foot		Calculated Reserves MCFFD		% Total Field	
	Acres	Foot	MCFFD	%	Total Field	%
MORRIS R. ANTWELL						
Allen E/2 Sec. 31	1,688	16,846	23.14	23.87		
Little Jewel W/2 Sec. 31	1,989	19,850	27.27	28.13		
Joell N/2 Sec. 6	1,359	12,565	17.26	17.81		
Subtotal	4,936	49,261	67.67	69.81		
SUPERIOR						
Collatt E/2 Sec. 1	1,028	10,259	14.09	14.54		
PENNSYLV						
Gulf-Federal S/2 Sec. 6	302	3,014	4.14	4.27		
CITIES SERVICE						
Spencer "A" S/2 Sec. 30	357	3,563	4.89	5.05		
GRACE						
Carlsbad-Grace E/2 Sec. 36	558	5,471	6.33	6.33		
Total Developed	7,071	70,568	96.93	100.00		
Total Undeveloped	229	2,236	3.07			
TOTAL	7,295	72,804	100.00			

Reserve Calculation Assumptions:

Original reservoir pressure - 5468 psig
Abandonment pressure - 200 psig
Reservoir temperature - 176° F
Water saturation - 25% of pore volume

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 4674 Exhibit No. 9
Submitted by: *Antwell*
Hearing Date: 4/19

EX-9-A

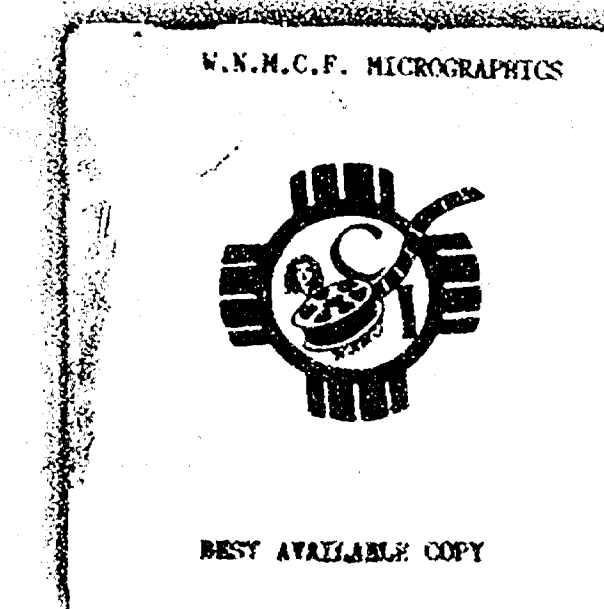
CALCULATED RESERVES
SOUTH CARLEBAD STRAIN
Considering Total Field Pore Volumes

Well Provision Unit	Pore Volume Acres-Foot		Calculated Reserves MCFFD		% Total Field	
	Acres	Foot	MCFFD	%	Total Field	%
MORRIS R. ANTWELL						
Allen E/2 Sec. 31	1,706	17,026	18.84	22.19		
Little Jewel W/2 Sec. 31	1,989	19,850	21.96	25.87		
Joell N/2 Sec. 6	1,316	13,134	17.12	17.12		
Subtotal	5,011	50,010	55.33	65.18		
SUPERIOR						
Collatt E/2 Sec. 1	1,071	10,689	11.82	13.93		
PENNSYLV						
Gulf-Federal S/2 Sec. 6	477	4,760	5.26	6.20		
CITIES SERVICE						
Spencer "A" S/2 Sec. 30	535	5,339	5.91	6.96		
GRACE						
Carlsbad-Grace E/2 Sec. 36	594	5,928	6.56	7.73		
Total Developed	7,688	76,726	84.88	100.00		
Total Undeveloped	1,369	13,663	15.12			
TOTAL	8,957	90,389	100.00			

Reserve Calculation Assumptions:

Original reservoir pressure - 5468 psig
Abandonment pressure - 200 psig
Reservoir temperature - 176° F
Water saturation - 25% of pore volume

EX-9-B

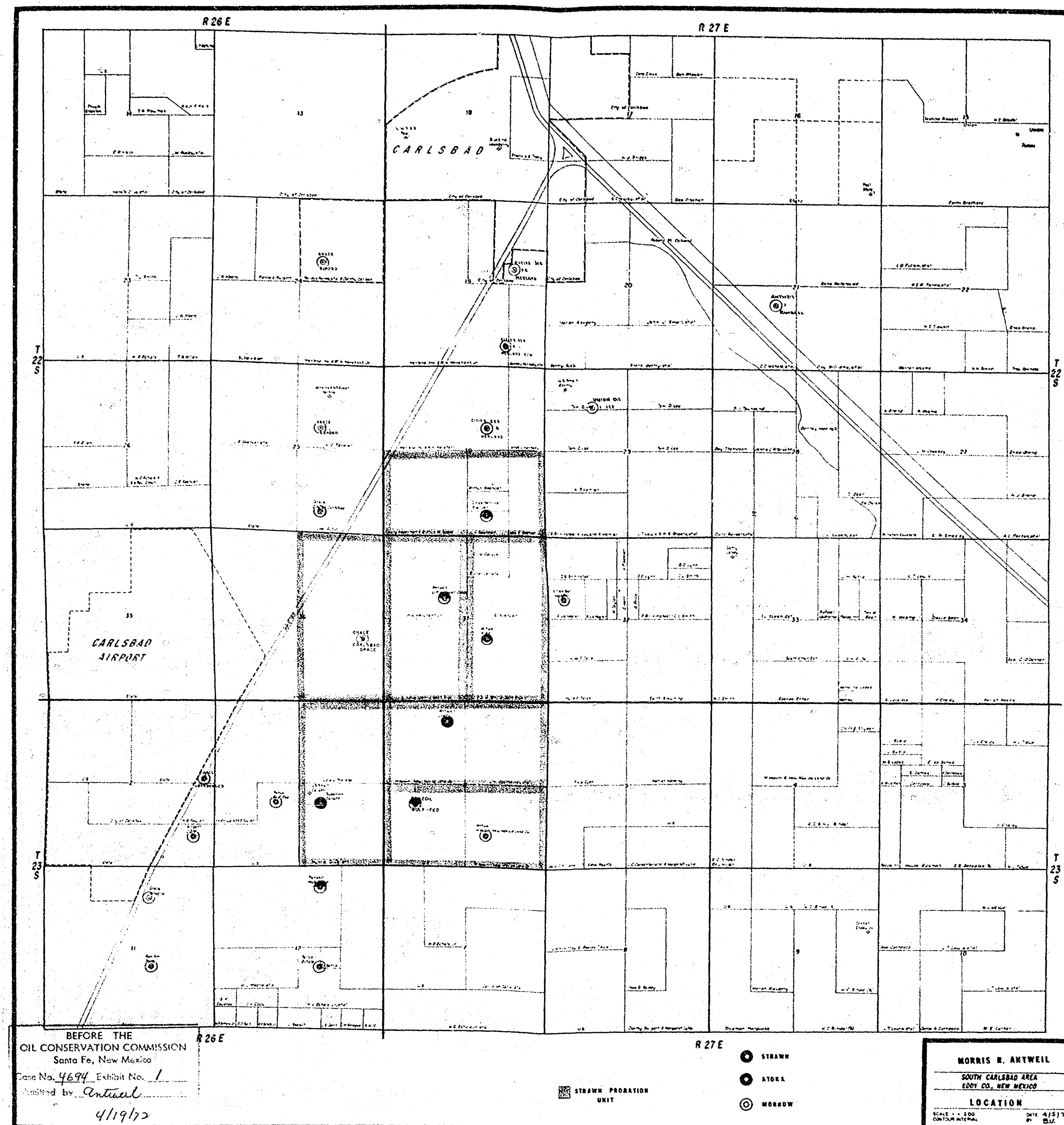


CASE 4694
NEW MEXICO OIL CONSERVATION
COMMISSION HEARING

APRIL 19, 1972

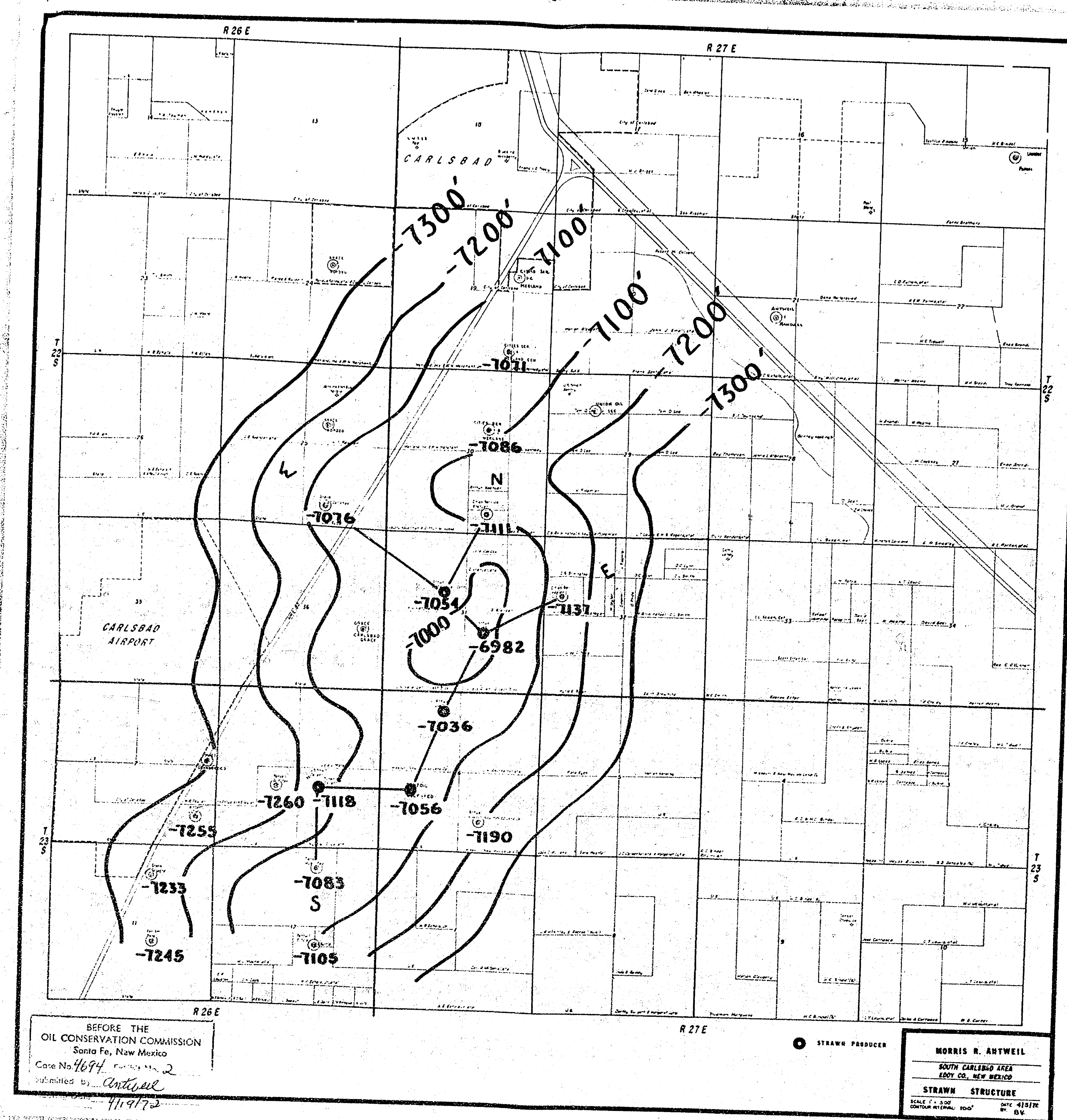
MORRIS R. ANTWEIL
EXHIBITS 1-10





EX. 1





PENNZOIL
#1 Model Federal "18"
SECTION 12-7285-R26E

SUPERIOR OIL Co.
#1 COLLETT
SECTION 1-7285-R26E

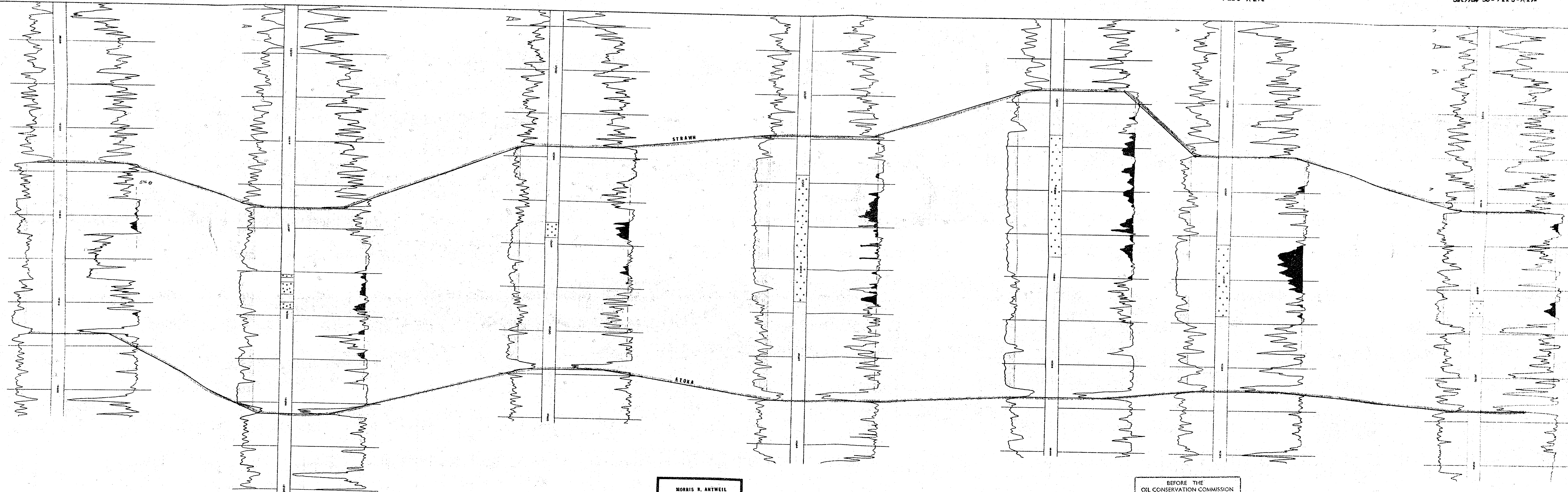
PENNZOIL
#2 GULF FEDERAL
SECTION 6-7285-R27E

ANTWEIL
#1 JORILL
SECTION 6-7285-R27E

ANTWEIL
#1 ALLEN
SECTION 31-7285-R27E

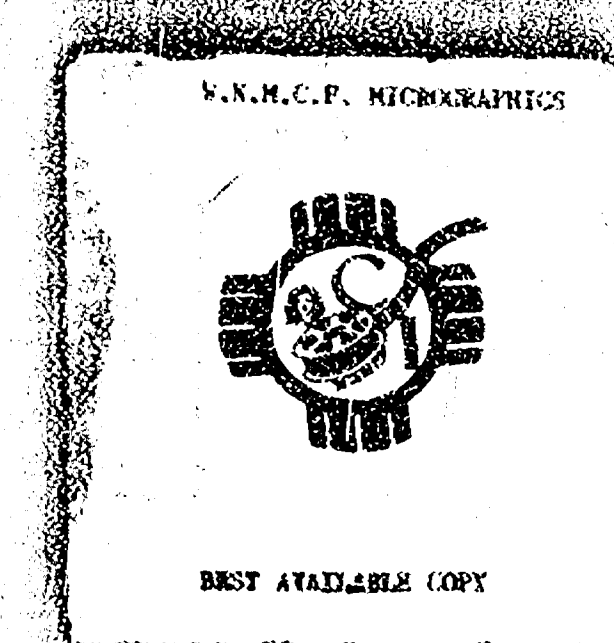
ANTWEIL
#1 LITTLE JAWEL
SECTION 31-7285-R27E

CITIES
#1 SPENCER "A"
SECTION 30-7285-R27E



MORRIS H. ANTWEIL
SANTA FE, NEW MEXICO
N-S SECTION
Scale 1" = 100'
Date 4/19/22

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 4654 Exhibit No. 3
Submitted by: Antweil
Hearing Date: 4/19/22

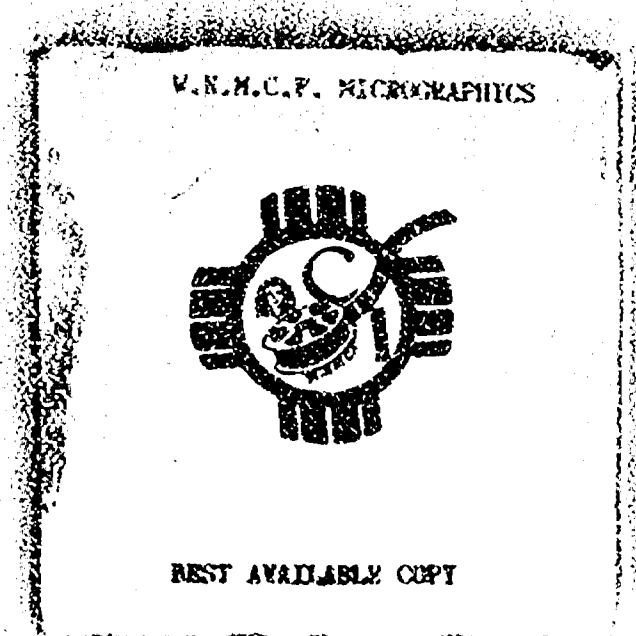
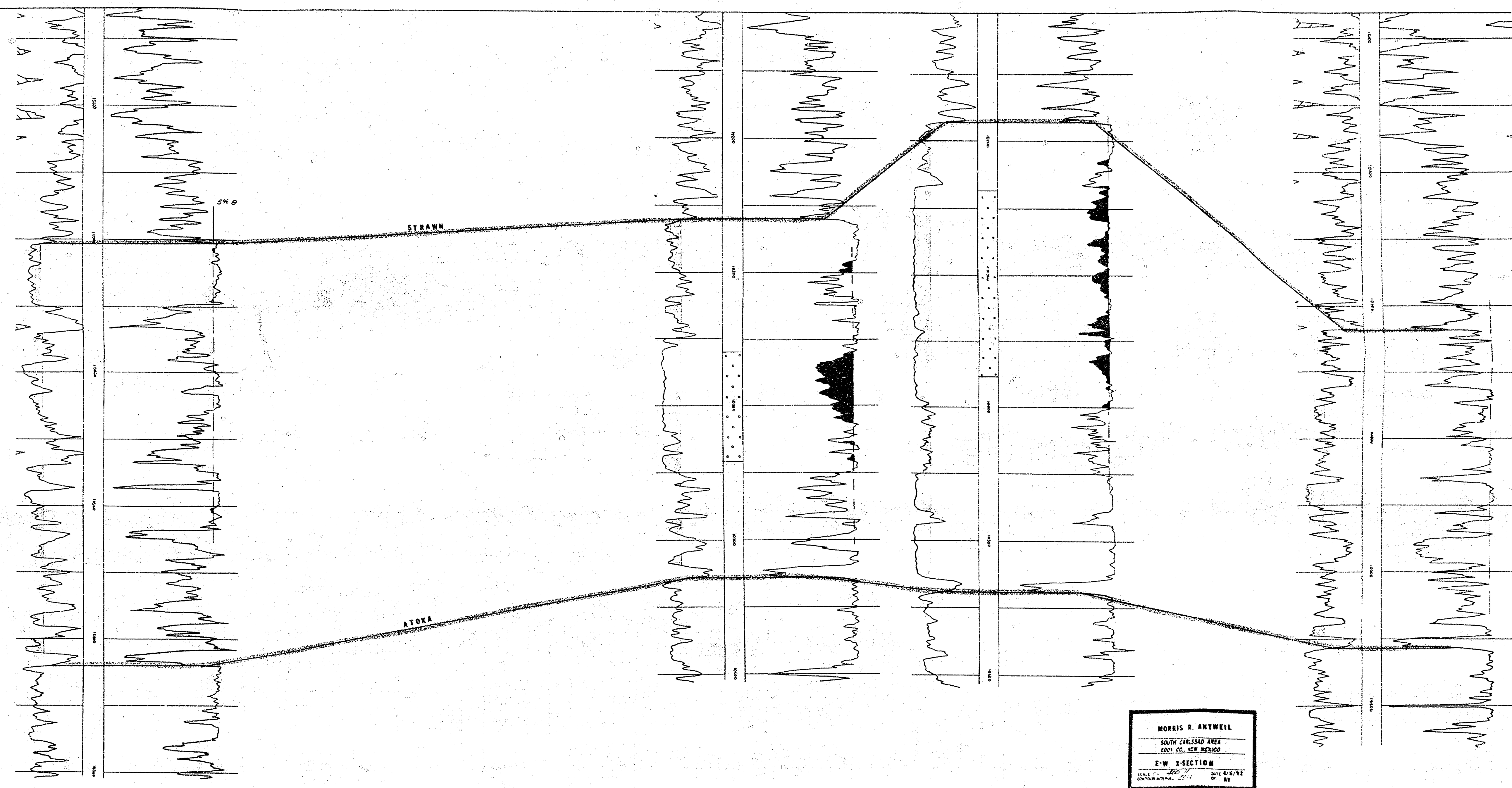


GRACE
#1 CITY OF CARLSBAD
SECTION 25-T225-R26 E

ANTWEIL
#1 LITTLE JEWEL
SECTION 31-T225-R27E

ANTWEIL
#1 ALLEN
SECTION 31-T225-R27E

CITIES
#1 STICKLEBOM
SECTION 32-T225-R27E



POROSITY-THICKNESS DETERMINATION					
SOUTH CARLSBAD-STORM					
5% Porosity Cut-Off					
Well	Location	Net Pay Thickness ft.	Average Porosity %	Porosity- Thickness ft.	
<u>CITIES SERVICE</u>					
Spencer "A" #1	O-30-22-27	26	7.44	1.935	Shut-in
<u>MORRIS B. ANFORD</u>					
Allen #1	J-11-23-27	127	7.52	9.555	Producing
Little Jewel #1	F-11-23-27	65	10.81	7.025	Producing
Joeli #1	C-6-23-27	85	7.80	6.630	Producing
<u>PENNZOIL</u>					
Gulf-Federal #2	L-6-23-27	41	7.88	3.230	Completed
<u>SUPERIOR</u>					
Collett #1	J-1-23-26	49	7.16	3.510	Producing
<u>PENNZOIL</u>					
Mobil-Federal #1	B-12-23-26	24	6.42	1.540	
Gulf-Federal #1	K-1-23-26	14	7.46	1.045	
Edwards #1	J-12-23-26	7	6.43	0.450	
<u>CITIES SERVICE</u>					
Strachheim #1	F-21-22-27	0	-	0.000	
Merland "B" #1	G-30-22-27	8	6.69	0.535	
<u>MORRIS B. ANFORD</u>					
Missouri-N. Mex. #3	G-6-23-27	10	6.00	0.600	
<u>STATE</u>					
City of Carlsbad #1	O-25-22-26	7	5.71	0.400	
Palmere #1	D-11-23-26	13	7.98	0.985	
Humble Grace #1	P-2-23-26	10	5.90	0.590	
<u>NEWCO OIL & GAS</u>					
Pen. Jr. State #1	J-11-23-26	0	-	0.000	

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 4694 Exhibit No. 6
Submitted by: Central
Hearing Date: 4/19 EX. 6



