CABOT CORPORATION P. O. BOX 5001, PAMPA, TEXAS 79065

CABLE ADDRESS "CABLAK" PAMPA
PHONE 669 - 2581 (AREA CODE 806)

December 1, 1980

Mr. Richard L. Stamets
State of New Mexico
Energy and Minerals Dept.
Oil Conservation Division
P. O. Box 2088
Santa Fe, New Mexico 87501

Re: Atlantic Refining Company
J. L. Reed No. 1
660' FNL & 660' FWL,
Sec. 1,T14S, R37E,
Lea County, New Mexico

Dear Sir:

After drilling and drill stem testing as non productive, Atlantic plugged and abandoned the subject well June 6, 1957. The surface and intermediate casings were only run and left in the well.

Cabot Corporation has purchased this well to be used as a water disposal well.

Enclosed is Form C-101 to reenter, complete for salt water disposal into San Andres zone, and rename well the Johnny No. 1 SWD (Note: Cabot already has a Reed No. 1 SWD well in the field).

Also enclosed is Form C-102 and Form C-108 with all the attachments and waivers required.

There is only one plugged and abandoned well within one-half mile of proposed disposal well. For your convenience, I have also included well bore schematics of the other producing or temporarily abandoned wells within one half mile.

Since the water oil ratio of Devonian productions is high, we have problems handling water production. This is especially true right after changing downhole pump in a well and producing to get oil rate back to normal.

This second injection well will allow us to better handle the peaks of water production and ultimatley to recover more oil.

Therefore Cabot Corporation respectfully requests your approval of submitted application.

Sincerely,

George Forrest

George Forrest
Western Region Production Engineer

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

Form C-108
Revised 3-1-68

NEW MEXICO OIL CONSERVATION COMMISSION

APPLICATION TO DISPOSE OF SALT WATER BY INJECTION INTO A POROUS FORMATION

OPERATOR		ADDRESS	
Cabot Corporation		P. O. Box 5001, Pampa, Texas 79065	
LEASE NAME	WELL NO.	FIELD	COUNTY
Johnny	1 SWD	King	Lea

LOCATION

UNIT LETTER D ; WELL IS LOCATED 660 FEET FROM THE North LINE AND 660 FEET FROM THE West LINE, SECTION 1 TOWNSHIP 14 S RANGE 37E NMPM.

CASING AND TUBING DATA

NAME OF STRING	SIZE	SETTING DEPTH	SACKS CEMENT	TOP OF CEMENT	TOP DETERMINED BY
SURFACE CASING	13-3/8"	370.94	350	Surface	Cement Circulated
INTERMEDIATE	9-5/8"	4657.79	1611	1410	Temp. Survey
LONG STRING					
TUBING			NAME, MODEL AND DEPTH OF TUBING PACKER		

NAME OF PROPOSED INJECTION FORMATION	TOP OF FORMATION	BOTTOM OF FORMATION
San Andres	4594	6090

IS INJECTION THROUGH TUBING, CASING, OR ANNULUS?	PERFORATIONS OR OPEN HOLE?	PROPOSED INTERVAL(S) OF INJECTION
Plastic Lined Tubing	Open Hole	4658 - 6080

IS THIS A NEW WELL DRILLED FOR DISPOSAL?	IF ANSWER IS NO, FOR WHAT PURPOSE WAS WELL ORIGINALLY DRILLED?	HAS WELL EVER BEEN PERFORATED IN ANY ZONE OTHER THAN THE PROPOSED INJECTION ZONE?
No	Oil-Not Completed-Plugged & Abandoned	No

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

None

DEPTH OF BOTTOM OF DEEPEST FRESH WATER ZONE IN THIS AREA	DEPTH OF BOTTOM OF NEXT HIGHER OIL OR GAS ZONE IN THIS AREA	DEPTH OF TOP OF NEXT LOWER OIL OR GAS ZONE IN THIS AREA
200' below G.L.	None	9373

ANTICIPATED DAILY INJECTION VOLUME (BBLS.) MINIMUM	MAXIMUM	OPEN OR CLOSED TYPE SYSTEM	IS INJECTION TO BE BY GRAVITY OR PRESSURE?	APPROX. PRESSURE (PSIG)
500	1000	Closed	Pressure	1200

ANSWER YES OR NO WHETHER THE FOLLOWING WATERS ARE MINERALIZED TO SUCH A DEGREE AS TO BE UNFIT FOR DOMESTIC, STOCK, IRRIGATION, OR OTHER GENERAL USE — WATER TO BE DISPOSED OF	NATURAL WATER IN DISPOSAL ZONE	ARE WATER ANALYSES ATTACHED?
Yes	Yes	Yes

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

Mrs. Mary Ruth McCrory, P. O. Box 25764, Albuquerque, New Mexico 87125

LIST NAMES AND ADDRESSES OF ALL OPERATORS WITHIN ONE-HALF (½) MILE OF THIS INJECTION WELL

Cabot Corporation, P. O. Box 5001, Pampa, Texas 79065

Kerr McGee Corporation, P. O. Box 250, Amarillo, Texas 79189

Skelton Oil Company, 1500 Broadway Place, Hobbs, New Mexico 88240

DEC 2 1980

OIL CONSERVATION DIVISION
SANTA FE

HAVE COPIES OF THIS APPLICATION BEEN SENT TO EACH OF THE FOLLOWING? SURFACE OWNER	EACH OPERATOR WITHIN ONE-HALF MILE OF THIS WELL
Yes	Yes

ARE THE FOLLOWING ITEMS ATTACHED TO THIS APPLICATION (SEE RULE 701-B) PLAT OF AREA	ELECTRICAL LOG	DIAGRAMMATIC SKETCH OF WELL
Yes	Yes	Yes

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

George Forest — (Signature)

Production Engineer — (Title)

November 26, 1980 — (Date)

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

EXHIBIT 1 - Land Plat showing location of proposed disposal well and locations of all other wells within radius of 2 miles which have penetrated the proposed San Andres disposal zone.

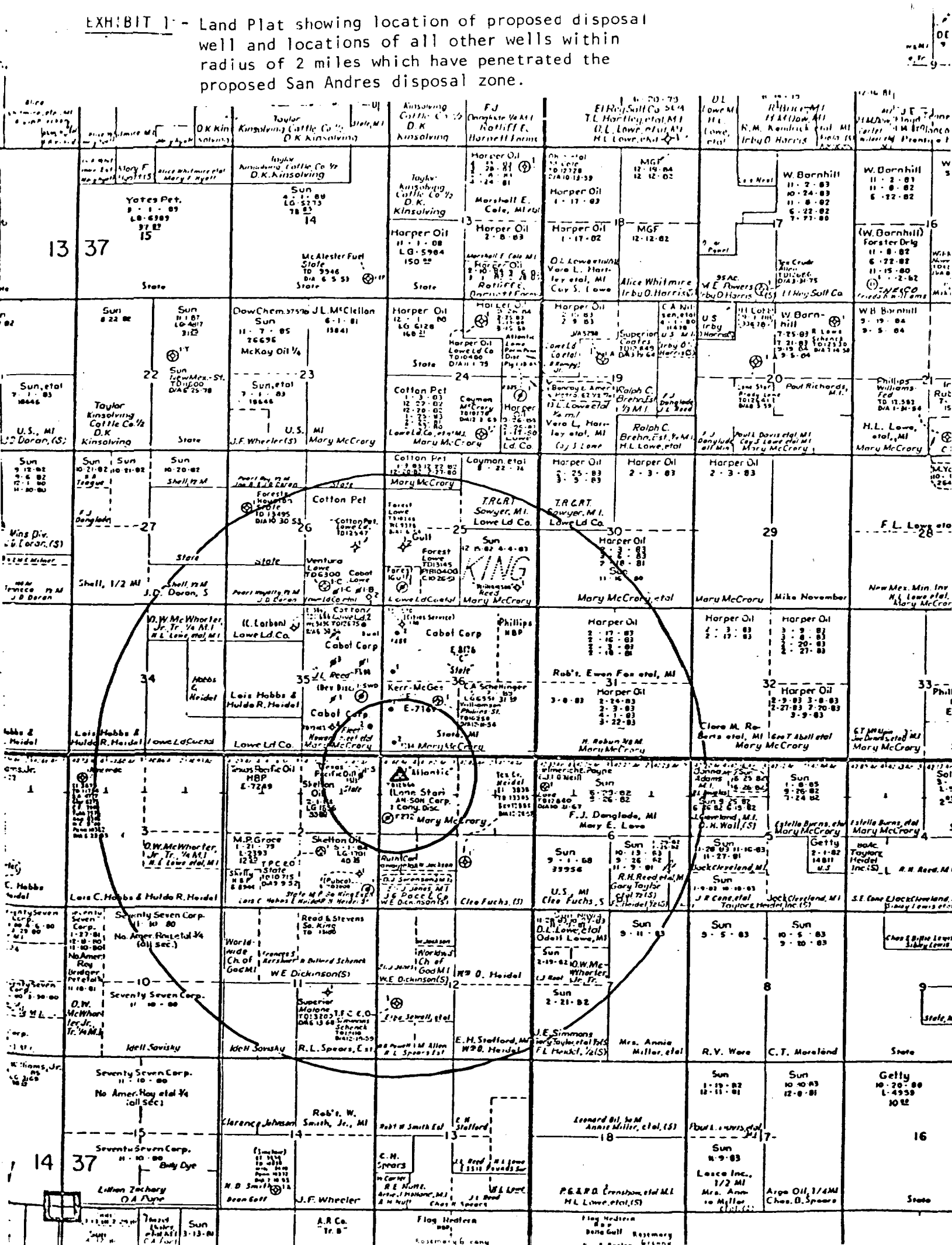


EXHIBIT 2 - Well log, proposed disposal well Cabot Corporation Johnny No. 1 S.W.D. (Previously Atlantic Refining Company Reed No. 1)

SCHLUMBERGER WELL SURVEYING CORPORATION

SCHLUMBERGER *Electrical Log*

COUNTY Lea	COMPANY	ATLANTIC REFG. COMPANY
FIELD or LOCATION King Devonian	WELL	REED # 1
WELL Reed # 1	FIELD	KING DEVONIAN
COMPANY Atlantic Refg Co.	LOCATION	SEC. 1-14S-37E
	COUNTY	LEA
	STATE	NEW MEXICO

Other Surveys: ES GR TDM

Location of Well: 660' f N&W/L

Elevation: D.F. 3848; K.B. 3849; or G.L. 3838

FILING No.

RUN No	1
Date	6-4-57
First Reading	12861
Last Reading	4660
Feet Measured	8201
Csg Schlum	4660
Csg Driller	4657
Depth Reached	12864
Bottom Driller	12850
Depth Datum	KB 11' Abv. GL
Mud Nat	Chem.
Dens Visc	9.1 130
Mud Resist	1.05 @ 64 F
Res BHT	.04 @ 162 F
Rmf	.34 @ 162 F
Rmc	1.10 @ 77 F
pH	11
Wtr Loss	5.2 cc 30 min
Bit Size	8 3/4"
Spcgs — AM	10" Normal
AO	32" Limestone
AO	18'8" Lateral
Opr Rig Time	4 Hrs.
Truck No	1758-Hobbs
[illegible]	[illegible]
[illegible]	[illegible]

REMARKS [illegible] - 4660 - LDG - 4[illegible]
LDG: sens. 300, TC 1, speed 2000 & 3000'/hr.
RMF: .34 @ 162
RMC: 1.10 @ 77

SPONTANEOUS POTENTIAL millivolts	DEPTHS	RESISTIVITY ohms. m²/m	RESISTIVITY ohms. m²/m
20		0 10" Normal 80	0 18'8" Lateral 50
		0 800	0 500
		0 32" LS Lateral 80	0 5000

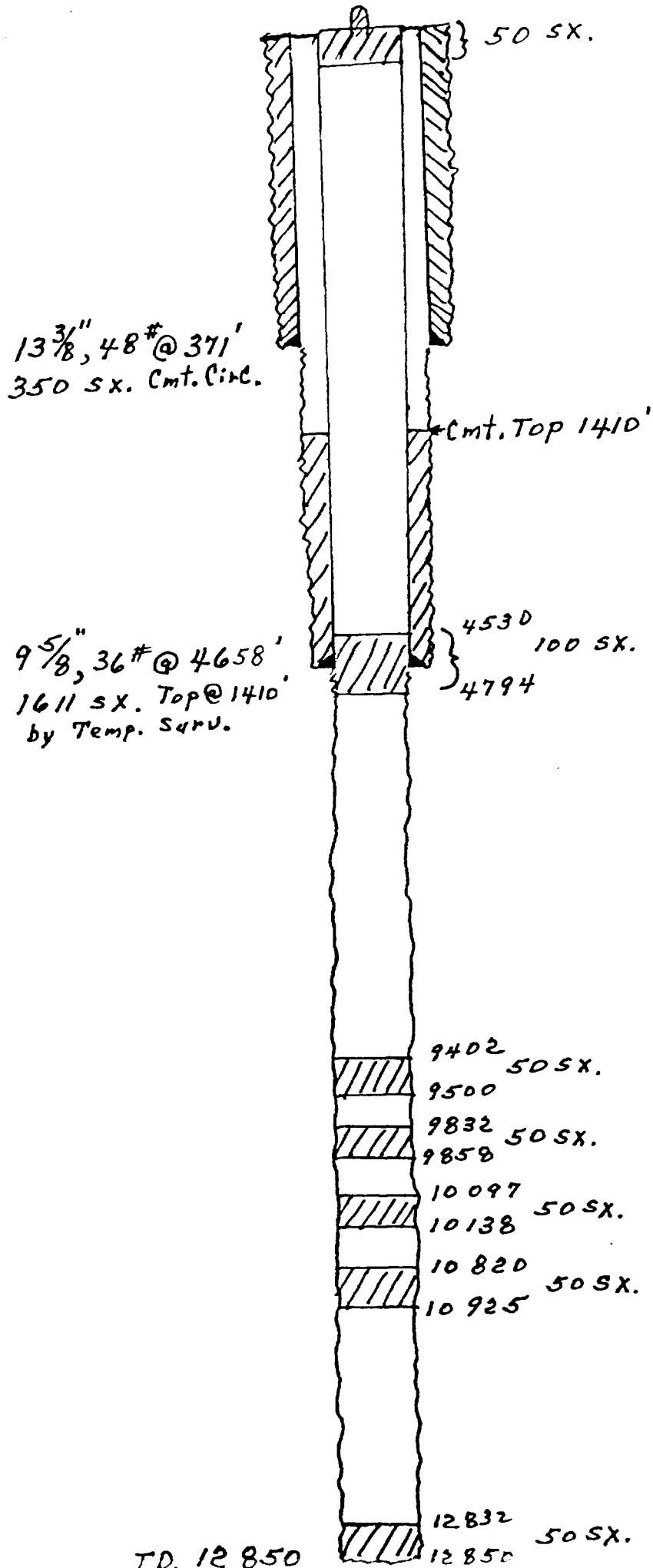
GAMMA RAY SCALE

P ——— Micrograms Radium Equiv per Ton of Formation

P ——— Micrograms Radium Equiv per Ton of Formation

EXHIBIT 3

(Previously Atlantic Refining Company Reed No. 1)



Atlantic Refining Company

J. L. Reed No. 1 3848' DF

660' FNL & 660' FWL

Sec. 1, T 14-S, R 37-E,

Lea County, New Mexico

Plugged and Abandoned

6-6-57

PLEASE INDICATE BELOW FORMATION TOPS (IN CONFORMA

Southeastern New Mexico

T. Anhy	2290	T. Devonian	12,83
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	4595	T. Granite	
T. Glorieta	6090	T. Wolfcamp	9,37
T. Drinkard		T. Woodford	12,72
T. Tubbs		T.	
T. Abo	8074	T.	
T. Penn	10,218	T.	
T. Miss	12,003	T.	

EXHIBIT 4 - well schematic, proposed completion Cabot Corporation Johnny No. 1 S.W.D. (Previously Atlantic Refining Company Reed No. 1)

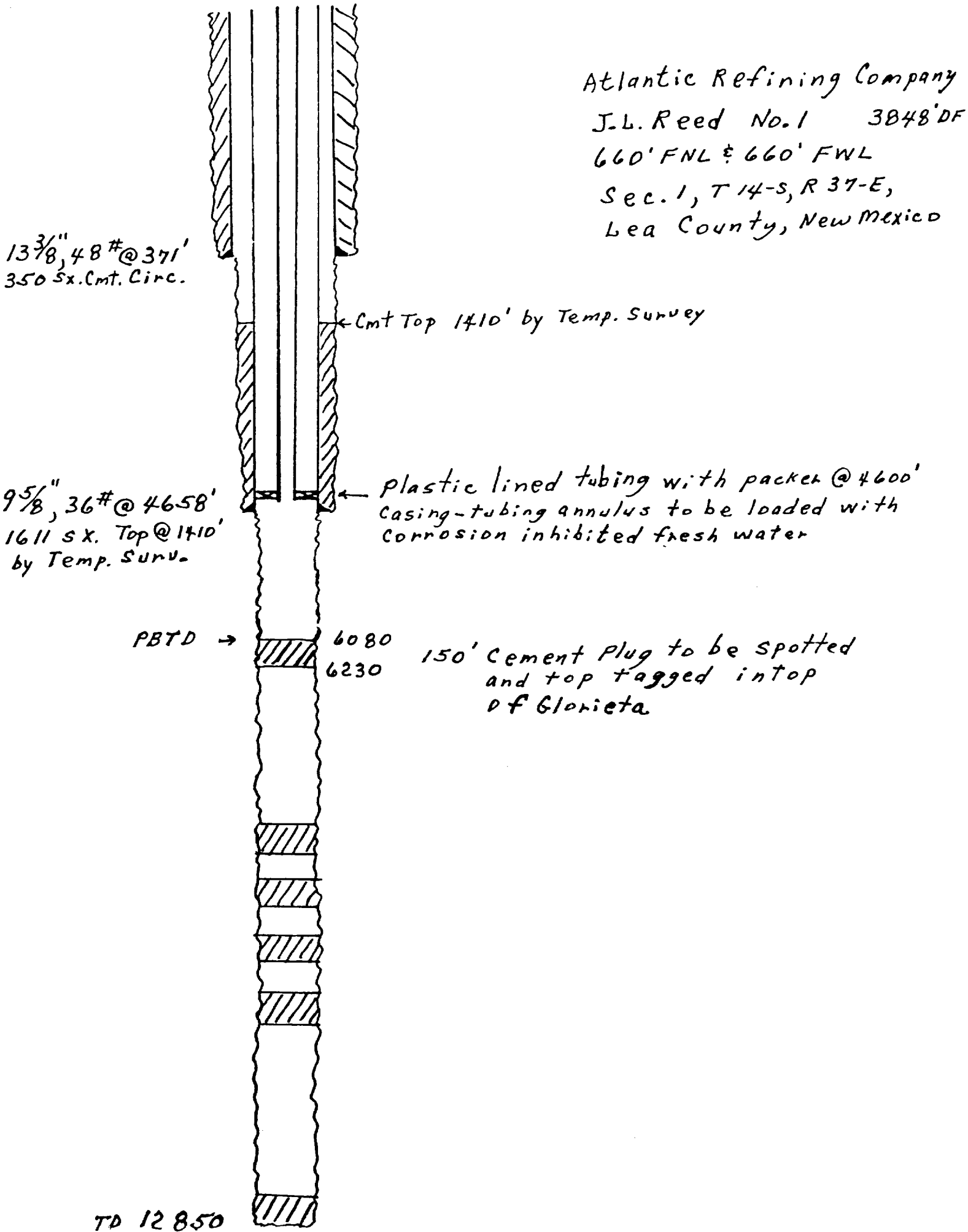
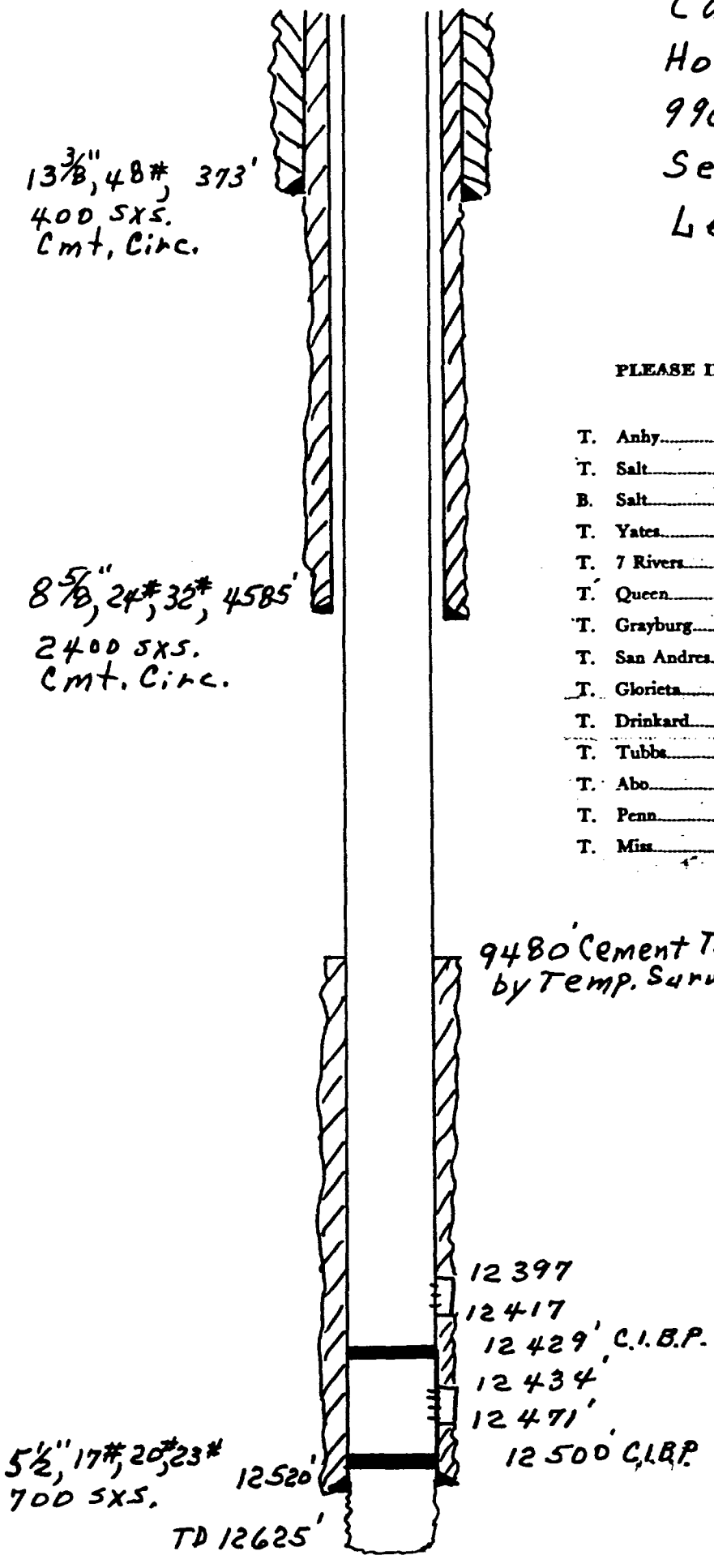


EXHIBIT 5 - Wellbore schematics of all wells within one-half mile of proposed injection well.

Cabot Corporation
Howard Fleet Et. Al. No.2 3852G.L.
990' FSL & 330' FEL
Sec. 35, T 13-S, R 37-E
Lea County, New Mexico



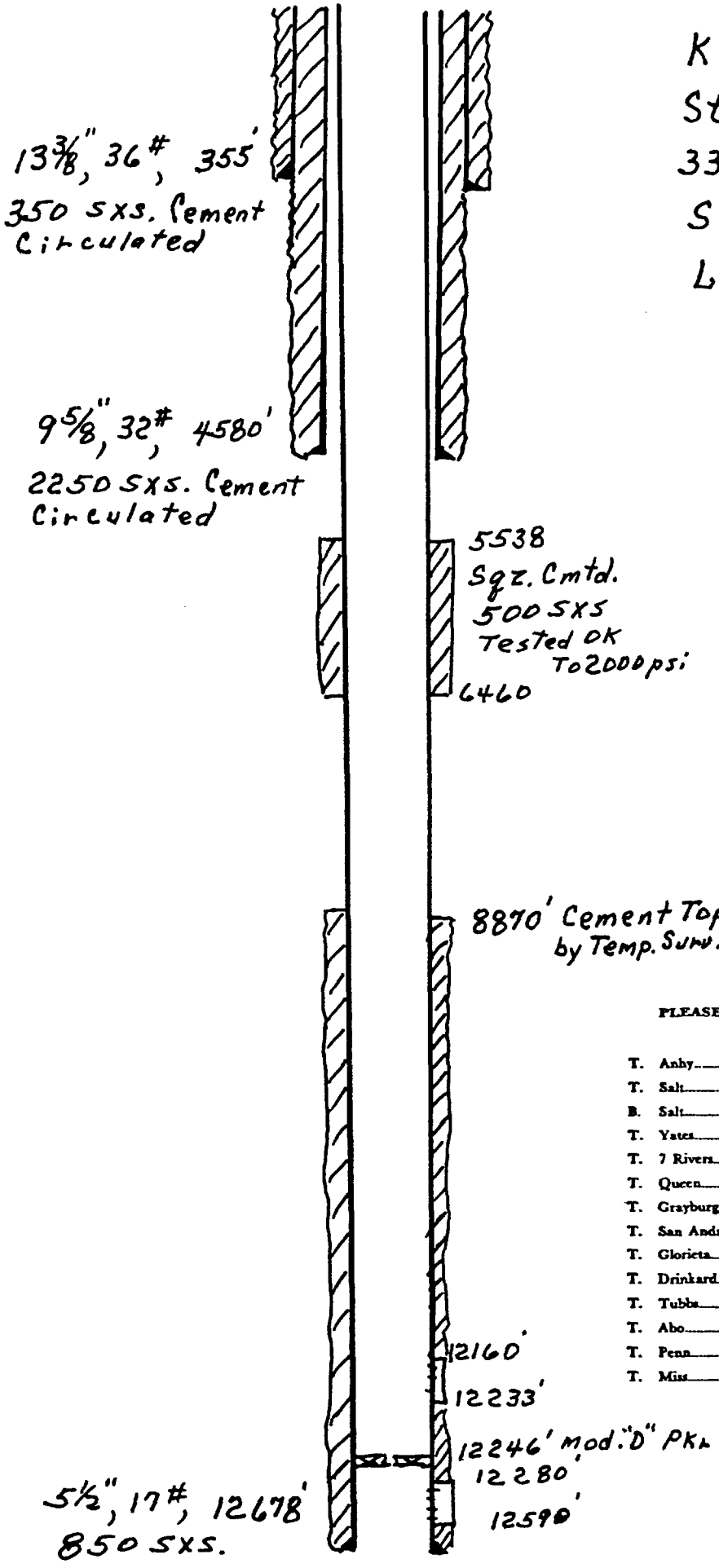
PLEASE INDICATE BELOW FORMATION TOPS (IN CONFORMANCE

Southeastern New Mexico

T. Anhy	[illegible]	T. Devonian	[illegible]
T. Salt	[illegible]	T. Silurian	[illegible]
B. Salt	[illegible]	T. Montoya	
T. Yates	[illegible]	T. Simpson	
T. 7 Rivers	[illegible]	T. McKee	
T. Queen		T. Ellenburger	
T. Grayburg		T. Gr. Wash	
T. San Andres		T. Granite	
T. Glorieta	[illegible]	T.	
T. Drinkard	[illegible]	T.	
T. Tubbs		T.	
T. Abo	[illegible]	T.	
T. Penn	[illegible]	T.	
T. Miss	[illegible]	T.	

FORMATION RECOR

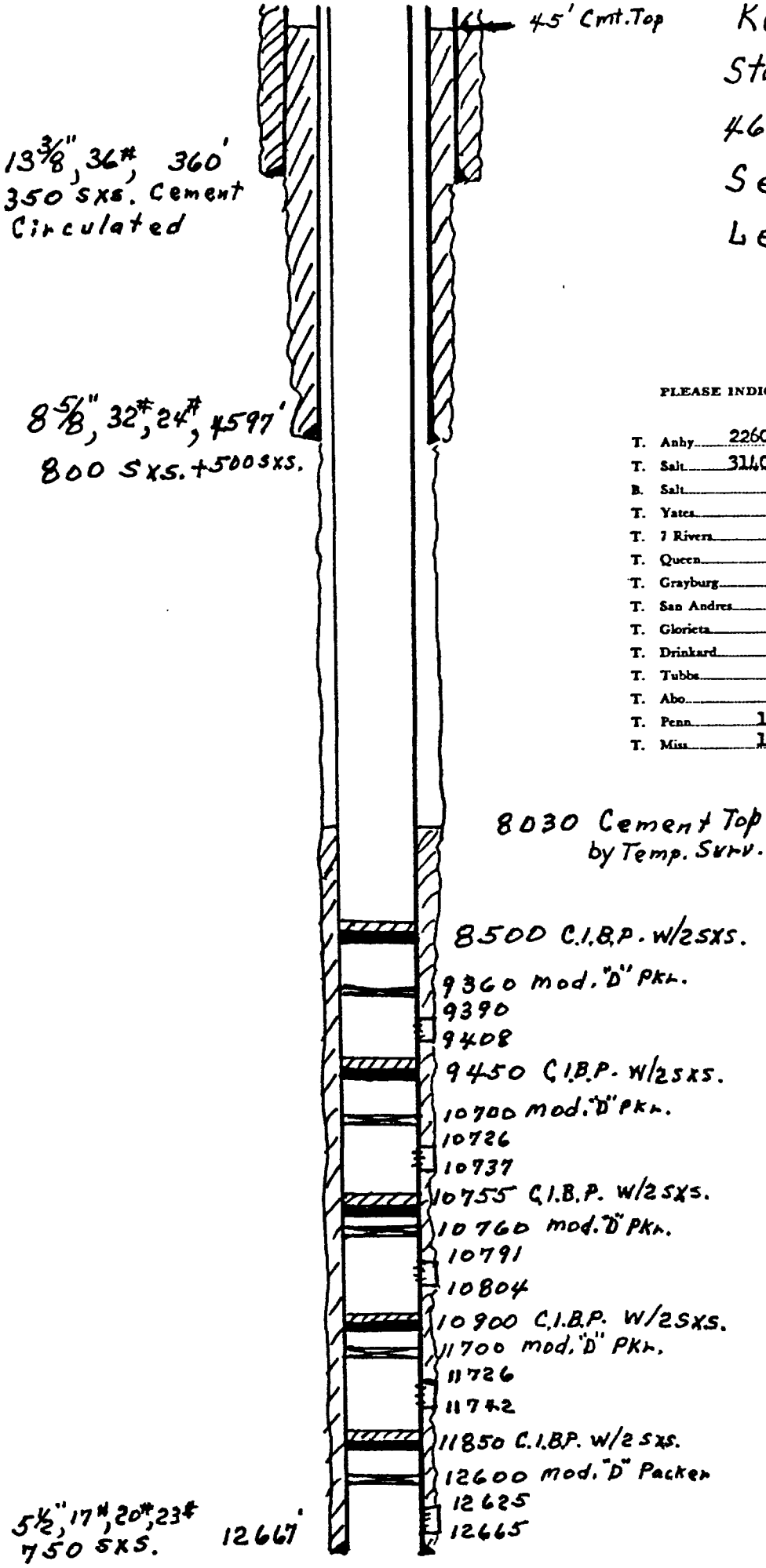
Kerr-McGee Corporation
State "E" 7169 No. 1 3844 G.L.
330' FWL & 1650' FSL
Sec. 36, T 13-S, R 37-E
Lea County, New Mexico



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.	

Kerr-McGee Corporation
State "E" 7169 No. 2 3843GL.
467' FSL & 467' FWL
Sec. 36, T13-S, R37-E
Lea County, New Mexico



PLEASE INDICATE BELOW FORMATION TOPS (IN CONFORMANC

Southeastern New Mexico

T. Anhy	2260	T. Devonian	12,625
T. Salt	3140	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	4560	T. Granite	
T. Glorieta		T.	
T. Drinkard		T.	
T. Tubbs		T.	
T. Abo	8020	T.	
T. Penn	10,330	T.	
T. Miss	11,685	T.	

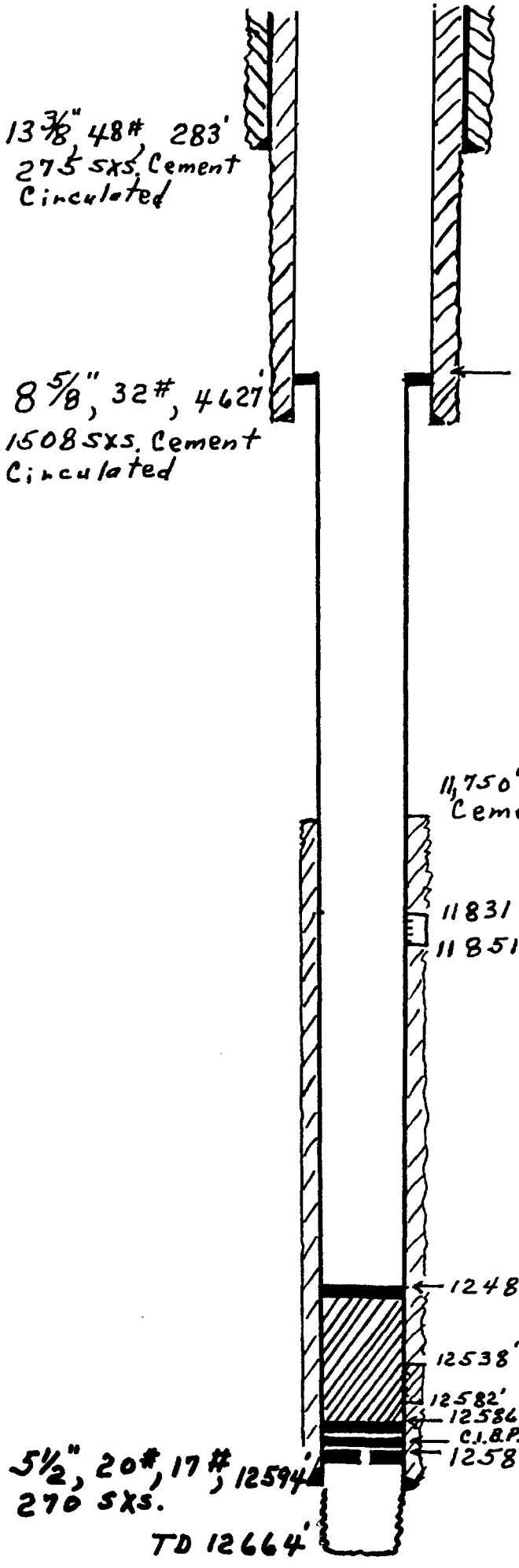
Skelton Oil Company

State "A" No. 1 3849' DF

660' FNL & 660' FEL

Sec. 2, T 14-S, R 37-E

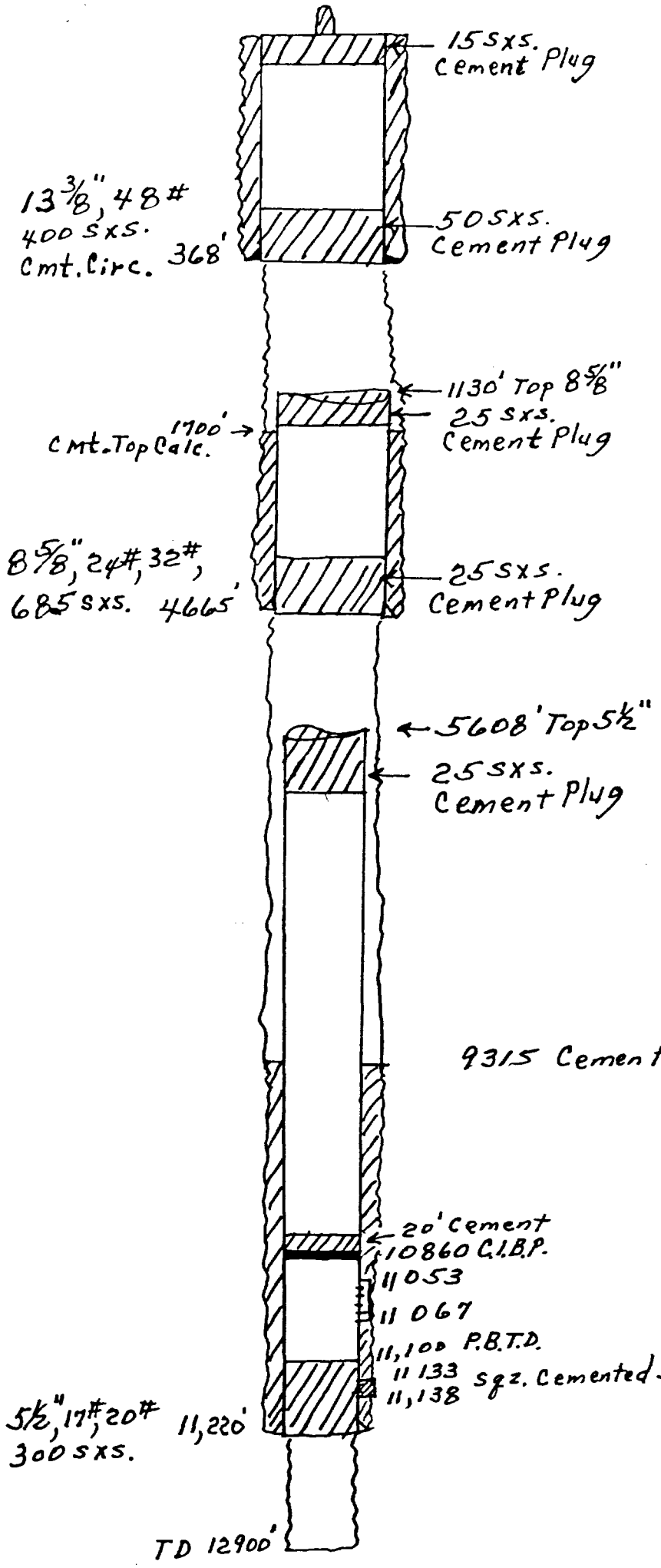
Lea County, New Mexico



PLEASE INDICATE BELOW FORMATION TOPS (IN CONFORMANCE

Southeastern New Mexico

T. Anhy	2225	T. Devonian	12490
T. Salt		T. Silurian	
B. Salt		T. Montoya	
T. Yates	3134	T. Simpson	
T. 7 Rivers		T. McKee	
T. Queen		T. Ellenburger	
T. Grayburg		T. Gr. Wash	
T. San Andres	4576	T. Granite	
T. Glorieta	6090	T. Clearfork	6720
T. Drinkard		T. Wolfcamp	9383
T. Tubbs	7345	T. Atoka	11358
T. Abo	8015	T. Chester	11645
T. Penn		T. Woodford	12340
T. Miss	11745	T.	



An-Son Corporation

McCrory No. 1 3837 G.L.

2361' FNL & 330' FWL

Sec. 1, T 14-S, R 37-E

Lea County, New Mexico

Plugged & Abandoned 9-14-70

INDICATE FORMATION TOPS IN CONFOR

Southeastern New Mexico

T. Anhy		T. Canyon	11,168
T. Salt		T. Strawn	
B. Salt		T. Atoka	11,492
T. Yates		T. Miss	12,003
T. 7 Rivers		T. Devonian	12,851
T. Queen		T. Silurian	
T. Grayburg		T. Montoya	
T. San Andres	4570	T. Simpson	
T. Glorieta	6090	T. McKee	
T. Paddock		T. Ellenburger	
T. Blinebry		T. Gr. Wash	
T. Tubb	7340	T. Granite	
T. Drinkard		T. Delaware Sand	
T. Abo	8052	T. Bone Springs	
T. Wolfcamp	9402	T.	
T. Penn.	10891	T.	
T Cisco (Bough C)		T.	

EXHIBIT 6 - Tabular summary of all wells within one-half mile of Cabot Corporation Johnny No. 1 S.W.D. which penetrate the proposed San Andres injection zone.

Operator, Well Name and Location (All in Lea Co., NM)	Casing and Cementing Record					Producing Internal
	Size	Weight # Per Foot	Where Set	No. Sacks of Cement	Cement Top	
Cabot Corporation	13-3/8"	48	373	400	At Surface-Circulated	
Howard Fleet et al No. 2	8-5/8"	24 & 32	4585	2400	At Surface-Circulated	12397'-12417'
990' FSL & 330' FEL,	5-1/2"	17, 20 & 23	12520	700	9480' by Temp. Surv.	
Sec. 35, T13S, R37E						
Kerr McGee Corporation	13-3/8"	36	355	350	At Surface-Circulated	
State "E" 7169 No. 1	9-5/8"	32	4580	2250	at Surface-Circulated	12160'-12590'
330' FWL & 1650' FSL,	5-1/2"	17	12678	850 & 500	8870' by Temp. Survey &	
Sec. 36, T13S, R37E					5538'	
Kerr McGee Corporation	13-3/8"	36	360	350	At Surface-Circulated	None
State "E" 7169 No. 2	8-5/8"	24 & 32	4597	1200	45' below Ground Level	Temporarily
467' FSL & 467' FWL,	5-1/2"	17, 20, 23	12667	750	8030' by Temp. Surv.	Abandoned
Sec. 36, T13S, R37E						
Skelton Oil Company	13-3/8"	48	283	275	At Surface-Circulated	None
State "A" No. 1	8-5/8"	32	4627	1508	At Surface-Circulated	Temporarily
660' FNL & 660' FEL,	5-1/2"	17 & 20	12594	370	11,750' by Temp. Surv.	Abandoned
Sec. 2, T14S, R37E						
An-Son Corporation	13-3/8"	48	368	400	At Surface-Circulated	Plugged and
McCrory No. 1	8-5/8"	24 & 32	4665	685	1700' Calculated	Abandoned
2361' FNL & 330' FWL,	5-1/2"	17 & 20	11220	330	9315' Calculated	9-14-70
Sec. 1, T14S, R37E						

EXHIBIT 7 - Water Analysis Reports

TRETOLITE DIVISION
369 Marshall Avenue / Saint Louis, Missouri 63119
(314) 961-3500 / TWX 910-760-1660 / Telex 44-2417

WATER ANALYSIS REPORT

COMPANY

Cabot Corporation

SOURCE

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
Color: Colorless
Sp. Conductivity: 100000 micromhos/cm
Chem. Treatment: N/A
pH: 7.2
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	

[redacted] TEKTOLITE DIVISION
369 Marshall Avenue / Saint Louis, Missouri 63119
(314) 961-3500 / TWX 910-760-1660 / Telex 44-2417

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.

[redacted] TRETOLITE DIVISION
369 Marshall Avenue / Saint Louis, Missouri 63119
(314) 961-3500 / TWX 910-760-1660 / Telex 44-2417

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

[redacted] TRETOLITE DIVISION
369 Marshall Avenue / Saint Louis, Missouri 63119
(314) 961-3500 / TWX 910-760-1660 / Telex 44-2417

Analysis No. 5057

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.

[redacted] TRETOLITE DIVISION
369 Marshall Avenue / Saint Louis, Missouri 63119
(314) 961-3500 / TWX 910-760-1660 / Telex 44-2417

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
Color: Colorless
Sp. Conductivity: 110000 micromhos/cm
Chem. Treatment: N/A
pH: 6.4
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	

TRETOLITE DIVISION
369 Marshall Avenue / Saint Louis, Missouri 63119
(314) 961-3500 / TWX 910-760-1660 / Telex 44-2417

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.

TRETOLITE DIVISION
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(314) 961-3500 / TWX 910-760-1660 / Telex 44-2417

Analysis No. 5058

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

TRETOLITE DIVISION
369 Marshall Avenue / Saint Louis, Missouri 63119
(314) 961-3500 / TWX 910-760-1660 / Telex 44-2417

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.

[redacted] TRETOLITE DIVISION
369 Marshall Avenue / Saint Louis, Missouri 63119
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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	

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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.

[redacted] TRETOLITE DIVISION
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(314) 961-3500 / TWX 910-760-1660 / Telex 44-2417

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

TRETOLITE DIVISION
369 Marshall Avenue / Saint Louis, Missouri 63119
(314) 961-3500 / TWX 910-760-1660 / Telex 44-2417

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.

TEETOLITE DIVISION
369 Marshall Avenue / Saint Louis, Missouri 63119
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WATER ANALYSIS REPORT

COMPANY

Cabot Producing Corporation

SOURCE

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	

[redacted] TRETOLITE DIVISION
369 Marshall Avenue / Saint Louis, Missouri 63119
(314) 961-3500 / TWX 910-760-1660 / Telex 44-2417

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.

TRETOLITE DIVISION
369 Marshall Avenue / Saint Louis, Missouri 63119
(314) 961-3500 / TWX 910-760-1660 / Telex 44-2417

Analysis No. 4000

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.

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CaSO4

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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

TRETOLITE DIVISION
369 Marshall Avenue / Saint Louis, Missouri 63119
(314) 961-3500 / TWX 910-760-1660 / Telex 44-2417

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.

TRETOLITE DIVISION
369 Marshall Avenue / Saint Louis, Missouri 63119
(314) WO 1-3500/TWX 910-760-1660/Telex 44-2417

WATER ANALYSIS REPORT

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

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

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

REMARKS

cc: W. Roberts, B. Gray

Respectfully submitted
TRETOLITE COMPANY
Mike Brewer

EXHIBIT 8 - Consents by offset operators and surface owner

CABOT

CABOT CORPORATION P. O. BOX 5001, PAMPA, TEXAS 790[illegible]

CABLE ADDRESS CABLAR PAMPA
PHONE 669 - 2581 AREA CODE 80

October 13, 1980

Kerr McGee Corporation
P. O. Box 250
Amarillo, Texas 79106

Attention: Mr. C. Alan Roberts, District Manager

Gentlemen:

REQUEST FOR WAIVER

Cabot will be making application to New Mexico Oil Conservation Commission to dispose of some of King Field produced water into the previously named Atlantic Refining Company Reed #1 that is located 660 feet from North and West Line of Section 1, T14S, R37E, Lea County, New Mexico. Proposed injection will be into San Andres formation 4660' - 6080'. Injection will be through plastic-lined tubing and packer.

If you have no objection, please so signify in the space provided below and return it to us.

Very truly yours,

George A. Forrest

George A. Forrest
Regional Production Engineer

GAF:lp

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

Signed C. Alan Roberts

For KERR-MCGEE CORP.

Date 10/24/80

CABOT CORPORATION P. O. BOX 5001, PAMPA, TEXAS 79065

CABLE ADDRESS CABLAR PAMPA
PHONE 669 - 2581 (AREA CODE 806)

October 13, 1980

Skelton Oil Company
1500 Broadway Place
Hobbs, New Mexico 88240

Attenltion: Mr. Dale Skelton, Owner

Gentlemen:

REQUEST FOR WAIVER

Cabot will be making application to New Mexico Oil Conservation Commission to dispose of some of King Field produced water into the previously named Atlantic Refining Company Reed #1 that is located 660 feet from North and West Line of Section 1, T14S, R37E, Lea County, New Mexico. Proposed injection will be into San Andres formation 4660' - 6080'. Injection will be through plastic-lined tubing and packer.

If you have no objection, please so signify in the space provided below and return it to us.

Very truly yours,

George A. Forrest

George A. Forrest
Regional Production Engineer

GAF:lp

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

Signed J. N. Skelton

For Skelton Oil Co.

Date 10/14/80

CABOT CORPORATION

1670 BROADWAY, SUITE 3033
DENVER, COLORADO 80202

303 861-3033

October 27, 1980

Mrs. Mary Ruth McCrory
P. O. Box 25764
Albuquerque, New Mexico 87125

RE: Request for Waiver
Salt Water Disposal Well
Section 1-T14S-R37E
Lea County, New Mexico

Dear Mrs. 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 Atlantic Refining Company Reed #1 located 660' from the North and West lines of Section 1-T14S-R37E, Lea County, New Mexico. Cabot plans to inject the salt water through plastic lined tubing and a plastic lined packer into the San Andes formation found at depths between 4660' and 6080'.

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 CORPORATION

John S. Muire
Landman

JSM/nk
Enclosure

Accepted and agreed to this 4 day of May, 1980.

Mary Ruth McCrory

CABOT CORPORATION

1670 BROADWAY, SUITE 3033
DENVER, COLORADO 80202

303 861-3033

October 27, 1980

Mr. W. T. Reed
10143 Buckwood Drive
El Paso, Texas 79925

RE: Request for Waiver
Salt Water Disposal Well
Section1-T14S-R37E
Lea County, New Mexico

Dear Mr. Reed:

Cabot will be making application to the New Mexico Conservation Commission to dispose of salt water produced from the King Field into the abandoned Atlantic Refining Company Reed #1 located 660' from the North and West lines of Section 1-T14S-R37E, Lea County, New Mexico. Cabot plans to inject the salt water through plastic lined tubing and a plastic lined packer into the San Andes formation found at depths between 4660' and 6080'.

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 CORPORATION

John S. Muire
Landman

JSM/nk
Enclosure

Accepted and agreed to this ____ day of _____, 1980.

W. T. Reed
W. T. Reed

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

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OIL CONSERVATION DIVISION

P. O. BOX 2088
SANTA FE, NEW MEXICO 87501

Form C-101
Revised 10-1-78

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 & abandoned well for SWD SINGLE ZONE ☐ MULTIPLE ZONE ☐

7. Unit Agreement Name

8. Farm or Lease Name: Johnny

2. Name of Operator: Cabot Corporation

9. Well No.: 1 SWD

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

10. Field and Pool, or Wildcat: King

4. Location of Well: UNIT LETTER D LOCATED 660 FEET FROM THE North LINE AND 660 FEET FROM THE West LINE OF SEC. 1 TWP. 14S RGE. 37E NMPM

12. County: Lea

19. Proposed Depth	19A. Formation	20. Rotary or C.T.
6080	San Andres	Rotary

21. Elevations (Show whether DF, RT, etc.)	21A. Kind & Status Plug. Bond	21B. Drilling Contractor	22. Approx. Date Work will start
3848 DF			

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#	370.94	350	Surface
12 1/4"	9-5/8"	36#	4657.79	1611	1410' by Temp.Sur
8 3/4"				50	6080

Previous name of well was The Atlantic Refining Company "J.L. Reed No. 1". The well was drilled to 12,850'; drill stem tested as dry hole, and plugged and abandoned 6-6-57 (see attached well record).

It is proposed to drill out the 50 sk. plug at surface, circulate to plug at 4530, pressure test 9-5/8" casing. The plug 4530 to 4794 will be drilled out and hole circulated clean to 6230. A 50 sk. cement plug will be spotted through tubing 6230 to 6080 and later top tagged. A 9-5/8" packer on plastic lined tubing will be set at 4600'. Casing annulus will be filled with non-corrosive treated water. 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 Forest Title Production Engineer Date November 26, 1980

(This space for State Use)

APPROVED BY _____ TITLE _____ DATE _____

CONDITIONS OF APPROVAL, IF ANY:

RECEIVED
OIL CONSERVATION DIVISION
SANTA FE

(Revised 3-55)

NEW MEXICO OIL CONSERVATION COMMISSION

MISCELLANEOUS REPORTS ON WELLS

(Submit to appropriate District Office as per Commission Rule 1106)

COMPANY The Atlantic Refining Company, Box 871, Midland, Texas.
(Address)

LEASE J. L. Reed WELL NO. 1 UNIT D S 1 T-14-S R-37-E

DATE WORK PERFORMED 6/4 to 6/57 POOL King

This is a Report of: (Check appropriate block)

- [ ] Beginning Drilling Operations
- [X] Plugging
- [ ] Results of Test of Casing Shut-off
- [ ] Remedial Work
- [ ] Other

Detailed account of work done, nature and quantity of materials used and results obtained.

Drilled to a total depth of 12850. Ran Schlumberger logs. Set sloset cement plugs as follows: 50 sacks from 12832 to 12850; 50 sacks from 10820 to 10925; 50 sacks from 10097 to 10138; 50 sacks from 9832 to 9858; 50 sacks from 9402 to 9500; 100 sacks at bottom of 9-5/8" casing from 4530 to 4794; 50 sacks in top of 9-5/8" casing. Well plugged and abandoned 6-6-57.

FILL IN BELOW FOR REMEDIAL WORK REPORTS ONLY

Original Well Data:

DF Elev. _____ TD _____ PBD _____ Prod. Int. _____ Compl Date _____

Tbng. Dia _____ Tbng Depth _____ Oil String Dia _____ Oil String Depth _____

Perf Interval (s) _____

Open Hole Interval _____ Producing Formation (s) _____

RESULTS OF WORKOVER:	BEFORE	AFTER
Date of Test		
Oil Production, bbls. per day		
Gas Production, Mcf per day		
Water Production, bbls. per day		
Gas-Oil Ratio, cu. ft. per bbl.		
Gas Well Potential, Mcf per day		

Witnessed by J. C. Burkhalter The Atlantic Refining Company (Company)

OIL CONSERVATION COMMISSION

Name _____

Title _____

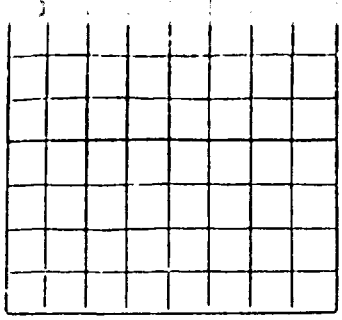
Date NOV 21 1957

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

Name M. L. Mills

Position Regional Drilling Manager

Company The Atlantic Refining Company



AREA 640 ACRES
LOCATE WELL CORRECTLY

NEW MEXICO OIL CONSERVATION COMMISSION

Santa Fe, New Mexico

WELL RECORD

Mail to District Office, Oil Conservation Commission, to which Form C-101 was sent not later than twenty days after completion of well. Follow instructions in Rules and Regulations of the Commission. Submit in QUINTUPLICATE. If State Land submit 6 Copies

The Atlantic Refining Company (Company or Operator) J.L. Reed (Lease)

Well No. 1, in NW ¼ of NW ¼, of Sec. 1, T. 14-S, R. 37-E, N.M.P.M.

King Pool, Lea County.

Well is 660 feet from North line and 660 feet from West line of Section 1. If State Land the Oil and Gas Lease No. is —

Drilling Commenced March 18, 1957 Drilling was Completed June 6, 1957

Name of Drilling Contractor Warton Drilling Co.

Address Box 2807 Odessa, Texas

Elevation above sea level at Top of Tubing Head 3848 DF The information given is to be kept confidential until Dec. 24, 1957

OIL SANDS OR ZONES

No. 1, from None 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 None to feet.

No. 2, from to feet.

No. 3, from to feet.

No. 4, from to feet.

CASING RECORD

SIZE	WEIGHT PER FOOT	NEW OR USED	AMOUNT	KIND OF SHOE	CUT AND PULLED FROM	PERFORATIONS	PURPOSE
13-3/8"	48#	New	355.94	Larkin Guide			Surface
9-5/8"	36#	"	4644.79	HOWCO	"		Intermediate

MUDDING AND CEMENTING RECORD

SIZE OF HOLE	SIZE OF CASING	WHERE SET	NO. SACKS OF CEMENT	METHOD USED	MUD GRAVITY	AMOUNT OF MUD USED
17½"	13-3/8"	370.94	350	Pump		
12¼"	9-5/8"	4657.79	1611	"		

RECORD OF PRODUCTION AND STIMULATION

(Record the Process used, No. of Qts. or Gals. used, interval treated or shot.)

Well #1 P & A 6-6-57

Result of Production Stimulation

TOOLS USED

Rotary tools were used from 0 feet to 12,850 feet, and from ..... feet to ..... feet.

Cable tools were used from ..... feet to ..... feet, and from ..... feet to ..... feet.

PRODUCTION

Put to Producing ....., 19.....

OIL WELL: The production during the first 24 hours was ..... barrels of liquid of which ..... % was was oil; ..... % was emulsion; ..... % water; and ..... % was sediment. A.P.I. Gravity .....

GAS WELL: The production during the first 24 hours was ..... M.C.F. plus ..... barrels of liquid Hydrocarbon. Shut in Pressure ..... lbs.

Length of Time Shut in .....

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

Southeastern New Mexico		Southeastern New Mexico		Northwestern New Mexico	
T. Anhy	2290	T. Devonian	12,835	T. Ojo Alamo	
T. Salt		T. Silurian		T. Kirtland-Fruitland	
B. Salt		T. Montoya		T. Farmington	
T. Yates		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	4595	T. Granite		T. Dakota	
T. Glorieta	6090	T. Wolfcamp	9,373	T. Morrison	
T. Drinkard		T. Woodford	12,720	T. Penn	
T. Tubbs		T.		T.	
T. Abo	8074	T.		T.	
T. Penn	10,218	T.		T.	
T. Miss	12,003	T.		T.	

FORMATION RECORD

From	To	Thickness in Feet	Formation	From	To	Thickness in Feet	Formation
0	40	40	Caliche & rock	9798	9858	60	Lime
40	288	248	" , lime	9858	9899	41	" & chert
288	372	84	Shell & redbed	9899	9954	55	" " & shale
372	1800	1428	Redbed	9954	10062	108	Shale & lime
1800	2115	315	" & salt	10062	10105	43	Lime & chert
2115	2234	119	" , shells, anhy, stk. w/salt	10105	10133	28	" , shale
				10133	10227	94	" , chert
2234	3254	1020	Salt & anhydrite	10227	10290	63	"
3254	4430	1176	Anhydrite	10290	10436	146	" , chert
4430	4528	98	" & gyp	10436	10477	41	Chert & shale
4528	4562	34	" , shale	10477	10491	14	Shale, cherty lime
4562	4581	19	" , shale & gyp	10491	10554	63	" & lime
4581	4634	53	" , lime	10554	10602	48	Lime
4634	8089	3455	Lime	10602	10743	141	Lime & shale
8089	9354	1265	Shale, lime	10743	10748	5	Lime
9354	9436	82	Lime & dolomite	10748	11015	267	Shale, lime
9436	9636	200	Lime	11015	11056	41	Lime & chert
9636	9730	94	Cherty lime, shale	11056	11363	307	Lime & shale
9730	9773	43	Lime & cherty lime	11363	11755	392	Lime, sand & shale
9773	9798	25	Lime & chert	11755	12850	1095	Lime, chert, shale

RECEIVED FEB 21 1958 OIL CONSERVATION COMMISSION HOBBS, NEW MEXICO

ATTACH SEPARATE SHEET IF ADDITIONAL SPACE IS NEEDED

I hereby swear or affirm that the information given herewith is a complete and correct record of the well and all work done on it so far as can be determined from available records.

9-25-57
(Date)

Company or Operator The Atlantic Refining Company Address Box 1038 Denver City, Texas

Name N.A. Carr Position or Title District Supt.

DST #1 - Strapped DP out of hole. DM 9508 = SLM 9500. Made 8' corr. Tool open @ 7:05 A.M. 4-18 w/fair blow for 34 mins. & died. Testing Wolfcamp 9402 - 9500.

DST #2 - Testing 9832 - 58. Ran 2 Johnston 7¾" pkrs w/5/8" BC, 1" TC, no WC. Tool open 10:58 A.M. 4-21 for 1 hr w/very weak blow of air increase to good blow throughout test. SI for 30 min. Rec. 60' salt wtr cut drlg mud & 840' salt wtr. Hydrostatic 4645. IFP 100. FFP 450. SIP 3710.

DST #3 - No test

DST #4 - Ran 2 - 7¾" Johnston pkrs to test 10107 - 10133 w/no WC. Tool opened 5:17 A.M. 4-25 & pkr seat failed immediately. Finished pulling out of hole w/ test tool & rec. 540' drld mud after pkr failed.

DST #5 - Testing lower WC from 10097 - 10138. Ran 2 - 7¾" Johnston pkrs w/5/8" BC, 1" TC & no WC. Tool open @ 10:59 A.M. 4-25 for 1 hr w/weak blow of air for 11 mins. & died. By-passed tool after 30 min. w/no blow. SI for 30 min. Rec. 120' drlg. mud, no show. Hydros. in 4995. Hydros. out 4950. IFP 80. FFP & SIP 100. Job completed 3:00 P.M. 4-25.

DST #6 - Johnston testing Penn. 10825 - 10920. Ran 2 - 7¾" pkrs w/5/8" BC, 1" TC, no WC. Tool open @ 7:04 A.M. 5-7 for 1 hr w/weak to good blow in 5 mins. Good blow throughout test. SI for 30 min. Rec. 270' gas-cut drlg mud, 180' salty drlg mud, gas-cut w/show of oil in bottom 10'. Hydros. in - 5380. Hydros. out - 5340. IFP 125. FFP 260. SIP 3040.

DST #7 - Testing Dev. 12832 - 12850. Ran 2 Johnston 7¾" pkrs w/1" TC, 5/8" BC, 2000' WC. Tool open 4:22 A.M. 6-3 for 1 hr w/very good blow air throughout test. SI for 30 min. Started out of hole. Rec. 2' free oil on top of WC, 2000' WC, 2000' SW, 70' drlg mud & 12800' gas. Hydros. in - 6525. IFP 965. FFP 1770. SIP 4960. Hydros. out - 6400.

ORIGINAL

HOBBS OFFICE OCC

Form C-103
(Revised 3-55)

NEW MEXICO OIL CONSERVATION COMMISSION
MISCELLANEOUS REPORTS ON WELLS
(Submit to appropriate District Office as per Commission Rule 1106)

COMPANY The Atlantic Refining Company
(Address)

LEASE J. L. Reed WELL NO. 1 UNIT D S 1 T -14-S R -37-E

DATE WORK PERFORMED March 29 & 30, 1957 POOL King (DESIGNATED)

This is a Report of: (Check appropriate block)

- [ ] Beginning Drilling Operations
- [ ] Plugging
- [X] Results of Test of Casing Shut-off
- [ ] Remedial Work
- [ ] Other

Detailed account of work done, nature and quantity of materials used and results obtained.

Drilled to 4658'. Ran 144 joints of 9-5/8" O.D. 36# H-40 and J-55 casing, (4644.79') set at 4657.79'. Cemented with 1800 cubic feet of 50-50 Pozmix with 6% gel and 400 sax of Longhorn Portland neat cement. Plug down at 11:15 A.M. 3-29-57. Ran Worth Well Service temperature survey and found top of cement at 1410'. W.O.C. 24 hours. Tested 9-5/8" casing with 1000# from 11:30 to 12 noon 3-30-57. Drilled out to 4661'. Pressured up to 1000# for 30 minutes. Test OK. Resumed drilling.

FILL IN BELOW FOR REMEDIAL WORK REPORTS ONLY

Original Well Data:

DF Elev. _____ TD _____ PBD _____ Prod. Int. _____ Compl Date _____

Tbng. Dia _____ Tbng Depth _____ Oil String Dia _____ Oil String Depth _____

Perf Interval (s) _____

Open Hole Interval _____ Producing Formation (s) _____

RESULTS OF WORKOVER:	BEFORE	AFTER
Date of Test		
Oil Production, bbls. per day		
Gas Production, Mcf per day		
Water Production, bbls. per day		
Gas-Oil Ratio, cu. ft. per bbl.		
Gas Well Potential, Mcf per day		

Witnessed by J. C. Burkhalter — The Atlantic Refining Company (Company)

OIL CONSERVATION COMMISSION

Name E. G. Fiesler
Title Engineer Dist. I
Date APR 11 1957

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

Name M. L. Mills
Position Regional Drilling Manager
Company The Atlantic Refining Company

DEC 0 1957
OIL CONSERVATION COMMISSION
SANTA FE

(Revised 7/1/52)

DUPLICATE

NEW MEXICO OIL CONSERVATION COMMISSION

Santa Fe, New Mexico

HOBBS OFFICE OCC

MAR 2 PM 2:18

MISCELLANEOUS REPORTS ON WELLS

Submit this report in TRIPLICATE to the District Office, Oil Conservation Commission, within 10 days after the work specified is completed. It should be signed and filed as a report on Beginning Drilling Operations, Results of test of casing shut-off, result of plugging of well, result of well repair, and other important operations, even though the work was witnessed by an agent of the Commission. 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 RESULT OF TEST OF CASING SHUT-OFF	X	REPORT ON REPAIRING WELL	
REPORT ON RESULT OF PLUGGING WELL		REPORT ON RECOMPLETION OPERATION		REPORT ON (Other)	

March 29, 1957 (Date) Midland, Texas (Place)

Following is a report on the work done and the results obtained under the heading noted above at the

The Atlantic Refining Company (Company or Operator) J. L. Reed (Lease)

Warton Drilling Company (Contractor), Well No. 1 in the NW ¼ NW ¼ of Sec. 1,

T-14-S, R-37-E, NMPM., UNDESIGNATED Pool, Lea County.

The Dates of this work were as follows: 3-19-57 to 3-20-57

Notice of intention to do the work ~~was~~ (was not) submitted on Form C-102 on ..... (Cross out incorrect words), 19....,

and approval of the proposed plan (was) (was not) obtained.

DETAILED ACCOUNT OF WORK DONE AND RESULTS OBTAINED

Drilled to 372'. Ran 11 joints of 13-3/8" 48# H-40 casing, total 355.94', set at 370.94'. Halliburton cemented with 350 sacks of Longhorn regular neat cement with 2% calcium chloride. Plug down to 330' at 4 P.M. 3-19-57. Cement circulated. WOC for 24 hours. Tested casing from 5:30 to 6 P.M. 3-20-57. Test OK. Drilled plug at 330' and shoe at 370'. Pumped into formation at 700#. Formation broke at 800#. Resumed drilling.

RECEIVED
DEC 9 1957
OIL CONSERVATION COMMISSION
HOBBS, NEW MEXICO

Witnessed by J. C. Burkhalter (Name) The Atlantic Refining Company (Company) Regional Drilling Manager (Title)

Approved:
OIL CONSERVATION COMMISSION

E. J. Kiesler (Name)

Engineer District I APR 3 1957

(Title) (Date)

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

Name M. L. Mills

Position Regional Drilling Manager

Representing The Atlantic Refining Company

Address Box 871, Midland, Texas

OIL CONSERVATION DIVISION

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

P. O. BOX 2088
SANTA FE, NEW MEXICO 87501

Form C-102
Revised 10-1-78

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

Operator	Lease	Well No.
Cabot Corporation	Johnny	1 SWD

Unit Letter	Section	Township	Range	County
D	1	14S	37E	Lea

Actual Footage Location of Well:
660 feet from the North line and 660 feet from the West line

Ground Level Elev.	Producing Formation	Pool	Dedicated Acreage:
3838			Acres

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

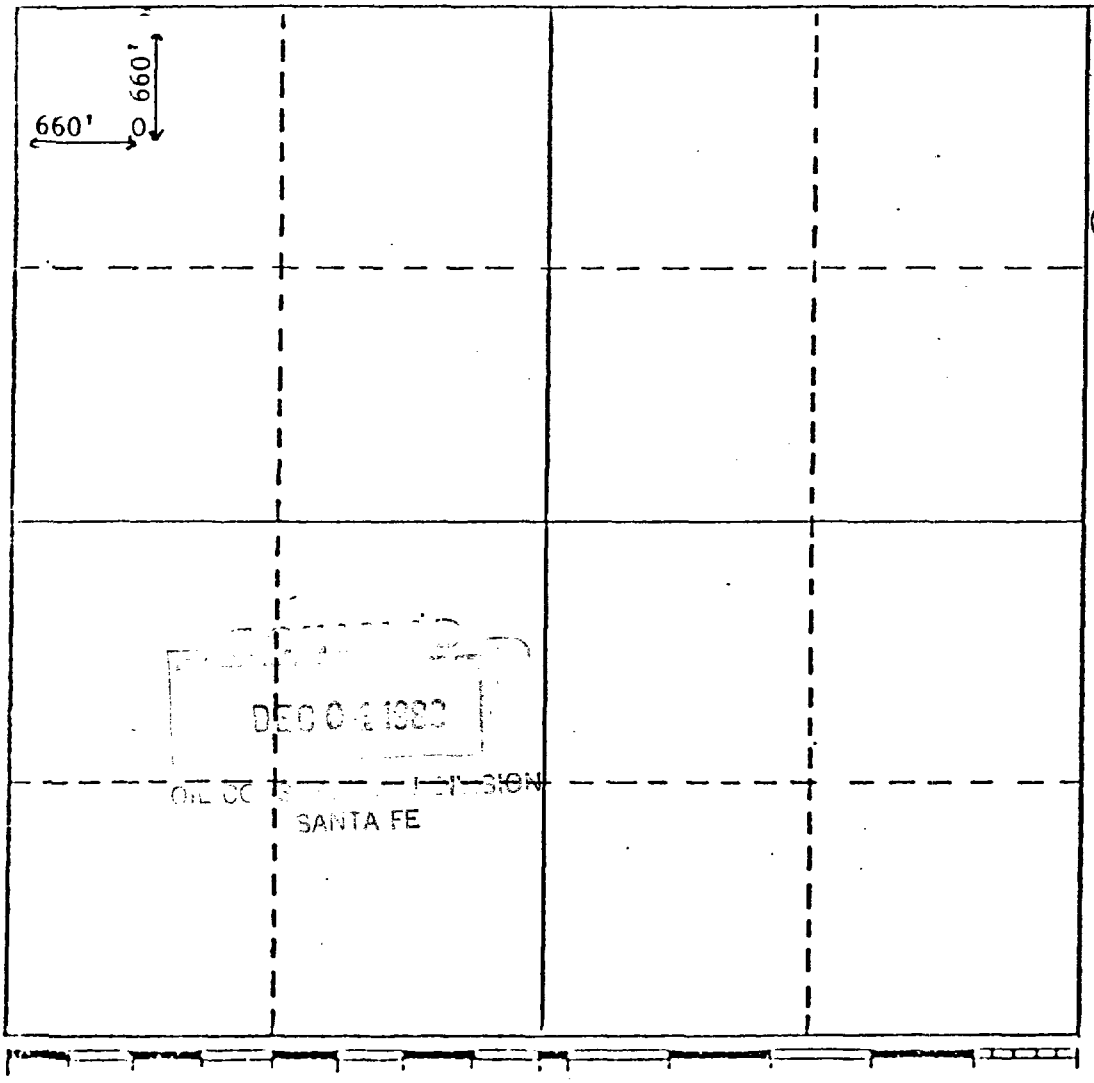
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).

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 Division.



CERTIFICATION

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

George Forrest

Name: George Forrest

Position: Production Engineer

Company: Cabot Corporation

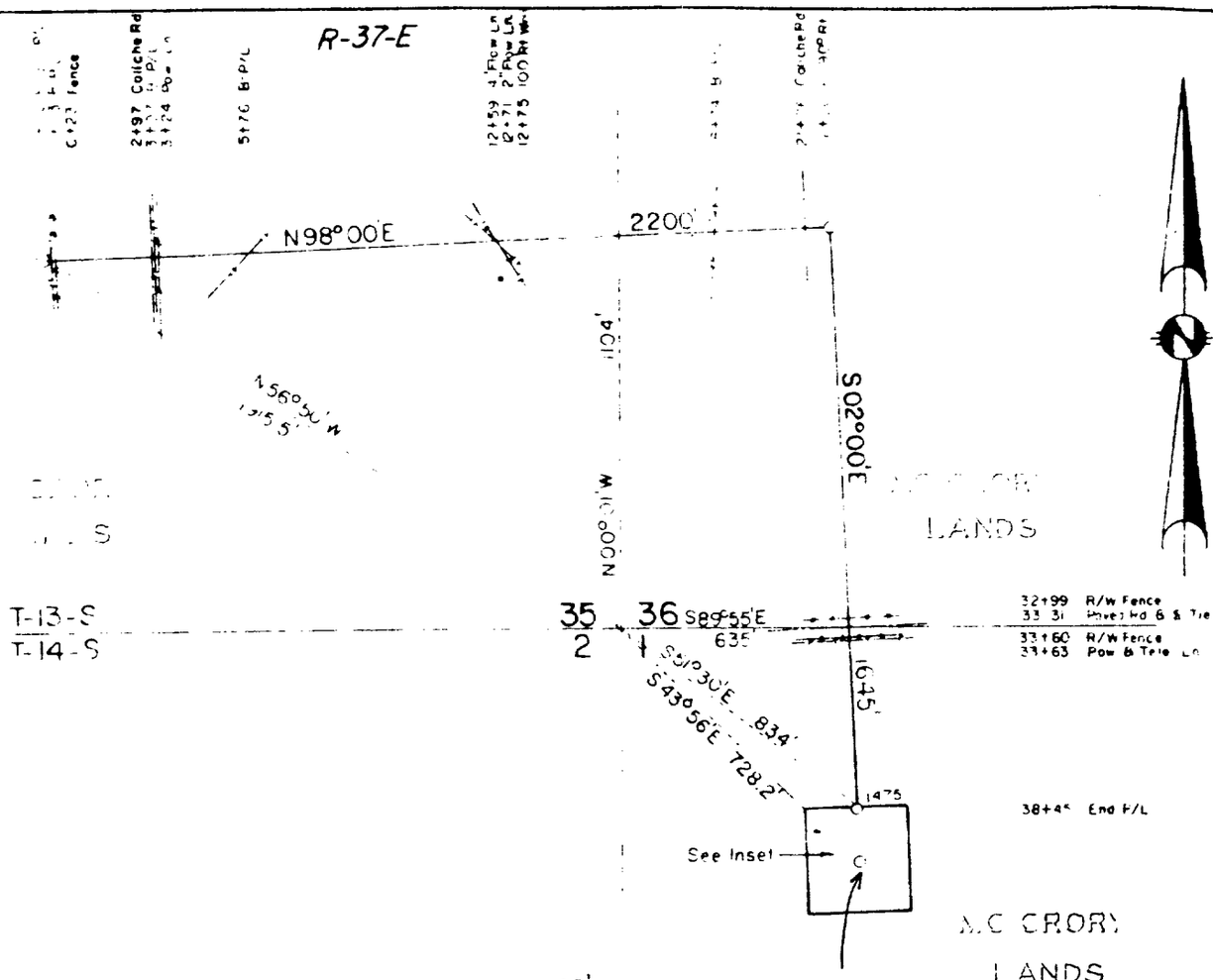
Date: November 26, 1980

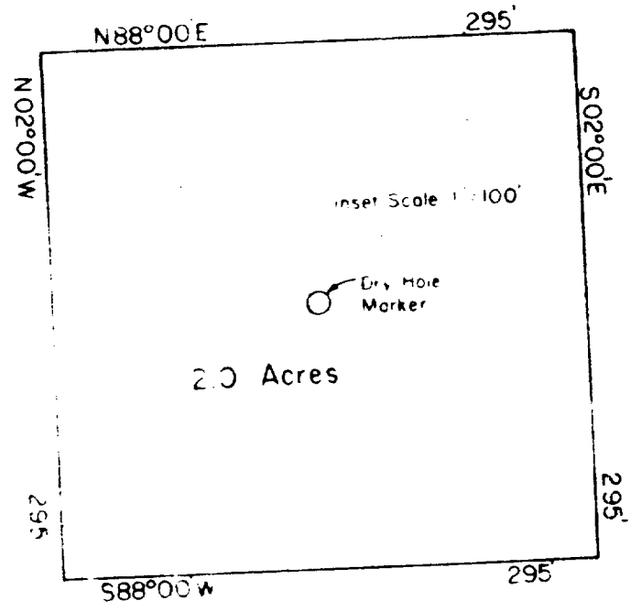
I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge and belief.

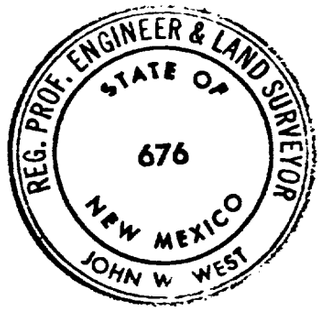
Date Surveyed: September 24, 1980

Registered Professional Engineer and/or Land Surveyor: (See attached Survey by John W. West)

Certificate No. 676







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

JOHN W WEST	N.M.	P.E. & L.S.	NO. 676
	TEXAS	R.P.S.	NO. 1138
PARICK A ROMERO	N.M.	L.S.	NO. 6666
	TEXAS	R.P.S.	NO. 2100
RONALD J EIDSON	N.M.	L.S.	NO. 3239
	TEXAS	R.P.S.	NO. 1463

CABOT CORP.

Proposed Pipeline and a tract of land located in Sections 35 & 36, T-13-S, R-37-E and Section 1, T-14-S, R-37-E, N.M.P.M., Lea County, New Mexico.

JOHN W WEST ENGINEERING COMPANY

CONSULTING ENGINEERS HOBBS, NEW MEXICO

Scale: 1" = 500'	Drawn by: J Nitto
Date: 9-24-80	Sheet 1 of 2 Sheets