CABOT PETROLEUM CORPORATION OIL AND GAS DRILLING AND PRODUCTION

806/669-2581
P. O. BOX 5001, PAMPA, TEXAS 79065

March 18, 1985

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

Attention Mr. Richard L. Stamets

Gentlemen:

Re: Cabot Petroleum Corporation
J. L. Reed No. 3, King Field,
1980' FNL and 1650' FEL
Section 35, T13S-R37E
Lea County, New Mexico

Cabot is hereby submitting an application to reenter the referenced plugged and abandoned well and recomplete to saltwater disposal in the San Andres and Glorieta formations.

This is necessary because Cabot plans to install additional high volume submersible pumps in Devonian producing wells. Approval of this application will improve our saltwater handling capabilities and will result in a higher economic oil recovery from the King Devonian Field.

Enclosed are the following to aid in your study of this proposal: (1) Form C-101 to reenter and convert to S.W.D. in the San Andres and Glorieta formations, (2) Form C-108 with all attachments, waivers, and "proofs of notice" required for administrative approval.

Cabot Petroleum Corporation respectfully requests your approval of this application.

Sincerely,

George A. Forrest

George A. Forrest
Senior Petroleum Engineer

GAF:1p

Enc.

cc: Mr. Jerry Sexton, State of New Mexico Energy and Minerals Dept.
Oil Conservation Division, P. O. Box 1980, Hobbs, New Mexico 88240

ENERGY AND MINERALS DEPARTMENT

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87501

Revised 7-1-81

APPLICATION FOR AUTHORIZATION TO INJECT

I. Purpose: ☐ Secondary Recovery ☐ Pressure Maintenance ☒ Disposal ☐ Storage
Application qualifies for administrative approval? ☒ yes ☐ no

II. Operator: Cabot Petroleum Corporation

Address: P. O. Box 5001, Pampa, Texas 79065

Contact party: George A. Forrest Phone: 806/669-2581

III. Well data: Complete the data required on the reverse side of this form for each well proposed for injection. Additional sheets may be attached if necessary.

IV. Is this an expansion of an existing project? ☐ yes ☒ no
If yes, give the Division order number authorizing the project _____.

V. Attach a map that identifies all wells and leases within two miles of any proposed injection well with a one-half mile radius circle drawn around each proposed injection well. This circle identifies the well's area of review.

* VI. Attach a tabulation of data on all wells of public record within the area of review which penetrate the proposed injection zone. Such data shall include a description of each well's type, construction, date drilled, location, depth, record of completion, and a schematic of any plugged well illustrating all plugging detail.

VII. Attach data on the proposed operation, including:

1. Proposed average and maximum daily rate and volume of fluids to be injected;
2. Whether the system is open or closed;
3. Proposed average and maximum injection pressure;
4. Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than reinjected produced water; and
5. If injection is for disposal purposes into a zone not productive of oil or gas at or within one mile of the proposed well, attach a chemical analysis of the disposal zone formation water (may be measured or inferred from existing literature, studies, nearby wells, etc.).

*VIII. Attach appropriate geological data on the injection zone including appropriate lithologic detail, geological name, thickness, and depth. Give the geologic name, and depth to bottom of all underground sources of drinking water (aquifers containing waters with total dissolved solids concentrations of 10,000 mg/l or less) overlying the proposed injection zone as well as any such source known to be immediately underlying the injection interval.

IX. Describe the proposed stimulation program, if any.

* X. Attach appropriate logging and test data on the well. (If well logs have been filed with the Division they need not be resubmitted.)

* XI. Attach a chemical analysis of fresh water from two or more fresh water wells (if available and producing) within one mile of any injection or disposal well showing location of wells and dates samples were taken.

XII. Applicants for disposal wells must make an affirmative statement that they have examined available geologic and engineering data and find no evidence of open faults or any other hydrologic connection between the disposal zone and any underground source of drinking water.

XIII. Applicants must complete the "Proof of Notice" section on the reverse side of this form.

XIV. Certification

I hereby certify that the information submitted with this application is true and correct to the best of my knowledge and belief.

Name: George A. Forrest Title Senior Petroleum Engineer

Signature: George A. Forrest Date: March 18, 1985

* If the information required under Sections VI, VIII, X, and XI above has been previously submitted, it need not be duplicated and resubmitted. Please show the date and circumstance of the earlier submittal. _____

DISTRIBUTION: Original and one copy to Santa Fe with one copy to the appropriate Division district office.

III. WELL DATA

A. The following well data must be submitted for each injection well covered by this application. The data must be both in tabular and schematic form and shall include:

(1) Lease name; Well No.; location by Section, Township, and Range; and footage location within the section.

(2) Each casing string used with its size, setting depth, sacks of cement used, hole size, top of cement, and how such top was determined.

(3) A description of the tubing to be used including its size, lining material, and setting depth.

(4) The name, model, and setting depth of the packer used or a description of any other seal system or assembly used.

Division District offices have supplies of Well Data Sheets which may be used or which may be used as models for this purpose. Applicants for several identical wells may submit a "typical data sheet" rather than submitting the data for each well.

B. The following must be submitted for each injection well covered by this application. All items must be addressed for the initial well. Responses for additional wells need be shown only when different. Information shown on schematics need not be repeated.

(1) The name of the injection formation and, if applicable, the field or pool name.

(2) The injection interval and whether it is perforated or open-hole.

(3) State if the well was drilled for injection or, if not, the original purpose of the well.

(4) Give the depths of any other perforated intervals and detail on the sacks of cement or bridge plugs used to seal off such perforations.

(5) Give the depth to and name of the next higher and next lower oil or gas zone in the area of the well, if any.

XIV. PROOF OF NOTICE

All applicants must furnish proof that a copy of the application has been furnished, by certified or registered mail, to the owner of the surface of the land on which the well is to be located and to each leasehold operator within one-half mile of the well location.

Where an application is subject to administrative approval, a proof of publication must be submitted. Such proof shall consist of a copy of the legal advertisement which was published in the county in which the well is located. The contents of such advertisement must include:

(1) The name, address, phone number, and contact party for the applicant;

(2) the intended purpose of the injection well; with the exact location of single wells or the section, township, and range location of multiple wells;

(3) the formation name and depth with expected maximum injection rates and pressures; and

(4) a notation that interested parties must file objections or requests for hearing with the Oil Conservation Division, P. O. Box 2088, Santa Fe, New Mexico 87501 within 15 days.

NO ACTION WILL BE TAKEN ON THE APPLICATION UNTIL PROPER PROOF OF NOTICE HAS BEEN SUBMITTED.

NOTICE: Surface owners or offset operators must file any objections or requests for hearing of administrative applications within 15 days from the date this application was mailed to them.

III. WELL DATA

A. 1) J. L. Reed No. 3
1980' FNL, 1650' FEL
(Unit)G) Section 35,
T-13S-R37E

2) Surface Casing
13-3/8" OD, 48#/ft. @ 360'
Cmt'd w/400 sx, Cmt. Circ.
Hole size 17"

Intermediate Casing
8-5/8" OD, 24 & 32#/ft. @ 4583'
Cmt'd w/2400 sx, Cmt. Circ.
Hole size 11

Production Casing
5-1/2" OD, 17, 20, 23#/ft @ 12300'
Cmt'd w/700 sx, TOC @ 8035' (Temp. Survey)

3) Tubing (Proposed)
2-7/8" tubing, 6.5#/ft. @ ± 4500'
Plastic (sealtite) lined

4) Packer
Baker Model 51B, Lockset retrievable
Nickle plated

B. 1) Injection Formation
San Andres and Glorieta

2) Injection Interval
± 4583' - 6730'

3) Well Purpose
Originally Devonian and Wolfcamp producer

4) Perforations
a. Open hole 12300 - 12430 Devonian,
12190 - 12305 Devonian
CIBP set @ 9850' w/2 sx cmt on top

b. 9345' - 9416 Wolfcamp
50 sx cmt across perfs

5) Producing Zones
a. Higher - none
b. Lower - Wolfcamp ± 9345'

VII. PROPOSED OPERATIONS

A. 1) Injection Rate: Maximum 2000 BWPD
Average 1600 BWPD

2) Injection System
Closed

3) Injection Pressure: Maximum 1500 psi
Average 1400 psi

4) Injection Fluid
Produced water (Devonian and Wolfcamp; see enclosed analysis)

5) San Andres is non-productive in this area and no record of San Andres water is available.

VIII. INJECTION ZONE

1) San Andres and Glorieta
2) Dolomite
3) Thickness 2165'
4) Depth: 4565' - 6730'
5) Aquifers
a. Ogalalla ± 300'

IX. STIMULATION

1) Acidize w/± 4000 gals 15% NE HCL

NO. OF COPIES RECEIVED		
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SANTA FE		
FILE		
U.S.G.S.		
LAND OFFICE		
OPERATOR		

NEW MEXICO OIL CONSERVATION COMMISSION

Form C-101
Revised 1-1-65

5A. Indicate Type of Lease STATE ☐ FEE ☒

5. State Oil & Gas Lease No.

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

1a. Type of Work

b. Type of Well: DRILL ☐ DEEPEN ☐ PLUG BACK ☐
OIL WELL ☐ GAS WELL ☐ OTHER Reentry of plugged and abandoned well for SWD SINGLE ZONE ☐ MULTIPLE ZONE ☐

7. Unit Agreement Name

8. Farm or Lease Name: J. L. Reed

2. Name of Operator: Cabot Petroleum Corporation

9. Well No.: 3

3. Address of Operator: P. O. Box 5001, Pampa, Texas 79065

10. Field and Pool, or Wildcat: King

4. Location of Well: UNIT LETTER G LOCATED 1,980 FEET FROM THE North LINE AND 1650 FEET FROM THE East LINE OF SEC. 35 TWP. 13S RGE. 37E NMPM

12. County: Lea

19. Proposed Depth	19A. Formation	20. Rotary or C.T.
6,730'	San Andres & Glorieta	Rotary

21. Elevations (Show whether DF, RT, etc.)	21A. Kind & Status Plug. Bond	21B. Drilling Contractor	22. Approx. Date Work will start
3847.9 GR, 3860.9 KB			

23.

PROPOSED CASING AND CEMENT PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	SACKS OF CEMENT	EST. TOP
17-1/2"	13-3/8"	48	360	400	Surface
11"	8-5/8"	24 & 32	4583	2400	Surface
7-7/8"				50	5440

The subject well was drilled to the Devonian to a TD of 12,430'. It potentialed from an open-hole section, 12,320-12,430', for 561 BOPD on 7-18-57. A workover in 1960 opened additional Devonian pay from 12,190-12,305'. The Devonian was abandoned in October 1968 by setting a CIBP at 9,850' and capping with 2 sacks of cement. The Devonian recovered 294,027 BO during its producing period. A recompletion attempt into the Wolfcamp from 9345-9416' proved unsuccessful and the well was temporarily abandoned. The well was abandoned in January, 1971 by setting a 50-sk cement plug across the Wolfcamp perforations from 9345-9416', cutting and pulling the 5½" csg from 5650' and spotting a 25-sk cement plug across the csg stub, setting a 25-sk cement plug across the 8-5/8" csg shoe, and setting a 10-sk cement plug at the surface.
It is proposed to: (1) Drill out surface plug and circulate and cleanout to the bottom of the 8-5/8" csg and pressure test that csg; (2) Circulate the hole clean to the plug on top of the 5-1/2" csg stub; (3) Deviate the wellbore from off the top of the 5-1/2" csg stub and drill a new hole to 6730'; (4) Acid stimulate the injection interval if required; (5) Run 8-5/8" injection packer on plastic-coated 2-7/8" tbg and set at 4500' after circulating csg annulus with non-corrosive treated water; (6) Injection will commence.

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: IF PROPOSAL IS TO DEEPEN OR PLUG BACK, GIVE DATA ON PRESENT PRODUCTIVE ZONE AND PROPOSED NEW PRODUCTIVE ZONE. GIVE BLOWOUT PREVENTER PROGRAM, IF ANY. BOP will be used.

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

Signed George A. Forrest Title Senior Petroleum Engineer Date 3-18-85

(This space for State Use)

APPROVED BY _____ TITLE _____ DATE _____

CONDITIONS OF APPROVAL, IF ANY:

NEW MEXICO OIL CONSERVATION COMMISSION

WELL LOCATION AND ACREAGE DEDICATION PLAT

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

All distances must be from the outer boundaries of the Section.

Operator	Lease	Well No.
Cabot Petroleum Corporation	J. L. Reed	3

Unit Letter	Section	Township	Range	County
G	35	13S	37E	Lea

Actual Footage Location of Well:
1980 feet from the North line and 1650 feet from the East line

Ground Level Elev.	Producing Formation	Pool	Dedicated Acreage:
3847.9			Acres

1. Outline the acreage dedicated to the subject well by colored pencil or hachure marks on the plat below.

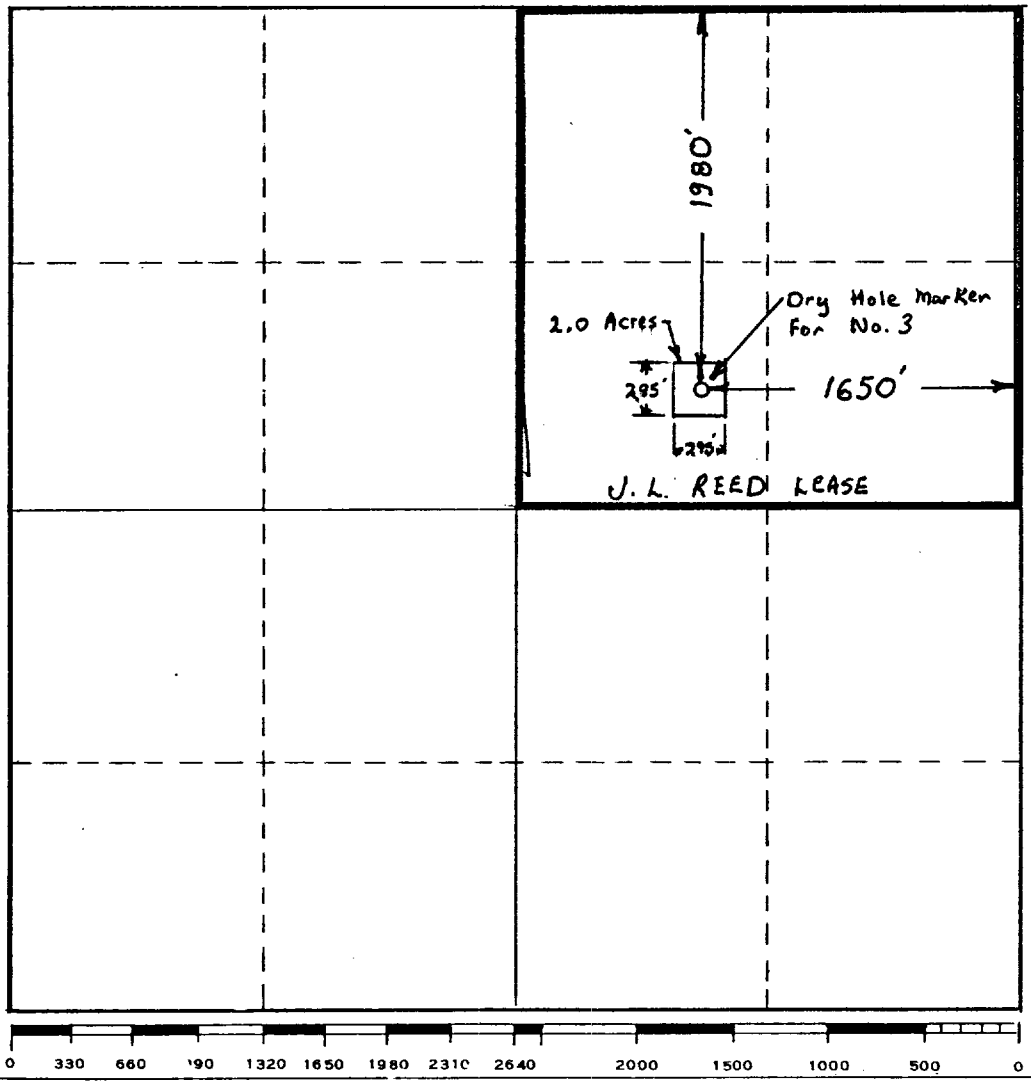
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).

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.



CERTIFICATION

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

James R. Henry

Name: James R. Henry

Position: Regional Engineer

Company: Cabot Petroleum Corp.

Date: 4-18-84

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

Registered Professional Engineer and/or Land Surveyor

Certificate No.

NEW MEXICO
OIL CONSERVATION COMMISSION

Form C-128

Well Location and/or Gas Proration Plat

Date April 1, 1957

Operator Cabot Carbon Co. et al Lease J. L. Reed

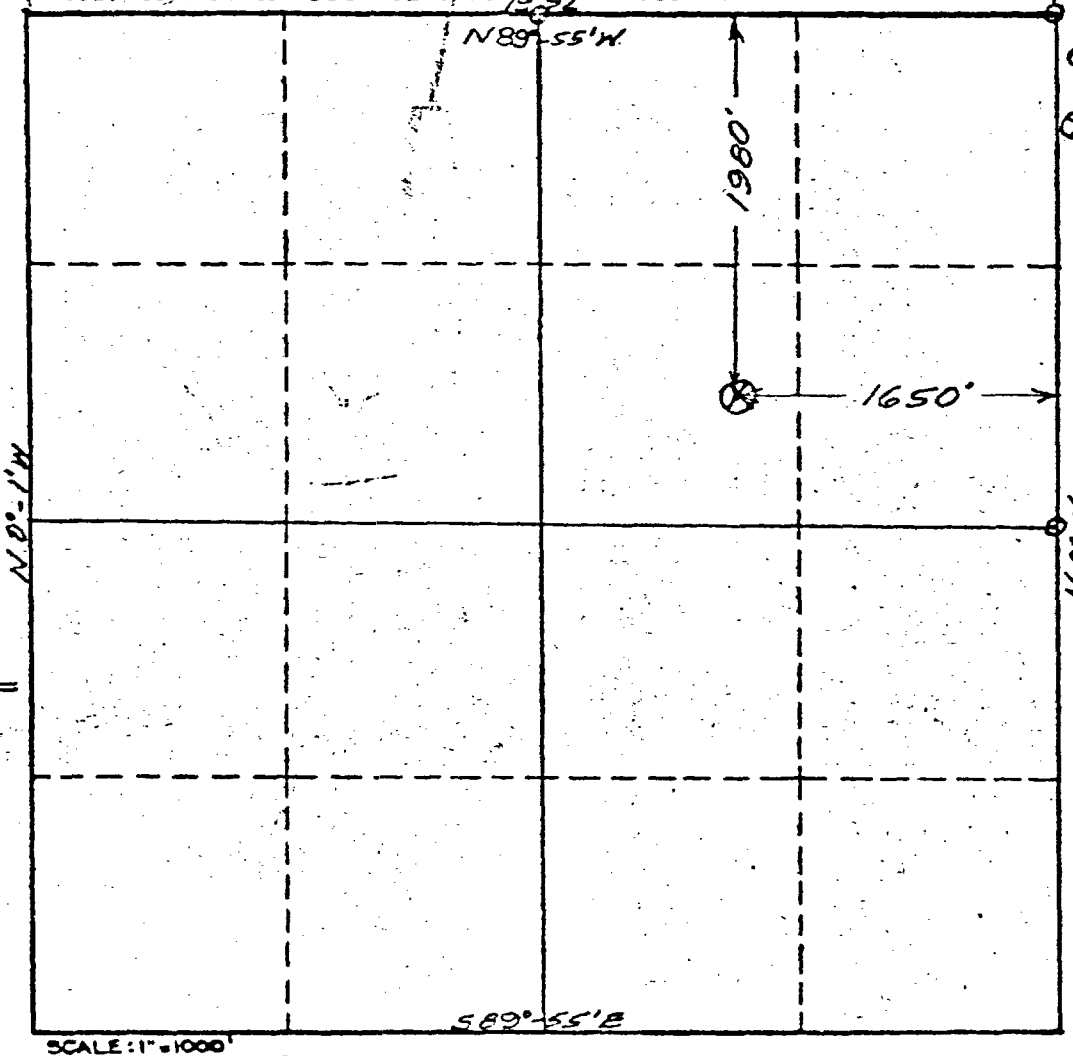
Well No. 3 Section 35 Township 13 South Range 37 East NMPM

Located 1980 Feet From North Line, 1650 Feet From East Line,

Lea County, New Mexico. G. L. Elevation 3847.9

Name of Producing Formation Pool Dedicated Acreage

(Note: All distances must be from outer boundaries of Section)



NOTE
This section of form is to be used for gas wells only.

1. Is this Well a Dual Comp.? Yes ___ No ___.

2. If the answer to Question 1 is yes, are there any other dually completed wells within the dedicated acreage? Yes ___ No ___.

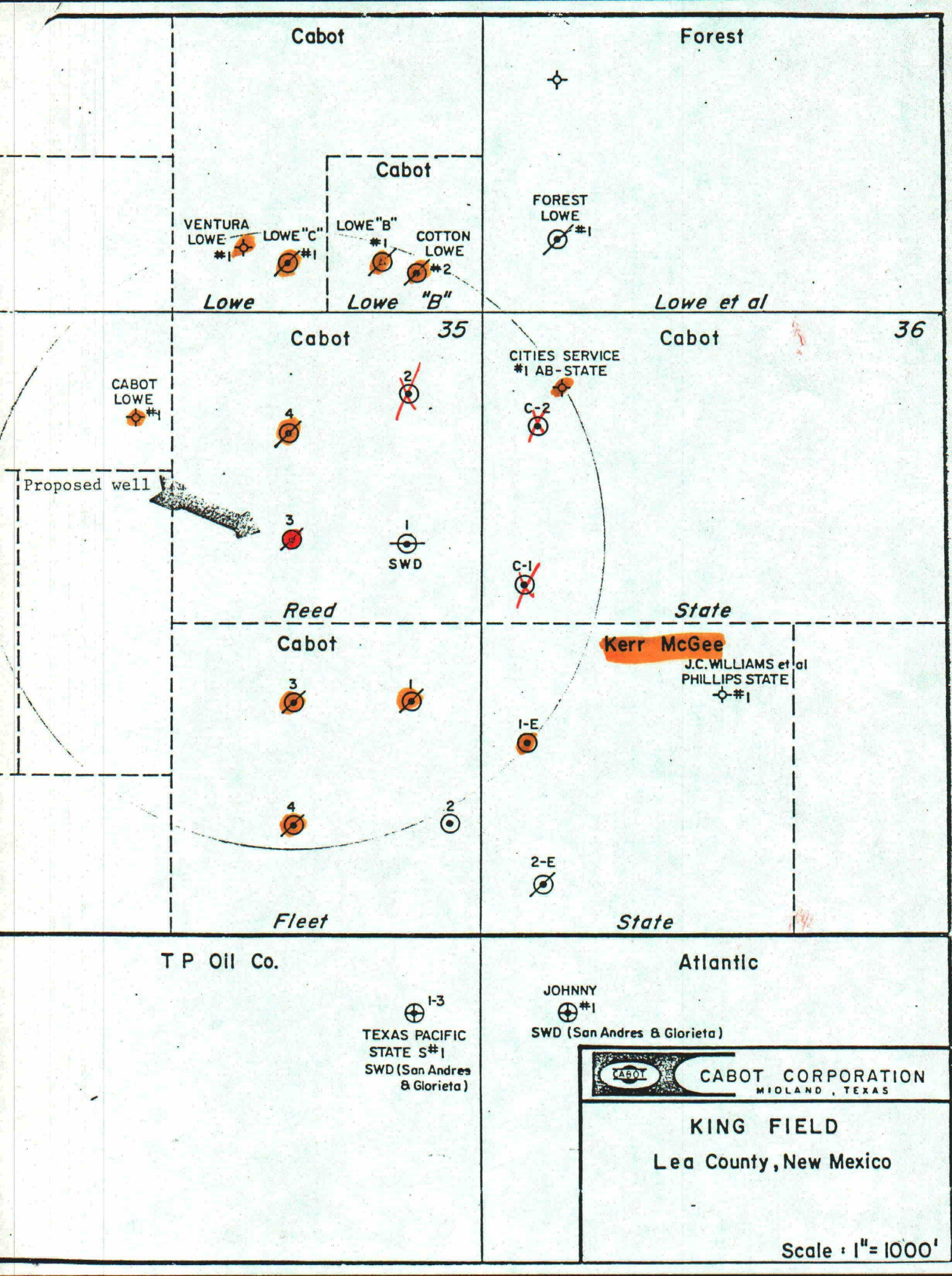
Name
Position.
Representing
Address

This is to certify that the above plat was prepared from field notes of actual surveys made by me or under my supervision and that the same are true and correct to the best of my knowledge and belief.

Date Surveyed April 1, 1957

John W. Thomas

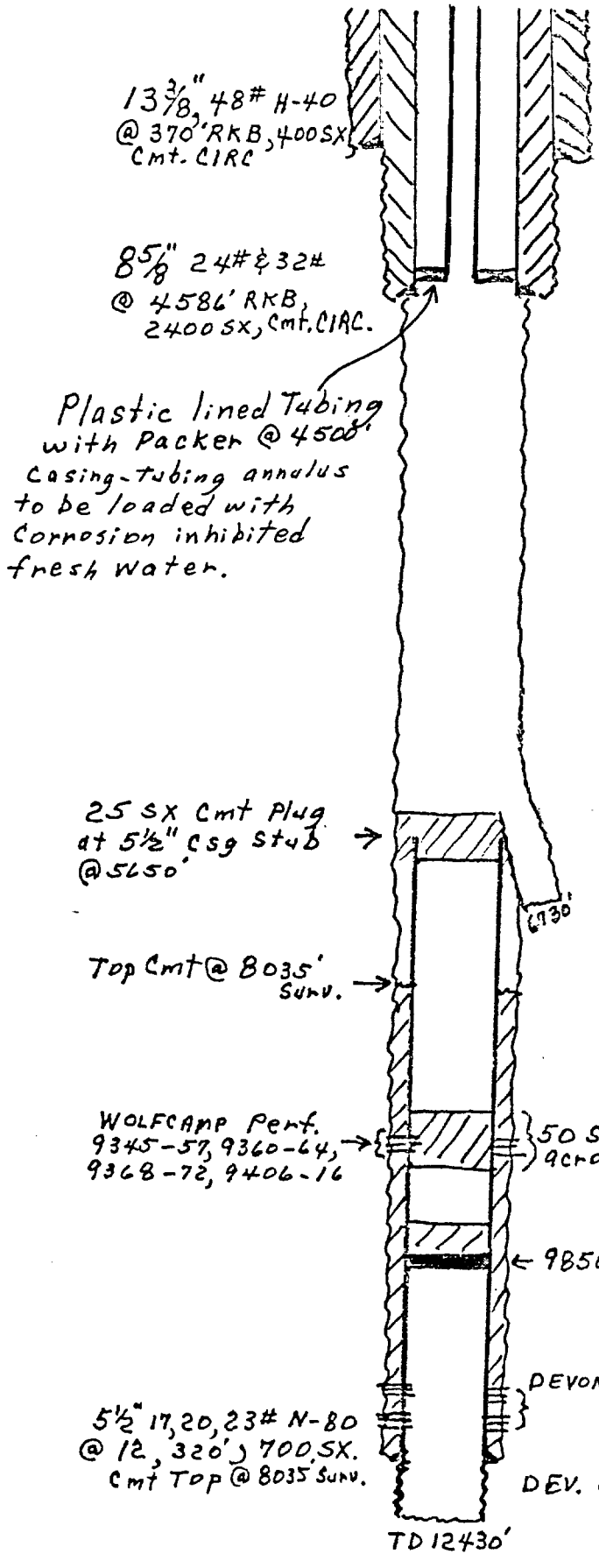
Registered Professional Engineer and/or Land Surveyor License No. 1559


Cabot
Forest
Cabot
VENTURA LOWE #1
LOWE "C" #1
LOWE "B" #1
COTTON LOWE #2
FOREST LOWE #1
Lowe
Lowe "B"
Lowe et al
Cabot
35
Cabot
36
CABOT LOWE #1
2
4
Proposed well
3
1
SWD
CITIES SERVICE #1 AB-STATE
C-2
C-1
Reed
State
Cabot
Kerr McGee
J.C. WILLIAMS et al
PHILLIPS STATE #1
3
1
1-E
4
2
2-E
Fleet
State
T P Oil Co.
Atlantic
1-3
TEXAS PACIFIC STATE S #1
SWD (San Andres & Glorieta)
JOHNNY #1
SWD (San Andres & Glorieta)
CABOT
CABOT CORPORATION
MIDLAND, TEXAS
KING FIELD
Lea County, New Mexico
Scale : 1" = 1000'

PROPOSED COMPLETION OF S.W.D. WELL

CABOT PETROLEUM CORPORATION

J.L. REED NO. 3
1980 FNL & 1650 FEL
Unit G, Section 35, T13S, R37E
Lea County, New Mexico
Elev. 3847.9 GR
3860.9 KB



PLEASE INDICATE BELOW FORMATION TOPS (IN CONFORMANCE WITH Southeastern New Mexico

T. Anhy	2,175	T. Devonian	12,160
T. Salt	2,280	T. Silurian	
B. Salt	3,060	T. Montoya	
T. Yates	3,120	T. Simpson	
T. 7 Rivers		T. McKee	
T. Queen		T. Ellenburger	
T. Grayburg		T. Gr. Wash	
T. San Andres	4,565	T. Granite	
T. Glorieta	6,050	T.	
T. Drinkard		T.	
T. Tubbs	7,298	T.	
T. Abo	7,975	T.	
T. Penn.	11,205	T.	
T. Miss	11,415	T.	

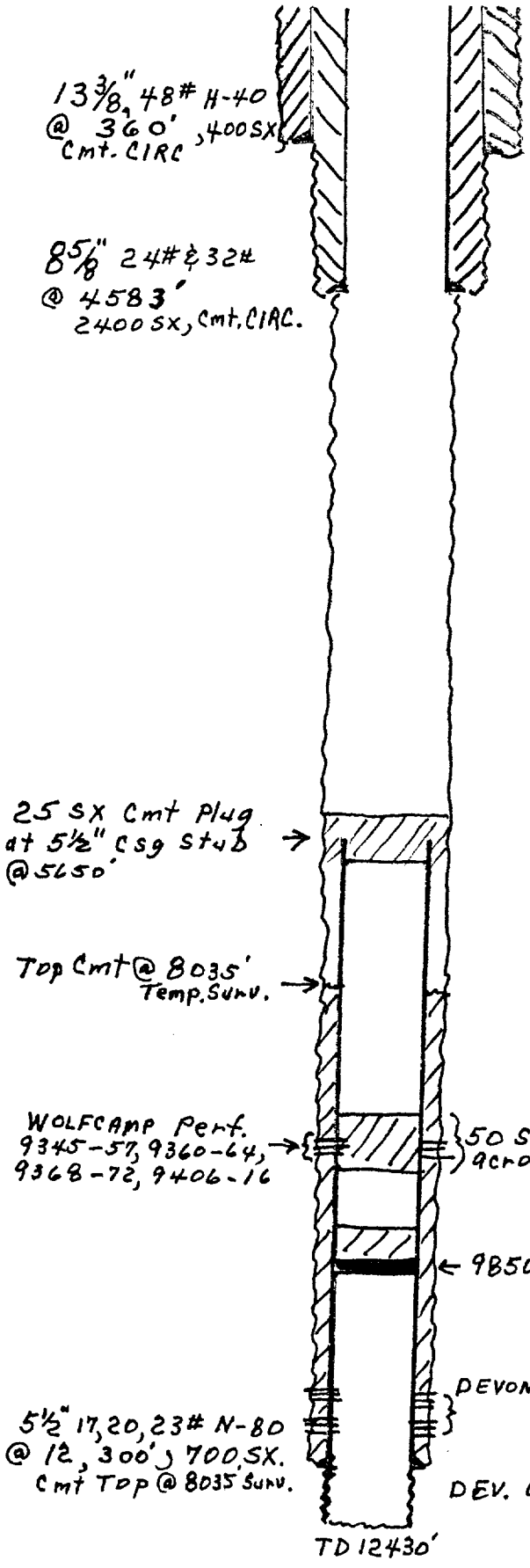
FORMATION RECORD

From	To	Thickness in Feet	Formation	From	To
0	360	360	Surface Sand & Gravels		
360	2175	1815	Red beds, Sh. & Lime		
2175	2280	105	Anhydrite		
2280	3120	840	Salt & Anhydrite		
3120	4565	1445	Sand, Sh. Lime & Anhydrite		
4565	6050	1485	Dolomite & Anhydrite		
6050	7975	1925	Sand, Shale & Dolomite		
7975	9000	1025	Anhydrite, Shale & Dolomite		
9000	11035	2035	Dolomite, Lime, Sh., & Chert		
11035	11415	380	Sand, Shale & Lime		
11415	12057	642	Lime and Chert		
12057	12160	103	Shale and Lime		
12160	12430	270	Dolomite and Lime		

Current Wellbore

CABOT PETROLEUM CORPORATION

J. L. REED NO. 3
1980 FNL & 1650 FEL
Unit G, Section 35, T13S, R37E
Lea County, New Mexico
Elev. 3847.9 GR
3860.9 KB



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T. Queen		T. Ellenburger	
T. Grayburg		T. Gr. Wash	
T. San Andres	4,565	T. Granite	
T. Glorieta	6,050	T.	
T. Drinkard		T.	
T. Tubbs	7,298	T.	
T. Abo	7,975	T.	
T. Penn.	11,085	T.	
T. Miss	11,115	T.	

FORMATION RECORD

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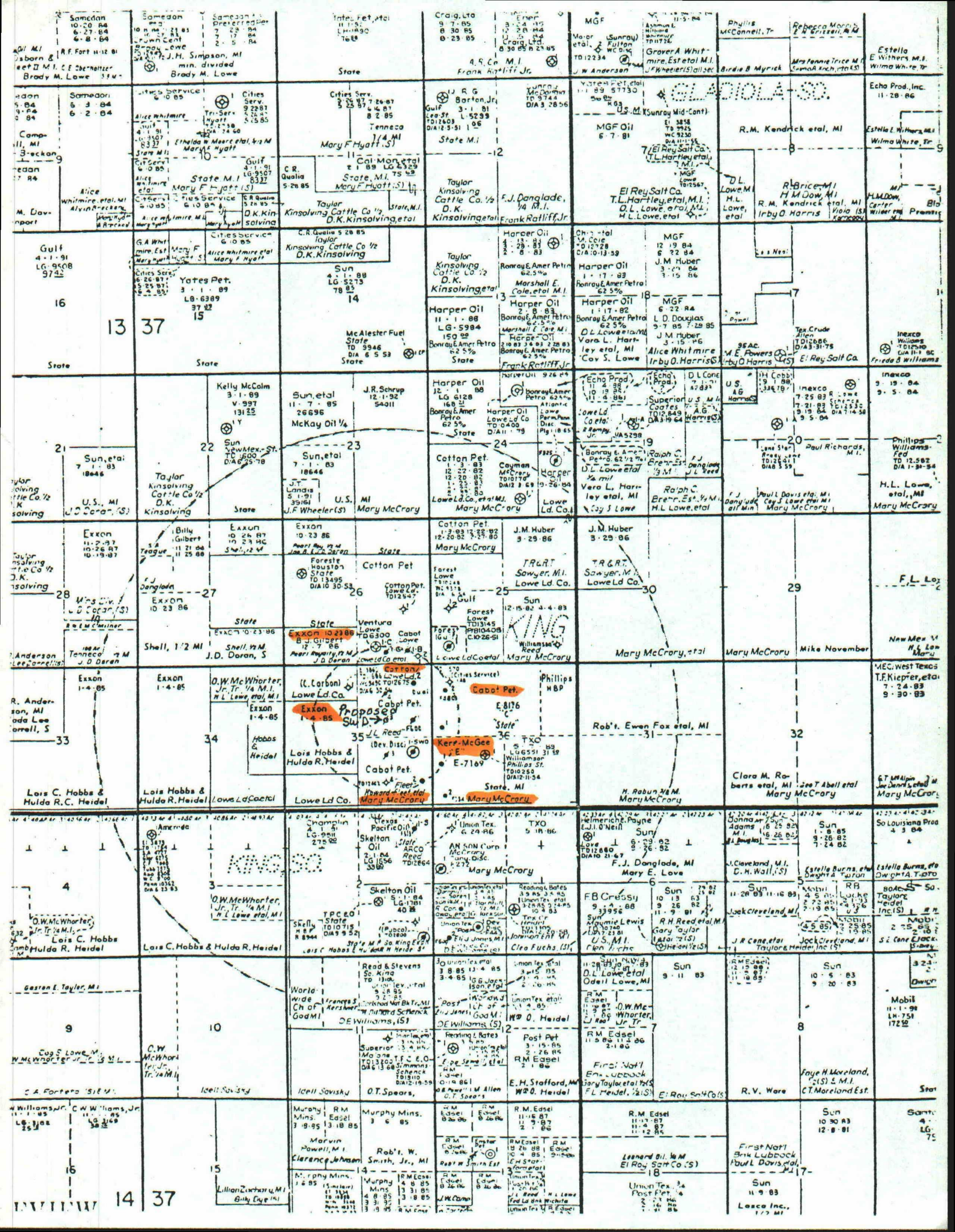
2175	2280	105	Anhydrite		
2280	3120	840	Salt & Anhydrite		
3120	4565	1445	Sand, Sh. Lime & Anhydrite		
4565	6050	1485	Dolomite & Anhydrite		
6050	7975	1925	Sand, Shale & Dolomite		
7975	9000	1025	Anhydrite, Shale & Dolomite		
9000	11085	2085	Dolomite, Lime, Sh., & Chert		
11085	11415	330	Sand, Shale & Lime		
11415	12057	642	Lime and Chert		
12057	12160	103	Shale and Lime		
12160	12430	270	Dolomite and Lime		

EXHIBIT V - Map



Samedon
State
Frank Ratliff Jr.
J.H. Simpson, MI
Brody M. Lowe
GLADIOLA SO.
Cities Service
Tenneco
Mary F Hyatt (S)
State M.I.
Taylor Kinsolving Cattle Co 1/2
D.K. Kinsolving, etal
F.J. Danglade, 1/4 M.I.
El Rey Salt Co.
T.L. Hartley, etal, M.I.
O.L. Lowe, etal, M.I.
H.L. Lowe, etal
R.M. Kendrick etal, MI
Irby O. Harris
Estella E Withers M.I.
Wilma White, Tr
Echo Prod., Inc.
Gulf
Yates Pet.
16
13
37
15
14
McAlester Fuel
Harper Oil
Bonray & Amer Petro
Marshall E. Cole, etal M.I.
MGF
J.M. Huber
L.D. Douglas
Vera L. Hartley etal, MI
Coy S. Lowe
Alice Whitmire
M.E. Powers
Tex Crude
Inexco
Frieda B Williams
Kelly McCalm
Sun, etal
J.R. Schrup
McKay Oil 1/4
Cotton Pet.
Cayman
Mary McCrory
Lowe Ld. Co.
Superior Coates
Echo Prod.
Ralph C. Brehm Est.
Paul Richards, M.I.
Phillips Williams-Fed
U.S., MI
J.F Wheeler (S)
Exxon
Cotton Pet
Forest Lowe
Gulf
T.R.&R.T. Sawyer, M.I.
Lowe Ld. Co.
KING
21
22
23
24
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27
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25
30
29
Shell, 1/2 MI
J.D. Doran, S
Mary McCrory, etal
Mike November
Exxon 10 23 86
Cottons
Cabot Pet.
Kerr-McGee
Exxon 1-4-85
Proposed SWD
O.W. McWhorter, Jr. Tr. 1/4 M.I.
Lowe Ld. Co.
Phillips HBP
E 8176
State
Rob't. Ewen Fox etal, MI
Lois Hobbs & Hulda R. Heidel
Cabot Pet.
Fleet
Howard Fleet, etal
Mary McCrory
E-7169
State, MI
TXO
Clara M. Roberts etal, MI
Mary McCrory
33
34
35
36
31
32
Lois C. Hobbs & Hulda R.C. Heidel
Lowe Ld Co etal
Lowe Ld Co.
H. Robun 1/4 M
Amerada
KING SO.
Champlin
Texas Pacific Oil
Skelton Oil
ARCO Reed
Union Tex.
TXO
F.J. Danglade, MI
Mary E. Love
Sun
Mary McCrory
O.W. McWhorter, Jr. Tr. 1/4 M.I.
Lois C. Hobbs
Hulda R. Heidel
Lois C. Hobbs & Hulda R. Heidel
Skelton Oil
TPC&O State
Reading & Bates
F.B Cressy
U.S. M.I.
Cleo Fuchs
J.R Cone, etal
Jock Cleveland, M.I.
Taylor & Heidel, Inc (S)
4
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5
Read & Stevens So. King
World-wide Ch of God MI
D.E Williams, (S)
Union Tex etal
O.L. Lowe, etal
Odell Lowe, MI
O.W. McWhorter, Jr. Tr
W.D. O. Heidel
R.M. Edsel
Post Pet
Sun
Mobil
9
10
11
12
7
8
C.W. McWhorter, Jr. Tr. 1/4 M.I.
Idell Savisky
O.T. Spears,
E.H. Stafford, MI
First Nat'l Bank Lubbock
El Roy Salt Co (S)
R.V. Ware
Faye H. Moreland, 1/2(S) E.M.I.
C.T. Moreland Est.
C.W. Williams, Jr.
Murphy Mins.
R.M Edsel
Marvin Powell, M.I.
Clarence Johnson
Rob't. W. Smith, Jr., MI
Leonard Oil 1/4 M
El Roy Salt Co (S)
Union Tex.
Post Pet.
First Nat'l Bnk Lubbock
Paul L. Davis, etal
Sun
Lasco Inc.
16
15
14
13
18
17
14
37
Lillian Zachary, M.I.
Billy Dye (S)

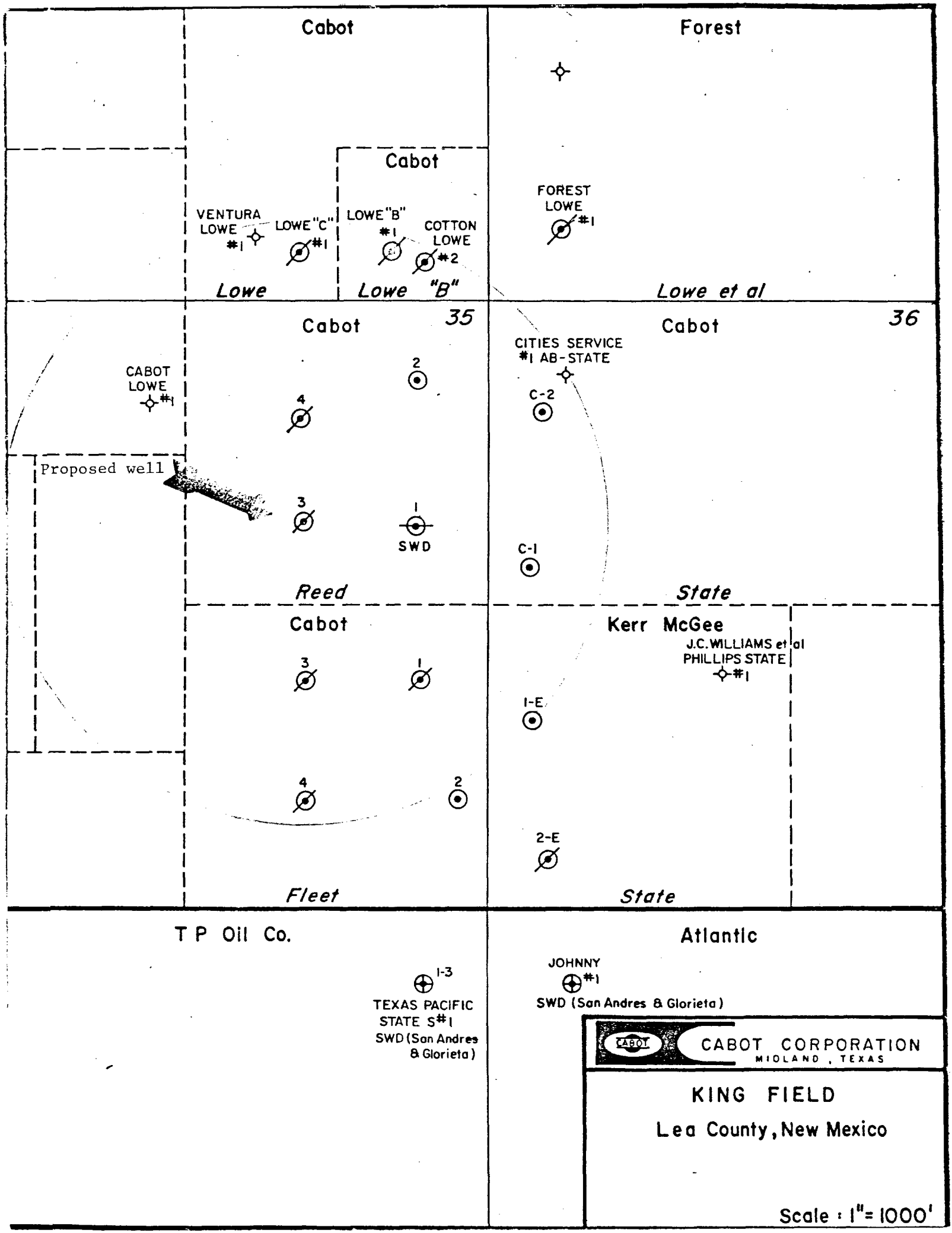
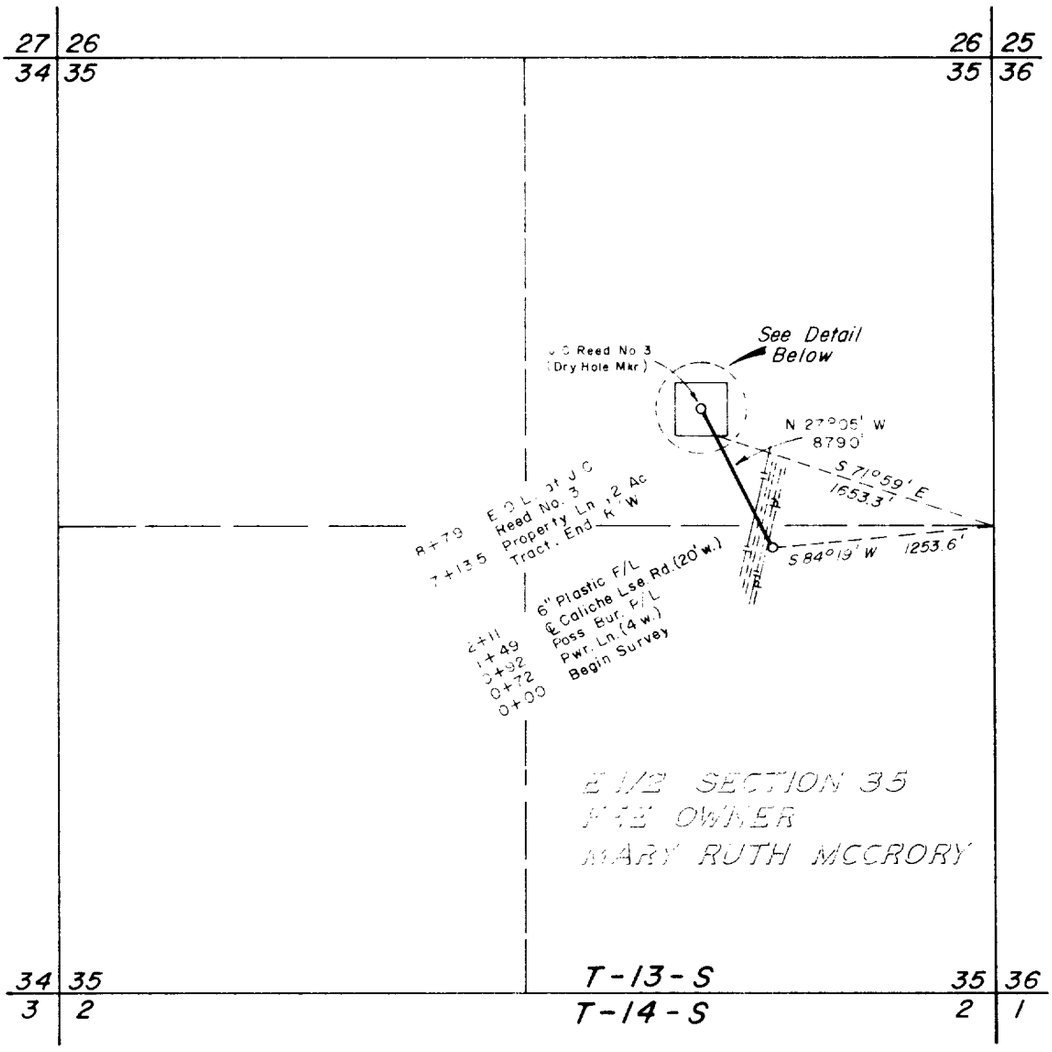
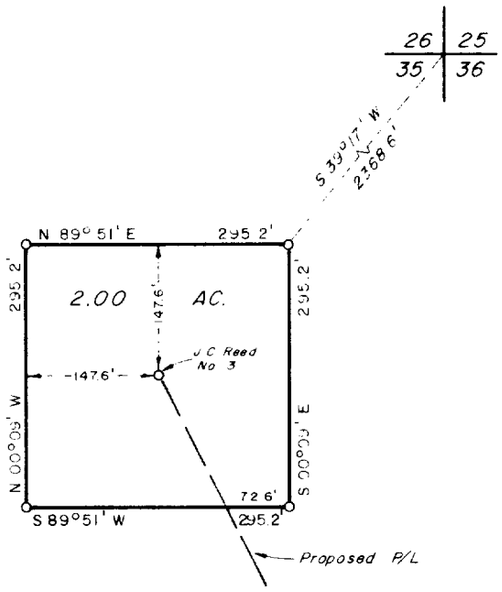

Cabot
Forest
Cabot
VENTURA LOWE #1
LOWE "C" #1
LOWE "B" #1
COTTON LOWE #2
FOREST LOWE #1
Lowe
Lowe "B"
Lowe et al
Cabot
35
Cabot
36
CABOT LOWE #1
CITIES SERVICE #1 AB-STATE
C-2
2
4
Proposed well
3
1
SWD
C-1
Reed
State
Cabot
Kerr McGee
J.C. WILLIAMS et al PHILLIPS STATE #1
3
1
1-E
4
2
2-E
Fleet
State
T P Oil Co.
1-3
TEXAS PACIFIC STATE S #1
SWD (San Andres & Glorieta)
Atlantic
JOHNNY #1
SWD (San Andres & Glorieta)
CABOT CORPORATION
MIDLAND, TEXAS
KING FIELD
Lea County, New Mexico
Scale : 1" = 1000'

EXHIBIT VI - Tabulation of data on all wells of public record within the area of review

85.31

SECTION 35, TOWNSHIP 13 SOUTH, RANGE 37 EAST, N.M.P.M., LEA COUNTY, NEW MEXICO





DETAIL

1" = 200'

I HEREBY CERTIFY THAT THIS PLAT WAS MADE FROM NOTES TAKEN IN THE FIELD IN A BONA FIDE SURVEY MADE UNDER MY SUPERVISION, AND THAT THE SAME IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

JOHN W WEST, NM P.E. & L.S. No. 676
TEXAS R.P.S. No. 1138
RONALD J. EIDSON, N.M. L.S. No. 3239
TEXAS R.P.S. No. 1883

CABOT CORPORATION

Proposed pipeline & salt water disposal site situate within the E½ of Section 35, T 13 S, R 37 E, N.M.P.M., Lea County, New Mexico.

JOHN W. WEST ENGINEERING COMPANY
CONSULTING ENGINEERS HOBBS, NEW MEXICO

Scale: 1" = 1000'		Drawn By: M. Mitchell
Date: 5/08/84	Ck.	Sheet 1 of 2 Sheets

LEGAL DESCRIPTIONS

PIPELINE

A strip of land 30.0 feet wide for pipeline right-of-way, situate within the East Half of Section 35, Township 13 South, Range 37 East, N.M.P.M., Lea County, New Mexico, being 15 feet left and 15 feet right of the following described survey of centerline:

Beginning at Sag. Sta. 0+00, a point which bears S 8°19' W, 1256.6 feet from the East Quarter corner of said Section 35; thence N 27°05' W, 713.5 feet to Sag. Sta. 7+13.5, the end of the herein described centerline survey of right-of-way, from which point the East Quarter corner of said Section 35 bears S 71°59' E, 1653.3 feet.

Said strip of land being 713.5 feet or 43.24 rods in length, more or less.

TRACT

A tract of land situate within the East Half of Section 35, Township 13 South, Range 37 East, N.M.P.M. Lea County, New Mexico, and being more particularly described as follows:

Beginning at the northeast corner of the herein described tract, which point bears S 89° 51' W, 2308.6 feet from the northeast corner of said Section 35;
Thence S 00°09' E, 295.2 feet;
Thence S 89°51' W, 295.2 feet;
Thence N 00°09' W, 295.2 feet;
Thence N 89°51' E, 295.2 feet to the point of beginning and containing 2.00 acres, more or less.

I HEREBY CERTIFY THAT THIS PLAT WAS MADE FROM NOTES TAKEN IN THE FIELD IN A BONA FIDE SURVEY MADE UNDER MY SUPERVISION, AND THAT THE SAME IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

JOHN W. WEST, N.M. P.E. & L.S. No. 676
TEXAS R.P.S. No. 1138
RONALD J. EIDSON, N.M. L.S. No. 3239
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Proposed pipeline & salt water disposal site situate within the E½ of Section 35, T 13 S, R 37 E, N.M.P.M., Lea County, New Mexico.

JOHN W. WEST ENGINEERING COMPANY
CONSULTING ENGINEERS HOBBS, NEW MEXICO

Scale: ———		Drawn By: M. Mitchell
Date: 5/08/84	Ck.	Sheet 2 of 2 Sheets

OPERATOR Lease/Well No.	Location USTR	Type & Date Drilled	T.D.	Hole Size	Size & Wt.	Casing Depth	Cement	TOC	Remarks
Cabot J. L. Reed, et al #1	H 35-13-37	8/4/56	12670	17-1/2" 11" 7-7/8"	13-3/8"-48# 8-5/8"-32&24# 5-1/2"-17,20,23#	335' 4590' 12590'	400 sx 2400 sx 700 sx	Circ Circ 8770'(T.S.) (± 5960 sqz)	Compl-OH 12590-12670; 1/57-3/57 - O.H. sqz cmtd. Perf 12506-12574, 3/58 CIBP S.A. 12485; 12/61 - Perf. 12156-12170 Drld CIBP; 1/78 CIBP S.A. 11561; Perf 11421-11471 (Miss.) CIBP S.A. 11100; Perf 10755-10794 7/78 - Sqz cmt perfs 10755-10794, Drld BP's to PBTD 12528, CIBP S.A. 11600; 9/79 - Sqz cmtd 11421-11471. Drld to PBTD 12570; Start SWD, Devonian; 12/79 - Perf 12385-12472. Continue SWD in Devonian 12156-12570; 9/80 - Sqz hole in csg. 5960-5990 w/100 sx. Drld cmt & tested csg, OK to 2000 psi, Continued SWD in 12156-12570. See attached sketch.
Cabot J. L. Reed, et al #2	A 35-13-37	11/20/56	12590 12063 PBTD	17-1/2" 11 7-7/8"	13-3/8"-48# 8-5/8"-32&24# 5-1/2"-17,20,23#	325 4591 12440	350 sx 2100 sx 350 sx	Circ Circ 10000(T.S.) (8760/sqz TS)	Compl OH 12440-12590; 2/59 - BPSA 12395. Perf 4 holes @ 9900, sqz w/200 sx Perfs 12313-12338, 12074-12092; 3/59-7/59 - Dually compl Wolfcamp & Devonian. Perf W/C. 9246-9385; 10/64 - Sqz cmtd 9246-9385 perfs & perf 12015-12042, produced w/straddle pkrs. 10/67 - Straddle pkrs removed, prod 12015-12338; 5/83 - Cleanout to 12063 & installed submersible pmp. 1/84 - Replcd top 3413 of 5-1/2" w/lighter 17#; Installed submersible pump. See attached sketch.

OPERATOR Lease/Well No.	Location USTR	Type & Date Drilled	T.D.	Hole Size	Size & Wt.	Casing Depth	Cement	TOC	Remarks
Cabot J. L. Reed, et al #4	B 35-13-37	11/19/57	12585	17-1/4" 12-/12" 7-7/8"	13-3/8"-48# 8-5/8"-32&24# 5-1/2"-17,20,23#	366 4610 12538	400 sx 2400 sx 700 sx	Circ 535(T.S.) 9255(T.S.)	Compl OH 12538-12585 & perf 12519-12533. 5/59 - CIBP S.A. 12490 Perf 12295-12355. 7/59 - Sqz 12295-12355 w/51 sx, drld cmt, set MOD "D" @ 12270 11/60 - Ac perfs 12295-12335. Replaced G.L. valves, put on Kobe pmp. 10/63 - 2 sx cmt dumped on MOD "D". Perf 12176-12208 & ac, put on Kobe. Plugged & abandoned 1/22/70. See attached sketch.
Cabot Howard Fleet, et al #1	I 35-13-37	3/11/56	12839	17" 11" 7-7/8" 4-1/2"-9.5#	13-3/8"-48# 8-5/8"-32&24# 5-1/2"-17,20,23#	366 4600 12839 4400-5708	400 sx 2500 sx 500 sx 200 sx	Circ Circ 10115(T.S.) Circ	Perfs 12328-12525, 10708-10733 P&A 2/9/70; 10/75 - Reentered & cmt in 4-1/2" lnr. Conv to SWD San Andres, OH 5708-5907; 11/21/80 - P&A. See attached sketch.
Cabot Howard Fleet, et al #3	J 35-13-37	11/4/57	12513	17-1/4" 12-1/2" 7-7/8"	13-3/8"-48# 8-5/8"-32&24# 5-1/2"-17,20,23#	375 4585 12410	400 sx 2400 sx 600 sx	Circ Circ 8095(T.S.)	Perfs 12294-12395; 1/28/70 - P&A. See attached sketch.
Cabot Howard Fleet, et al #4	O 35-13-37	3/8/58	12471 12400 PBTD	17-1/2" 11" 7-7/8"	13-3/8"-48# 8-5/8"-32&24# 5-1/2"-17,20,23#	351 4612 12385	400 sx 2400 sx 700 sx	Circ 1010 (T.S.) 8775 (T.S.)	Perf 12346-12385, 9482-9563, 9404-9412, 5850-6010; 11/58 - T.A. Converted to SWD, perfs 5850-6010; 11/5/75 - P&A, see attached sketch.
Cabot State of NM "C" #1	E 36-13-37	1/24-57	12249	17-1/2" 11" 7-7/8"	13-3/8"-48# 8-5/8"-32,23# 5-1/2"-17,20,24#	339 4580 12065	300 sx 2100 sx 600 sx	Circ 1335 (T.S.) 9495 (T.S.)	1/24/57 - Compl OH 12065-12249; 2/6/60 -Ceased to flow. CIBP & S.A. 12040 Perf Dev. 11981-11998, spotted acid and could not pump into @ 6600#, drld out CIBP. Installed pmpg unit & rods. Pot. 100 BOPD-400 BWPD from 11981-12249. 2/61 - Installed Kobe pmp, Pot. 175 BOPD, 420 BWPD, GOR 705/1; 8/66 - C.O. bridges & scale to T.D. & Ac/3000 gal; 5/1/84 - AC/5000, reran Kobe. Current prod. 8 BOPD-400 BWPD-Devonian. See attached sketch.

OPERATOR Lease/Well No.	Location USTR	Type & Date Drilled	T.D.	Hole Size	Size & Wt.	Casing Depth	Cement	TOC	Remarks
Cabot State of NM "C" #2	D 36-13-37	5/7/57	12,615	17" 11" 7-7/8"	13-3/8"-48# 8-5/8"-32&24# 5-1/2"-17,20&23#	365 4586 12545	350 sx 2400 sx 700 sx	Circ 1350 (T.S.) 9670 (T.S.) 8310 (T.S.)	5/7/57 - Compl OH 12545-12615; 7/57 - Flow 84 BO & 50 BWPD, CIBP S.A. 12525 w/2 sx cmt on top, perf 12384-12414, Ac/3000 flw 318 BO & 85 BWPD; 12/57 - Sqz cmt perfs 12384-12414 w/162 sx to 5500#. Drld out to TD, sqz cmt OH below 12545 w/30 sx to 6300#, perf FI gun @ 12301, 12317 & 12347 & Ac/1000, flw 356 BOPD 0 BWPD. PBTD 12525'; 3/58 - Sqz cmt perf w/200 sx to 5800#, drld out, Perf 12493-12501. Swb wtr CIBP S.A. 11515 w/2 sx on top, perf 10252-10267 & AC/3500, swb dry, CIBP S.A. 10100. Perf 4 holes 9599-9600 & set Mod. "K" cmt retainer @ 9500. Cmtd w/100 sx. T.O.C. 8310, Perf. 9232-9392, Ac/20,000 gal, Gas lift 193 BOPD, 21 BWPD; 3/61 - Installed pmp unit & rods Wolfcamp current prod. 12 BOPD-25 BWPD. See attached sketch.
Kerr McGee Corporation State "E" 7169 No. 1	L 36-13-37	10/16-56	12680	17-1/2" 12-1/4" 8-3/4"	13-3/8"-35.6# 9-5/8"-32# 5-1/2"-17#	355 4580 12678	350 sx 2250 sx 850 sx	Circ Circ 8870(T.S.)	Perf 12556-12590,12530-12535,12376-12432 12280-12300 Devonian; flw 360 BOPD after ac/24000 gal; 3/59 - ceased to flw; inst Kobe pmp; 146 BOPD - 248 BWPD; 1-31-77 - found hole in csg; sqz cmt 5538-6460 w/400 sx. DO cmt & test small hole @ 5744; sqz cmt w/100 sx. DO cmt & tested csg to 2000#, OK. Reran Kobe; pmpd 8 BO - 42 BWPD. See attached sketch.

OPERATOR Lease/Well No.	Location USTR	Type & Date Drilled	T.D.	Hole Size	Size & Wt.	Casing Depth	Cement	TOC	Remarks
Houston Oil Co. of Texas									
State "AB" No. 1	D 36-13-37	7/21/52	11570	17-1/2"	13-3/8"-35.6#	334	300 sx	Circ	7/52 -Drilled & abandoned by Cities
(Orig drld by Cities				12-1/4"	9-5/8"-32#	4644	2395 sx	Circ	Service. 4/1/53 - Houston Oil reentered
Service & P&A)		4/1/53	10820	7-7/8"	5-1/2"-17#	10820	200 sx	9223'(Calc)	& ran 5-1/2", set @ 10820', cmtd w/200 sx of 6% Gel, reg Halliburton cement (Longhorn), PBTD 10,741' 4/5/53 - Perf 10538-10582' & 10592-10598', AC/885 MCA, swb 16 hrs, S.O.& G. Rev out 800' oil & 150' Ac. wtr.4/9/53 - Reperf 10538-10582' AC/2000 MCA & 6000 reg. 5.3 BPM, B.D. @ 4400#,M.P. 5000#. Swb 3 BFPH (70% oil) until well swabbed dry. 4/16/53 - Perf 10682-10696', Ac/250 MCA & 1500 reg. Broke 6100# to 3400#. Pkr was @ 10606'. Swb dry-no recovery out of Fmn. 4/19/53 - Perf 10510-10538', Ac/250 MCA, 3000 channel Ac, 12000 reg 5200#-4900#. Final: swb until 4/30/53. Avg 4 BFPH, FL lowered to 9500'. 5/27/53 - Plugged back 10696 to 10500'w/25 sx, cut & pulled 7501' of 5-1/2", plgd 4670 to 4594' w/25 sx, 10 sx @ top. P&A. See attached sketch.
Cabot									
H. L. Lowe "C" No.1	O 26-13-37	4/1/58	12750	17-1/4"	13-3/8"-48#	363	400 sx	Circ	4/1/58 - Perf 10000-10037, ac/1500 gal
				12-1/2"	8-5/8"-32&24#	4630	2400 sx	215'	Lower Wolfcamp original completion after
				7-7/8"	5-1/2"-17&20#	11565	600 sx	8750(T.S.)	attempt in Mississippian. Perfs 11410-11437 & CIBP set @ 11300. 6/59 - Pmpg unit & rods installed. 7/65 - CIBP set @ 9550; perf 9406-9491; ac/4000 gal. Swb 30 BPD (80% wtr). Applied for & rec Comm. Order #R-2868 to convert to SWD. Drld CIBP @ 9550 & ran 2-3/8" plastic coated tbg w/pkr set @ 9380; started injecting King Field SW into perfs 9406-10037. 2/68 - Reverse unit drld & CO plugs & OH to orig TD 12690. Drld new hole to 12750, ac OH w/3000 gal Mod "D" pkr set @ 9350. Cont'd SWD in Wolfcamp, Mississippian & Devonian. 4/75 - P&A. See attached sketch.

OPERATOR Lease/Well No.	Location USTR	Type & Date Drilled	T.D.	Hole Size	Size & Wt.	Casing Depth	Cement	TOC	Remarks
Cotton Petroleum Co.									
Lowe Land No. 2	P 26-13-37	12/21/78	12675	17-1/2"	13-3/8"-54.5#	441	420 sx	Circ	Perf 5591-5602.
				11"	8-5/8"-32&24#	4700	2350 sx	Circ	P&A
				7-7/8"	5-1/2"Lnr15.5#	4351-5719	220 sx	Circ	See attached sketch.
Cabot									
H. L. Lowe "B" No. 1	O 26-13-37	8/12/57	12437	17-1/2"	13-3/8"-48#	380	400 sx	Circ	8/57 - Attempt to compl OH 12320-12437, unsuccessful; CIBP set @ 12310 w/1 sk cmt on top
				11"	8-5/8"-32&24#	4615	2450 sx	Circ	
				7-7/8"	5-1/2"-17,20#	12320	700 sx	8995(T.S.)	Perf 12277-12307. 7/58-11/58 - Perf 10214-10228 & tested between straddle pkrs. Swb formation wtr, sqz cmtd w/150 sx. Drld out to 12318. Perf 10172-10179, straddle pkrs, ac/500 gal, flw 207 BOPD, 0 BWPD. 12/59 - Sqz cmt'd Devonian below ret @ 12226', drld out cmt. Perf 12221-12243. Ac/500, flw 22 BOPH, began making water & died. CIBP S.A. 12204'. Perf 12161-12178', Ac/500 gal at 6000#, swb to flw, 75% wtr. CIBP S. A. 10206' w/15' cmt on top. Ran tbg & GL valves, Devonian temp aban. 2/61 - Perfs 10172-10179', making 39 BOPD-396 BWPD CIBP S. A. 10100, Perf 9953-9965 & Ac/6000 gal @ 6600#. Swb 90% wtr & 3 BFPH CIBP S.A. 9500. Perf 9425-9434, 9436-9440, Ac/1000 cmt channel, sqz 200/sx thru perfs, Ac/7000, swb 2 BOPH, CIBP S.A. 9400. Perf 9356-9368, Ac/1000, swb 3 BOPH. Drld out CIBP @ 9400, put on G. L. producing from 9356-9368, 9425-9434, 9436-9440. 1967 - P&A. See attached sketch

OPERATOR Lease/Well No.	Location USTR	Type & Date Drilled	T.D.	Hole Size	Size & Wt.	Casing Depth	Cement	TOC	Remarks
Cabot H. L. Lowe Et Al #1	C 35-13-37	7/9/56	11686	17-1/2" 11" 7-7/8"	13-3/8"-48# 8-5/8"-24&32#	377 4645	400 sx 2500 sx	Circ	6/29/56 - Drilled, P&A. See attached sketch.
Ventura Oil Company H. L. Lowe #1	O 26-13-37	9/27/40	6300	17-1/2" 11"	13-3/8"-48# 8-5/8"-32#	182 2240	120 sx 175 sx	30'(calc) 1635'(calc)	10/2/40 - Drilled, P&A. See attached sketch, including information in Commission records.

CABOT PETROLEUM CORPORATION

J. L. Reed No. 1 SWD

1980 FNL & 660 FEL

H, 35-13S-37E

Lea County, New Mexico

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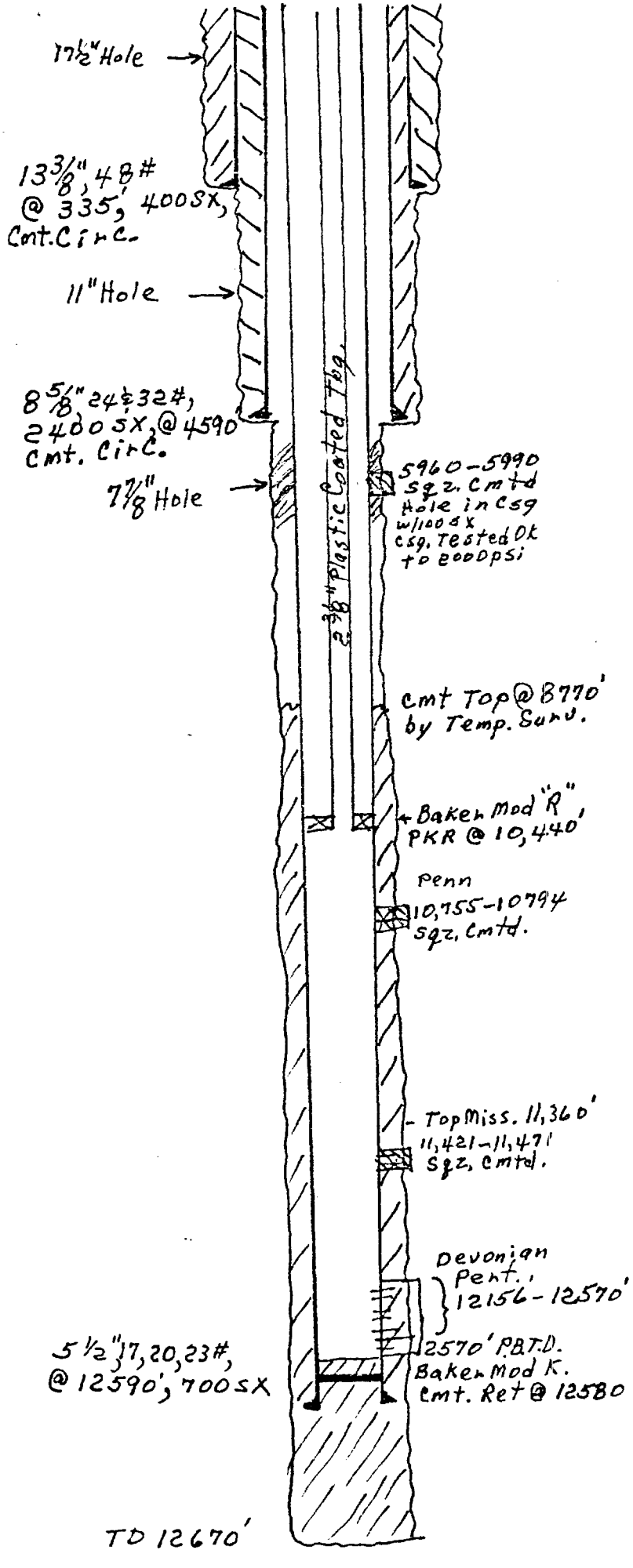


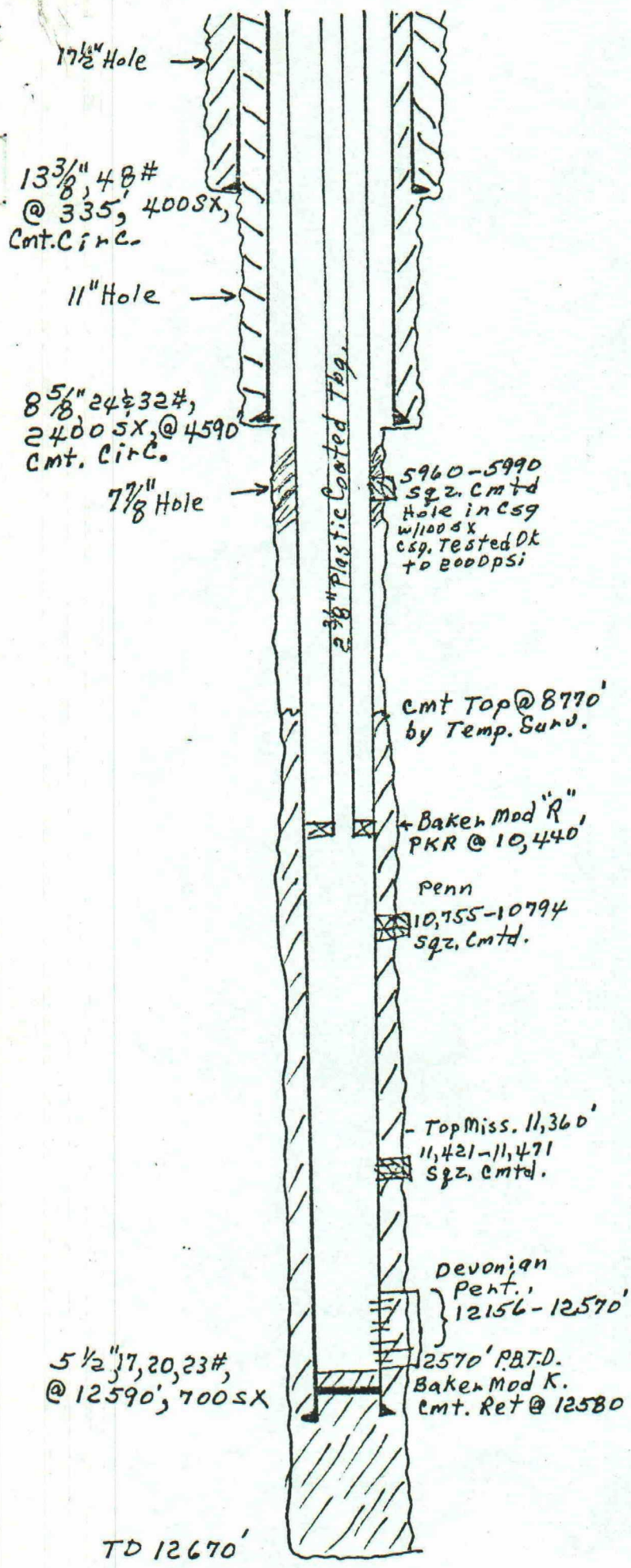
PLEASE INDICATE BELOW FORMATION TOPS (IN CONFORMANCE WITH GEOGRAPHICAL

Southeastern New Mexico					Northwe
T. Anhy	2,190	T. Devonian	12,145	T. Ojo Alamo	
T. Salt	2,290	T. Silurian		T. Kirtland-Fr	
B. Salt	3,070	T. Montoya		T. Farmington	
T. Yates	3,130	T. Simpson		T. Pictured Cl	
T. 7 Rivers		T. McKee		T. Menefee	
T. Queen	3,920	T. Ellenburger		T. Point Looke	
T. Grayburg		T. Gr. Wash		T. Mancos	
T. San Andres	4,520	T. Granite		T. Dakota	
T. Glorieta	6,012	T.		T. Morrison	
T. Drinkard		T.		T. Penn	
T. Tubbs	7,270	T.		T.	
T. Abo	7,940	T.		T.	
T. Penn		T.		T.	
T. Miss	11,360	T.		T.	

FORMATION RECORD

From	To	Thickness in Feet	Formation	From	To	Thickness in Feet	
0	300	300	Caliche, sand & lime	11,360	12,070	710	Lime &
300	2190	1890	Red Beds	12,070	12,145	75	Shale
2190	2290	100	Anhydrite	12,145	12,670	525	Dolomi stringe
2290	3070	780	Salt				
3070	4520	1450	Anhydrite w/sand shale & dolomite stringers.				
4520	6012	1492	Dolomite & lime w/chert stringers.				
6012	6710	698	Dolomite, anhy. shale & sand				
6710	7270	560	Dolomite slightly cherty				
7270	7420	150	Sand & Dolomite				
7420	7940	520	Dolomite				
7940	9100	1160	Anhy. shale dolo.				
9100	9420	320	Dolomite w/chert				
9420	9730	310	Lime w/shale & chert stringers				
9730	9830	100	Lime & red bed shale				
9830	10,950	1120	Lime w/shale & chert stringers				
10,950	11,080	130	Sand, conglomerate & sandy lime				
11,080	11,360	280	Lime & shale stringers				

CABOT PETROLEUM CORPORATION
J. L. Reed No. 1 SWD
1980 FNL & 660 FEL
H, 35-13S-37E
Lea County, New Mexico
Elev. 3857 KB



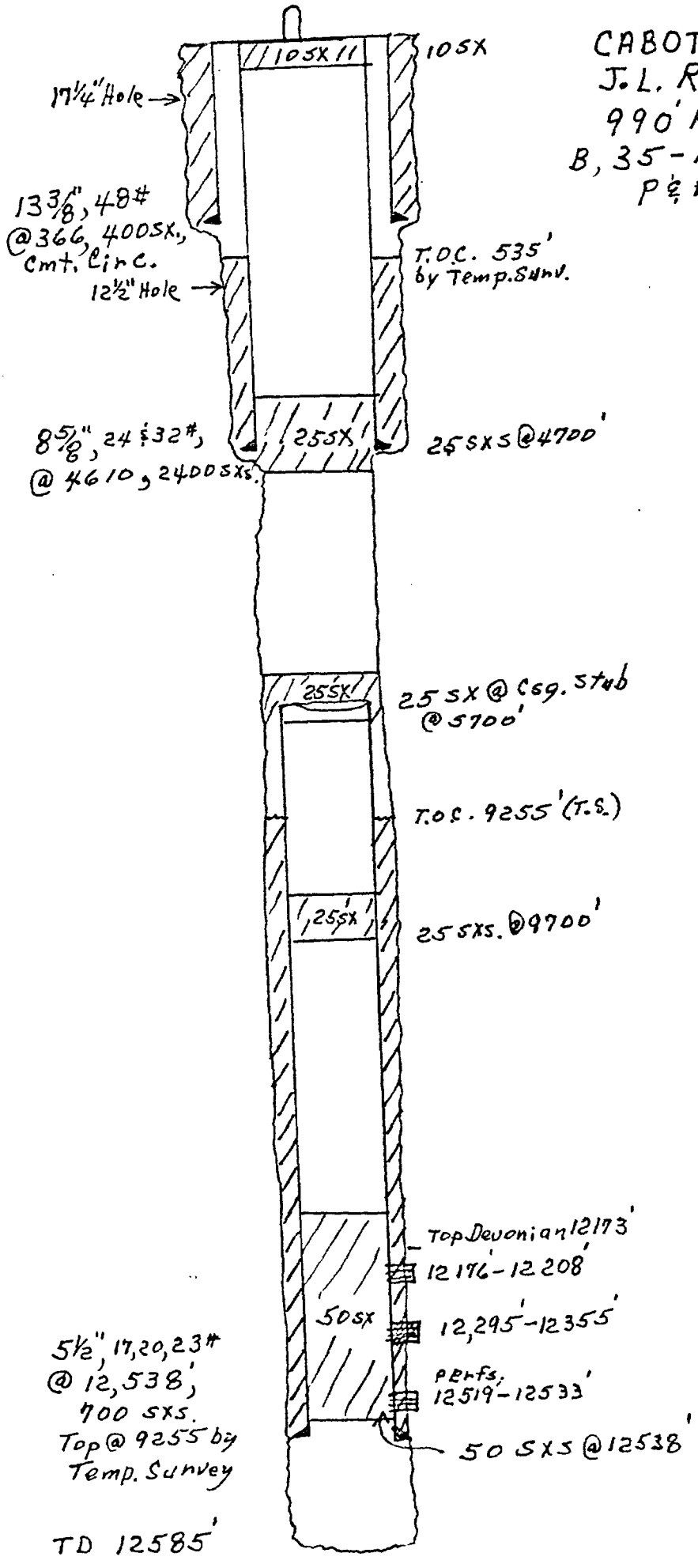
PLEASE INDICATE BELOW FORMATION TOPS (IN CONFORMANCE WITH GEOGRAPHICAL

Southeastern New Mexico				Northwe	
T. Anhy	2,190	T. Devonian	12,145	T. Ojo Alamo	
T. Salt	2,290	T. Silurian		T. Kirtland-Fr	
B. Salt	3,070	T. Montoya		T. Farmington	
T. Yates	3,130	T. Simpson		T. Pictured Cl	
T. 7 Rivers		T. McKee		T. Menefee	
T. Queen	3,920	T. Ellenburger		T. Point Looko	
T. Grayburg		T. Gr. Wash		T. Mancos	
T. San Andres	4,520	T. Granite		T. Dakota	
T. Glorieta	6,012	T.		T. Morrison	
T. Drinkard		T.		T. Penn	
T. Tubbs	7,270	T.		T.	
T. Abo	7,940	T.		T.	
T. Penn		T.		T.	
T. Miss	11,360	T.		T.	

FORMATION RECORD

From	To	Thickness in Feet	Formation	From	To	Thickness in Feet	
0	300	300	Caliche, sand & lime	11,360	12,070	710	Lime &
300	2190	1890	Red Beds	12,070	12,145	75	Shale
2190	2290	100	Anhydrite	12,145	12,670	525	Dolomi
2290	3070	780	Salt				string
3070	4520	1450	Anhydrite w/sand shale & dolomite stringers.				
4520	6012	1492	Dolomite & lime w/chert stringers.				
6012	6710	698	Dolomite, anhy. shale & sand				
6710	7270	560	Dolomite slightly cherty				
7270	7420	150	Sand & Dolomite				
7420	7940	520	Dolomite				
7940	9100	1160	Anhy. shale dolo.				
9100	9420	320	Dolomite w/chert				
9420	9730	310	Lime w/shale & chert stringers				
9730	9830	100	Lime & red [illegible] shale				
9830	10,950	1120	Lime w/shale & chert stringers				
10,950	11,080	130	Sand, conglomerate & sandy lime				
11,080	11,360	280	Lime & shale stringers				

CABOT PETROLEUM CORPORATION
J. L. Reed No. 4
990' FNL & 1650' FEL
B, 35-13S-37E Lea County, New Mexico
P & A 1/22/70

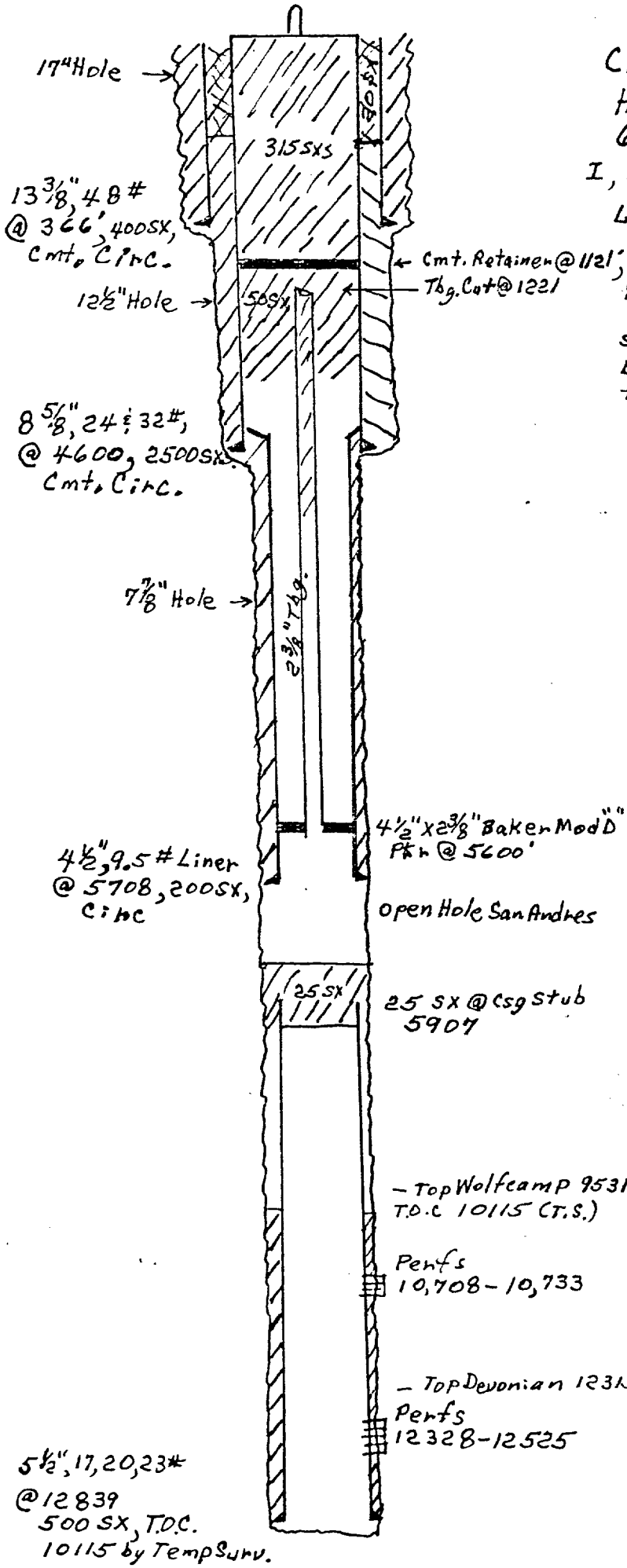


Southeastern New Mexico

T. Anhy	2180	T. Devonian	12,173
T. Salt	2290	T. Silurian	
B. Salt	3050	T. Montoya	
T. Yates	3140	T. Simpson	
T. 7 Rivers		T. McKee	
T. Queen		T. Ellenburger	
T. Grayburg		T. Gr. Wash	
T. San Andres	4583	T. Granite	
T. Glorieta	6050	T.	
T. Drinkard		T.	
T. Tubbs	7310	T.	
T. Abo	7983	T.	
T. Penn		T.	
T. Miss	11,418	T.	

FORMATION RECORD

From	To	Thickness in Feet	Formation	From	To	Thickness in
0	375	375	Surface gravels and sand			
375	2180	1805	Redbeds and lime			
2180	2290	110	Anhydrite			
2290	3050	760	Salt			
3050	3140	90	Anhydrite			
3140	4583	1443	Sand redbeds & anhydrite			
4583	6050	1467	Dolomite and anhydrite			
6050	7983	1933	Dolomite, sand and shale			
7983	9160	1177	Anhydrite, shale, salt & dolomite			
9160	11,110	1950	Dolomite, lime, shale and chert			
11,110	11,418	308	Sand, shale & lime			
11,418	12,045	627	Dense lime and chert			
12,045	12,173	128	Shale			
12,173	12,585	412	Dolomite			



CABOT PETROLEUM CORPORATION

Howard Fleet No. 1

660' FEL & 1980' FSL

I, 35-13S-37E

Lea County, New Mexico

elev. 3855 KB

P & A 11/21/80

PLEASE INDICATE BELOW FORMATION TOPS (IN CONFORMANCE WITH GEOGRAPHICAL SECTION OF STATE):

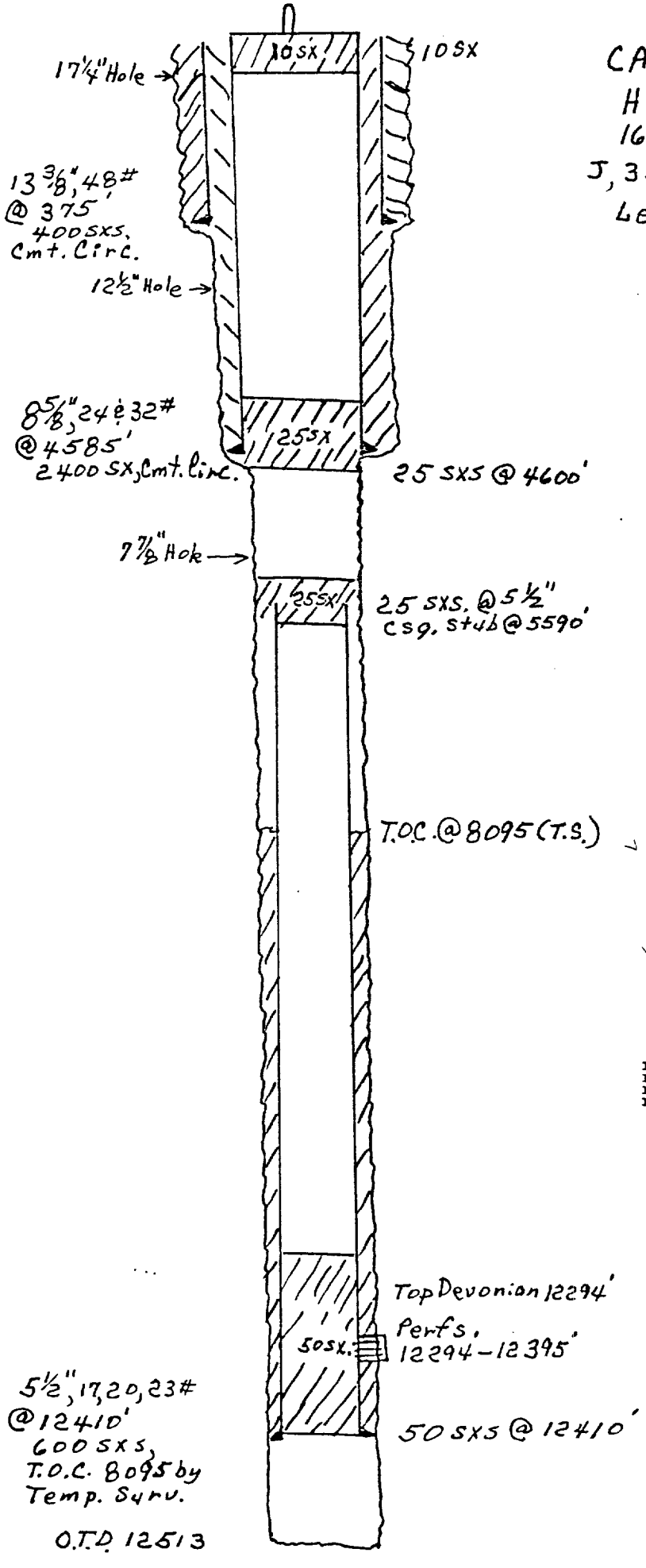
Southeastern New Mexico			Northwestern New Mexico		
T. Anhy 2,225		T. Devonian 12,315		T. Ojo Alamo	
T. Salt 2,350		T. Silurian		T. Kirtland-Fruitland	
B. Salt 3,040		T. Montoya		T. Farmington	
T. Yates 3,125		T. Simpson		T. Pictured Cliffs	
T. 7 Rivers		T. McKee		T. Menefee	
T. Queen 3,923		T. Ellenburger		T. Point Lookout	
T. Grayburg		T. Gr. Wash		T. Mancos	
T. San Andres 4,530		T. Granite		T. Dakota	
T. Glorieta 6,020		T.		T. Morrison	
T. Drinkard		T.		T. Penn	
T. Tubbs 7,280		T.		T.	
T. Abo 7,950		T.		T.	
T. Penn		T.		T.	
T. Miss 11,485		T.		T.	

FORMATION RECORD

From	To	Thickness in Feet	Formation	From	To	Thickness in Feet	Formation
0	310	310	Caliche, sand & Lime	10120	10210		Chert & lime
310	2225		Red beds	10210	10265		Shale
2225	2350		Anhydrite	10265	10660		Lime & shale
2350	3040		Salt	10660	11090		Lime w/dolomite & shale stringers
3040	4530		Anhydrite w/sand, shale & dolomite stringers	11090	11200		Sandy lime sand, conglomerate w/shale stringers
4530	6020		Dolomite, lime w/chert stringers	11200	11485		Lime & shale
6020	6730		Dolomite, anhydrite, sand, & shale	11485	12220		Lime & chert
6730	7280		Dolomite	12220	12315		Black shale
7230	7450		Dolomite & sand	12315	12839		Dolomite w/lime & chert stringers
7450	7950		Dolomite				
7950	9170		Dolomite Anhy. & shale				
9170	9350		Dolomite & chert				
9350	9800		Lime w/shale & chert stringers				
9800	9870		Lime & red shale				
9870	10120		Lime w/shale chert, & dolomite stringers				

CABOT PETROLEUM CORPORATION

Howard Fleet No. 3
1650' FEL & 1930' FSL
J, 35-13S-37E
Lea County, New Mexico
elev. 3858 KB
P&A 1/28/70

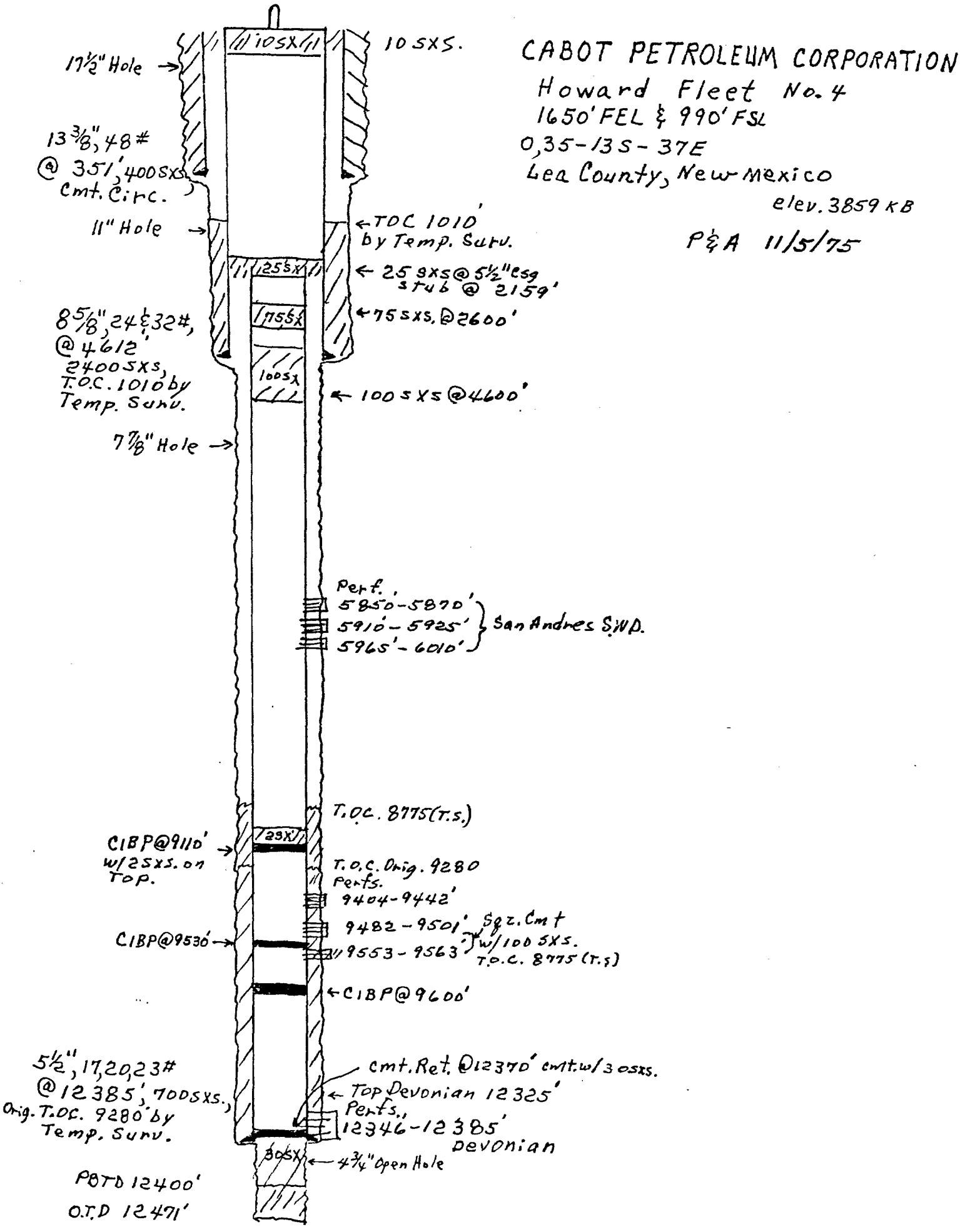


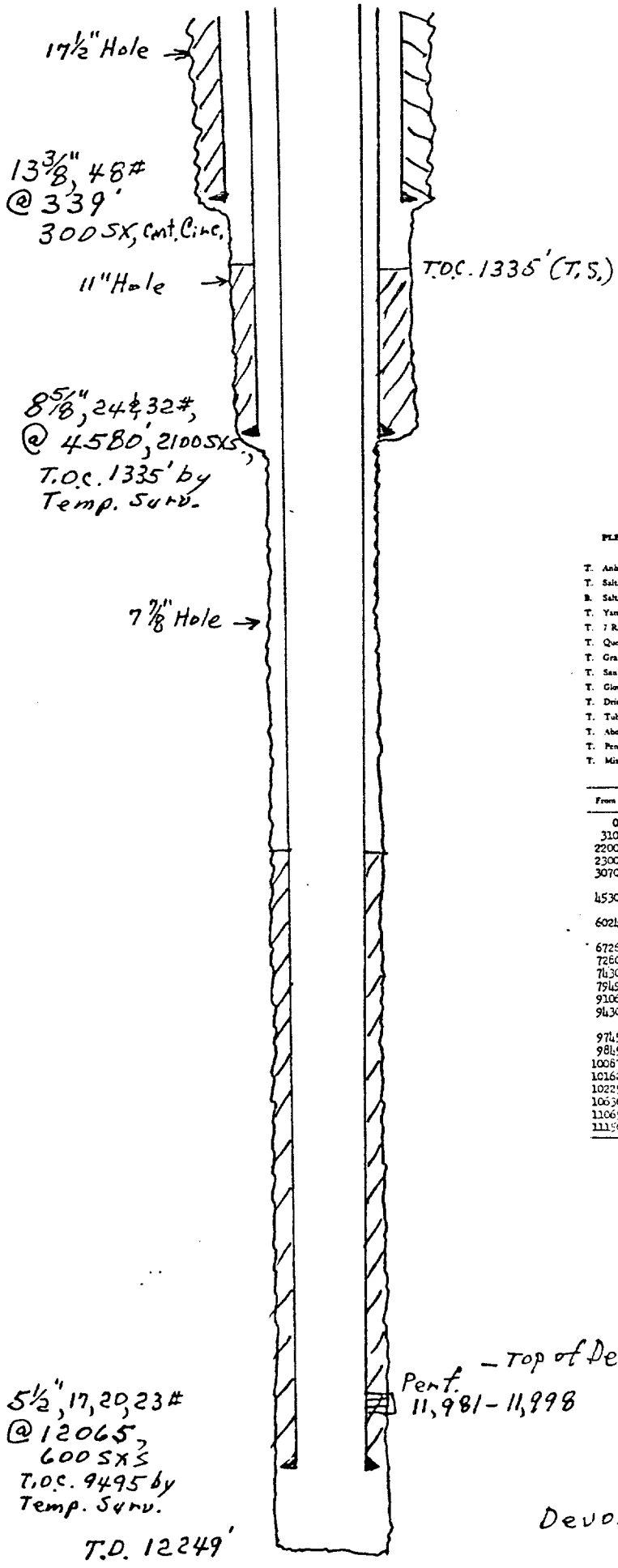
PLEASE INDICATE BELOW FORMATION TOPS (IN CONFORMANCE WITH GEOGRAPHICAL SECTION OF STATE):

Southeastern New Mexico				Northwestern New Mexico	
T. Anhy	2179	T. Devonian	12,294	T. Ojo Alamo	
T. Salt	2260	T. Silurian		T. Kirtland-Fruitland	
B. Salt		T. Montoya		T. Farmington	
T. Yates	3110	T. Simpson		T. Pictured Cliffs	
T. 7 Rivers		T. McKee		T. Menefee	
T. Queen		T. Ellenburger		T. Point Lookout	
T. Grayburg		T. Gr. Wash		T. Mancos	
T. San Andres	4560	T. Granite		T. Dakota	
T. Glorieta		T.		T. Morrison	
T. Drinkard		T.		T. Penn	
T. Tubbs	7310	T.		T.	
T. Abo	7985	T.		T.	
T. Penn		T.		T.	
T. Miss	11,610	T.		T.	

FORMATION RECORD

From	To	Thickness in Feet	Formation	From	To	Thickness in Feet	Formation
0	150	150	Surface sand & gravels				
150	2170	2020	Lime, shale & redbeds				
2170	2280	110	Anhydrite				
2280	3110	330	Salt and anhydrite				
3110	4560	1450	Sand, redbeds & anhydrite				
4560	7310	2750	Dolomite, seat sands				
7310	7460	150	Sand, some shale				
7460	7985	525	Dolomite and shale				
7985	9070	1085	Anhydrite, shale and dolomite				
9070	11,170	2100	Dolomite, lime, shale and chert				
11,170	11,610	440	Shale, sand and cherty lime				
11,610	12,254	644	Lime and chert				
12,254	12,294	40	Shale				
12,294	12,513	219	Dolomite				


CABOT PETROLEUM CORPORATION
Howard Fleet No. 4
1650' FEL & 990' FSL
O,35-13S-37E
Lea County, New Mexico
elev. 3859 KB
P&A 11/5/75
17½" Hole
10 SXS.
10 SXS
13 3/8", 48#
@ 351', 400SXS.
Cmt. Circ.
11" Hole
TOC 1010'
by Temp. Surv.
25 SXS
25 SXS @ 5½" csg
stub @ 2159'
75SXS
75 SXS. @ 2600'
8 5/8", 24 & 32#,
@ 4612'
2400SXS,
T.O.C. 1010 by
Temp. Surv.
100SX
100 SXS @ 4600'
7 7/8" Hole
Perf.
5850-5870'
5910-5925'
5965'-6010'
San Andres S.W.D.
T.O.C. 8775(T.S.)
CIBP@9110'
w/25SXS. on
Top.
29X
T.O.C. Orig. 9280
Perfs.
9404-9442'
9482-9501'
9553-9563'
Sqz. Cmt
w/100 SXS.
T.O.C. 8775 (T.S)
CIBP@9530'
CIBP@9600'
5½", 17,20,23#
@12385', 700SXS.
Orig. T.O.C. 9280' by
Temp. Surv.
Cmt. Ret. @12370' cmt. w/30SXS.
Top Devonian 12325'
Perfs.,
12346-12385'
Devonian
30SX
4¾" Open Hole
PBTD 12400'
O.T.D 12471'



CABOT PETROLEUM CORPORATION

New Mexico State "C" No. 1

2310' FNL & 330' FWL

E, 36-13S-37E

Lea County, New Mexico

elev. 3856 KB

Devonian Producer

PLEASE INDICATE BELOW FORMATION TOPS (IN CONFORMANCE WITH GEOGRAPHICAL SECTION OF STATE):

Southeastern New Mexico			Northwestern New Mexico		
T. Anhy	2200	T. 1st Devonian	11970	T. Ojo Alamo	
T. Salt	2300	T. 2nd Dev. Silurian	12050	T. Kirtland-Fruitland	
B. Salt	3070	T. Montoya		T. Farmington	
T. Yates	3135	T. Simpson		T. Pictured Cliffs	
T. 7 Rivers		T. McKee		T. Menefee	
T. Queen	3920	T. Ellenburger		T. Point Lookout	
T. Grayburg		T. Gr. Wash		T. Mancos	
T. San Andres	4530	T. Granite		T. Dakota	
T. Glorieta	6024	T.		T. Morrison	
T. Drinkard		T.		T. Penn	
T. Tubbs	7280	T.		T.	
T. Abo	7949	T.		T.	
T. Penn		T.		T.	
T. Miss	11252	T.		T.	

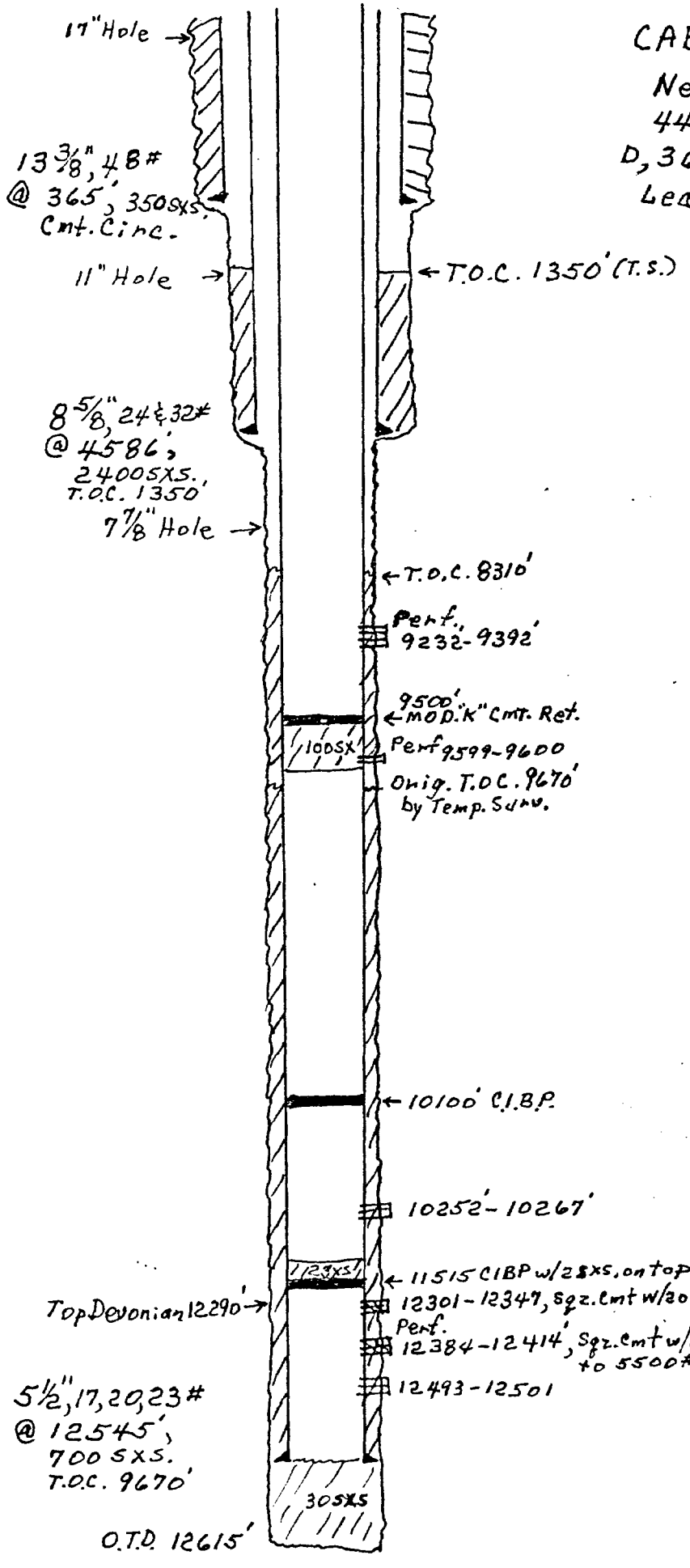
FORMATION RECORD

From	To	Thickness in Feet	Formation	From	To	Thickness in Feet	Formation
0	310	310	Caliche, Sand & Lime	11252	11920	668	Lime & chert
310	2200	1890	Red Beds	11920	11970	50	Gray & black shale
2200	2300	100	Anhydrite	11970	12005	35	Dolomite & lime
2300	3070	770	Salt	12005	12050	45	Gray silty & black sha
3070	4530	1460	Any. w/sand, shale & dol. stringers.	12050	12249	199	Dolomite
4530	6024	1494	Dolomite & lime w/chert stringers.				
6024	6726	702	Dolomite, anhy. shale & Sand				
6726	7280	554	Dolomite, slightly cherty				
7280	7430	150	Sand & Dolomite				
7430	7949	519	Dolomite				
7949	9106	1157	Anhydrite, shale, dolomite				
9106	9430	324	Dolomite & chert				
9430	9745	315	Lime w/shale & chert stringers.				
9745	9845	100	Lime & red shale				
9845	10087	242	Lime w/shale & chert stringers.				
10087	10160	73	Chert & lime				
10160	10225	65	Shale				
10225	10630	405	Lime & shale				
10630	11065	435	Lime w/dolomite & shale stringers.				
11065	11150	85	Sandy lime sand & shale				
11150	11252	102	Lime & shale				

CABOT PETROLEUM CORPORATION

New Mexico State "C" No. 2
440' FWL & 990' FNL
D, 36-13S-37E
Lea County, New Mexico
elev. 3857KB

Wolfcamp Producer



PLEASE INDICATE BELOW FORMATION TOPS (IN CONFORMANCE W

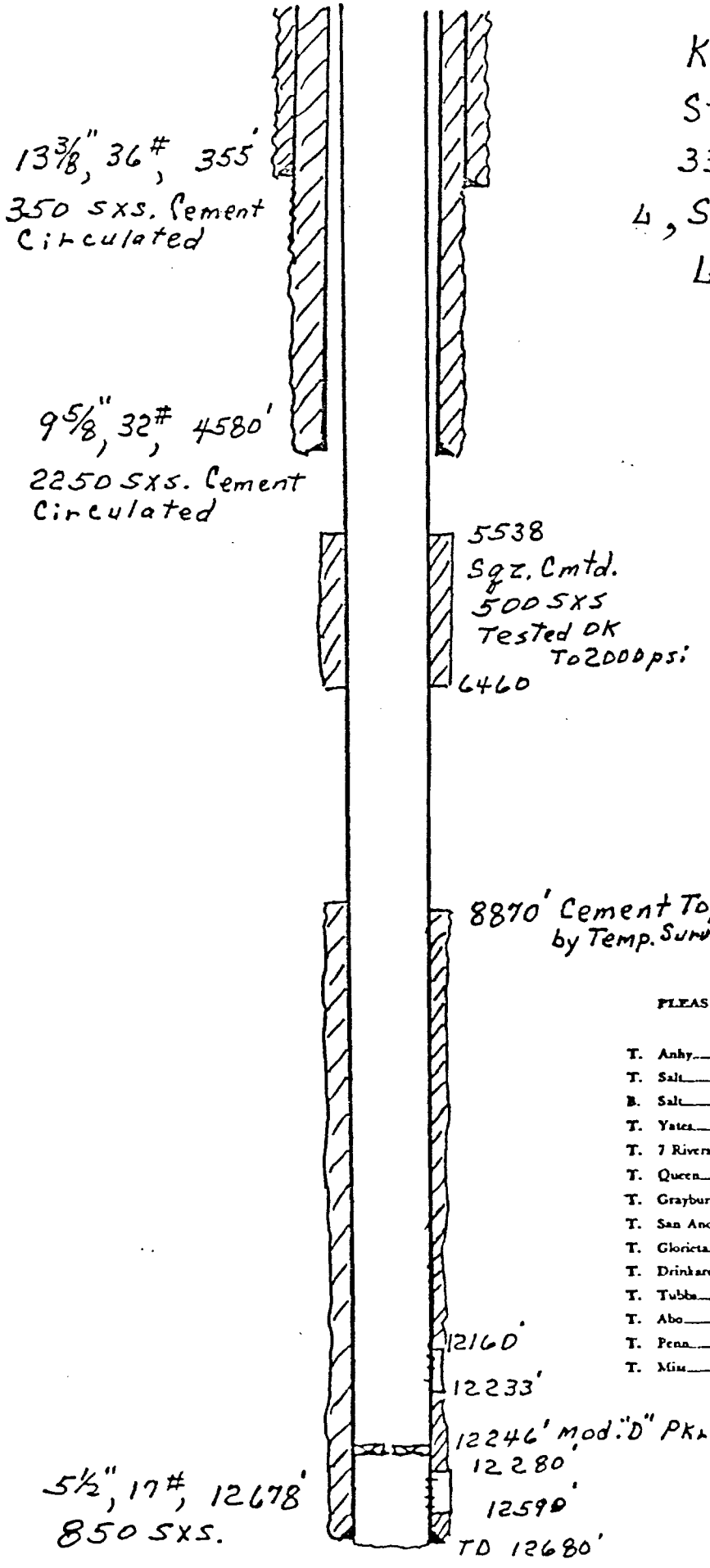
Southeastern New Mexico

T. Anhy	2210	T. Devonian	12290
T. Salt	2310	T. Silurian	
B. Salt	3080	T. Montoya	
T. Yates	3145	T. Simpson	
T. 7 Rivers		T. McKee	
T. Queen	3925	T. Ellenburger	
T. Grayburg		T. Gr. Wash	
T. San Andres	4540	T. Granite	
T. Glorieta	6032	T.	
T. Drinkard		T.	
T. Tubbs	7295	T.	
T. Abo	7975	T.	
T. Penn		T.	
T. Miss	11404	T.	

FORMATION RECORD

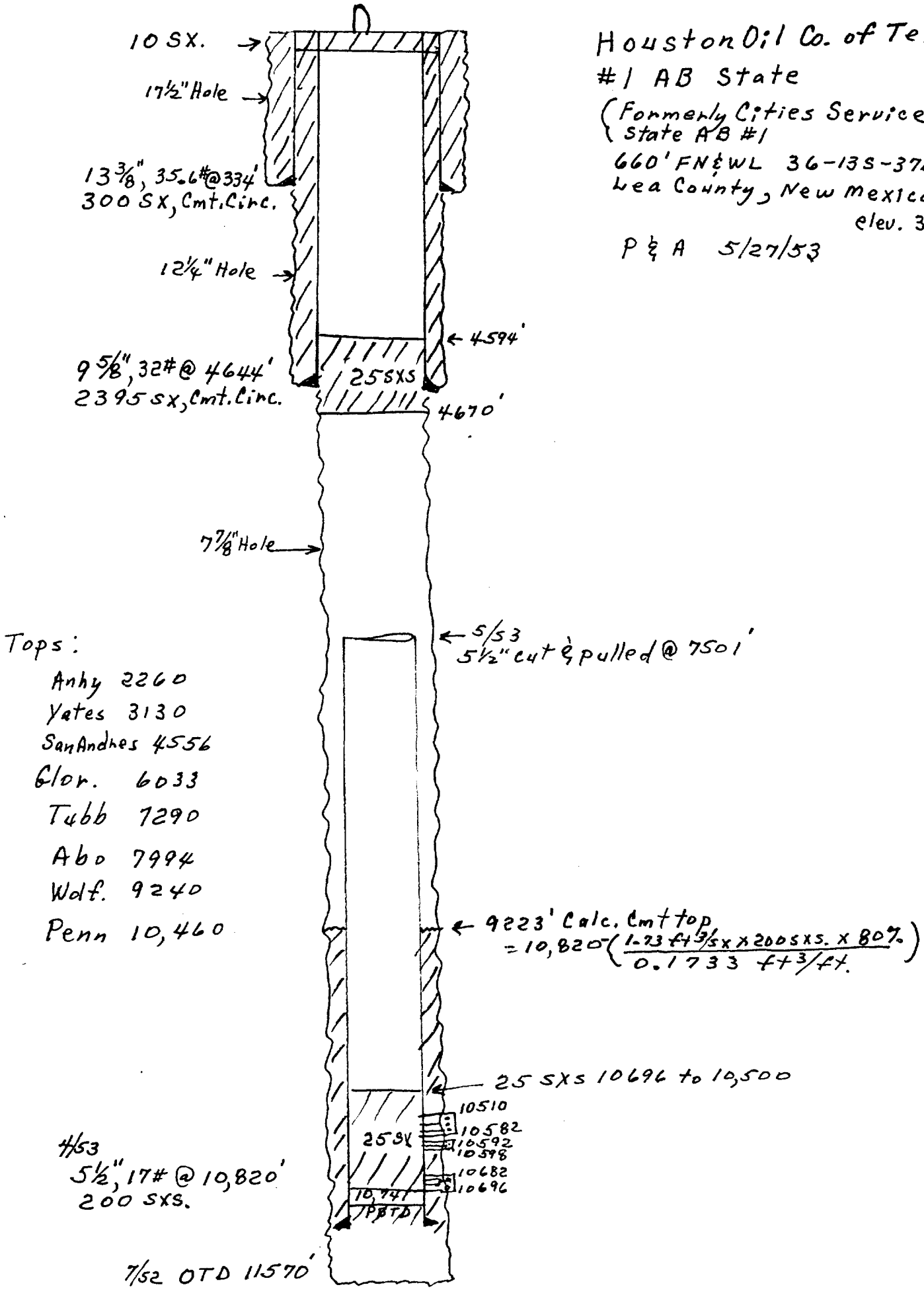
From	To	Thickness in Feet	Formation	From	T
0	315	315	Caliche, Sand & Lime		
315	2220	1095	Red Beds		
2220	2310	100	Anhydrite		
2310	3080	770	Salt		
3080	4540	1460	Anhydrite w/sand Shale & Dol. Stringers		
4540	6032	1492	Dolomite & Lime w/ch. Stringers.		
6032	6732	700	Dolomite, Any. Shale & Sand		
6732	7295	563	Dolomite, Sli. Cherty		
7295	7452	157	Sand and Dolomite		
7452	7975	523	Dolomite		
7975	9127	1152	Anhydrite, Shale & Dolomite		
9127	9494	367	Dolomite & Chert		
9494	9760	266	Lime w/shale & ch. Stringers.		
9760	9859	99	Lime & Red Shale		
9859	10090	231	Lime w/shale & ch. Stringers		
10090	10215	125	Chert & Lime		
10215	10654	439	Lime & Shale		
10654	11148	494	Lime w/Dolomite & Shale Stringers		
11148	11265	117	Sandy Lime, Sand & Shale		
11265	11404	139	Lime & Shale		
11404	12112	708	Lime & Chert		
12112	12290	178	Gry & Dkish		
12290	12615	325	Dolomite		
TD 12,615					

Kerr-McGee Corporation
State "E" 7169 No. 1 3844 GL.
330' FWL & 1650' FSL
4, Sec. 36, T13-S, R37-E
Lea County, New Mexico

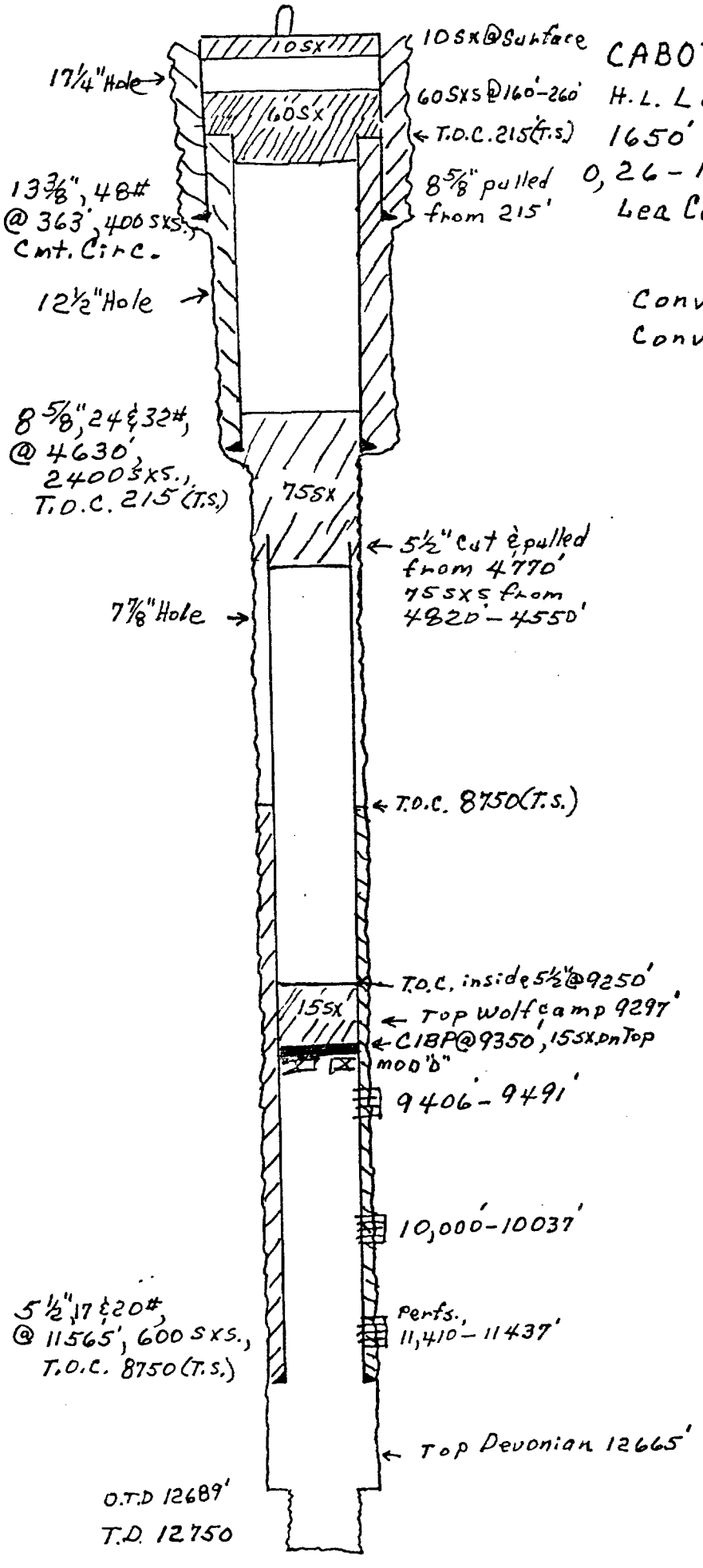


PLEASE INDICATE BELOW FORMATION TOPS (IN CONFORMANCE
Southeastern New Mexico

T. Anhy		T. Devonian	12,150'
T. Salt		T. Silurian	
B. Salt		T. Montoya	
T. Yates		T. Simpson	
T. 7 Rivers		T. McKee	
T. Queen		T. Ellenburger	
T. Grayburg		T. Gr. Wash	
T. San Andres	4840'	T. Granite	
T. Glorieta	6050'	T.	
T. Drinkard		T.	
T. Tubbs		T.	
T. Abo	7970'	T.	
T. Penn	10,620'	T.	
T. Miss	11,460'	T.	



Houston Oil Co. of Texas
#1 AB State
(Formerly Cities Service
State AB #1)
660' FN & WL 36-13S-37E, Unit D
Lea County, New Mexico
elev. 3857 DF
P & A 5/27/53



CABOT PETROLEUM CORPORATION
H. L. Lowe "C" No. 1
1650' FEL & 467' FSL
O, 26-13S-37E
Lea County, New Mexico
elev. 3867 KB

Converted to SWD Wolfcamp 7-64
Converted to SWD Wolfcamp - Devonian 2-68 & mississippian
P & A 4-75

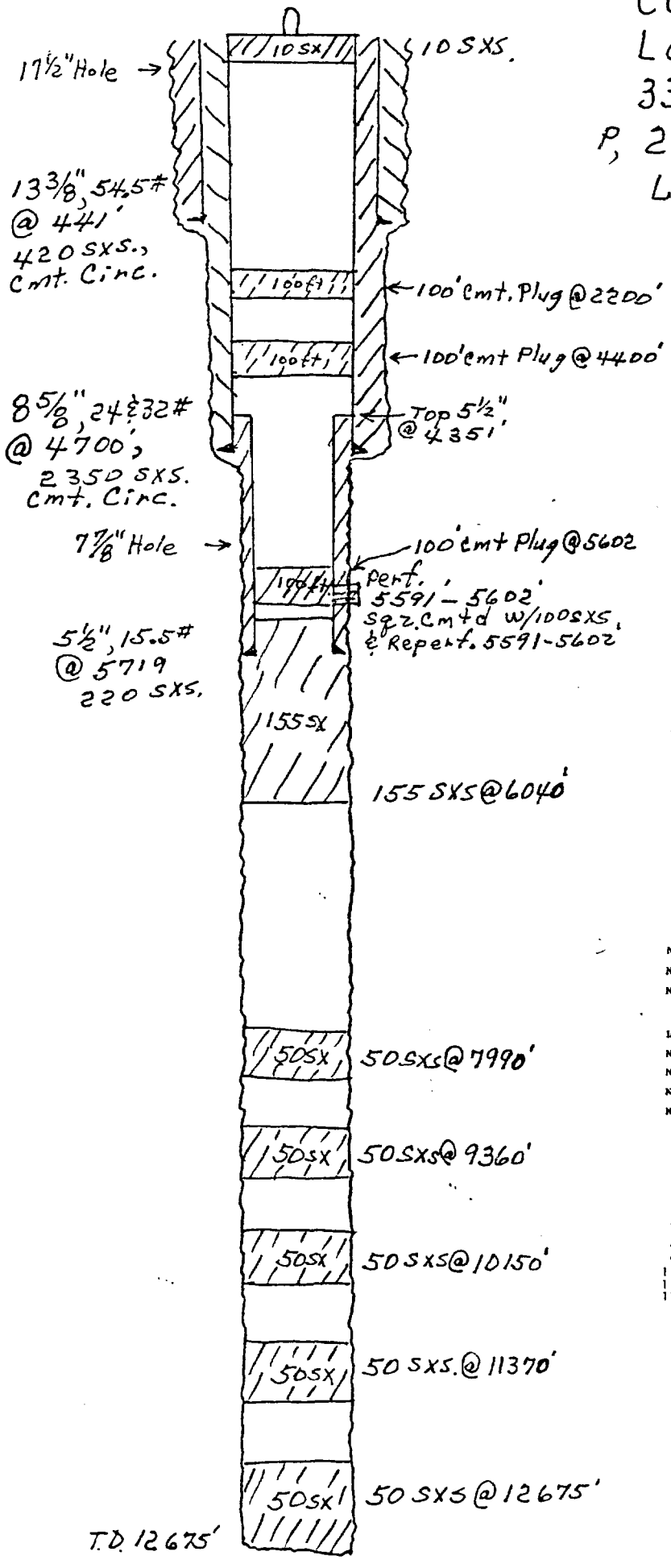
PLEASE INDICATE BELOW FORMATION TOPS (IN CONFORMANCE
Southeastern New Mexico

T. Anhy		T. Devonian	12,665
T. Salt		T. Silurian	
B. Salt		T. Montoya	
T. Yates		T. Simpson	
T. 7 Rivers		T. McKee	
T. Queen		T. Ellenburger	
T. Grayburg		T. Gr. Wash	
T. San Andres	4,610	T. Granite	
T. Glorieta		T.	
T. Drinkard		T.	
T. Tubbs	7,318	T.	
T. Abo	8,010	T.	
T. ~~xxxx~~ Wolfcamp	9,297	T.	
T. Miss	11,790	T.	

FORMATION RECORD

From	To	Thickness in Feet	Formation	From
0	340	340	Caliche, sand, lime	
340	4610	4270	Anhydrite, shale, sand, dolo.	
4610	6045	1335	Dolomite, shale	
6045	6755	710	Dolomite, lime, shale stringers	
6755	7315	560	Dolomite, lime	
7315	7605	290	Sand, lime, shale stringers	
7605	8000	395	Dolomite	
8000	9090	1090	Anhydrite, shale, dolomite	
9090	9370	280	Dolomite, chert	
9370	9800	430	Lime, dolomite, shale stringers	
9800	10160	360	Lime, dolomite, red gry. sd.	
10160	10375	215	Dolomite	
10375	10560	185	Lime, shale	
10560	11270	710	Lime, shale stringers, chert	
11270	11790	520	Sand, shale, lime	
11790	12525	735	Lime, chert, cherty lime	
12525	12665	140	Shale, lime stringers	
12665	12790	125	Dolomite	
	12790	TD		

COTTON PETROLEUM CORPORATION
Lowe Land No. 2
330' FSL & 500' FEL
P, 26-13S-37E
Lea County, New Mexico
P&A 6/15/79



INDICATE FORMATION TOPS IN CONFORMANCE WITH GEOGRAPHICAL SECTION OF STATE

Southeastern New Mexico		Northwestern New Mexico	
T. Anhy 2230	T. Canyon	T. Ojo Alamo	T. Penn. "D"
T. Salt	T. Strawn	T. Kirtland-Fruitland	T. Penn. "C"
B. Salt	T. Atoka 11373	T. Pictured Cliffs	T. Penn. "D"
T. Yates 3153	T. Miss 11702	T. Cliff House	T. Leadville
T. 7 Rivers	T. Devonian 12060	T. Menefee	T. Madison
T. Queen	T. Silurian	T. Point Lookout	T. Elbert
T. Grayburg	T. Montoya	T. Mancos	T. McCracken
T. San Andres 4570	T. Simpson	T. Gallup	T. Ignacio Qtzte
T. Glorieta 6040	T. McKee	Base Greenhorn	T. Granite
T. Paddock	T. Ellenburger	T. Dakota	T.
T. Blinebry	T. Gr. Wash	T. Morrison	T.
T. Tubb 7315	T. Granite	T. Todilto	T.
T. Drinkard	T. Delaware Sand	T. Entrada	T.
T. Abo 7993	T. Bone Springs	T. Wingate	T.
T. Wolfcamp 9364	T.	T. Chinle	T.
T. Penn. 9880	T.	T. Permian	T.
T. Cisco (Bough C)	T.	T. Penn. "A"	T.

OIL OR GAS SANDS OR ZONES

No. 1, from ____ to ____ No. 4, from ____ to ____

No. 2, from ____ to ____ No. 5, from ____ to ____

No. 3, from ____ to ____ No. 6, from ____ to ____

IMPORTANT WATER SANDS

Include data on rate of water inflow and elevation to which water rose in hole.

No. 1, from ____ to ____ feet. ____

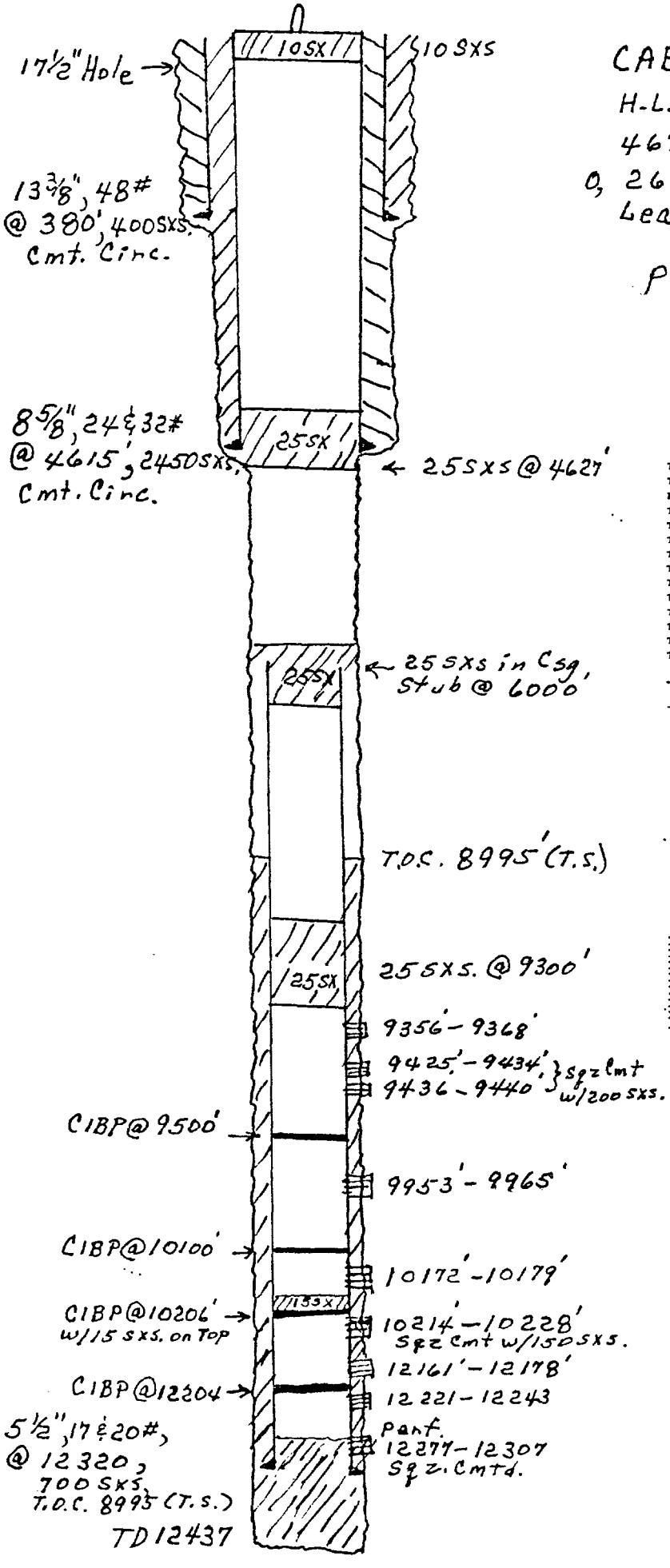
No. 2, from ____ to ____ feet. ____

No. 3, from ____ to ____ feet. ____

No. 4, from ____ to ____ feet. ____

FORMATION RECORD (Attach additional sheets if necessary)

From	To	Thickness in Feet	Formation	From	To	Thickness in Feet	Formation
0	2230	2230	Sand & Shale	12060	12400	340	Dolomite & Limestone
2230	3153	923	Anhydrite & Salt				
3153	4570	1417	Sand, Shale & Anhy.				
4570	6040	1470	Dolomite & Anhydrite				
6040	7993	1953	Sand, Shale & Dolo.				
7993	9364	1371	Red., Shale & Dolo.				
9364	9880	516	Red., Anhy. & Shale				
9880	11373	1493	Dolo., Limestone, Gr. Sh.				
11373	11702	329	Grey Sh. Sd & Limestone				
11702	11883	181	Limestone				
11883	12060	177	Blk-Brown Shale				



CABOT PETROLEUM CORPORATION

H-L. Lowe "B" No. 1

467' FSL & 850' FEL

O, 26 - 13S - 37E

Lea County, New Mexico

elev. 3868' KB

P & A 1-30-67

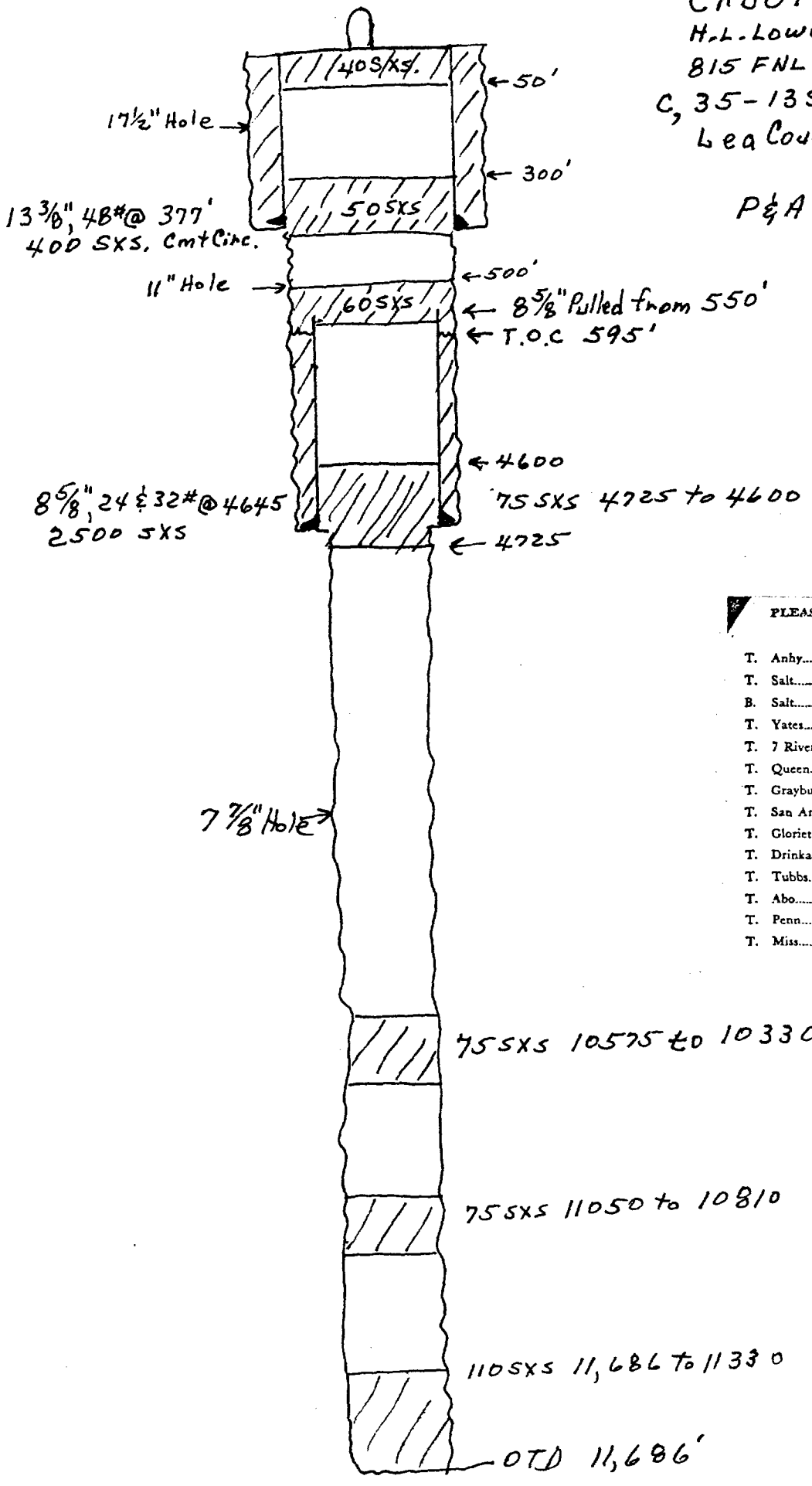
PLEASE INDICATE BELOW FORMATION TOPS (IN CONFORMANCE WITH GEOGRAPHICAL SECTION OF STATE):

Southeastern New Mexico				Northwestern New Mexico	
T. Anhy	2210	T. Devonian	12154	T. Ojo Alamo	
T. Salt	2310	T. Silurian		T. Kirtland-Fruitland	
B. Salt	3070	T. Montoya		T. Farmington	
T. Yates	3140	T. Simpson		T. Pictured Cliffs	
T. 7 Rivers		T. McKee		T. Menefee	
T. Queen	3970	T. Ellenburger		T. Point Lookout	
T. Grayburg		T. Gr. Wash		T. Mancos	
T. San Andres	4575	T. Granite		T. Dakota	
T. Glorieta	6054	T.		T. Morrison	
T. Drinkard		T.		T. Penn	
T. Tubbs	7325	T.		T.	
T. Abo	8000	T.		T.	
T. Penn		T.		T.	
T. Miss	11870	T.		T.	

FORMATION RECORD

From	To	Thickness in Feet	Formation	From	To	Thickness in Feet	Formation
0	320	320	Caliche, Sand & Lime	12030	12154	124	Gry. Ben. & Black Shale
320	2210	1890	Red Beds	12154	12437	283	Dolomite
2210	2310	100	Anhydrite				T. D. 12,437'
2310	3070	760	Salt				
3070	4575	1505	Anhydrite w/sand, Shale & Dolomite Stringers.				
4575	6054	1479	Dolomite & Lime w/shale Stringers.				
6054	6750	696	Dolomite, Anhydrite, Shale & Lime.				
6750	7325	575	Dolomite Sli. Cherty				
7325	7485	160	Sand & Dolomite				
7485	8000	515	Dolomite				
8000	9170	1170	Anhydrite, Shale & Dolomite				
9170	9484	314	Dolomite & Chert				
9484	9808	324	Lime w/shale & Chert Stringers.				
9808	9895	87	Lime & Red Shale				
9895	10100	205	Lime w/shale & Chert Stringers.				
10100	10310	210	Dolomite				
10310	10715	405	Lime & Shale				
10715	11288	573	Lime w/Dolomite & Shale Stringers.				
11288	11350	62	Sandy Lime, Sand & Shale				
11350	11492	142	Sandy Shale				
11492	11870	378	Sand & Shale				
11870	12030	160	Lime & Chert				

CABOT
H.L. Lowe Et Al No. 1
815 FNL & 2307 FWL
C, 35-13S-37E
Lea County, New Mexico
elev. 3865 DF
P&A 6/29/56

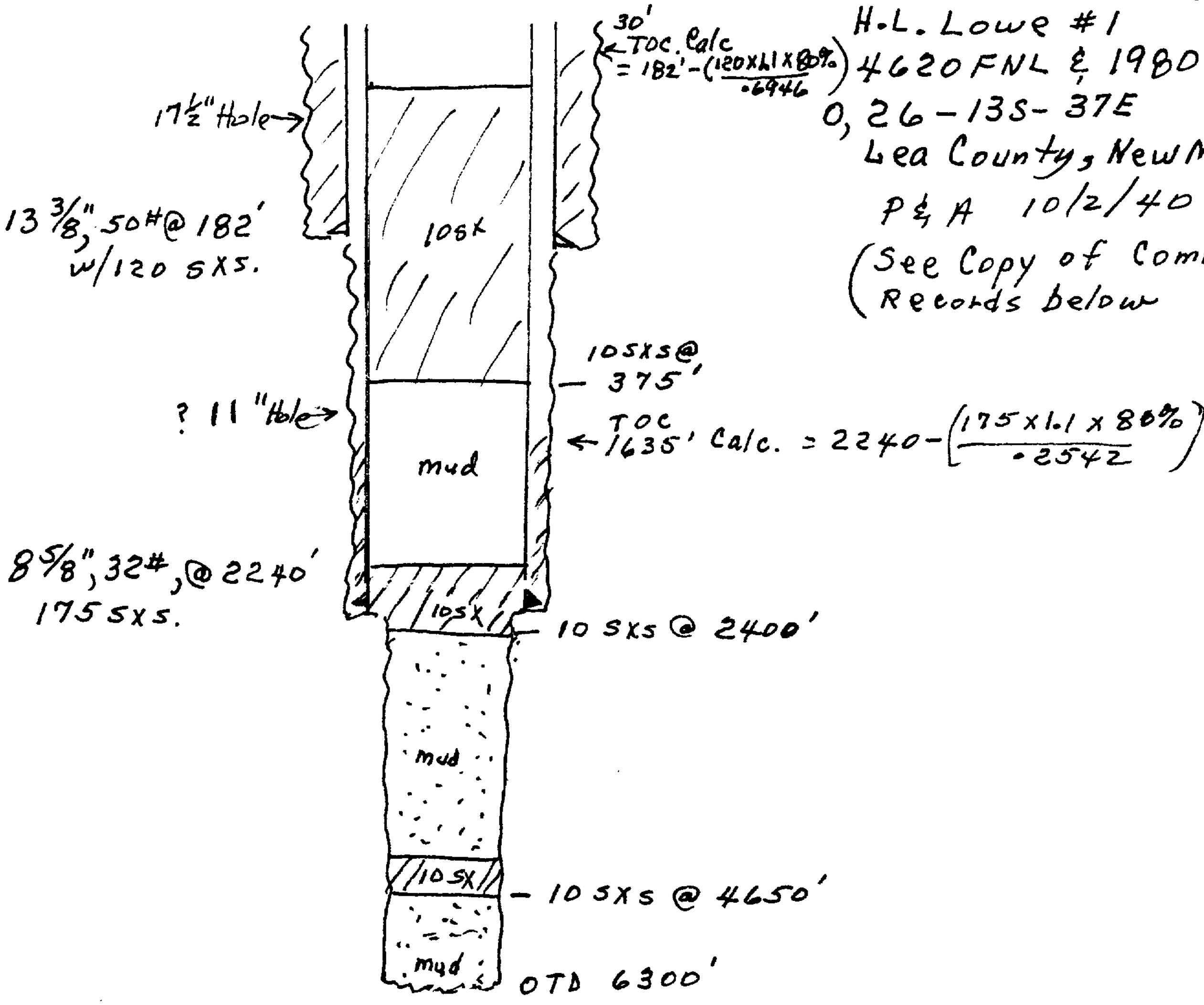


PLEASE INDICATE BELOW FORMATION TOPS

Southeastern New Mexico

T. Anhy	2185	T. Devc	
T. Salt	2280	T. Silur	
B. Salt	3020	T. Mon	
T. Yates	3180	T. Simp	
T. 7 Rivers		T. McK	
T. Queen		T. Ellen	
T. Grayburg		T. Gr.	
T. San Andres	4600	T. Gran	
T. Glorieta	6100	T.	
T. Drinkard		T.	
T. Tubbs	7400	T.	
T. Abo	8040	T.	
T. Penn		T.	
T. Miss		T.	

Ventura Oil Company
H.L. Lowe #1
4620 FNL & 1980 FEL
O, 26-13S-37E
Lea County, New Mexico
P&A 10/2/40
(See Copy of Commission Records below)



[illegible]	[illegible]	[illegible]	Yellow sticky shale
160	185	25	Sand
185	350	165	Sand and blue shale
350	421	71	Red rock
421	505	84	Blue shale
505	729	224	Red bed, sand and shale
729	1001	272	Sand and shale
1001	1255	254	Red bed
1255	1486	231	Shale and shells
1486	2190	704	Red rock w/some shale
2190	2296	106	Anhydrite
2296	2386	90	Shale and salt
2386	2400	14	Anhydrite
2400	3030	630	Salt
3030	3071	41	Anhydrite
3071	3086	15	Anhydrite and salt
3086	3093	7	Sand
3093	3340	247	Anhydrite and red rock
3340	3547	207	Anhydrite, red rock and salt
3547	3744	197	Anhydrite and red rock
3744	3894	150	Anhydrite and shale
3894	4013	119	Anhydrite, salt and shale
4013	4052	39	Red rock and anhydrite
4052	4094	42	Red rock
4094	4175	81	Anhydrite and red rock
4175	4200	25	Lime and anhydrite
4200	4331	131	Red rock and anhydrite
4331	4374	43	Anhydrite and lime
4374	4438	64	Anhydrite and red rock
4438	4473	40	Anhydrite
4478	4515	37	Anhydrite and lime
4515	4563	48	Red rock
4563	4609	46	Anhydrite
4609	5323	714	Grey lime
5323	6120	797	Hard brown and grey lime w/occasional stks. of anhydrite.
6120	6300	180	Hard brown and grey lime w/occasional stks. of anhydrite and grey sand.

RECEIVED
HOBBS OFFICE

MISCELLANEOUS REPORTS ON WELL

Submit this report in triplicate to the Oil Conservation Commission or its proper agent within ten days after the work specified is completed. It should be signed and sworn to before a notary public for reports on beginning drilling operations, results of shooting well, results of test of casing shut-offs, result of plugging of well, and other important operations, even though the work was witnessed by an agent of the commission. Reports on minor operations need not be signed and sworn to before a notary public. See additional instructions in the Rules and Regulations of the Commission.

Indicate nature of report by checking below:

REPORT ON BEGINNING DRILLING OPERATIONS		REPORT ON REPAIRING WELL	
REPORT ON RESULT OF SHOOTING OR CHEMICAL TREATMENT OF WELL		REPORT ON PULLING OR OTHERWISE ALTERING CASING	
REPORT ON RESULT OF TEST OF CASING SHUT-OFF		REPORT ON DEEPENING WELL	
REPORT ON RESULT OF PLUGGING OF WELL	X		

Hobbs, New Mexico (Place) October 2, 1940 (Date)

OIL CONSERVATION COMMISSION
Santa Fe, New Mexico.
Gentlemen:

Following is a report on the work done and the results obtained under the heading noted above at the Ventura Oil Company (Company or Operator) H. L. Lowe (Lease) Well No. 1 in the SW SE 1/4 of Sec. 26, T. 13, R. 37, N. M. P. M., Wild Cat Field, Lea County

The dates of this work were as follows: October 2, 1940

Notice of intention to do the work was (was not) submitted on Form C-102 on September 28, 1940 and approval of the proposed plan was (was not) obtained. (Cross out incorrect words.)

DETAILED ACCOUNT OF WORK DONE AND RESULTS OBTAINED

Filled hole with mud to 4650', cemented plug with 10 sacks cement at 4650'. Then filled with mud to 2400' and set cement plug with 10 sacks cement in bottom of 8 5/8" pipe. Filled with mud to 375' and set cement plug with 10 sacks cement at 375'. The well was left as a water well and turned over to Mr. H. L. Lowe the land owner.

Witnessed by C. L. Woodroof (Name) Davidson Drilling Co. (Company) Supt. (Title)

Subscribed and sworn to before me this 2 day of Oct., 1940
Mrs. Madeline Cole
Notary Public
My Commission expires 6-1-4[illegible]

I hereby swear or affirm that the information given above is true and correct.
Name [signature]
Position
Representing VENTURA OIL COMPANY (Company or Operator)
Address Midland, Texas

Remarks:

[signature] (Name)
OIL & GAS INSPECTOR

VII (4) - Injection Fluid Water Analysis

WATE . ANALYSIS REPO T

COMPANY Cabot Corp. ADDRESS Lovington, NM DATE: 11/20/80

SOURCE Howard Fleet #1 Wolfcamp DATE SAMPLED 11-19-80 ANALYSIS NO.

Analysis	Mg/L		*Meq/L	
1. PH	5.8			
2. H_2S (Qualitative)	Neg.			
3. Specific Gravity	1.175			
4. Dissolved Solids	241,332			
5. Suspended Solids	None			
6. Phenolphthalein Alkalinity ($CaCO_3$)	-0-			
7. Methyl Orange Alkalinity ($CaCO_3$)	180			
8. Bicarbonate (HCO_3)	HCO_3 220	÷61	4.0	HCO_3
9. Chlorides (Cl)	Cl 144,504	÷35.5	4070	Cl
10. Sulfates (SO_4)	SO_4 725	÷48	15.0	SO_4
11. Calcium (Ca)	Ca 4000	÷20	200	Ca
12. Magnesium (Mg)	Mg 486	÷12.2	40	Mg
13. Total Hardness ($CaCO_3$)	12000			
14. Total Iron (Fe)	185			
15. Barium (Qualitative)	150			
16.				

*Milli equivalents per liter

PROBABLE MINERAL COMPOSITION

200	Ca ⟵	HCO_3 40
40	Mg ⟶	SO_4 15
3885	Na ⟶	Cl 4070

Saturation Values Distilled Water 20°C

$CaCO_3$	13 Mg/L
$CaSO_4 \cdot 2H_2O$	2,090 Mg/L
$MgCO_3$	103 Mg/L

Compound	Equiv. Wt.	X Meq/L	= Mg/L
$Ca(HCO_3)_2$	81.04	40	3242
$CaSO_4$	68.07	15	1021
$CaCl_2$	55.50	145	8047
$Mg(HCO_3)_2$	73.17	-0-	
$MgSO_4$	60.19	-0-	
$MgCl_2$	47.62	40	1905
$NaHCO_3$	84.00	-0-	
Na_2SO_4	71.03	-0-	
NaCl	58.46	3885	227,117

REMARKS

cc: W. Roberts, B. Gray

Respectfully submitted
TRETOLITE COMPANY

Mike Brewer

WATER ANALYSIS REPORT

COMPANY

Cabot Corporation

SOURCE

State "C" 1 & 2, Reed #2
Well Howard Fleet Comingled
Sample point: 50/50 mixture of the
Devonian two (2) waters

Submitted by: Brewer, M.
Sampled by: Brewer, M.
Distribution Center: Midland

Sample date: 10/31/80
Analysis Date: 11/ 7/80
Analysis No.: 5056

SAMPLE ANALYSIS

Appearance: Clear
Sp. Conductivity: 110000 micromhos/cm
pH: 7.5

Color: Colorless
Chem. Treatment: N/A
H2S (Qualitative): Neg.

constituent **	ppm	meq/l	method	comments
Sodium (Na+)	29100	1270	icp	
Potassium (K+)	695.	18.	icp	
Lithium (Li+)	10	1.	icp	
Calcium (Ca++)	2880	144.	icp	
Magnesium (Mg++)	517.	42.6	icp	
Barium (Ba++)	3.	0.04	icp	
Strontium (Sr++)	100	2.	icp	
Aluminum (Al+++)	7.3	-	icp	
Silver (Ag+)	<0.2	-	icp	
Arsenic (As+++)	<5.	-	icp	
Chromium (Cr+++)	<0.6	-	icp	
Copper (Cu++)	0.86	0.03	icp	
Iron (Fe++)	6.84	0.2	icp	
Mercury (Hg++)	<2.	-	icp	
Lead (Pb++)	<3.	-	icp	
Antimony (Sb+++)	<20	-	icp	
Tin (Sn++)	<6.	-	icp	
Titanium (Ti++++)	<0.1	-	icp	
Zinc (Zn++)	3.10	0.0948	icp	
Boron (B) ***	9.60	2.7	icp	
Phosphate (PO4---)	<5.	-	icp	
Chloride (Cl-)	51900	1460	titr	
Sulfate (SO4--)	1520	31.5	turb	
Bicarbonate (HCO3-)	466.	7.6	titr	
Carbonate (CO3--)	<1.	-	titr	
Silica (SiO2)	55.	-	icp	

Analysis No. 5056

NOTES TO ANALYSIS

Ion Balance

Sum of cations:	1480 meq/l	Standard deviation:	26.5 meq/l
Sum of anions:	1510 meq/l	Standard deviation:	29.3 meq/l

*TDS Balance

Measured:	91000 ppm	Standard deviation:	4550 ppm
Calculated:	87400 ppm	Standard deviation:	1200 ppm

# indicates that the amount of this component has changed in a statistically significant way since the last analysis
N/A= not available
meq/l= milliequivalents per liter
ppm and milligrams per liter used interchangeably
icp= inductively coupled plasma emission
titr= titration; turb= turbidimetric
TDS by gravimetric determination
Specific Conductivity by Wheatstone Bridge

* Total Dissolved Solids
** Valency given is arbitrarily chosen and is not necessarily the true valency unless indicated in the column for comments
*** TDS boron is given as ppm elemental boron, but for the purposes of an ion balance, boron is converted to BO3---

The various parameters in the above results can be usefully interpreted using the guidelines below:

1) pH value is an indication of the acidity or basicity of a brine. pH measurements provide critical information about a) the solubility of sparingly soluble compounds, b) the carbonate scaling tendency, c) iron oxidation state and d) caution needed in using some external chemical treatments.

2) Specific conductivity: this gives an approximate indication of the total amount of inorganic dissolved solids in the water sample. A simple guideline is that 10,000 micromhos/cm is equivalent to 100 meq/l of dissolved solids. However, this relationship is valid only in solutions with specific conductivities less than approximately 50,000 micromhos/cm.

3) Concentration of various ionic species: the concentrations of various ionic species give information about a) thermodynamic characteristics of the brine, b) scaling tendency of the water, and c) enthalpy of the water.

Analysis No. 5056

HISTORY OF FIELD WATER COMPOSITIONAL DATA

Tretolite is using a new data management system to help the operator in managing his waters in the field. This system is based on a comparison of water-analytical data between this newly and any previously analyzed sample.

Our computer record indicates that no analytical data on waters collected from this well or field have been previously added to our computer file. As more data become available and as our automated data evaluation system indicates any water-related problems in your field, the technical personnel of Tretolite will contact you immediately.

SCALE TENDENCIES OF THE ANALYZED BRINE

In the following paragraphs, the scale tendencies of the brine are analyzed by utilizing some basic thermodynamic correlations. These scale tendency considerations are different from the commonly applied Stiff-Davis Diagrams and calculation methods because those methods are not based on the critical thermodynamic conditions encountered in the field.

CaSO4

The calcium and sulfate ion concentration of the brine as reported in this analysis does not seem to pose any danger of calcium sulfate precipitation at 76 deg-F.

However, if the brine is heated to a temperature of 184.5 deg-F or higher (at water saturation pressure), this brine would have a tendency to precipitate calcium sulfate.

It has to be remembered that CaSO4 scale tendency decreases with increasing pressure. This means, if the system pressure is higher than the water vapor saturation pressure, calcium sulfate scale would form at a temperature higher than reported.

BaSO4

Analysis No. 5056

The barium and sulfate ion concentrations of the brine as reported in this analysis indicate a definite potential for barium sulfate precipitation at 76 deg-F. This indicates that barium sulfate precipitation has already occurred somewhere in this system before the wellbore brine is brought to the ambient conditions.

However, the maximum amount of BaSO4 that can be precipitated is 4.757 Mg/liter of the brine.

SrSO4

The strontium and sulfate ion concentrations of the brine as reported in this analysis indicate that there is a potential for strontium sulfate precipitation at 76 deg-F. This suggests that as the brine is brought to the ambient conditions from higher temperatures and pressures strontium sulfate scaling has occurred.

CaCO3

At 76 deg-F, the stability index is (+): implies scaling tendency.

The precise calcium carbonate scaling tendency of the brine cannot immediately be determined without the required information on temperature, pressure, pH and partial pressure of carbon dioxide above the brine. The Stiff-Davis Stability Index gives only a crude approximation of the CaCO3 scale tendencies. This stability index is given for the sake of completeness.

QUANTITATIVE INFORMATION ON ALL SCALE TENDENCIES

Quantitative information can be extracted on all scaling tendencies of this brine if the temperature and pressure conditions of the brine are available. The most complicated calculations have to be performed on the CaCO3 scale tendencies. The other scale tendencies are easier to determine.

WATER ANALYSIS REPORT

COMPANY	SOURCE
Cabot Producing Corporation	J.L. Reed Well S.W.D. Sample point: Discharge of Pump
Submitted by: Brewer, M. Sampled by: Brewer, M. Distribution Center: Midland	Sample date: 10/27/80 Analysis Date: 10/35/80 Analysis No.: 4990

SAMPLE ANALYSIS

Appearance: Clear
Color: Colorless
Sp. Conductivity: 120000 micromhos/cm
Chem. Treatment: N/A
pH: 6.7
H2S (Qualitative): Pos.

constituent **	ppm	meq/l	method	comments
Sodium (Na+)	30400	1320	icp	
Potassium (K+)	745.	19.	icp	
Lithium (Li+)	6.	0.9	icp	
Calcium (Ca++)	3010	150.	icp	
Magnesium (Mg++)	508.	41.8	icp	
Barium (Ba++)	<1.	-	icp	
Strontium (Sr++)	100	2.	icp	
Aluminum (Al+++)	<1.	-	icp	
Silver (Ag+)	<0.2	-	icp	
Arsenic (As+++)	<5.	-	icp	
Chromium (Cr+++)	<0.6	-	icp	
Copper (Cu++)	<0.1	-	icp	
Iron (Fe++)	2.0	0.07	icp	
Mercury (Hg++)	<2.	-	icp	
Lead (Pb++)	<3.	-	icp	
Antimony (Sb+++)	<20	-	icp	
Tin (Sn++)	<6.	-	icp	
Titanium (Ti++++)	<0.1	-	icp	
Zinc (Zn++)	0.47	0.0143	icp	
Boron (B) ***	7.8	2.2	icp	
Phosphate (PO4---)	<5.	-	icp	
Chloride (Cl-)	54600	1540	titr	
Sulfate (SO4--)	1460	30.4	turb	
Bicarbonate (HCO3-)	203.	3.3	titr	
Carbonate (CO3--)	<1.	-	titr	
Silica (SiO2)	48.	-	icp	

Analysis No. 4000

NOTES TO ANALYSIS

Ion Balance

Sum of cations:	1540 meq/l	Standard deviation:	27.6 meq/l
Sum of anions:	1580 meq/l	Standard deviation:	30.8 meq/l

*TDS Balance

Measured:	88000 ppm	Standard deviation:	4380 ppm
Calculated:	91100 ppm	Standard deviation:	1260 ppm

$ indicates that the amount of this component has changed in a statistically significant way since the last analysis
N/A= not available
meq/l= milliequivalents per liter
ppm and milligrams per liter used interchangeably
icp= inductively coupled plasma emission
titr= titration; turb= turbidimetric
TDS by gravimetric determination
Specific Conductivity by Wheatstone Bridge

* Total Dissolved Solids
** Valency given is arbitrarily chosen and is not necessarily the true valency unless indicated in the column for comments
*** TDS boron is given as ppm elemental boron, but for the purposes of an ion balance, boron is converted to BO3---

The various parameters in the above results can be usefully interpreted using the guidelines below:

1) pH value is an indication of the acidity or basicity of a brine. pH measurements provide critical information about a) the solubility of sparingly soluble compounds, b) the carbonate scaling tendency, c) iron oxidation state and d) caution needed in using some external chemical treatments.

2) Specific conductivity: this gives an approximate indication of the total amount of inorganic dissolved solids in the water sample. A simple guideline is that 10,000 micromhos/cm is equivalent to 100 meq/l of dissolved solids. However, this relationship is valid only in solutions with specific conductivities less than approximately 50,000 micromhos/cm.

3) Concentration of various ionic species: the concentrations of various ionic species give information about a) thermodynamic characteristics of the brine, b) scaling tendency of the water, and c) enthalpy of the water.

(314) 961-3500 / TWX 910 760 1600 / Telex 44 2417

Analysis No. 4000

HISTORY OF FIELD WATER COMPOSITIONAL DATA

Tretolite is using a new data management system to help t operator in managing his waters in the field. This system is b on a comparison of water-analytical data between this newly and previously analyzed sample.

Our computer record indicates that no analytical data on wa collected from this well or field have been previously added to computer file. As more data become available and as our automat data evaluation system indicates any water-related problems in yc field, the technical personnel of Tretolite will contact you immediately.

SCALE TENDENCIES OF THE ANALYZED BRINE

In the following paragraphs, the scale tendencies of the brine are analyzed by utilizing some basic thermodynamic correlations. These scale tendency considerations are different from the commonly applied Stiff-Davis Diagrams and calculation methods because those methods are not based on the critical thermodynamic conditions encountered in the field.

CaSO4

The calcium and sulfate ion concentration of the brine as reported in this analysis does not seem to pose any danger of calcium sulfate precipitation at 76 deg-F.

However, if the brine is heated to a temperature of 184.5 deg-F or higher (at water saturation pressure), this brine would have a tendency to precipitate calcium sulfate.

It has to be remembered that CaSO4 scale tendency decreases with increasing pressure. This means, if the system pressure is higher than the water vapor saturation pressure, calcium sulfate scale would form at a temperature higher than reported.

BaSO4

Analysis No. 4999

The barium and sulfate ion concentrations of the brine as reported in this analysis indicate a definite potential for barium sulfate precipitation at 76 deg-F. This indicates that barium sulfate precipitation has already occurred somewhere in this system before the wellbore brine is brought to the ambient conditions.

However, the maximum amount of BaSO4 that can be precipitated is 2.209 Mg/liter of the brine.

SrSO4

The strontium and sulfate ion concentrations of the brine as reported in this analysis indicate that there is a potential for strontium sulfate precipitation at 76 deg-F. This suggests that as the brine is brought to the ambient conditions from higher temperatures and pressures strontium sulfate scaling has occurred.

CaCO3

At 76 deg-F, the stability index is (-): implies corrosive tendency.

The precise calcium carbonate scaling tendency of the brine cannot immediately be determined without the required information on temperature, pressure, pH and partial pressure of carbon dioxide above the brine. The Stiff-Davis Stability Index gives only a crude approximation of the CaCO3 scale tendencies. This stability index is given for the sake of completeness.

QUANTITATIVE INFORMATION ON ALL SCALE TENDENCIES

Quantitative information can be extracted on all scaling tendencies of this brine if the temperature and pressure conditions of the brine are available. The most complicated calculations have to be performed on the CaCO3 scale tendencies. The other scale tendencies are easier to determine.

WATER ANALYSIS REPORT

COMPANY	SOURCE
Cabot Corporation	State "C" 1, Reed #2 Well Howard Fleet Comingled Sample point: Devonian

Submitted by: Brewer, M.
Sampled by: Brewer, M.
Distribution Center: Midland

Sample date: 10/31/80
Analysis Date: 11/ 7/80
Analysis No.: 5057

SAMPLE ANALYSIS

Appearance: Clear
Sp. Conductivity: 100000 micromhos/cm
pH: 7.2

Color: Colorless
Chem. Treatment: N/A
H2S (Qualitative): Pos.

constituent **	ppm	meq/l	method	comments
Sodium (Na+)	26400	1150	icp	
Potassium (K+)	635.	16.	icp	
Lithium (Li+)	9.	1.	icp	
Calcium (Ca++)	2770	138.	icp	
Magnesium (Mg++)	473.	38.9	icp	
Barium (Ba++)	3.5	0.05	icp	
Strontium (Sr++)	95.	2.	icp	
Aluminum (Al+++)	5.8	-	icp	
Silver (Ag+)	<0.2	-	icp	
Arsenic (As+++)	<5.	-	icp	
Chromium (Cr+++)	<0.6	-	icp	
Copper (Cu++)	1.1	0.03	icp	
Iron (Fe++)	2.4	0.08	icp	
Mercury (Hg++)	<2.	-	icp	
Lead (Pb++)	<3.	-	icp	
Antimony (Sb+++)	<20	-	icp	
Tin (Sn++)	<6.	-	icp	
Titanium (Ti++++)	<0.1	-	icp	
Zinc (Zn++)	0.82	0.0251	icp	
Boron (B) ***	7.1	2.0	icp	
Phosphate (PO4---)	<5.	-	icp	
Chloride (Cl-)	48400	1370	titr	
Sulfate (SO4--)	1430	29.8	turb	
Bicarbonate (HCO3-)	453.	7.4	titr	
Carbonate (CO3--)	<1.	-	titr	
Silica (SiO2)	56.	-	icp	

Analysis No. 5057

NOTES TO ANALYSIS

Ion Balance

Sum of cations:	1350 meq/l	Standard deviation:	24.2 meq/l
Sum of anions:	1400 meq/l	Standard deviation:	27.3 meq/l

*TDS Balance

Measured:	84000 ppm	Standard deviation:	4210 ppm
Calculated:	80800 ppm	Standard deviation:	1120 ppm

# indicates that the amount of this component has changed in a statistically significant way since the last analysis
N/A= not available
meq/l= milliequivalents per liter
ppm and milligrams per liter used interchangeably
icp= inductively coupled plasma emission
titr= titration; turb= turbidimetric
TDS by gravimetric determination
Specific Conductivity by Wheatstone Bridge

* Total Dissolved Solids
** Valency given is arbitrarily chosen and is not necessarily the true valency unless indicated in the column for comments
*** TDS boron is given as ppm elemental boron, but for the purposes of an ion balance, boron is converted to BO3---

The various parameters in the above results can be usefully interpreted using the guidelines below:

1) pH value is an indication of the acidity or basicity of a brine. pH measurements provide critical information about a) the solubility of sparingly soluble compounds, b) the carbonate scaling tendency, c) iron oxidation state and d) caution needed in using some external chemical treatments.

2) Specific conductivity: this gives an approximate indication of the total amount of inorganic dissolved solids in the water sample. A simple guideline is that 10,000 micromhos/cm is equivalent to 100 meq/l of dissolved solids. However, this relationship is valid only in solutions with specific conductivities less than approximately 50,000 micromhos/cm.

3) Concentration of various ionic species: the concentrations of various ionic species give information about a) thermodynamic characteristics of the brine, b) scaling tendency of the water, and c) enthalpy of the water.

Analysis No. 5057

HISTORY OF FIELD WATER COMPOSITIONAL DATA

Tretolite is using a new data management system to help the operator in managing his waters in the field. This system is based on a comparison of water-analytical data between this newly and any previously analyzed sample.

Our computer record indicates that no analytical data on waters collected from this well or field have been previously added to our computer file. As more data become available and as our automated data evaluation system indicates any water-related problems in your field, the technical personnel of Tretolite will contact you immediately.

SCALE TENDENCIES OF THE ANALYZED BRINE

In the following paragraphs, the scale tendencies of the brine are analyzed by utilizing some basic thermodynamic correlations. These scale tendency considerations are different from the commonly applied Stiff-Davis Diagrams and calculation methods because those methods are not based on the critical thermodynamic conditions encountered in the field.

CaSO4

The calcium and sulfate ion concentration of the brine as reported in this analysis does not seem to pose any danger of calcium sulfate precipitation at 76 deg-F.

However, if the brine is heated to a temperature of 184.5 deg-F or higher (at water saturation pressure), this brine would have a tendency to precipitate calcium sulfate.

It has to be remembered that CaSO4 scale tendency decreases with increasing pressure. This means, if the system pressure is higher than the water vapor saturation pressure, calcium sulfate scale would form at a temperature higher than reported.

BaSO4

The barium and sulfate ion concentrations of the brine as reported in this analysis indicate a definite potential for barium sulfate precipitation at 76 deg-F. This indicates that barium sulfate precipitation has already occurred somewhere in this system before the wellbore brine is brought to the ambient conditions.

However, the maximum amount of BaSO4 that can be precipitated is 5.946 Mg/liter of the brine.

SrSO4

The strontium and sulfate ion concentrations of the brine as reported in this analysis indicate that there is a potential for strontium sulfate precipitation at 76 deg-F. This suggests that as the brine is brought to the ambient conditions from higher temperatures and pressures strontium sulfate scaling has occurred.

CaCO3

At 76 deg-F, the stability index is (+): implies scaling tendency.

The precise calcium carbonate scaling tendency of the brine cannot immediately be determined without the required information on temperature, pressure, pH and partial pressure of carbon dioxide above the brine. The Stiff-Davis Stability Index gives only a crude approximation of the CaCO3 scale tendencies. This stability index is given for the sake of completeness.

QUANTITATIVE INFORMATION ON ALL SCALE TENDENCIES

Quantitative information can be extracted on all scaling tendencies of this brine if the temperature and pressure conditions of the brine are available. The most complicated calculations have to be performed on the CaCO3 scale tendencies. The other scale tendencies are easier to determine.

(314) 961-3500 / TWX 910 760 1660 / TELEX 44-2491

WATER ANALYSIS REPORT

COMPANY

Cabot Corporation

SOURCE

State "C"
Well 2
Sample point:
Wolf Camp Formation

Submitted by: Brewer, M.
Sampled by: Brewer, M.
Distribution Center: Midland

Sample date: 10/31/80
Analysis Date: 11/ 7/80
Analysis No.: 5058

SAMPLE ANALYSIS

Appearance: Clear
Sp. Conductivity: 110000 micromhos/cm
pH: 6.4

Color: Colorless
Chem. Treatment: N/A
H2S (Qualitative): Pos.

constituent **	ppm	meq/l	method	comments
Sodium (Na+)	29800	1300	icp	
Potassium (K+)	715.	18.	icp	
Lithium (Li+)	10	2.	icp	
Calcium (Ca++)	3090	154.	icp	
Magnesium (Mg++)	540.	44.4	icp	
Barium (Ba++)	8.1	0.1	icp	
Strontium (Sr++)	100	2.	icp	
Aluminum (Al+++)	36.	-	icp	
Silver (Ag+)	<0.2	-	icp	
Arsenic (As+++)	<5.	-	icp	
Chromium (Cr+++)	<0.6	-	icp	
Copper (Cu++)	1.2	0.04	icp	
Iron (Fe++)	10.2	0.4	icp	
Mercury (Hg++)	<2.	-	icp	
Lead (Pb++)	<3.	-	icp	
Antimony (Sb+++)	<20	-	icp	
Tin (Sn++)	<6.	-	icp	
Titanium (Ti++++)	<0.1	-	icp	
Zinc (Zn++)	1.75	0.0537	icp	
Boron (B) ***	14.2	3.9	icp	
Phosphate (PO4---)	<5.	-	icp	
Chloride (Cl-)	53200	1500	titr	
Sulfate (SO4--)	1520	31.5	turb	
Bicarbonate (HCO3-)	462.	7.6	titr	
Carbonate (CO3--)	<1.	-	titr	
Silica (SiO2)	130	-	icp	

Analysis No. 5058

NOTES TO ANALYSIS

Ion Balance

Sum of cations:	1520 meq/l	Standard deviation:	27.1 meq/l
Sum of anions:	1540 meq/l	Standard deviation:	30.0 meq/l

*TDS Balance

Measured:	93000 ppm	Standard deviation:	4670 ppm
Calculated:	89700 ppm	Standard deviation:	1230 ppm

# indicates that the amount of this component has changed in a statistically significant way since the last analysis
N/A= not available
meq/l= milliequivalents per liter
ppm and milligrams per liter used interchangeably
icp= inductively coupled plasma emission
titr= titration; turb= turbidimetric
TDS by gravimetric determination
Specific Conductivity by Wheatstone Bridge

* Total Dissolved Solids
** Valency given is arbitrarily chosen and is not necessarily the true valency unless indicated in the column for comments
*** TDS boron is given as ppm elemental boron, but for the purposes of an ion balance, boron is converted to BO3---

The various parameters in the above results can be usefully interpreted using the guidelines below:

1) pH value is an indication of the acidity or basicity of a brine. pH measurements provide critical information about a) the solubility of sparingly soluble compounds, b) the carbonate scaling tendency, c) iron oxidation state and d) caution needed in using some external chemical treatments.

2) Specific conductivity: this gives an approximate indication of the total amount of inorganic dissolved solids in the water sample. A simple guideline is that 10,000 micromhos/cm is equivalent to 100 meq/l of dissolved solids. However, this relationship is valid only in solutions with specific conductivities less than approximately 50,000 micromhos/cm.

3) Concentration of various ionic species: the concentrations of various ionic species give information about a) thermodynamic characteristics of the brine, b) scaling tendency of the water, and c) enthalpy of the water.

Analysis No. 5059

HISTORY OF FIELD WATER COMPOSITIONAL DATA

Tretolite is using a new data management system to help the operator in managing his waters in the field. This system is based on a comparison of water-analytical data between this newly and any previously analyzed sample.

Our computer record indicates that no analytical data on waters collected from this well or field have been previously added to our computer file. As more data become available and as our automated data evaluation system indicates any water-related problems in your field, the technical personnel of Tretolite will contact you immediately.

SCALE TENDENCIES OF THE ANALYZED BRINE

In the following paragraphs, the scale tendencies of the brine are analyzed by utilizing some basic thermodynamic correlations. These scale tendency considerations are different from the commonly applied Stiff-Davis Diagrams and calculation methods because those methods are not based on the critical thermodynamic conditions encountered in the field.

CaSO4

The calcium and sulfate ion concentration of the brine as reported in this analysis does not seem to pose any danger of calcium sulfate precipitation at 76 deg-F.

However, if the brine is heated to a temperature of 184.5 deg-F or higher (at water saturation pressure), this brine would have a tendency to precipitate calcium sulfate.

It has to be remembered that CaSO4 scale tendency decreases with increasing pressure. This means, if the system pressure is higher than the water vapor saturation pressure, calcium sulfate scale would form at a temperature higher than reported.

BaSO4

Analysis No. 5058

The barium and sulfate ion concentrations of the brine as reported in this analysis indicate a definite potential for barium sulfate precipitation at 76 deg-F. This indicates that barium sulfate precipitation has already occurred somewhere in this system before the wellbore brine is brought to the ambient conditions.

However, the maximum amount of BaSO4 that can be precipitated is 13.762 Mg/liter of the brine.

SrSO4

The strontium and sulfate ion concentrations of the brine as reported in this analysis indicate that there is a potential for strontium sulfate precipitation at 76 deg-F. This suggests that as the brine is brought to the ambient conditions from higher temperatures and pressures strontium sulfate scaling has occurred.

CaCO3

At 76 deg-F, the stability index is (-): implies corrosive tendency.

The precise calcium carbonate scaling tendency of the brine cannot immediately be determined without the required information on temperature, pressure, pH and partial pressure of carbon dioxide above the brine. The Stiff-Davis Stability Index gives only a crude approximation of the CaCO3 scale tendencies. This stability index is given for the sake of completeness.

QUANTITATIVE INFORMATION ON ALL SCALE TENDENCIES

Quantitative information can be extracted on all scaling tendencies of this brine if the temperature and pressure conditions of the brine are available. The most complicated calculations have to be performed on the CaCO3 scale tendencies. The other scale tendencies are easier to determine.

EXHIBIT X - Log of J. L. Reed No. 3

SCHLUMBERGER WELL SURVEYING CORPORATION

Electrical Log

COMPANY	CABOT CARBON CO.
WELL	REED # 3
FIELD	KING DEVONIAN
LOCATION	SEC. 35-13S-37E
COUNTY	LEA
STATE	NEW MEXICO

Other Surveys: ML TDM

Location of Well: 1980' f N/L, 1650' f E/L

Elevation DF 3857

FILING No

Run No	1
Date	7-11-57
First Reading	12319
Last Reading	4588
Feet Measured	7731
Csg. Schlum	4588
Csg. Driller	4586
Depth Reached	12322
Bottom Driller	12422
Depth Datum	KB 13' Abv. GL
Mud Nat.	Cem.-Gel
Dens. Visc.	8.8 68
Mud Resist.	1.28 93
Res. BHT	.8 152
Rmf	.9 88
pH	10.
Wtr. Loss	8.2 CC 30 min
Bit size	7 7/8" to 12280 4 3/4" to TD
Spcg. AM	10" Nor.
AO	32" LS
AO	19' Lat
Op. Time	2 1/2 Hr.
Truck No.	1762-Hobbs
Recorded by	M

Reproduced by
West Texas Electrical Log Service
Dallas 2, Texas

REFERENCE W7424B

COMPLETION RECORD

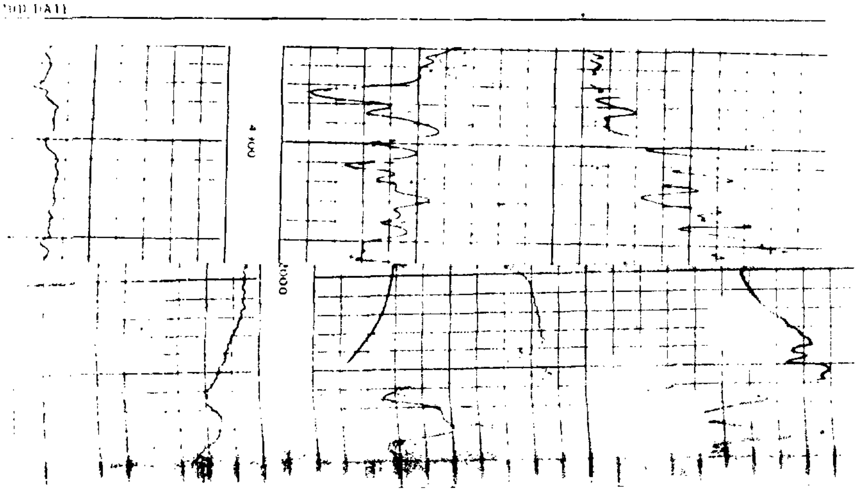


EXHIBIT XI - Chemical analysis of fresh water from two or more fresh water wells within one mile

Submitted by Union Texas Petroleum Petroleum Corporation in Application for Hulda #1 S.W.D. located in Unit "A" Sec. 1 T14S R37E

Water Analysis of Fresh Water Wells
Surrounding Proposed SWD Well

↑ Union Texas Petroleum Corp. Hulda #1
(Unit A) 1-13S-37E

Analysis performed by Halliburton Services Laboratory, Hobbs, New Mexico on 3-3-1983

	Unit "D" Sec 7 T14S-R38E	Unit "L" Sec 6 T14S-R38E	Unit "B" Sec 12 T14S-R37E
	1	2	3
Resistivity	5.7 at 74°F	11.6 at 74°f	11.4 at 74°F
Specific Gravity	1.004	1.001	1.001
pH	6.6	7.0	7.0
Calcium (Mpl)	150	80	105
Magnesium	21	15	14
Chlorides	450	100	150
Sulfates	450	300	380
Bicarbonates	315	290	270
Soluble Fe	Nil	Nil	Nil
Sodium (calc)	414	198	232
Total Dissolved Solids Milligrams per liter	1800	983	1152

Permission to use this given by Walter Komos of Union

EXHIBIT XII - I have examined available geologic and engineering data and find no evidence of open faults or any other hydrologic connection between the disposal zone and any underground source of drinking water.

CABOT PETROLEUM CORPORATION

George A. Forrest

George A. Forrest
Senior Petroleum Engineer

EXHIBIT XIII - Proof of Notice

CABOT PETROLEUM CORPORATION OIL AND GAS DRILLING AND PRODUCTION

806/669-2581
P. O. BOX 5001, PAMPA, TEXAS 79065

October 31, 1984

KERR McGEE CORPORATION
P. O. Box 250
Amarillo, Texas 79189

Attention: Mr. C. Alan Roberts
District Manager

Gentlemen:

Re: REQUEST FOR WAIVER
SALT WATER DISPOSAL WELL
SECTION 35-T135-R37E
LEA COUNTY, NEW MEXICO

Cabot will be making application to the New Mexico Oil Conservation Commission to dispose of salt water produced from the King Field into the previously abandoned Cabot Petroleum Corporation's J. L. Reed, et al No. 3 located 1980' FNL and 1650' FEL of Section 35-T135-R37E, Lea County, New Mexico. Cabot plans to re-enter this well and equip to inject through plastic-lined tubing and packer. Proposed injection will be into San Andres and Glorieta formations from 4583' to 6735'.

Please signify your approval in the space provided below and return a copy of this waiver to Cabot in the self-addressed stamped envelope.

Very truly yours,

George A. Forrest

George A. Forrest
Senior Petroleum Engineer

Objections are hereby waived for Cabot Petroleum Corporation's plans to convert the above well to salt water disposal service.

Signed C. Alan Roberts

For KERR-McGEE CORP.

Date 11-2-84

CABOT PETROLEUM CORPORATION OIL AND GAS DRILLING AND PRODUCTION

806/669-2581
P. O. BOX 5001, PAMPA, TEXAS 79065

November 6, 1984

SUN OIL COMPANY
Box 1861
Midland, Texas 79702

Attention: Mr. R. K. Beggs
District Manager

Gentlemen:

Re: REQUEST FOR WAIVER
SALT WATER DISPOSAL WELL
SECTION 35-T135-R37E
LEA COUNTY, NEW MEXICO

Cabot will be making application to the New Mexico Oil Conservation Commission to dispose of salt water produced from the King Field into the previously abandoned Cabot Petroleum Corporation's J. L. Reed, et al No. 3 located 1980' FNL and 1650' FEL of Section 35-T13S-R37E, Lea County, New Mexico. Cabot plans to re-enter this well and equip to inject through plastic-lined tubing and packer. Proposed injection will be into San Andres and Glorieta formations from 4583' to 6735'.

Please signify your approval in the space provided below and return a copy of this waiver to Cabot in the self-addressed stamped envelope.

Very truly yours,

George A. Forrest

George A. Forrest
Senionr Petroleum Engineer

Objections are hereby waived for Cabot Petroleum Corporation's plans to convert the above well to salt water disposal service.

Signed Carol A. Burton

For SUN EXPLORATION & PRODUCTION CO.

Date 11-19-84

CABOT PETROLEUM CORPORATION
OIL AND GAS
DRILLING AND PRODUCTION

806/669-2581
P. O. BOX 5001, PAMPA, TEXAS 79065

5

WTD

October 31, 1984

RECEIVED
MIDLAND
NOV 2 1984
EXXON
Land Section

EXXON
P. O. Box 1600
Midland, Texas 79702

Attention: Mr. H. J. Naumann
Division Landman

Gentlemen:

Re: REQUEST FOR WAIVER
SALT WATER DISPOSAL WELL
SECTION 35-T135-R37E
LEA COUNTY, NEW MEXICO

Cabot will be making application to the New Mexico Oil Conservation Commission to dispose of salt water produced from the King Field into the previously abandoned Cabot Petroleum Corporation's J. L. Reed, et al No. 3 located 1980' FNL and 1650' FEL of Section 35-T135-R37E, Lea County, New Mexico. Cabot plans to re-enter this well and equip to inject through plastic-lined tubing and packer. Proposed injection will be into San Andres and Glorieta formations from 4583' to 6735'.

Please signify your approval in the space provided below and return a copy of this waiver to Cabot in the self-addressed stamped envelope.

Very truly yours,

George A. Forrest

George A. Forrest
Senior Petroleum Engineer

Objections are hereby waived for Cabot Petroleum Corporation's plans to convert the above well to salt water disposal service.

Signed J. K. Tytle

For Exxon Corp.

Date 11-14-84

Production

CABOT PETROLEUM CORPORATION OIL AND GAS DRILLING AND PRODUCTION

806/669-2581
P. O. BOX 5001, PAMPA, TEXAS 79065

October 31, 1984

COTTON PETROLEUM
P. O. Box 3501
Tulsa, Oklahoma 74102

Attention: Mr. Scott Roberts
Division Landman

Gentlemen:

Re: REQUEST FOR WAIVER
SALT WATER DISPOSAL WELL
SECTION 35-T135-R37E
LEA COUNTY, NEW MEXICO

Cabot will be making application to the New Mexico Oil Conservation Commission to dispose of salt water produced from the King Field into the previously abandoned Cabot Petroleum Corporation's J. L. Reed, et al No. 3 located 1980' FNL and 1650' FEL of Section 35-T135-R37E, Lea County, New Mexico. Cabot plans to re-enter this well and equip to inject through plastic-lined tubing and packer. Proposed injection will be into San Andres and Glorieta formations from 4583' to 6735'.

Please signify your approval in the space provided below and return a copy of this waiver to Cabot in the self-addressed stamped envelope.

Very truly yours,

George A. Forrest

George A. Forrest
Senior Petroleum Engineer

Objections are hereby waived for Cabot Petroleum Corporation's plans to convert the above well to salt water disposal service.

Signed Scott Roberts

For Cotton Petroleum

Date 11-14-84

Cotton Petroleum Corporation
A United Energy Resources, Inc. Company
One West Third Street

P.O. Box 3501 / Tulsa, Oklahoma 74102 (918) 560-3500

November 22, 1984

Cabot Petroleum Corporation
P. O. Box 5001
Pampa, TX 79065

Attn: George A. Forrest
Senior Petroleum Engineer

Re: Request for Waiver
Salt Water Disposal Well
Section 35-T13S-R37E
Lea County, NM

Gentlemen:

Enclosed is an executed letter to waive objections to convert Cabot's Reed No. 3 to salt water disposal service.

If additional information is required, please let us know.

Very truly yours,

COTTON PETROLEUM CORPORATION

Zelma Edwards

Zelma Edwards
Land Department

Enclosure

CABOT PETROLEUM CORPORATION

1670 BROADWAY, SUITE 3033
DENVER, COLORADO 80202
303 861-3033

December 11, 1984

Mr. James Reed McCrory
P. O. Box 25764
Albuquerque, New Mexico 87125

RE: Request For Waiver
Salt Water Disposal Well
Section 35-T13S-R37E
Lea County, New Mexico
NM-JO-4 & NM-JO-10

Dear Mr. McCrory:

Cabot will be making application to the New Mexico Conservation Commission to dispose of salt water produced from the King Field into the abandoned Cabot Carbon Company Reed #3 located in the SE/4 of Section 35-T13S-R37E, Lea County, New Mexico. Cabot plans to inject the salt water through plastic line tubing and a plastic lined packer into the San Andres and Glorietta formations found at depths between 4583' and 6730'.

Please signify your approval in the space provided below and return a copy of this Waiver to Cabot in the self-addressed stamped envelope.

Very truly yours,

CABOT PETROLEUM CORPORATION

John S. Muire
District Landman

ACCEPTED AND AGREED TO
THIS 3 DAY OF January, 1984.

BY: James Reed McCrory
MR. JAMES REED McCRORY

JSM/td
enclosures

Affidavit of Publication

STATE OF NEW MEXICO)
) ss.
COUNTY OF LEA)

Joyce Clemens being first duly sworn on oath deposes and says that he is Adv. Mgr. of THE LOVINGTON DAILY LEADER, a daily newspaper of general paid circulation published in the English language at Lovington, Lea County, New Mexico; that said newspaper has been so published in such county continuously and uninterruptedly for a period in excess of Twenty-six (26) consecutive weeks next prior to the first publication of the notice hereto attached as hereinafter shown; and that said newspaper is in all things duly qualified to publish legal notices within the meaning of Chapter 167 of the 1937 Session Laws of the State of New Mexico.

That the notice which is hereto attached, entitled Legal Notice

and numbered .... in the .... Court of Lea County, New Mexico, was published in a regular and entire issue of THE LOVINGTON DAILY LEADER and not in any supplement thereof, once each week on the same day of the week, for One Time consecutive weeks, beginning with the issue of November 23, 1984 and ending with the issue of ...., 19....

And that the cost of publishing said notice is the sum of $9.26 which sum has been (Paid) (~~Assessed~~) as Court Costs

Joyce Clemens

Subscribed and sworn to before me this 26th day of November, 1984.

Mrs. Jean Sevier
Notary Public, Lea County, New Mexico

My Commission Expires Sept. 28, 1986

PUBLIC NOTICE
Cabot Petroleum Corporation
P.O. Box 5001
Pampa, Texas 79065
(806) 669-2581
Contact Party: George Forrest, Senior Petroleum Engineer
Well: Plugged and Abandoned Cobat Corporation J.L. Reed et al, 1960 Feet from the North Line and 1650 feet from the East Line of Section 35, Township 13 South-Range 37 East, Unit letter G, Lea County, New Mexico.

Application is being made to State of New Mexico Energy and Minerals Department, Oil Conservation Division to re-enter and complete as Salt Water Disposal Well. Injection will be into the San Andres and Glorieta Formations from 4583' to 6730'. Injected salt water will be produced water (Devonian and Wolfcamp) from oil wells in Section 35 and 36, T13S-R37E. Maximum injection rate expected will be 2000 barrels per day at expected maximim pressure of 1500 psi. Injection will be through 2-3/8" plastic lined tubing with 8-5/8" x 2-7/8" packer set at 4500'.

Interested parties must file objections or requests for hearing with the Oil Conservation Division, P.O. Box 2088, Santa Fe, New Mexico 87901 within fifteen (15) days.

Published in the Lovington Daily Leader November 23, 1984.