

CASE 3766: Appli. of TAMARACK
PETROLEUM CO. for an amendment
to ORDER NO. R-3396. (waterflood)

Case Number

3766

Application
Transcripts.

Small Exhibits

ETC.

OIL CONSERVATION COMMISSION

P. O. BOX 2088

SANTA FE, NEW MEXICO 87501

September 24, 1968

C
O
Tamarack Petroleum Company, Inc.
910 Bank of the Southwest Building
Midland, Texas 79701

Attention: Mr. Albert G. Metcalfe

Re: Commission Order No. R-3396-A

P
Y
Gentlemen:

Reference is made to our letter of June 17, 1968, regarding Commission Order No. R-3396-A which amended Order No. R-3396, the order which approved Tamarack Petroleum Company's South Pearl Queen Waterflood Project. The aforesaid letter of June 17 required that the Lowe Well No. 2 which has only 102 feet of 8 5/8-inch surface pipe would have to be re-cemented on the long string from a depth of at least 200 feet back to the surface.

The purpose for this requirement on said Lowe Well No. 2 was to protect the fresh water strata inasmuch as you proposed at the time to utilize said well as a dual injection well with injection to be down the tubing under a packer and down the casing-tubing annulus. As stated in your letter of August 19, 1968, and further explained by recent telephone conversations, it is our understanding that you now plan to inject only under a packer through plastic-coated tubing utilizing down-hole Baker flow regulators to control the injection rate into each zone. Further, that the annulus between the tubing and the casing will be loaded with inhibited water and a pressure gauge installed at the surface to facilitate detection of any tubing, casing, or packer leaks.

OIL CONSERVATION COMMISSION
P. O. BOX 2088
SANTA FE, NEW MEXICO 87501

September 24, 1968

-2-

Tamarack Petroleum Company, Inc.
910 Bank of the Southwest Building
Midland, Texas

C
O
P
Y
In view of the foregoing, our letter of June 17, 1968, is hereby amended to delete the requirement for further cementing on your Lowe Well No. 2.

Very truly yours,

A. L. PORTER, Jr.
Secretary-Director

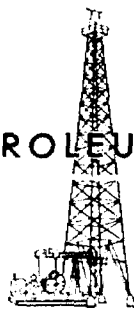
ALP/DSN/esr

cc: Oil Conservation Commission
P. O. Box 1980
Hobbs, New Mexico

Mr. D. E. Gray
State Engineer Office
Capitol Building
Santa Fe, New Mexico

A

TAMARACK PETROLEUM COMPANY, INC.



910 BANK OF THE SOUTHWEST BLDG
MIDLAND, TEXAS 79701

August 19, 1968

TELEPHONE: MUTUAL 3-5474

New Mexico Oil Conservation Commission
State Land Office Building
Santa Fe, New Mexico

Attention: Mr. D. S. Nutter
Chief Engineer

Re: Commission Order No. R-3396-A
South Pearl Queen Unit
Lea County, New Mexico

30 AUG 21 1968

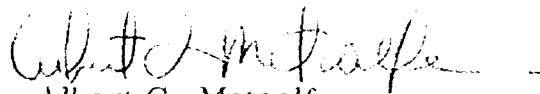
Gentlemen:

The subject order, among other things, authorizes annular injection between 4-1/2" casing and tubing in the Lowe Well No. 2, provided cement is circulated to the surface outside the casing from at least 200 feet.

It is now planned to inject only under packers through plastic coated tubing, using Baker flow regulators downhole to control the injection rate into each zone. The annulas between tubing and casing will be loaded with water and a pressure gauge installed at the surface to detect any tubing leaks.

Because of this change in plans, it is requested that we not be required to re-cement the 4-1/2" casing as provided in the order.

Very truly yours,


Albert G. Metcalfe

AGM/mc

OIL CONSERVATION COMMISSION

P. O. BOX 2088

SANTA FE, NEW MEXICO 87501

June 17, 1968

Mr. Jason Kellahin
Kellahin & Fox
Attorneys at Law
Post Office Box 1769
Santa Fe, New Mexico

Dear Sir:

Reference is made to Commission Order No. R-3396-A, recently entered in Case No. 3766, amending Order No. R-3396, which approved Tamarack Petroleum Corporation's South Pearl Queen Waterflood Project.

Injection is to be through the 11 authorized water injection wells which shall be completed as follows:

Lowe No. 1 and Saunders Federal Nos. 1, 6, and 7, single injection wells with injection through internally plastic-coated tubing set in packers as near to the perforations as practicable.

Lowe No. 2, Western Federal 'C' No. 1, Federal 'PQ' No. 1, Federal No. 6, Saunders Federal Nos. 2 and 3, and the well to be drilled in Unit F of Section 9, dual injection wells with injection to be down the tubing under a packer and down the casing-tubing annulus.

In the case of Lowe well No. 2, which has 102 feet of 8 5/8-inch surface casing, operator shall pick up the 4 1/2-inch long string, run one-inch to a depth of at least 200 feet outside the pipe and circulate cement to the surface.

OIL CONSERVATION COMMISSION

P. O. BOX 2088

SANTA FE, NEW MEXICO 87501

-2-

Mr. Jason Kellahin
Kellahin & Fox
Attorneys at Law
Santa Fe, New Mexico

June 17, 1968

In the case of the well to be drilled, surface pipe shall be run to at least 200 feet and cement circulated. The long string shall be cemented back to approximately 3400 feet.

As to allowable, our calculations indicate that when all of the authorized injection wells have been placed on active injection, the maximum allowable which this project will be eligible to receive under the provisions of Rule 701-E-3 is 1134 barrels per day when the Southeast New Mexico normal unit allowable is 42 barrels per day or less.

Please report any error in this calculated maximum allowable immediately, both to the Santa Fe office of the Commission and the appropriate district proration office.

In order that the allowable assigned to the project may be kept current, and in order that the operator may fully benefit from the allowable provisions of Rule 701, it behooves him to promptly notify both of the aforementioned Commission offices by letter of any change in the status of wells in the project area, i.e., when active injection commences, when additional injection or producing wells are drilled, when additional wells are acquired through purchase or unitization, when wells have received a response to water injection, etc.

Your cooperation in keeping the Commission so informed as to the status of the project and the wells therein will be appreciated.

Very truly yours,

A. L. PORTER, Jr.
Secretary-Director

ALP/ir

cc: Oil Conservation Commission
Hobbs, New Mexico

M. D. E. Gray
State Engineer Office
Santa Fe, New Mexico

State of New Mexico
Oil Conservation Commission



STATE GEOLOGIST
A. L. PORTER, JR.
SECRETARY - DIRECTOR

May 24, 1968

Re: Case No. 3766
Order No. R-3396-A
Applicant:

Tamarack Petroleum Co.

Enclosed herewith is a copy of the above-referenced Commission order recently entered in the subject case. Letter pertaining to conditions of approval and maximum allowable to follow.

A. L. Porter, Jr.
A. L. PORTER, Jr.
Secretary-Director

Hobbs OCC x
 Artesia OCC
 Aztec OCC
 State Engineer x

Other _____

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
COMMISSION OF NEW MEXICO FOR
THE PURPOSE OF CONSIDERING:

CASE No. 3766
Order No. R-3396-A

APPLICATION OF TAMARACK PETROLEUM
COMPANY, INC., FOR AN AMENDMENT
TO ORDER NO. R-3396, LEA COUNTY,
NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on May 16, 1968,
at Santa Fe, New Mexico, before Examiner Elvis A. Utz.

NOW, on this 24th day of May, 1968, the Commission, a
quorum being present, having considered the testimony, the record,
and the recommendations of the Examiner, and being fully advised
in the premises,

FINDS:

(1) That due public notice having been given as required by
law, the Commission has jurisdiction of this cause and the subject
matter thereof.

(2) That by Order No. R-3396, dated March 25, 1968, the
applicant, Tamarack Petroleum Company, Inc., was authorized to
institute a waterflood project in the South Pearl Queen Unit Area,
Pearl-Queen Pool, by the injection of water into the Queen forma-
tion through 14 injection wells located in Sections 3, 4, 5, 8,
9, and 10, Township 20 South, Range 35 East, NMPM, Lea County,
New Mexico.

(3) That the applicant now seeks amendment of Order No.
R-3396 to delete the water injection wells previously authorized
in Unit B of Section 3, Units G and L of Section 4, Unit I of
Section 5, and Unit C of Section 10, and to authorize for water
injection its Saunders Federal Well No. 7 in Unit P of Section 3,
and its Saunders Federal Well No. 3 in Unit D of Section 10, all
in Township 20 South, Range 35 East.

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CASE No. 3766
Order No. R-3396-A

(4) That the applicant no longer proposes to complete any of the authorized injection wells in such a manner as to also produce oil.

(5) That approval of the subject application will not violate correlative rights and should increase the efficiency of the South Pearl Queen Unit Waterflood Project and result in greater ultimate recovery of oil, thereby preventing waste.

IT IS THEREFORE ORDERED:

(1) That Order (1) of Order No. R-3396 is hereby amended, effective March 25, 1968, to read in its entirety as follows:

"(1)" That the applicant, Tamarack Petroleum Company, Inc., is hereby authorized to institute a waterflood project in the South Pearl Queen Unit Area, Pearl-Queen Pool, by the injection of water into the Queen formation through the following-described wells in Township 20 South, Range 35 East, NMPM, Lea County, New Mexico:

COMPANY	LEASE	WELL NO.	UNIT	SECTION
Tamarack	Lowe	1	E	3
Tamarack	Lowe	2	F	3
Tamarack	Western Federal "C"	1	N	3
Tamarack	Federal "PQ"	1	H	4
Tamarack	Federal	6	K	4
Southern Union	Saunders Federal	7	P	5
Southern Union	Saunders Federal	6	A	8
Southern Union	Saunders Federal	2	A	9
Southern Union	Saunders Federal	1	B	9
Tamarack	South Pearl Queen Unit well to be drilled		F	9
Southern Union	Saunders Federal	3	D	10

(2) That jurisdiction of this cause is retained for the entry of such further orders as the Commission may deem necessary.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

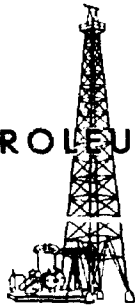
STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

DAVID F. CARGO, Chairman

SUTTON B. HAYS, Member

A. G. PORTER, Jr., Member & Secretary

TAMARACK PETROLEUM COMPANY, INC.



910 BANK OF THE SOUTHWEST BLDG
MIDLAND, TEXAS 79701

TELEPHONE: MUTUAL 3-5474

Case 3766

April 29, 1968

New Mexico Oil Conservation Commission
P. O. Box 871
Santa Fe, New Mexico 87501
ATTN: Mr. D. S. Nutter

Gentlemen:

Please consider this our request for hearing to approve for injection of the following wells in the South Pearl Queen Unit.

Company	Lease	Well No.	Unit	Section
Southern Union	Saunders Federal	3	D	10
Southern Union	Saunders Federal	7	P	5

Due to a minor change in the plan of operations, these wells were not included in the first application.

Plat, logs and sketches of the above two wells are inclosed.

Very truly yours,

Albert G. Metcalfe

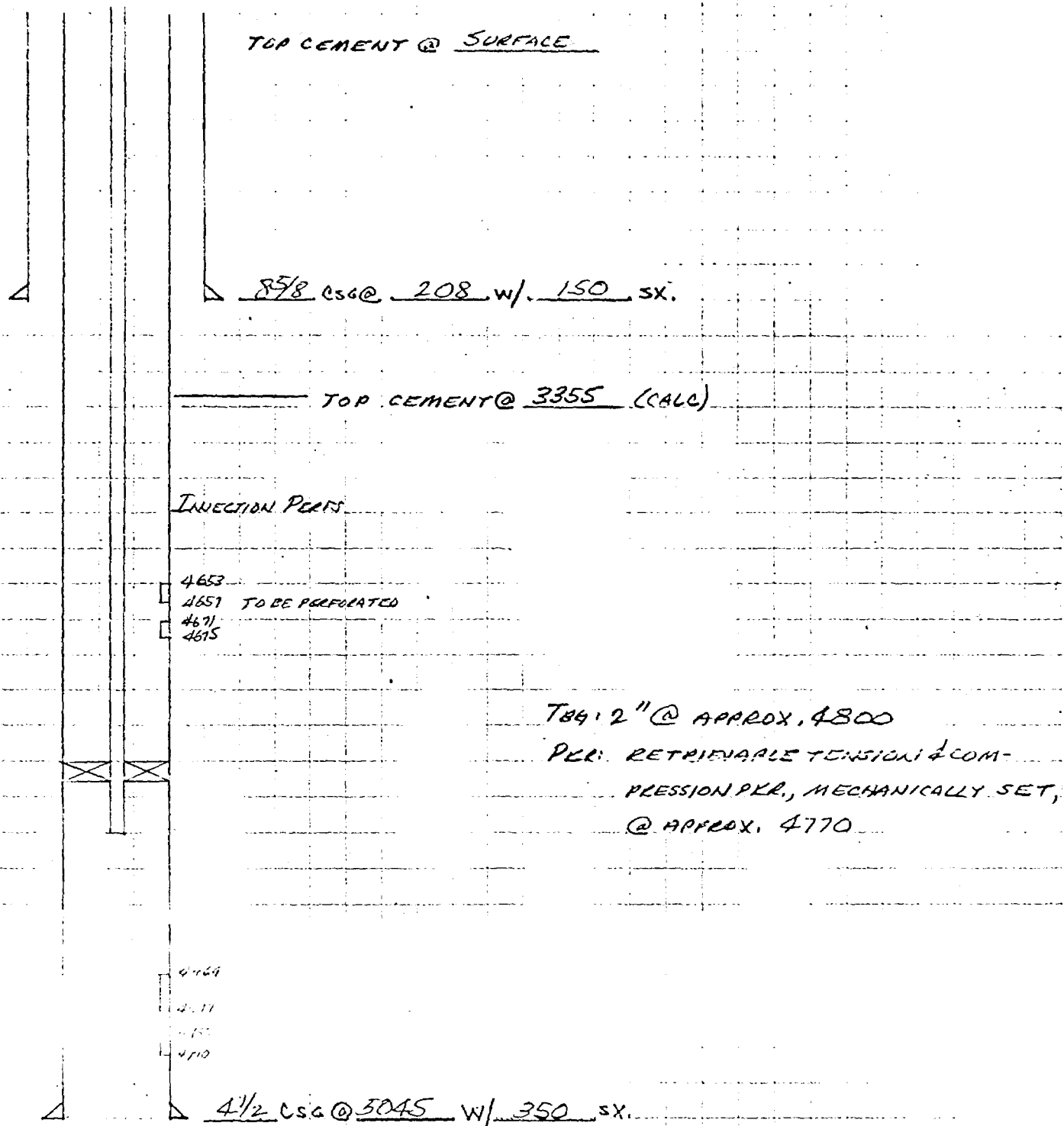
Albert G. Metcalfe

AGM:dw

Enclosures

*Wacker missed
5/2/68*

DIAGRAMMATIC SKETCH OF PROPOSED INJECTION WELL
 SOUTH S.W. 1/4 UNION FEDERAL SAUNDERS NO. 3 DUAL INJECTOR
 330' FNL & 660' FNL (UNIT D)
 S10 T20S R35E



Case 3766

SCHEMATIC SECTION OF PROPOSED INDUSTRIAL HOLE
 UNION FEDERAL SCHOOL 1077 S. 102E T. 100N
 330' FEL (UNIT A)
 AS R35E

TOP CEMENT @ 305E

85% CS6 @ 221 W/ 211 SX.


TOP CEMENT @ 305E (CALC)

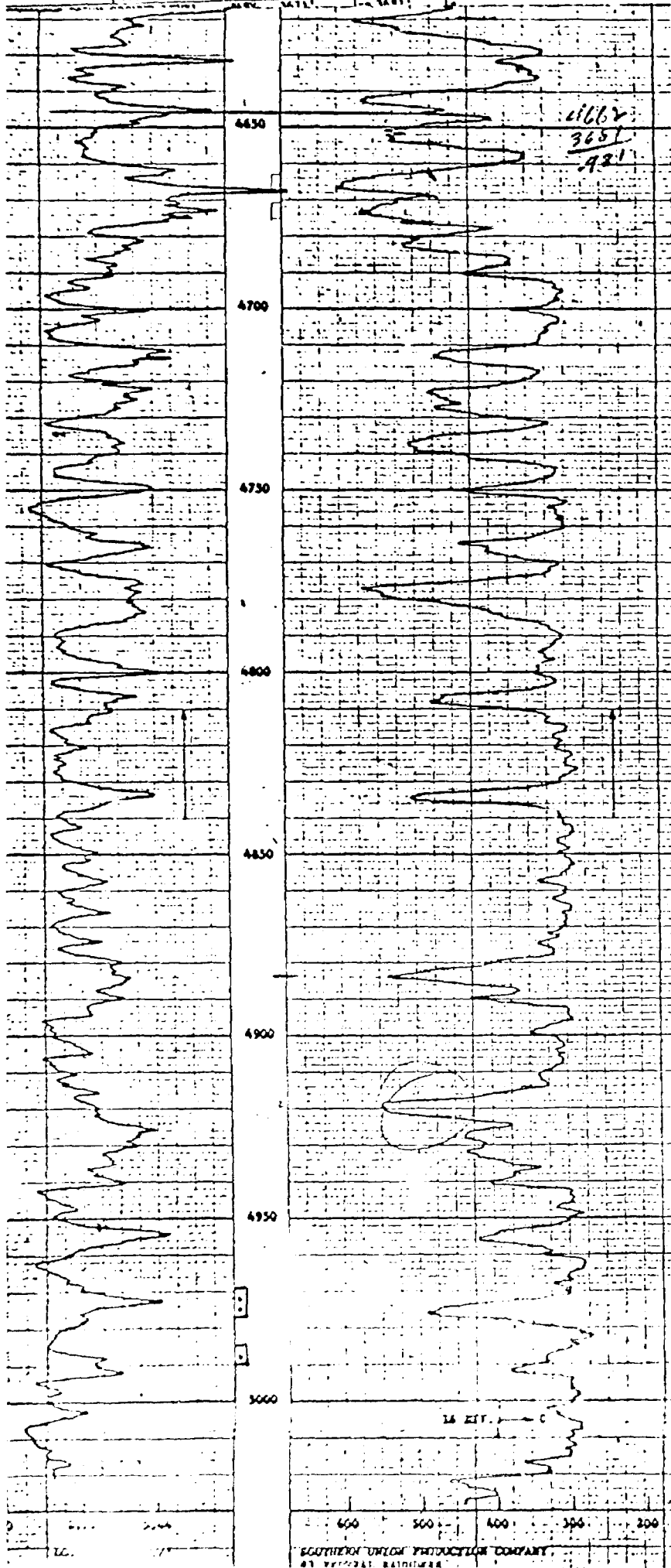
T89 2" @ APPROX. 4700

PER: RETRIEVABLE TENSION & COM-
 PRESSION PER, MECHANICALLY SET,
 @ APPROX. 4670

INJECTION POINT

85% CS6 @ 221 W/ 211 SX.

 McGillough <small>McGillough Logging Co.</small> <small>Logging Service - Oil & Gas</small>	
COMPANY SOUTHERN UNION PRODUCTION COMPANY BY FEDERAL SAUNDERS FIELD PEARL OILFIELD COUNTY LZA STATE NEW MEXICO LOCATION 660' PHL & 330' PHL CANON RAY <small>SEC 20 TWP 30-N R. 35-E ELEVATION 4,300'</small>	



① DAT(0.25)' SOFT(195)
 IPP12180

Chas 3766

1 2 3 4

Gamma Log

WELL NO.

COMPANY

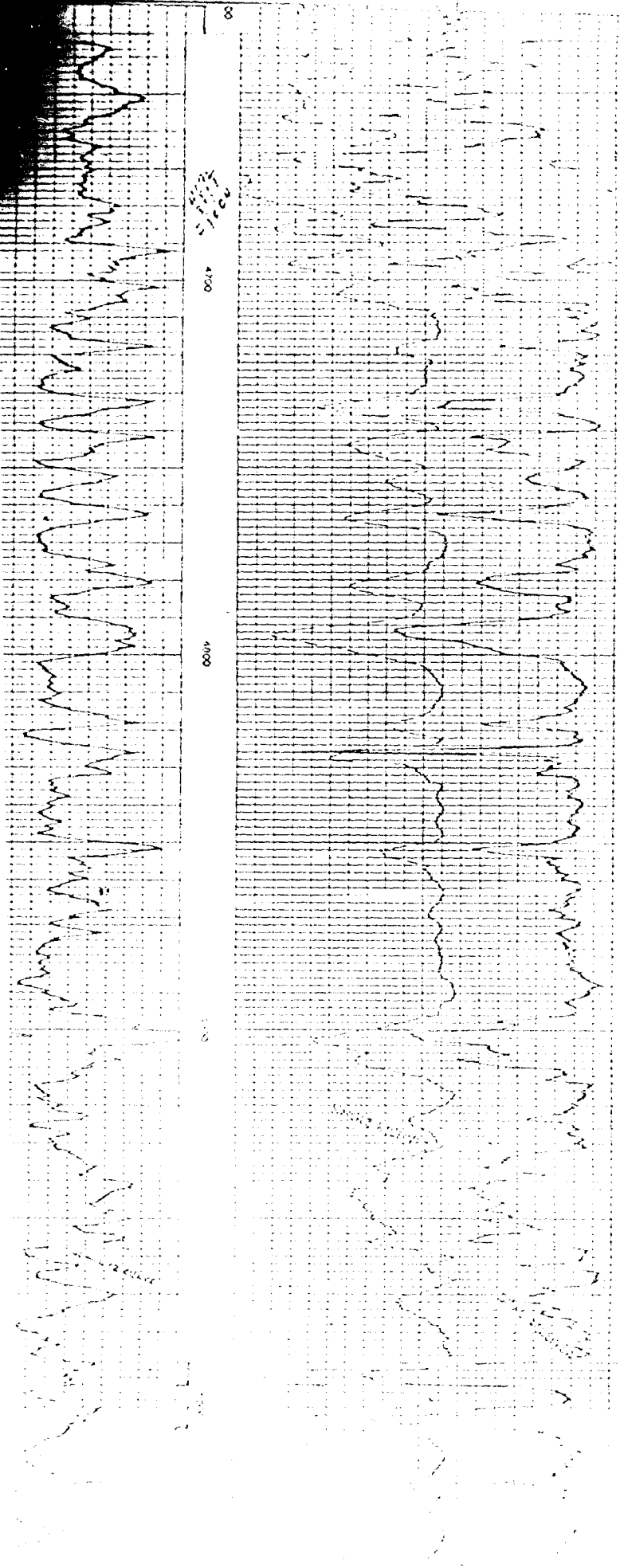
WELL

FIELD

COUNTY

LOCATION

SEC. 5 TWP. 20-S R. 15-E



Gamma Log

DOCKET. EXAMINER HEARING - THURSDAY - MAY 16, 1968

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

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

- CASE 3760: Application of Union Oil Company of California for salt water disposal, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of water produced in the South Vacuum-Devonian Pool into the Devonian formation in the interval from 12,000 feet to 12,180 feet in its John Trigg Lea Federal J Well No. 2 located in Unit P of Section 14, Township 18 South, Range 35 East, Reeves-Devonian Pool, Lea County, New Mexico.
- CASE 3761: Application of Harlan Production Company for an unorthodox oil well location, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to drill its Etz-State Well No. 15 at an unorthodox location 1650 feet from the North line and 1325 feet from the West line of Section 16, Township 17 South, Range 30 East, Grayburg-Jackson Pool, Eddy County, New Mexico.
- CASE 3762: Application of Shannick Oil Company for authority to operate an oil treating plant, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to install a combination chemical and hot-water wash oil treating plant, said plant to be located approximately four miles West of Crossroads, New Mexico, and to purchase, transport, treat, and sell oil, condensate, and sediment oil in connection with the operation of said plant.
- CASE 3763: Application of Pan American Petroleum Corporation for salt water disposal, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the Dakota formation in the interval from 712 feet to 715 feet in its USG Section 18 Well No. 28, located in Unit C of Section 18, and/or in the interval from 757 feet to 762 feet in its USG Section 19 Well No. 24 located in Unit C of Section 19, both in Township 29 North, Range 16 West, Hogback-Dakota Pool, San Juan County, New Mexico.

difference in over-riding royalty interest between Sections 23 and 24.

CASE 3768: Application of Mobil Oil Corporation for a triple completion, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the triple completion (conventional) of its Bridges State Well No. 126 located in Unit J of Section 11, Township 17 South, Range 34 East, Lea County, New Mexico, in such a manner as to produce oil from the Abo, Upper Pennsylvanian, and Morrow formations, Vacuum Field, through parallel strings of tubing.

Case 3766

Heard 5-16-85

Rev. 5-17-85.

Grant Damarack and amendment.
to Order R-3386 which will
allow them to add the two following
injection wells:

1. So. Union - Fed. Saunders #3 D-10-205-852
2. " " " " " " #7 P 5-205-355

There are five wells approved in
R-3386 which will not be used
however I don't suppose these
need be mentioned.

Thos. W. G.

LINAM 1 X

HOWE!

LOWE 2

WSTN FEDCI

FED PQ 2X

FED PQ 1

FED 6

FEB 18 X

SNDRS FEB 8

SNORFED 6

JNDRS FED 2

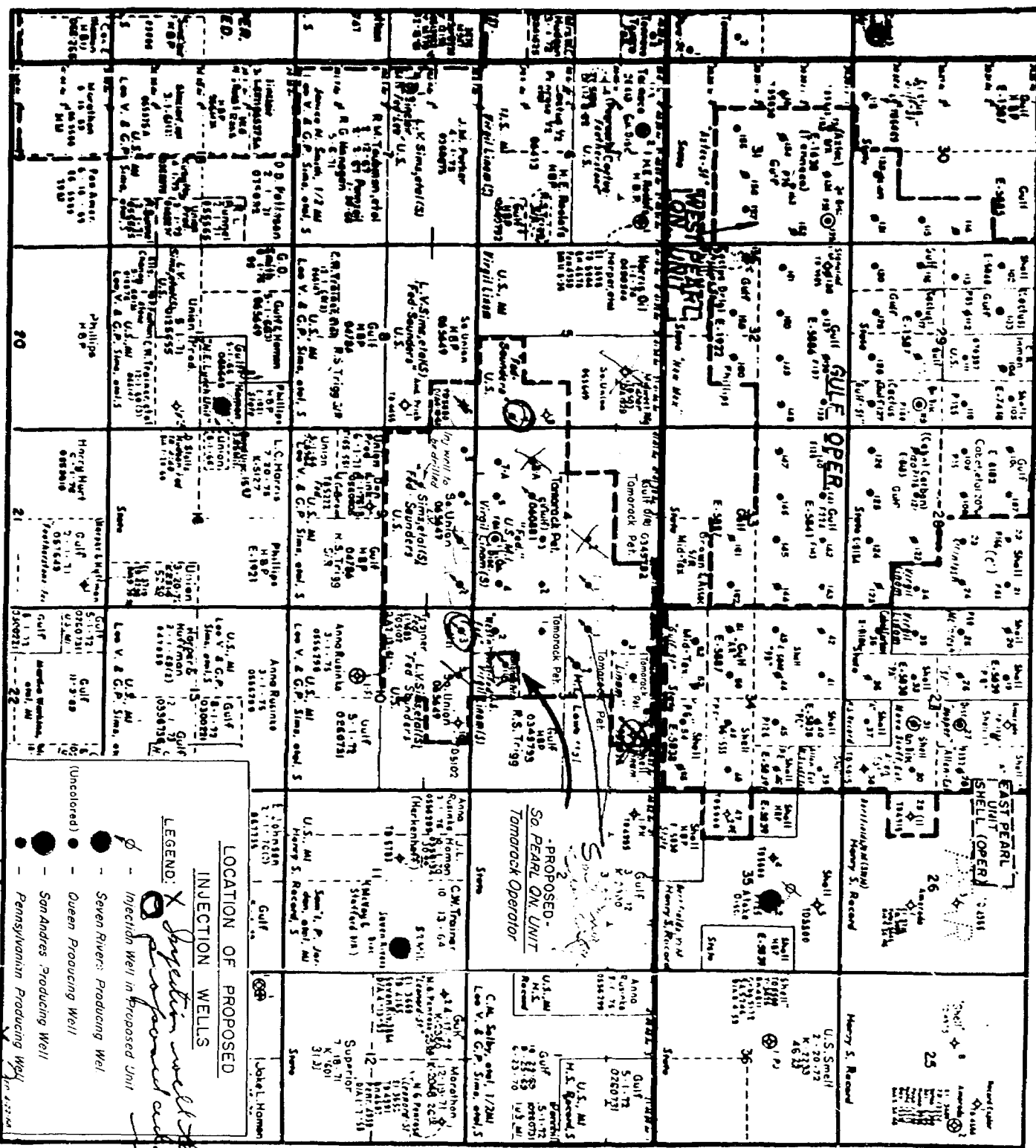
SNORS FED 1

TO BE DRCD

~~JNDRS FEB 9~~

JNDRS FND 3

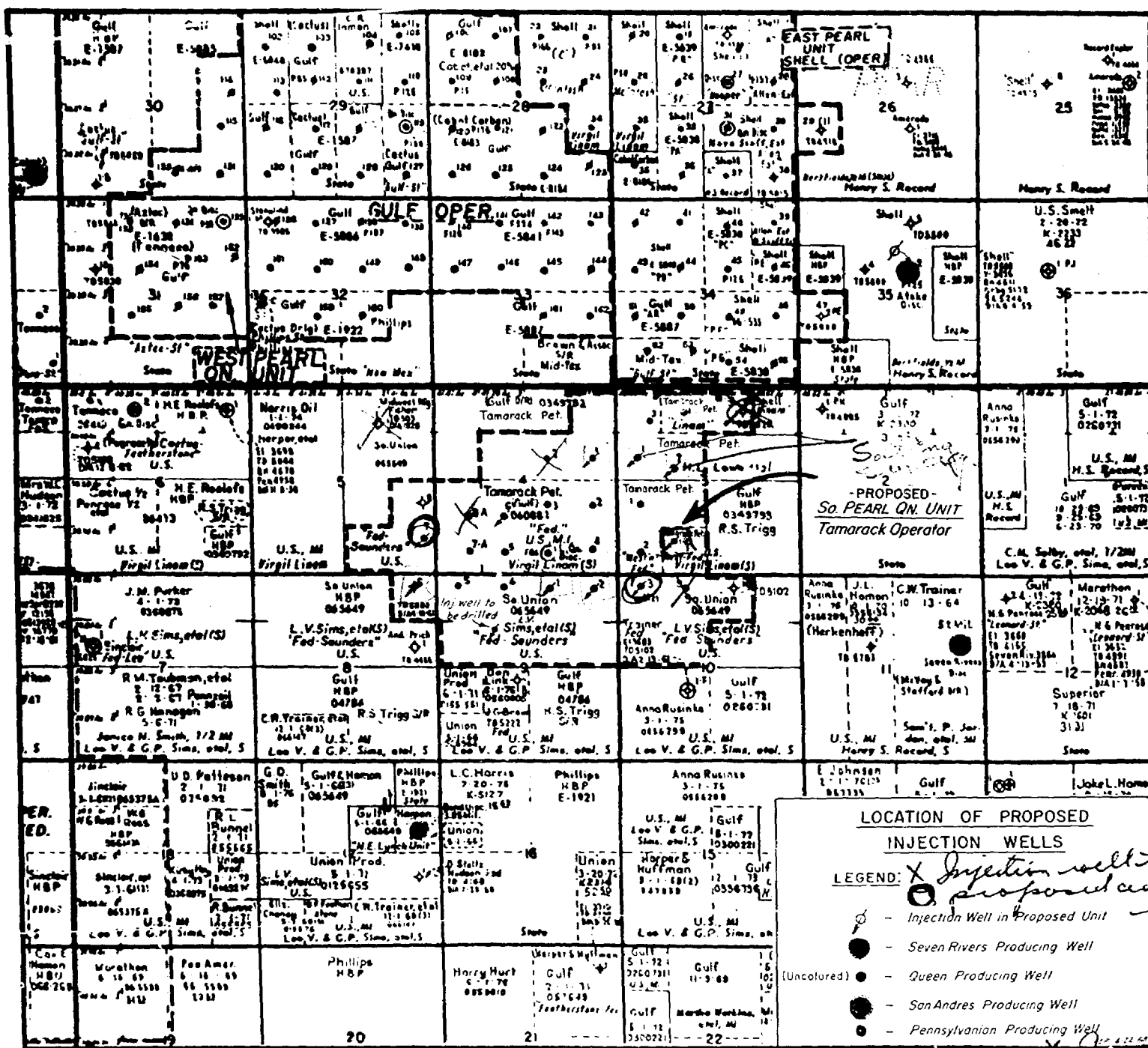
SNORS FED 7



BEFORE EXAMINER UTZ

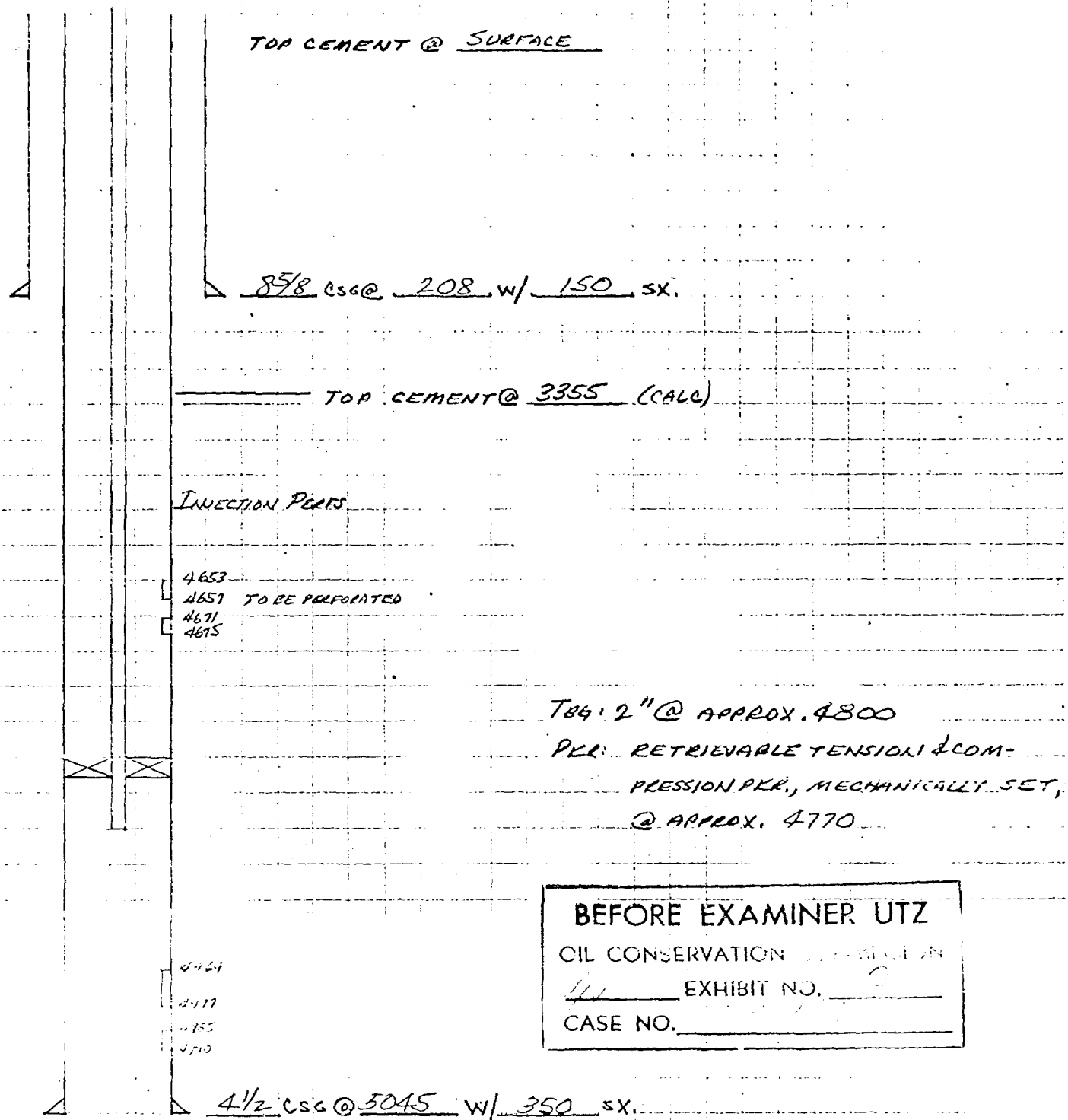
CASE NO. _____

EXHIBIT NO. _____



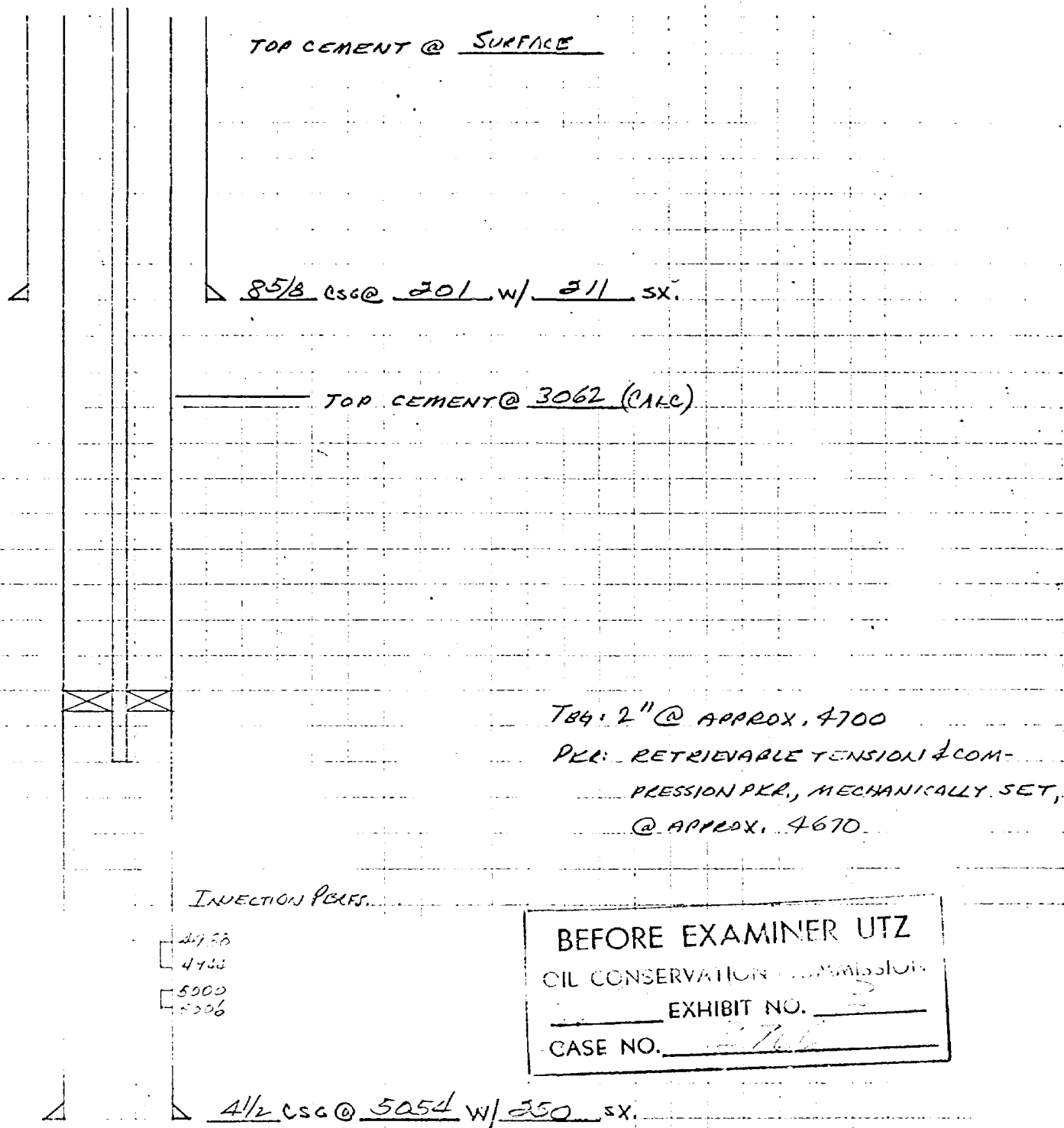
BEFORE EXAMINER UTZ
 C.L. CONSERVATION COMMISSION
 EXHIBIT NO. 376
 CASE NO. 376

DIAGRAMMATIC SKETCH OF PROPOSED INJECTION WELL
 SOUTHERN UNION FEDERAL SAUNDERS NO. 3 DUAL INJECTOR
 330' FNL & 660' FNL (UNIT D)
 S10 T20S R35E



BEFORE EXAMINER UTZ
 OIL CONSERVATION
 EXHIBIT NO. 111
 CASE NO. _____

DIAGRAMMATIC SKETCH OF PROPOSED INJECTION WELL
SOUTHERN UNION FEDERAL SAUNDERS No. 7 SINGLE INJECTOR
990' FSL & 330' FEL (UNIT A)
SS T20S R35E



dearnley-meier reporting service, inc.

SPECIALIZING IN: DEPOSITIONS, HEARINGS, STATEMENTS, EXPERT TESTIMONY, DAILY COPY, CONVENTIONS

1120 SIMMS BLDG. • P. O. BOX 1092 • PHONE 243-6691 • ALBUQUERQUE, NEW MEXICO

BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
May 16, 1968
EXAMINER HEARING

IN THE MATTER OF:

Application of Tamarack Petroleum
Company, Inc., for an amendment to
Order No. R-3396, Lea County, New
Mexico.

Case 3766

BEFORE: Elvis A. Utz, Examiner

TRANSCRIPT OF HEARING

MR. UTZ: Case 3766.

MR. HATCH: Case 3766. Application of Tamarack Petroleum Company, Inc., for an amendment to order No. R-3396, Lea County, New Mexico.

MR. KELLAHIN: Jason Kellahin, Kellahin & Fox, Santa Fe, appearing for the Applicant. We have one witness.

(Witness sworn)

(Whereupon, Applicant's Exhibits 1 through 3 marked for identification)

MR. UTZ: Other appearances?

ARTHUR EDWARD PINSON

called as a witness, having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q Would you state your name, please?

A Arthur Edward Pinson, Jr.

Q By whom are you employed?

MR. UTZ: What was the name again?

A Arthur Edward Pinson, Jr., P-i-n-s-o-n.

Q By whom are you employed?

A I am employed by LLC&C Engineering Incorporated, Midland, Texas.

Q What is the business of LLC&C Engineering?

A We are Petroleum Consultants.

Q In connection with your work as a Petroleum Consultant have you done any work for Tamarack Petroleum Inc. in Case No. 3766?

A Yes, we have.

Q Have you testified before the Oil Conservation Commission and made your qualifications as an engineer a matter of record?

A Yes, I have.

MR. KELLAHIN: Are the witness's qualifications acceptable?

MR. UTZ: Yes, sir.

Q Mr. Pinson, what is proposed by Tamarack Petroleum Company in Case 3766?

A We propose in this case to delete five wells from our previous application which was approved to delete these five wells as injection wells and to replace them with two others.

Q What is the purpose of changing the injection pattern?

A In our original plan we had in order to provide what we thought was the best pattern for flooding this portion

of the Pearl Queen Field, planned to use several wells as dual injection producing wells with production through the tubing string and injection into a higher zone in the casing tubing annulus above a packer. We have since then decided that there is a possibility that this would cause severe operating problems and we have redesigned the pattern so that we can avoid having wells which will be both producers and injectors.

Q Now, referring to what has been marked as Exhibit No. 1, would you identify that exhibit, please?

A Exhibit No. 1 is a plat showing the proposed -- this proposed unit and the surrounding area with the injection wells marked.

Q And referring to what has been marked as Exhibit No. 2, would you identify that exhibit?

A Exhibit 2 is a diagrammatic sketch of one of the proposed new injection wells which is Southern Union Federal Saunders No. 3 located in Unit B Section 10, 20 South, Range 35 East.

Q Briefly, how will that well be recompleted?

A This well will be a dual injection well. It will inject into upper perforations down the casing tubing annulus above a packer and to lower perforations below the

packer through tubing.

Q Now, is that a completion similar to others that have been approved by the Commission for this project?

A Yes, it is.

Q It's identical to some of the others, is it not?

A Yes.

Q Now, referring to what has been marked as Exhibit No. 3, would you identify that exhibit?

A This is a diagrammatic sketch of the Southern Union Federal Saunders No. 7 which is a single injection well. It's located in Unit P, Section 5, Township 20 South, Range 35 East and injection will be through a tubing string below a packer.

Q And will it be also a producing well?

A No.

Q Will you have any dual injector producing wells if this application is granted?

A No, we will not.

Q That will eliminate that type of well?

A Right.

Q Now, what will you do with the five wells that have been approved as injection wells and which are now being deleted?

A They will be used as producing wells as appropriate.

Q Now, there were two of those wells, as I recall, that had a short string of surface casing, is that correct?

A Yes.

Q Referring to the Lowe No. 2 Well, what will be done with that well?

A This well will be a dual injection well as before. The surface string in the Low No. 2 is set at 102 feet which is not at sufficient depth to protect all of the possibly valuable fresh water sands which occur to a depth of about 135 feet.

Q What action will you take in order to protect those fresh water sands?

A We propose to pickup the long string of casing and remove the slips and place a one-inch string of tubing between the surface casing and the long string to a depth of about 200 feet and inject cement and circulate the cement to the surface.

Q The result of that would be, you would have the production string cemented through the fresh water zone, is that correct?

A Right.

Q In your opinion, would that adequately protect any fresh water zones from contamination as a result of injection through the casing tubing annulus?

A Yes, it will.

Q And that is what you propose to do, is that correct?

A Yes, sir.

Q Now, referring to the Lowe No. 2 Well, what will you do with it?

A No. 1.

Q I'm sorry, No. 1 Well.

A Formerly the Lowe No. 1 well was a production injection dual which meant that injection would be down the casing tubing annulus and we have eliminated all the production injection duals and this well will now be a single injection well and injection will be down the tubing and the injected water won't be in contact with the long string casing.

Q Now, these injection wells will be completed in every aspect as was proposed in the previous case heard by the Commission resulting in Order No. R-3396, will they not?

A That's correct.

Q There's no change in your plans as to the

completion of your injection wells?

A No.

Q Were Exhibits 1, 2 and 3 prepared by you or under your supervision?

A Yes, they were.

MR. KELLAHIN: At this time I offer Exhibits 1, 2 and 3 in evidence.

MR. UTZ: Without objection, Exhibits 1 through 3 will be entered into the record of this case.

(Whereupon, Applicant's Exhibits 1 through 3 were offered and admitted in evidence.)

Q Do you have anything to add, Mr. Pinson?

A No, I have nothing.

MR. KELLAHIN: That completes the Direct Examination of the witness.

CROSS EXAMINATION

BY MR. UTZ:

Q Did you say you were eliminating some of your previous injection wells?

A Yes, sir, five of them.

Q Which ones are those?

A They are listed in the advertisement, but they are the Shell Linum No. 1 --

MR. UTZ: All right, just call them off.

A Shell Linum No. 1, which is the -- it will be a little difficult to identify these. I'll have to look at my map here. How about reading them from the advertisement?

MR. NUTTER: That will help him but it won't help me, I don't have the locations and the advertisement. If you will, read the location and the name both.

A The Shell Linum No. 1 which is in location B, Unit B, of Section 3; the Tamarack Federal PQ No. 2, which is in location G of Section 4.

MR. UTZ: That was the No. 2?

A Right. Federal PQ No. 2.

MR. UTZ: Okay.

A The Southern Union Federal Saunders No. 8.

MR. UTZ: Where is it located?

A Which is in Unit I of Section 5.

MR. NUTTER: That's that dry hole out there, Elvis.

A The Tamarack Federal A No. 8 which is in Unit L of Section 10 and the Southern Union Federal Saunders No. 9 which is in Unit C of Section 10. These wells will be deleted as injection wells.

Q (By Mr. Utz) Now, the well in Unit A of Section

8, is that an injection well? I can't hardly tell whether it shows that it is or not.

A Yes, sir, it is.

Q Now, why were these wells deleted from your project? You feel they are not necessary or this is a periphery flood, right?

A Right, in order to avoid having the injection producing duals we had to make other arrangements in other wells in order to get the best flood pattern possible and in order to do this we had to make some wells triples now instead of dual injectors and this eliminated -- reduced the number of wells needed, but prior to this we were planning fourteen injection wells and we took away five and added back three so that now we have eleven. We had to readjust the entire pattern to get the proper coverage.

MR. UTZ: Are there other questions of the witness?

CROSS EXAMINATION

BY MR. NUTTER:

Q You didn't add back three, did you? You added back two?

A Yes.

Q By the elimination of the Linum No. 1 that

only leaves two of these wells of the original three which had a surface casing problem, correct?

A It does, and one of those now we'll be injecting down tubing.

Q And you will have a packer there?

A Yes, sir.

Q And that annulus will be loaded with some sort of an inhibited fluid?

A Yes, sir.

Q And the annulus left open or equipped with a pressure gauge to detect leakage?

A Yes, sir.

Q Now, the other well, you plan to run the string of one inch down at least 200 feet and circulate cement on it?

A Yes, sir, the fresh water sands are down to a depth of about 135 feet. In general, the rest of the wells have surface casing down to about 200 feet.

Q I think the minimum surface pipe is 200 feet on all of the other wells and in some cases it's almost 400.

A So we plan to run 200.

MR. UTZ: Are there other questions? Witness may be excused.

(Witness excused)

MR. UTZ: Statements? Case will be taken under
advisement.

STATE OF NEW MEXICO)
) ss
 COUNTY OF BERNALILLO)

I, KAY EMBREE, Notary Public in and for the County of Bernalillo, State of New Mexico, do hereby certify that the foregoing and attached Transcript of Hearing before the New Mexico Oil Conservation Commission was reported by me; and that the same is a true and correct record of the said proceedings, to the best of my knowledge, skill and ability.

Witness my Hand and Seal this 27th day of May, 1968.

Kay Embree
 NOTARY PUBLIC

My Commission Expires:

November 19, 1971

I do hereby certify that the foregoing is a true and correct record of the proceedings in the hearing of Case No. 3766, held before me on May 16, 1968.
Thos. L. [Signature]
 Notary Public, State of New Mexico
 Oil Conservation Commission