

COASTAL STATES GAS PRODUCING COMPANY

EXHIBITS FOR CASE NO. 3366

PILOT PRESSURE MAINTENANCE PROJECT

BEFORE EXAMINER UTZ
OIL CONSERVATION COMMISSION

EXHIBIT NO. _____
CASE NO. 3366

COASTAL STATES GAS PRODUCING COMPANY

NORTH TEXAS DIVISION

614 CITIZENS NATIONAL BANK BUILDING

ABILENE, TEXAS

January 10, 1966

New Mexico Oil Conservation Commission
P. O. Box 2088
Santa Fe, New Mexico

Re: Flying "M" San Andres Field,
Lea County, New Mexico
Sec 16, 17, 20, 21, 28, 29,
of T-9S, R-33E.

Gentlemen:

Coastal States Gas Producing Company requests permission to initiate a pilot pressure maintenance project in the Flying "M" San Andres Field of Lea County, New Mexico. This proposed pilot project will consist of three injection wells at the present time. We also request that provisions be made so that all additional injection wells may be approved administratively.

The three injection wells are described as follows:

Southern Minerals State 15 No. 1,
NW/4 of SW/4, Sec 15;

Southern Minerals State 21 #4,
SE/4 of NE/4, Sec 21;

Gonsales Federal 33 #4;
NW/4 of NW/4, Sec 33;

All in Township 9, South; Range 33 East.

The Southern Minerals State 15 No. 1 is presently being used as a salt water disposal well. Permission to inject produced salt water into this well was obtained by Commission Order No. R-2924 in June, 1965. This water is being injected into the aquifer below the water-oil contact in the Slaughter Zone of the San Andres. To date, 41,000 barrels have been injected at approximately 900 psi at 225 barrels oil per day. No beneficial effects have been detected as a result of this injection program.

COASTAL STATES GAS PRODUCING COMPANY

We are requesting permission to inject produced San Andres water into two additional wells, in order to further evaluate the possibility of maintaining the reservoir pressure by bottom water injection (injecting below the water-oil contact).

The Southern Minerals State 21 No. 4 is a replacement well for the Southern Minerals State 21 No. 3, which was drilled in August, 1964, and subsequently lost due to hole problems. Attached is a plat showing the exact location of the proposed replacement well. Also attached is a diagrammatic sketch showing how this well is to be equipped for injection, utilizing 2- $\frac{1}{2}$ " plastic coated tubing for casing.

The Gonsales Federal 33 No. 4 was drilled to a total depth of 4534' in July, 1965. The Slaughter Zone was tested and found to be predominantly (98%) water productive. It is presently temporarily abandoned. Attached is a diagrammatic sketch showing the proposed method of converting this well to injection status.

Coastal States is not requesting any allowable change or transfer of allowables at this time. As soon as sufficient response has been demonstrated, efforts to unitize the entire field will be resumed.

The State Engineer, as well as all offset operators, are being notified by copies of this application.

Very truly yours,

Jack R. McGraw
Division Engineer

JRMCG/ec
Enc.

CC: NMOCC
Hobbs, New Mexico

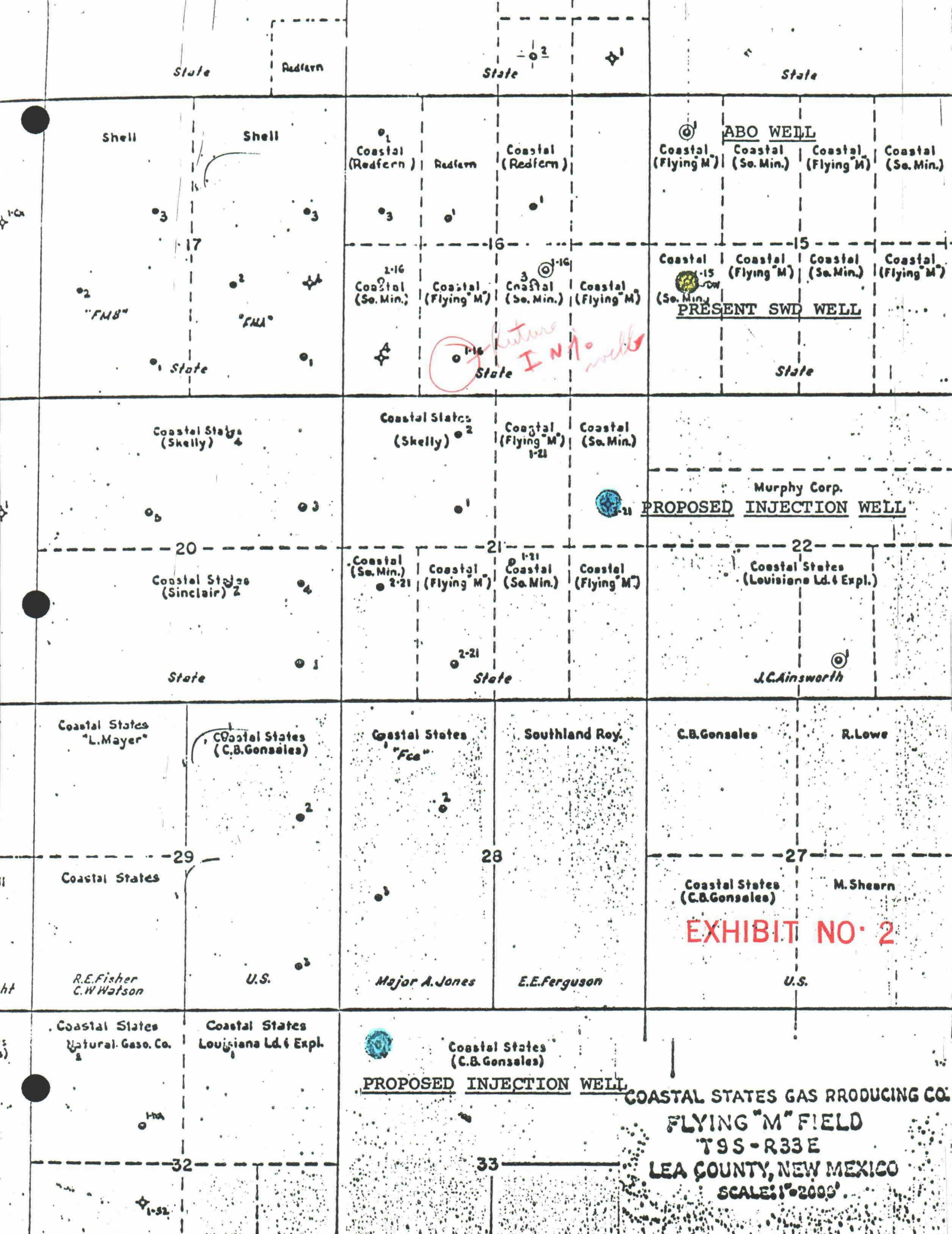
Shell Oil Company
Redfern & Herd, Inc.

Mr. Frank Irby,
State Engineer,
Santa Fe, New Mexico

PERTINENT DATA

1. Injection will be into the Slaughter Zone of the San Andres Formation at approximately 4450'.
2. Water to be injected will be produced water from the Flying "M" San Andres Field.
3. Expected injection rate is 500 barrels water per day per well.
4. The expected injection pressure is 1700 psi.

EXHIBIT NO 1



LEA

COUNTY

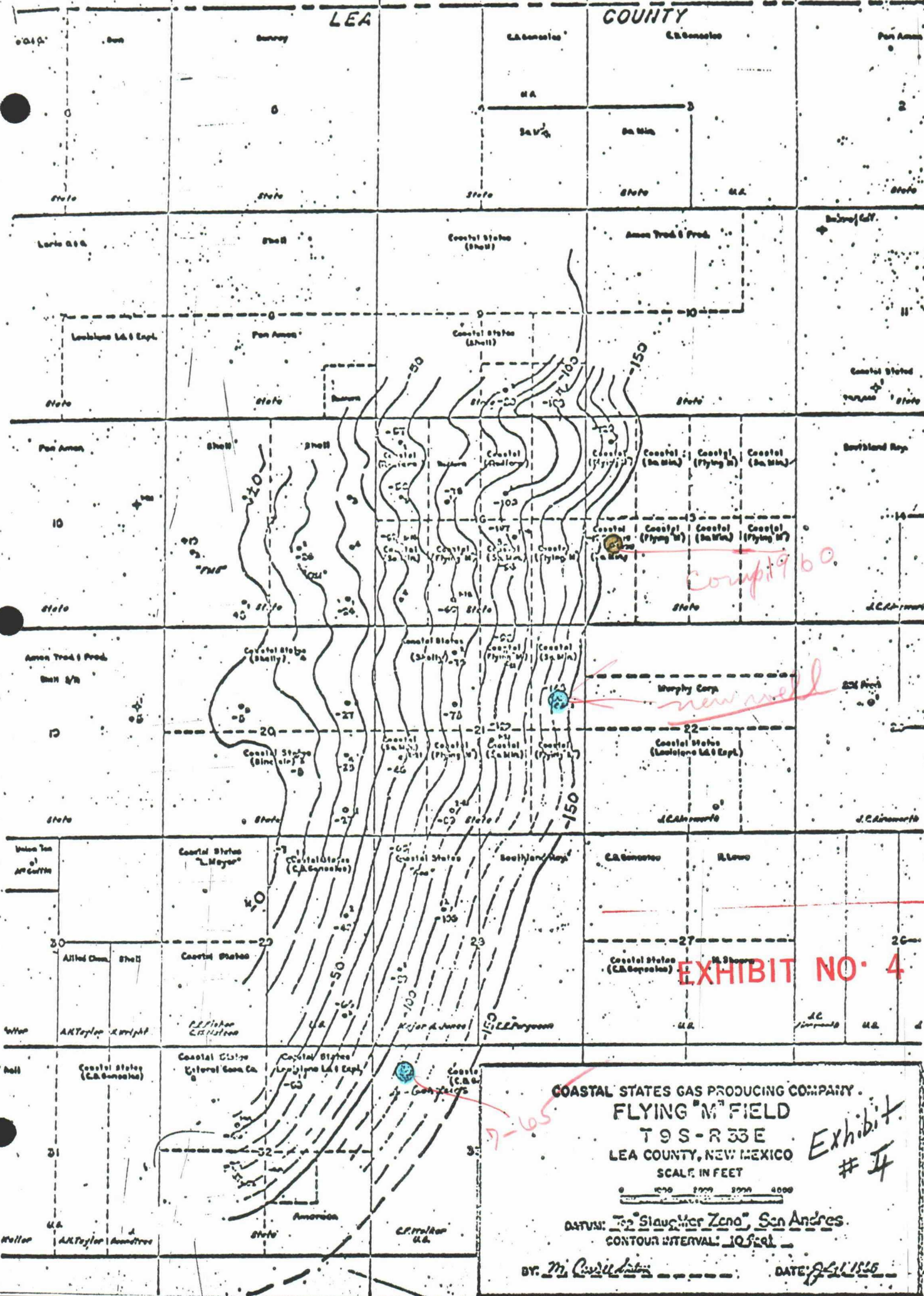


EXHIBIT NO. 4

COASTAL STATES GAS PRODUCING COMPANY.
FLYING "M" FIELD
T 9 S - R 33 E
LEA COUNTY, NEW MEXICO
SCALE IN FEET

Exhibit
4

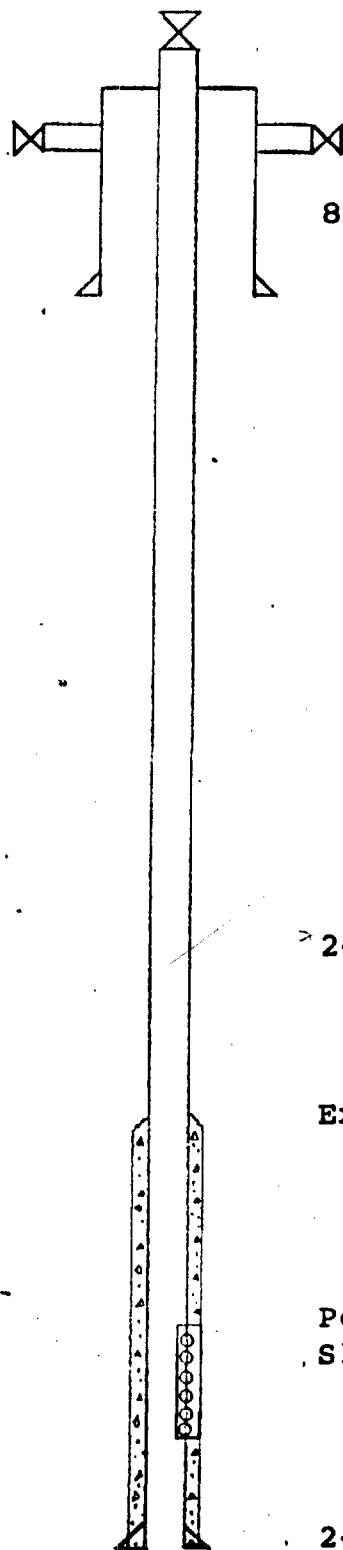
DRAWN BY: Top Slaughter Zeno, San Andres.
CONTOUR INTERVAL: 10 FEET

BY: M. Powell

DATE: Feb 1955

COASTAL STATES GAS PRODUCING COMPANY
SOUTHERN MINERALS STATE 21 #4

EXHIBIT NO. 5



8-5/8" set @ 250'

2-1/2" Plastic Coated Csg

Expected Top of Cement 3500'

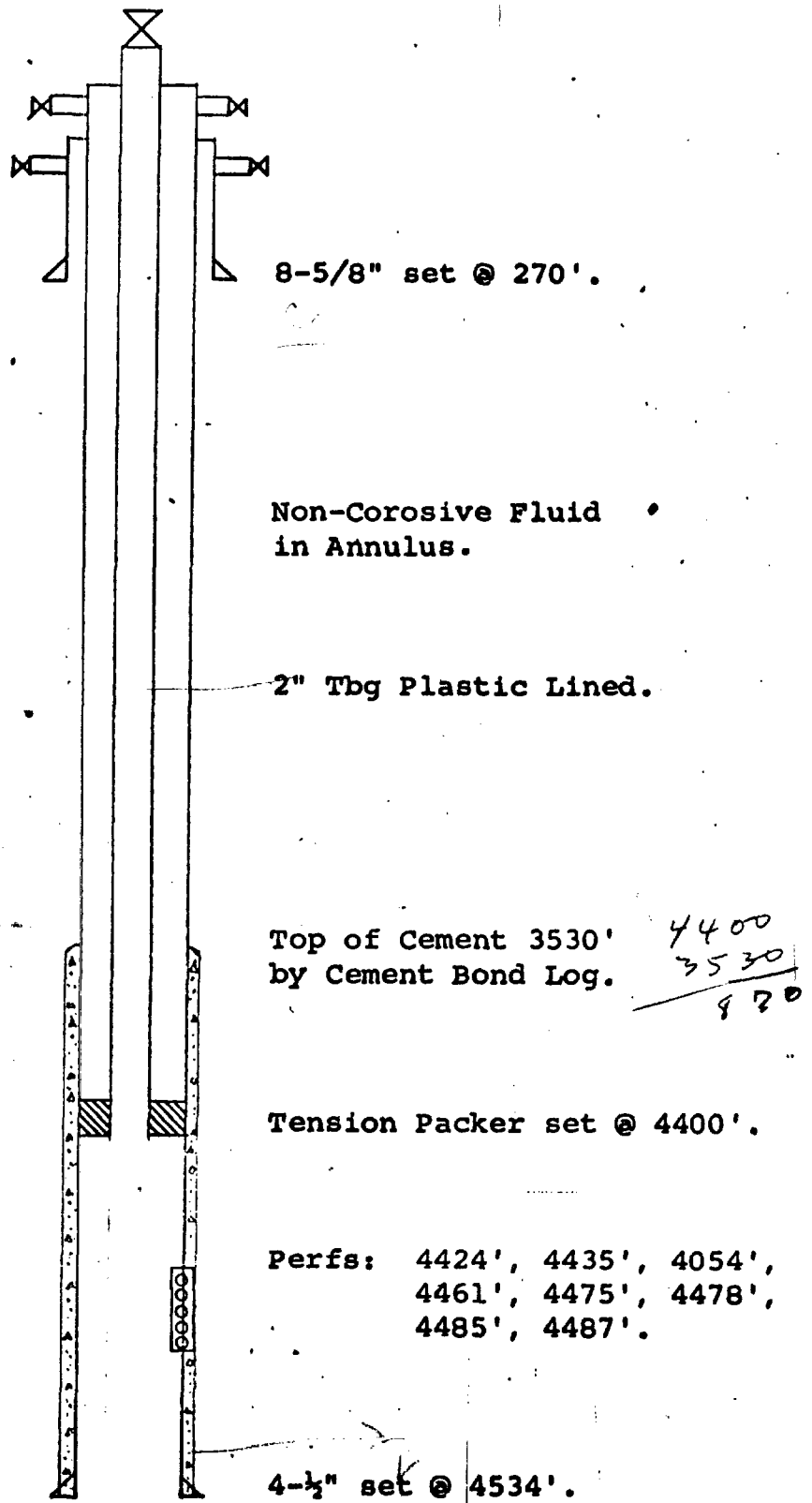
Perforate
Slaughter Zone of San Andres

4400 approx

2-1/2" Plastic Coated Csg
set @ approximately 4600'.

COASTAL STATES GAS PRODUCING COMPANY
GONSALES FEDERAL #33-4

EXHIBIT NO. 6





Acoustic-Gamma Ray Log

FILE NO.		COMPANY COASTAL STATES GAS PRODUCING COMPANY			
WELL		# 4 GONZALES FEDERAL			
FIELD		FLYING "M" (SAN ANDRES)			
COUNTY	LEA	STATE			NEW MEXICO
LOCATION:		C/NW/NE		Other Services LL-3 MFL COMPUTED POROSITY	
SEC 33	TWP 9-S	RGE 33-E			
Permanent Datum		G.L.	Elev. 4283.4		
Log Measured from		K.B.	11 Ft. Above Permanent Datum		
Drilling Measured from		K.B.			
Date	7-25-65				
Run No.	ONE				
Total Depth Driller	4533				
Total Depth PGAC	4531				
Bottom Logged Interval	4526				
Casing Driller	272				
Casing PGAC	NOT DETECTED				
Footage Logged	4426				
Mud Type	SALT GEL				
Density	Visc.	9.8 44			
Max. Temp. (F)		105°F			
Rec. To Rec. Spacing		2'			
Trans. To Rec. Spcg.		5'			
Logging Instrument		TS-135-83			
Equip. No.		ES-114			
Recorded By		LEWIS			
Witnessed By		MR. STATON			
BORE HOLE RECORD		CASING RECORD			
Bit Size	From	To	Csg. Size	Csg. Wt.	From To
7 7/8	272	T.D.	8 5/8		SURFACE 272

EXHIBIT NO. 7

4400 4500

**MEXICO OIL CONSERVATION COMMISSION
WELL LOCATION AND ACREAGE DEDICATION PLAT**

Form C-102
Supersedes C-128
Effective 1-4-65

All distances must be from the outer boundary of the well location. **NO. 20 OFFICE C. C. C.**

Operator COASTAL STATES GAS PRODUCING CO.			Lease SOUTHERN MINERALS ST 176521		Well No. 4
Unit Letter H	Section 21	Township 9 SOUTH	Range 33 EAST	County LEA	
Actual Footage Location of Well:					
1978 feet from the		NORTH	Line and	860	feet from the
				EAST	Line
Ground Level Elev. 4355	Producing Formation San Andres		Foot Flying Wm	Deepest Acceptor 80 Acres	

1. Outline the acreage dedicated to the subject well by colored pencil or hatchure marks on the plat below.
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).
3. If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling, etc?

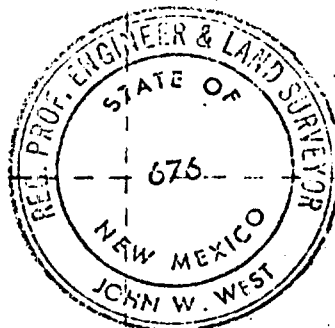
☐ Yes ☐ No If answer is "yes," type of consolidation _____

If answer is "no," list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary.) _____

No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Commission.

EXHIBIT NO. 8

1978'
860'



CERTIFICATION

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

By: *H. L. Smith*

Agent
Company Coastal States Gas Producing Company

Date December 28, 1965

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge and belief.

Date Surveyed
12-18-65

Registered Professional Engineer and/or Land Surveyor

John W. West

Certificate No.
N.M. P.E. & L.S. No. 676

0 330 660 990 1320 1650 1980 2310 2640 2970 3300 3630 3960 4290 4620 4950 5280 5610 5940 6270 6600 6930 7260 7590 7920 8250 8580 8910 9240 9570 9900

FIELD LABORATORY REPORT

WATER ANALYSIS

TO: Shell Oil Co Gas Producing
 Box 384
 Abilene, Texas

LABORATORY LOCATION Abilene, Tex.	REPORT NUMBER 4604
COMPANY Shell State	WELL Northern Mineral 2-21
POOL Flying M	LOCATION
COUNTY Los	STATE New Mexico
FORMATION San Andres	DEPTH
SUBMITTED BY Mr. J. Toward	TESTS DESIRED N/A

DATE SAMPLE SUBMITTED

6-6-64

SAMPLE SOURCE

Box 384

	PPM	EPM		PPM	EPM
CALCIUM	2260	111	CHLORIDE	118700	3320
MAGNESIUM	915	78	SULFATE	2800	59
SODIUM	71500	3200	BICARBONATE	607	10
IRON			CARBONATE		
HYDROGEN SULFIDE	Strong Odor		HYDROXIDE		

SPECIFIC GRAVITY

1.154

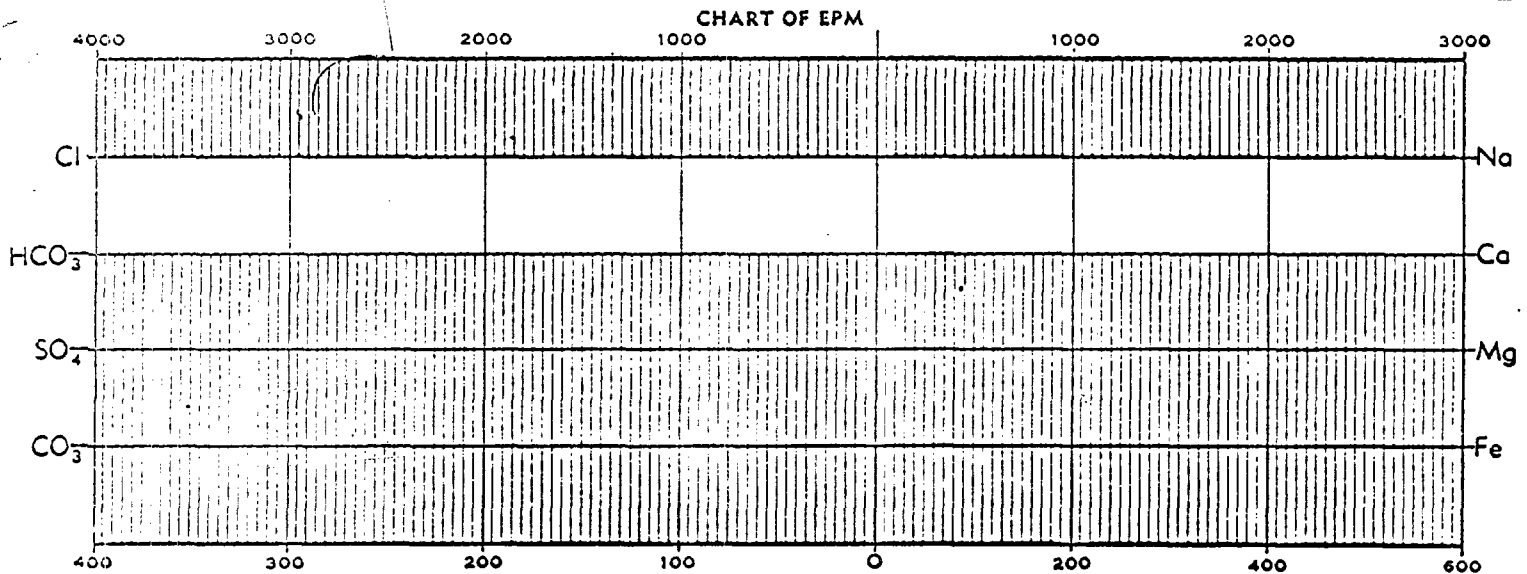
AT 91

°F pH

5.4

CaCl₂/MgCl₂

% SALT SATURATION



REMARKS:

About Same as Redfin #1 But alot less Ca & Mg than shell State #2
 (Which may have still had some spent acid water init.

EXHIBIT NO. 9

F.F. Flippen

6-6-64

CHEMIST

DATE

EXHIBIT NO. 10

Docket No. 4-66

DOCKET: EXAMINER HEARING - WEDNESDAY - JANUARY 26, 1966

9 A.M. - OIL CONSERVATION COMMISSION CONFERENCE ROOM,
STATE LAND OFFICE BUILDING, SANTA FE, NEW MEXICO

The following cases will be heard before Elvis A. Utz, Examiner, or Daniel S. Nutter, Alternate Examiner:

CASE 2720: (Reopened and continued from the January 5, 1966 Examiner Hearing)

In the matter of Case No. 2720 being reopened pursuant to the provisions of Order No. R-2397-B which continued the original order for an additional year, establishing special rules governing the production of oil and gas wells in the Double-X Delaware Pool, Lea County, New Mexico, including classification of wells as gas wells when the gas-liquid hydrocarbon ratio exceeds 30,000 to one.

CASE 3365: Application of Humble Oil & Refining Company for a unit agreement, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval of the North Cedar Hills Unit Area comprising approximately 8,500 acres of Federal, State and Fee lands in Township 20 South, Range 28 East, and Township 21 South, Range 27 East, Eddy County, New Mexico.

CASE 3366: Application of Coastal States Gas Producing Company for a pilot pressure maintenance project, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a pilot pressure maintenance project by the injection of water into the San Andres formation through three wells in Sections 15, 21 and 33, Township 9 South, Range 33 East, Flying "M" San Andres Pool, Lea County, New Mexico; applicant further seeks rules governing said project including a provision for administrative approval for the conversion of additional wells to water injection.

CASE 3367: Application of Penroc Oil Corporation for a non-standard oil proration unit and an unorthodox location, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of a non-standard oil proration unit comprising the NE/4 SW/4, N/2 SE/4, and SW/4 SE/4 of Section 7, Township 19 South, Range 32 East, Lusk-Strawn Pool, Lea County, New Mexico, said unit to be dedicated to a well to be drilled at an unorthodox location for said pool 660 feet from the South line and 1650 feet from the East line of said Section 7.

CASE 3368: Application of Standard Oil Company of Texas for a waterflood expansion, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to expand its Maljamar Waterflood Project, formerly the Leonard Nichols Maljamar Waterflood Project, by the conversion to water injection of nine wells located in Sections 3, 4, 9, 10, 11 and 15, Township 17 South, Range 32 East, Lea County, New Mexico.

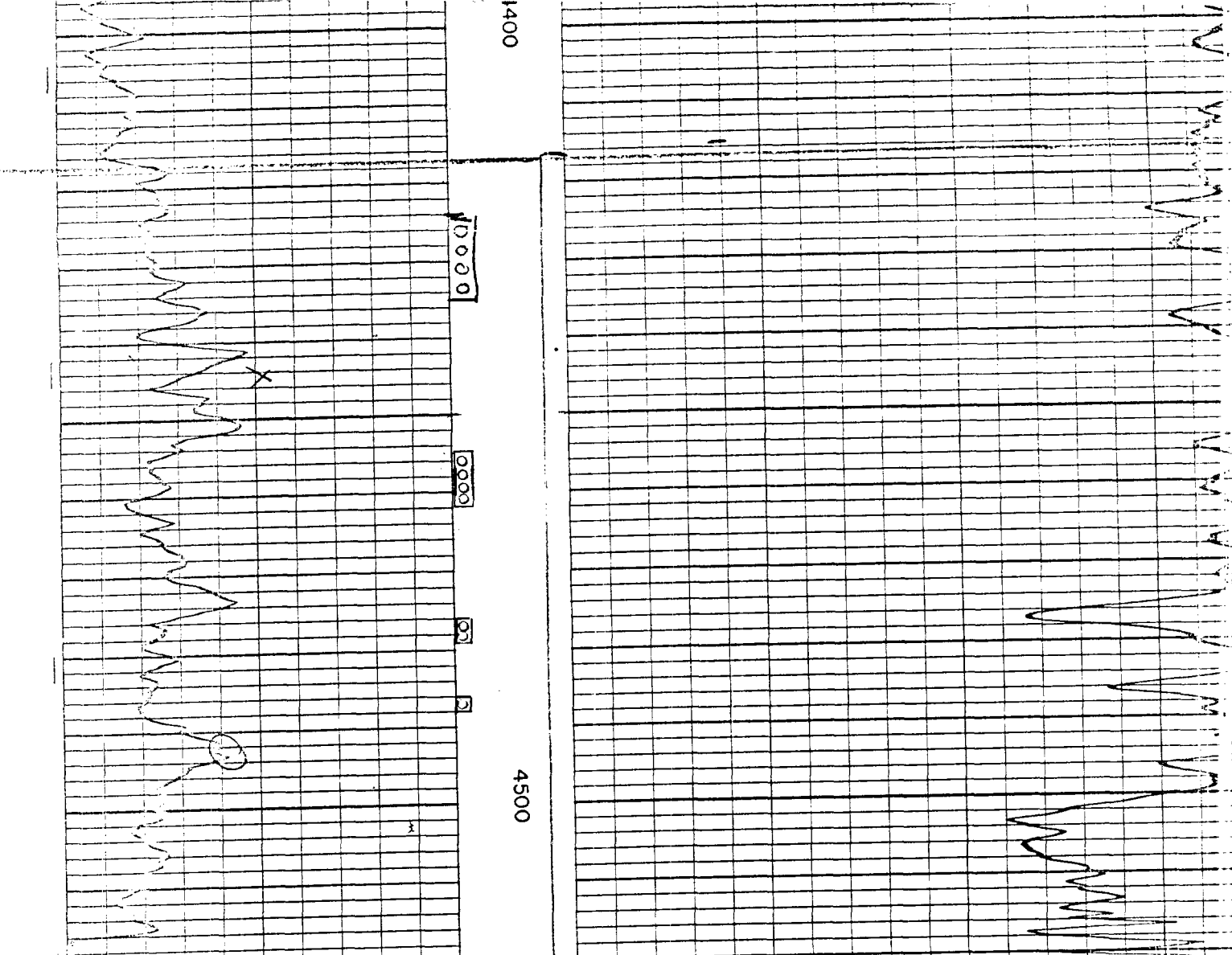
Acoustic-Gamma Ray Log

COMPANY *Coastal States Gas Prod.*
 WELL # *4 Sovalos Federal*
 FIELD *Frquing 'm' (See Address)*
 COUNTY *Lee* STATE *New Mexico*
 LOCATION: *C / NW / NW*

SEC *35* TWP *7-S* RGE *35-E*
 Elev. *4283.4*
 11.1 Ft. Above Permanent Datum
 Other Services
 LLS
 MFL
 MDP

7-20-65
 ONE
 4533
 4531
 4526
 272
 NOT Detected
 4446
 206T 241

9.8 44
 105°
 2'
 3'
 15-125-23
 13-114
 12.1-114
 E RECORD To CASING RECORD From To
 1.0 278 5475 2000



FIELD LABORATORY REPORT

WATER ANALYSIS

TO: Central States Gas Producing
 Co., Inc.
 Box 388
 Abilene, Texas

LABORATORY LOCATION Abilene, Tex.	REPORT NUMBER 1004
COMPANY Central States	WELL Southern Winery
POOL Oliver N	LOCATION 2-21
COUNTY Lee	STATE New Mexico
FORMATION San Andres	DEPTH
SUBMITTED BY Mr. J. Toward	TESTS DESIRED N/A

DATE SAMPLE SUBMITTED

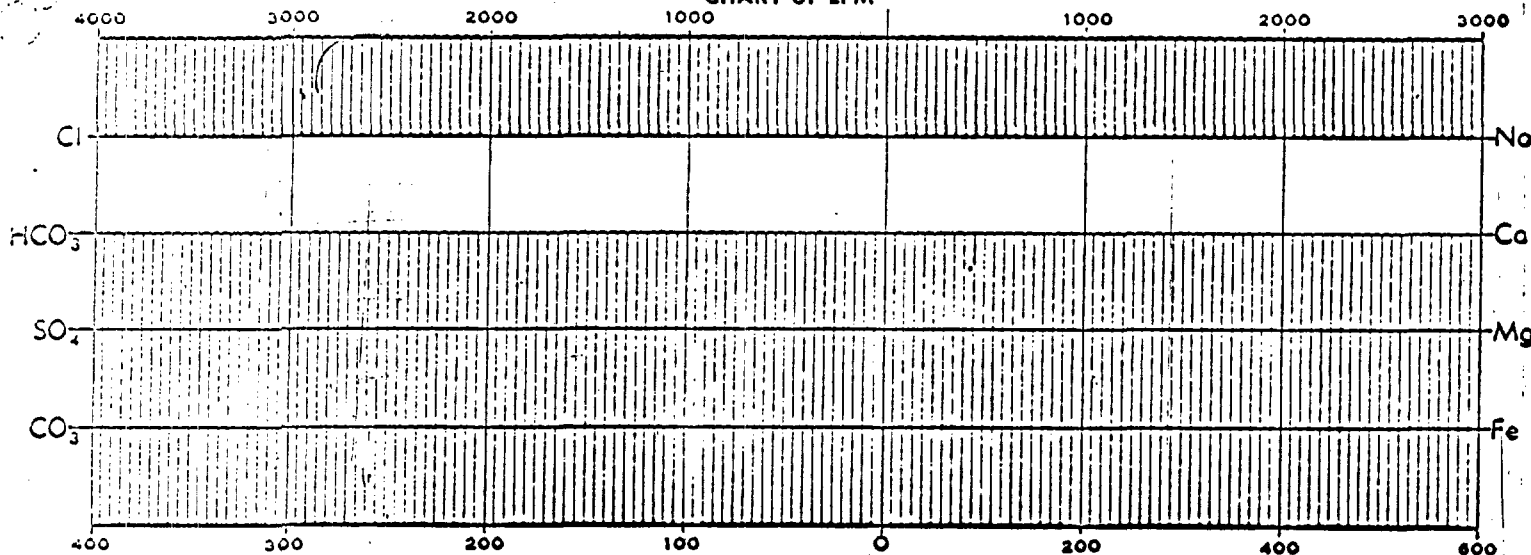
6-6-61

SAMPLE SOURCE

Olive line

	PPM	EPM		PPM	EPM
CALCIUM	2260	111	CHLORIDE	118700	3320
MAGNESIUM	916	78	SULFATE	2800	59
SODIUM	71500	3200	BICARBONATE	607	10
IRON			CARBONATE		
HYDROGEN SULFIDE	Strong Odor		HYDROXIDE		
SPECIFIC GRAVITY	1.154	AT 91 °F	pH	5.4	CoCl ₂ /MgCl ₂
% SALT SATURATION					

CHART OF EPM



REMARKS:

About Same as Redfin #1 But alot less Ca & Mg than shell State #2
 (Which may have still had some spent acid water in it.)

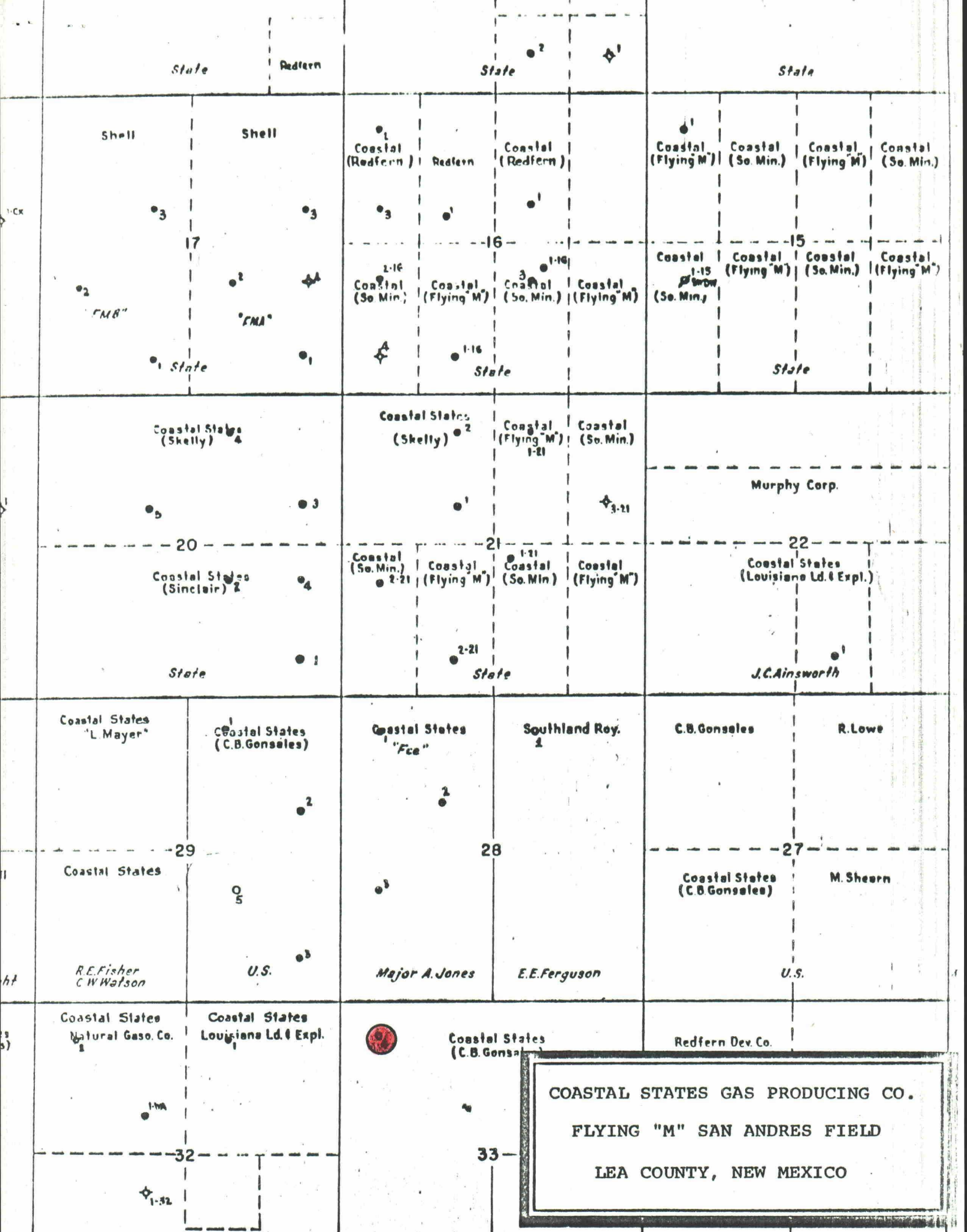
Exhibit No. 9

F.F. Flippen

6-6-61

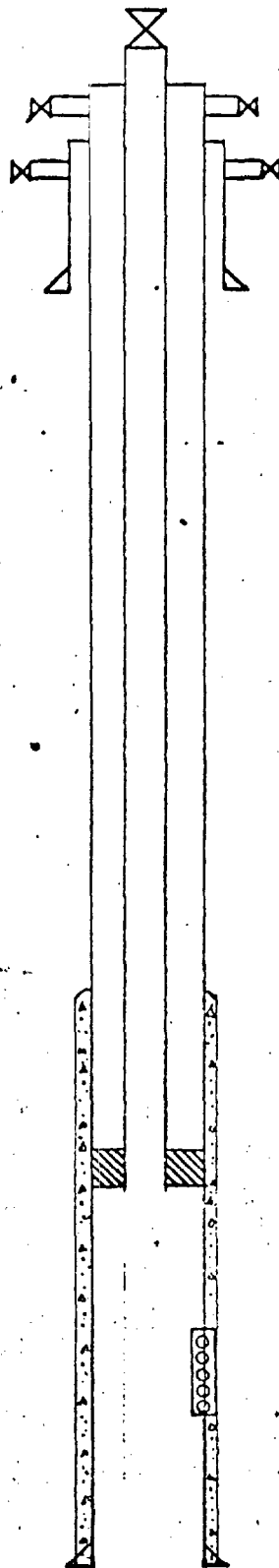
CHEMIST

DATE



COASTAL STATES GAS PRODUCING COMPANY
GONSALES FEDERAL #33-4

Exhibit No. 6



8-5/8" set @ 270'.

Non-Corrosive Fluid
in Annulus.

2" Tbg Plastic Lined.

Top of Cement 3530'
by Cement Bond Log.

Tension Packer set @ 4400'.

Perfs: 4424', 4435', 4054',
4461', 4475', 4478',
4485', 4487'.

4-1/2" set @ 4534'.

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEYSUBMIT IN TRIPLICATE*
(Other instructions on re-
verse side)Form approved
Budget Bureau No. 42-R1424

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir.
Use "APPLICATION FOR PERMIT" for such proposals.)

1. OIL WELL ☐ GAS WELL ☐ OTHER ☒ Water Injection Well		5. LEASE DESIGNATION AND SERIAL NO. NM-058102	
2. NAME OF OPERATOR Coastal States Gas Producing Company		6. IF INDIAN, ALLOTTEE OR TRIBE NAME	
3. ADDRESS OF OPERATOR P. O. Box 2498, Abilene, Texas		7. UNIT AGREEMENT NAME	
4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.* See also space 17 below.) At surface 659.5' FNL & 662' FWL, Sec 33, T9S, R33E, Lea County, New Mexico		8. FARM OR LEASE NAME Gonsales Federal	
14. PERMIT NO.		9. WELL NO. 4	
15. ELEVATIONS (Show whether DF, RT, GR, etc.) 4284.3' GL		10. FIELD AND POOL, OR WILDCAT Flying "M" (SA)	
		11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA 33, 9S, 33E	
		12. COUNTY OR PARISH Lea	13. STATE New Mexico

16.

Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:

TEST WATER SHUT-OFF ☐FRACTURE TREAT ☐SHOOT OR ACIDIZE ☐REPAIR WELL ☐(Other) ☐PULL OR ALTER CASING ☐MULTIPLE COMPLETE ☐ABANDON* ☐CHANGE PLANS ☐

SUBSEQUENT REPORT OF:

WATER SHUT-OFF ☐FRACTURE TREATMENT ☐SHOOTING OR ACIDIZING ☐(Other) ☐REPAIRING WELL ☐ALTERING CASING ☐ABANDONMENT* ☐(Other) Conversion to Water Injection ☒(NOTE: Report results of multiple completion on Well
Completion or Recompletion Report and Log form.)

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

July, 1965 - Well was drilled to 4534'. The Slaughter Zone of the San Andres was tested through perforations @ 4424-35', 4455-62', 4476-79', 4486-88' and found to be predominantly (98%) water productive. Well was temporarily abandoned.

April, 1966 - Plastic coated tubing with tension packer was run and set at 4400'. A corrosion inhibited fluid was placed in the annulus and the well was equipped for water injection.

18. I hereby certify that the foregoing is true and correct

SIGNED

Jack R. McGraw

TITLE

Division Engineer

DATE

May 10, 1966

(This space for Federal or State office use)

APPROVED BY

TITLE

DATE

CONDITIONS OF APPROVAL, IF ANY:

*See Instructions on Reverse Side

Instructions

General: This form is designed for submitting proposals to perform certain well operations, and reports of such operations when completed, as indicated, on Federal and Indian lands pursuant to applicable Federal law and regulations, and, if approved or accepted by any State, on all lands in such State, pursuant to applicable State law and regulations. Any necessary special instructions concerning the use of this form and the number of copies to be submitted, particularly with regard to local, area, or regional procedures and practices, either are shown below or will be issued by, or may be obtained from, the local Federal and/or State office.

Item 4: If there are no applicable State requirements, locations on Federal or Indian land should be described in accordance with Federal requirements. Consult local State or Federal office for specific instructions.

Item 17: Proposals to abandon a well and subsequent reports of abandonment should include such special information as is required by local Federal and/or State offices. In addition, such proposals and reports should include reasons for the abandonment; data on any former or present productive zones, or other zones with present significant fluid contents not sealed off by cement or otherwise; depths (top and bottom) and method of placement of cement plugs; mud or other material placed below, between and above plugs; amount, size, method of parting of any casing, liner or tubing pulled and the depth to top of any left in the hole; method of closing top of well; and date well site conditioned for final inspection looking to approval of the abandonment.

NEW MEXICO OIL CONSERVATION COMMISSION
APPLICATION TO DISPOSE OF SALT WATER BY INJECTION INTO A POROUS FORMATION

OPERATOR Coastal States Gas Producing Company		ADDRESS P. O. Box 2498, Abilene, Texas	
LEASE NAME Gonsales Federal	WELL NO. 4	FIELD Flying "M" (San Andres)	COUNTY Lea
LOCATION UNIT LETTER <u>D</u> ; WELL IS LOCATED <u>660</u> FEET FROM THE <u>North</u> LINE AND <u>660</u> FEET FROM THE <u>West</u> LINE, SECTION <u>33</u> TOWNSHIP <u>9-S</u> RANGE <u>33-E</u> NMPM.			

CASING AND TUBING DATA

NAME OF STRING	SIZE	SETTING DEPTH	SACKS CEMENT	TOP OF CEMENT	TOP DETERMINED BY
SURFACE CASING	8-5/8"	270'	200	Circ	Observation
INTERMEDIATE					
LONG STRING	4-1/2"	4534'	250	3530'	Cement Bond Log
TUBING	2-3/8" (EUE)	4400'	NAME, MODEL AND DEPTH OF TUBING PACKER Halliburton R-3 Tension		

NAME OF PROPOSED INJECTION FORMATION San Andres		TOP OF FORMATION 4410'	BOTTOM OF FORMATION 4530'
IS INJECTION THROUGH TUBING, CASING, OR ANNULUS? Tubing		PERFORATIONS OR OPEN HOLES? Perfs	PROPOSED INTERVAL(S) OF INJECTION 4424-35', 4455-62', 4476-79', 4486-88'
IS THIS A NEW WELL DRILLED FOR DISPOSAL? No	IF ANSWER IS NO, FOR WHAT PURPOSE WAS WELL ORIGINALLY DRILLED? For oil; however, produced water instead.		HAS WELL EVER BEEN PERFORATED IN ANY ZONE OTHER THAN THE PROPOSED INJECTION ZONE? No

LIST ALL SUCH PERFORATED INTERVALS AND SACKS OF CEMENT USED TO SEAL OFF OR SQUEEZE EACH

None

DEPTH OF BOTTOM OF DEEPEST FRESH WATER ZONE IN THIS AREA 150'		DEPTH OF BOTTOM OF NEXT HIGHER OIL OR GAS ZONE IN THIS AREA 4400'		DEPTH OF TOP OF NEXT LOWER OIL OR GAS ZONE IN THIS AREA 8691'	
ANTICIPATED DAILY INJECTION VOLUME (BBLs.) 250	MINIMUM 800	MAXIMUM 800	OPEN OR CLOSED TYPE SYSTEM Closed	IS INJECTION TO BE BY GRAVITY OR PRESSURE? Pressure	APPROX. PRESSURE (PSI) 1900 psi
ANSWER YES OR NO WHETHER THE FOLLOWING WATERS ARE MINERALIZED TO SUCH A DEGREE AS TO BE UNFIT FOR DOMESTIC, STOCK, IRRIGATION, OR OTHER GENERAL USE Yes			WATER TO BE DISPOSED OF Produced Water	NATURAL WATER IN DISPOSAL ZONE Same	ARE WATER ANALYSES ATTACHED? Yes

NAME AND ADDRESS OF SURFACE OWNER (OR LESSEE, IF STATE OR FEDERAL LAND)

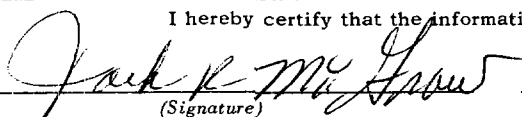
John R. McGuffin, P. O. Box 66, Caprock, New Mexico

LIST NAMES AND ADDRESSES OF ALL OPERATORS WITHIN ONE-HALF (1/2) MILE OF THIS INJECTION WELL

Southland Royalties, 1603 First National Bank Building, Fort Worth, Texas

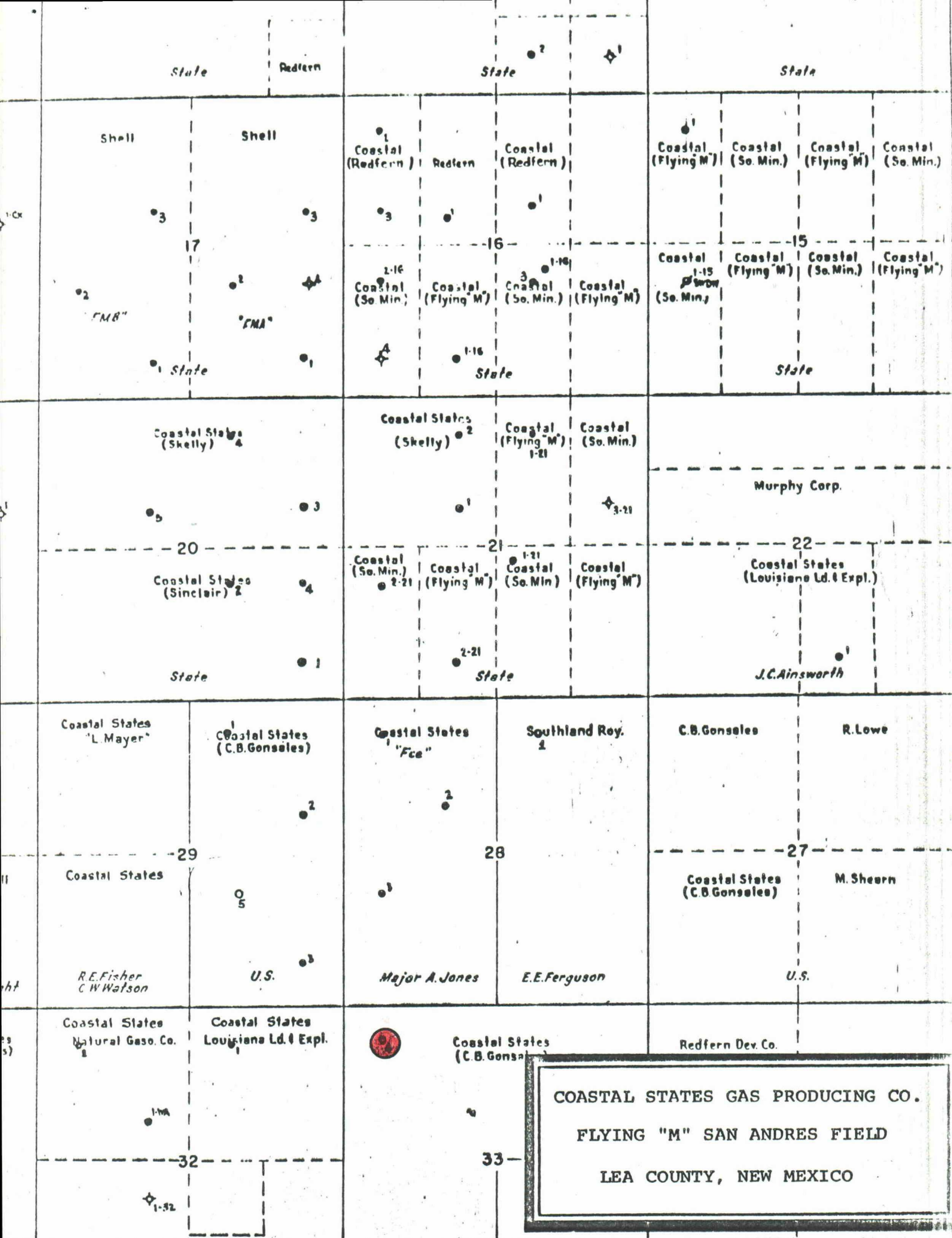
HAVE COPIES OF THIS APPLICATION BEEN SENT TO EACH OF THE FOLLOWING?	SURFACE OWNER Yes	EACH OPERATOR WITHIN ONE-HALF MILE OF THIS WELL Yes	THE NEW MEXICO STATE ENGINEER Yes
ARE THE FOLLOWING ITEMS ATTACHED TO THIS APPLICATION (SEE RULE 701-B)	PLAT OF AREA Yes	ELECTRICAL LOG Yes	DIAGRAMMATIC SKETCH OF WELL Yes

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

 Division Engineer
(Signature) (Title)

May 10, 1966
(Date)

NOTE: Should waivers from the State Engineer, the surface owner, and all operators within one-half mile of the proposed injection well not accompany this application, the New Mexico Oil Conservation Commission will hold the application for a period of 15 days from the date of receipt by the Commission's Santa Fe office. If at the end of the 15-day waiting period no protest has been received by the Santa Fe office, the application will be processed. If a protest is received, the application will be set for hearing, if the applicant so requests. SEE RULE 701.



Acoustic-Gamma Ray Log

COMPANY Coastal States Gas Prod.
 WELL # 4 Gonzales Federal
 FIELD Flying 'm' (San Andres)
 COUNTY Lee STATE New Mexico
 LOCATION: C/nw/nw

SEC 33 TWP 7-S RGE 33-E

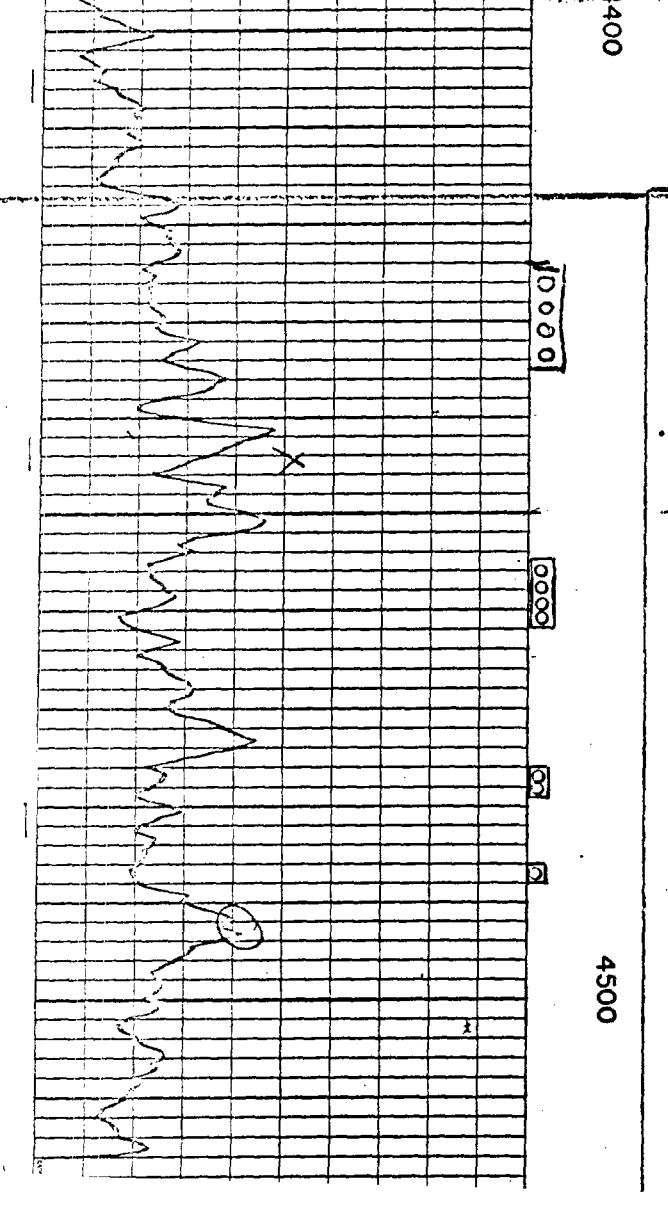
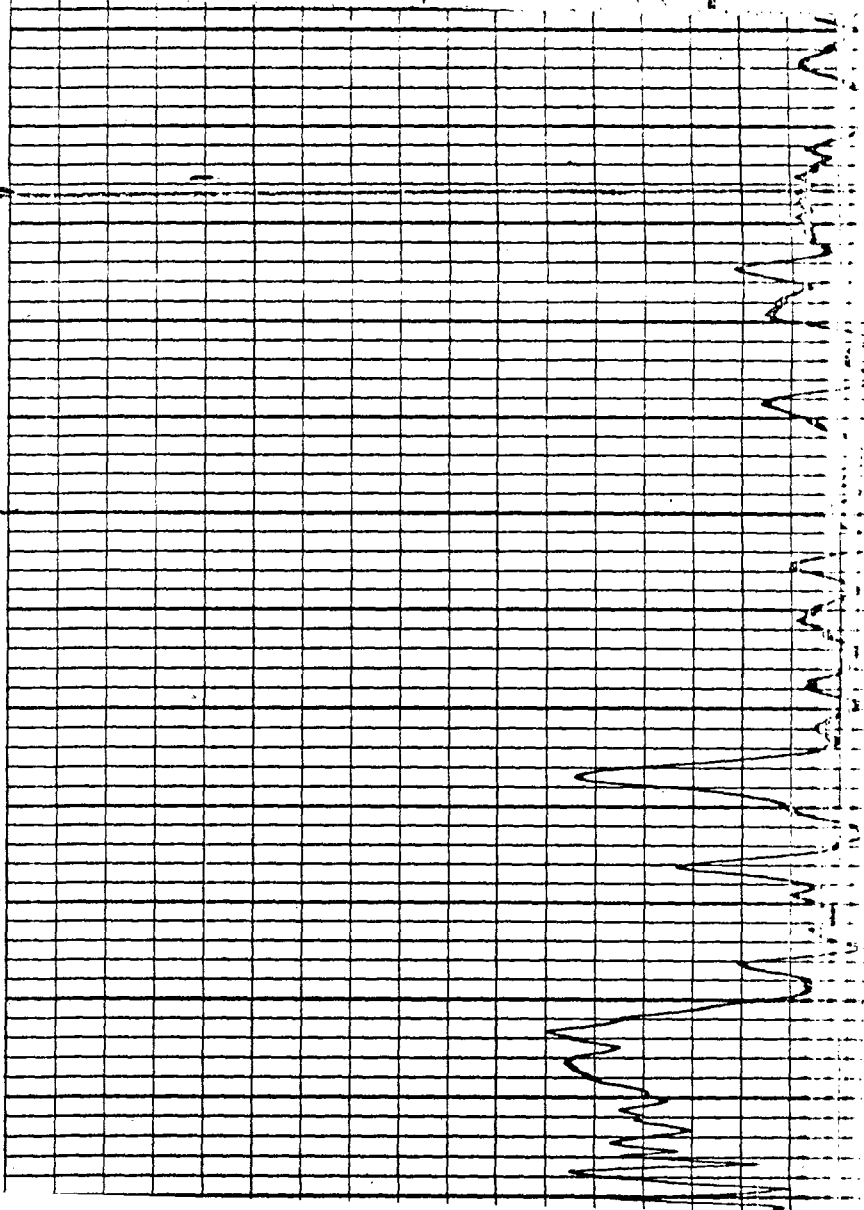
Other Services
 LL-3
 MFL
 MOP

Elevations:
 KB 4283.4
 DF 4283.4
 CI 4283.4

7-25-65
 ONE
 4533
 4531
 4526
 272
 205 Detached
 4486
 3211 341

7.8 44
 105°
 4'
 5'
 5-155-93
 23-114
 6.27412
 774.374701

CASING RECORD			
To	Csg. Size	Csg. Wt.	From
7.0	2 7/8		5425
			272



FIELD LABORATORY REPORT

WATER ANALYSIS

TO: Coastal States Gas Producer,
Box 300
Abilene, Texas

LABORATORY LOCATION Odessa, Tex.	REPORT NUMBER 16604
COMPANY Coastal States	WELL Southern Mineral 2-21
POOL Flying M	LOCATION
COUNTY Dew	STATE New Mexico
FORMATION San Andres	DEPTH
SUBMITTED BY R. J. Toward	TESTS DESIRED N/A

DATE SAMPLE SUBMITTED

6-6-64

SAMPLE SOURCE

Swab Line

	PPM	EPM		PPM	EPM
CALCIUM	2260	111	CHLORIDE	118700	3320
MAGNESIUM	916	78	SULFATE	2800	59
SODIUM	71500	3200	BICARBONATE	607	10
IRON			CARBONATE		
HYDROGEN SULFIDE	Strong Odor		HYDROXIDE		

SPECIFIC GRAVITY

1.154

AT 91

°F

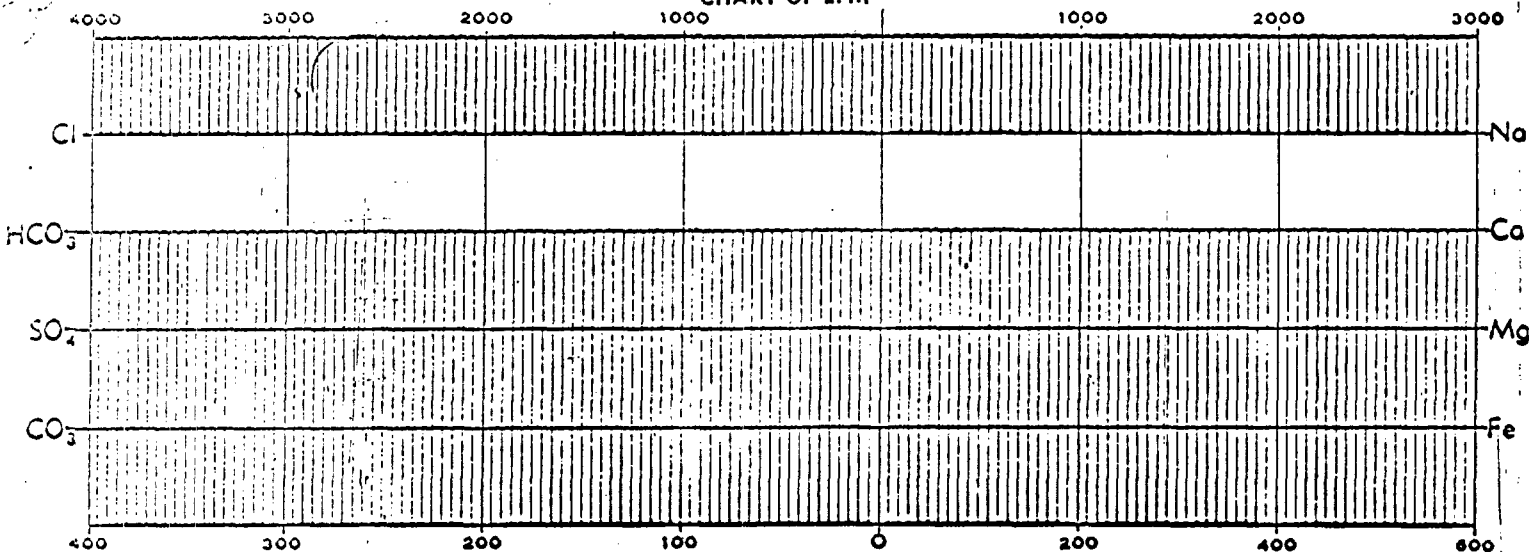
pH

5.4

CaCl₂/MgCl₂

% SALT SATURATION

CHART OF EPM



REMARKS:

About Same as Redfin #1 But alot less Ca & Mg than shell State #2
(Which may have still had some spent acid water in it.)

Exhibit No. 9

F.F. Flippen

6-6-64

CHEMIST

DATE