CASE 3850: Application of PAN AM. FOR SALT WATER DISPOSAL, LEA COUNTY, NEW MEXICO.

Case Number

3850

Application

Transcripts.

SmaLL Exhibits

ETC.

GOVERNOR
DAVID F. CARGO
CHAIRMAN

State of New Mexico
Oil Conservation Commission

LAND COMMISSIONER
GUYTON B. HAYS
MEMBER

P. O. BOX 2088
SANTA FE

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

September 12, 1968

Mr. Charles Malone
Atwood & Malone
Attorneys at Law
Post Office Box 700
Roswell, New Mexico 88201

Re: Case No. 3850
Order No. R-3495
Applicant:
Pan American Petroleum Corp.

Dear Sir:

Enclosed herewith are two copies of the above-referenced Commission order recently entered in the subject case.

Very truly yours,

A. L. Porter, Jr.

A. L. PORTER, Jr.
Secretary-Director

ALP/ir

Carbon copy of drder also sent to:

Hobbs OCC x
Artesia OCC
Aztec OCC
Other Mr. Harold Berends - Bureau of Land Management
and State Engineer Office

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. 3850
Order No. R-3495

APPLICATION OF PAN AMERICAN PETROLEUM
CORPORATION FOR SALT WATER DISPOSAL,
LEA COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on September 4, 1968, at Santa Fe, New Mexico, before Examiner Elvis A. Utz.

NOW, on this 12th day of September, 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 the applicant, Pan American Petroleum Corporation, is the owner and operator of the Federal "A" Well No. 3, located in Unit J of Section 13, Township 9 South, Range 35 East, NMPM, Bough (Permo-Pennsylvanian) Pool, Lea County, New Mexico.

(3) That the applicant proposes to utilize said well to dispose of produced salt water into the Permo-Pennsylvanian formation, with injection into the open-hole interval from approximately 9590 feet to 9634 feet.

(4) That the injection should be accomplished through 2 3/8-inch plastic-lined tubing installed in a packer set at approximately 4900 feet; that the casing-tubing annulus should be filled with an inert fluid; and that a pressure gauge

should be attached to the annulus or the annulus left open at the surface in order to determine leakage in the casing, tubing, or packer.

(5) That approval of the subject application will prevent the drilling of unnecessary wells and otherwise prevent waste and protect correlative rights.

IT IS THEREFORE ORDERED:

(1) That the applicant, Pan American Petroleum Corporation, is hereby authorized to utilize its Federal "A" Well No. 3, located in Unit J of Section 13, Township 9 South, Range 35 East, NMPM, Bough (Permo-Pennsylvanian) Pool, Lea County, New Mexico, to dispose of produced salt water into the Permo-Pennsylvanian formation, injection to be accomplished through 2 3/8-inch tubing installed in a packer set at approximately 4900 feet, with injection into the open-hole interval from approximately 9590 feet to 9634 feet;

PROVIDED HOWEVER, that the tubing shall be plastic-lined; that the casing-tubing annulus shall be filled with an inert fluid; and that a pressure gauge shall be attached to the annulus or the annulus left open at the surface in order to determine leakage in the casing, tubing, or packer.

(2) That the applicant shall submit monthly reports of its disposal operations in accordance with Rules 704 and 1120 of the Commission Rules and Regulations.

(3) 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

GUYTON B. HAYS, Member

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

esr/

Case 3850
Heard 9-4-68
Rec. 9-5-68

Grant Pan Am. permission to convert their Federal 'A' #3, J-13-95-35E, Bough-Penn Penn. pool to an SWD well.

Injection shall be thru 2 3/8 internally plastic coated tubing, and under a packer set @ approx. 4800'.

The injection zone is the Bough-Penn.-Penn. zone in open hole from 9590 to 9634'. Annulus shall be filled with inert fluid w/ pressure gauge at surface.

The packer is set pretty high in this hole but since it is well cemented it appears to be O.K.

Thos. A. Dale

FORM 446 8-65

PAN AMERICAN PETROLEUM CORPORATION

OIL AND GAS BUILDING P. O. BOX 1410
FORT WORTH, TEXAS—76101

D. L. RAY
DIVISION ENGINEER

August 13, 1968

Case 3850

File: GHF-427-986.510.1

Subject: Salt Water Disposal into
Bough (Permo-Pennsylvanian)
Interval, Federal "A" Well No. 3
Bough (Permo-Pennsylvanian) Pool
Lea County, New Mexico

New Mexico Oil Conservation Commission (3)
P. O. Box 871
Santa Fe, New Mexico

68 AUG 14 AM 8 10

Gentlemen:

Pan American Petroleum Corporation respectfully requests that a hearing be docketed to consider our application for salt water disposal into the Bough (Permo-Pennsylvanian) interval in our Federal "A" Well No. 3 located in Section 13, T-9-S, R-35-E, Lea County, New Mexico.

Attached are exhibits to be used at this hearing, including:

1. Plat showing location of proposed disposal well and all wells within a two-mile radius.

2. A log of the proposed injector.

3. Diagrammatic sketch of mechanical configuration of well-bore as equipped for disposal.

4. Pertinent data sheet.

5. Analysis of water which would be disposed into Federal "A" Well No. 3.

Yours very truly,

D. L. Ray

WCW:mp
Attachments

DOCKET MAILED
Date 8/22/68

BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
September 4, 1968

EXAMINER HEARING

IN THE MATTER OF:

Application of Pan American Petroleum Corporation for salt water disposal, Lea County, New Mexico. Case 3850

BEFORE: Elvis A. Utz
Examiner

TRANSCRIPT OF HEARING

MR. UTZ: Case 3850.

MR. HATCH: Case 3850. Application of Pan American Petroleum Corporation for salt water disposal, Lea County, New Mexico.

MR. MALONE: If it please the Commission, Charles Malone of Atwood and Malone, Roswell, for the Applicant. We have one witness and four exhibits.

MR. UTZ: Are there any other appearances?

MR. MALONE: Would you stand and be sworn?

(Witness sworn.)

(Whereupon, Applicant's Exhibits Numbers 1, 2, 3 and 4 were marked for identification.)

BILL WELLS

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

DIRECT EXAMINATION

BY MR. MALONE:

Q Would you state your name and address, please?

A My name is Bill Wells, Fort Worth, Texas, Box 1410.

Q And your position with Pan American?

A Petroleum Engineer.

Q Would you state very briefly what Pan American seeks by this application?

A We're requesting approval to use our Federal A Well Number 3 as a salt water disposal well in the Bough-Permo Pennsylvanian Pool.

Q Now, you have not testified before this Commission prior to day. From what university did you obtain your degree, please?

A I obtained a B. S. Degree in Civil Engineering from the New Mexico State University in 1965.

Q How long have you been with Pan American in Fort Worth?

A Approximately two and a half years.

Q Does the jurisdiction in your office include the area which is in question in this application, and are you familiar with the matters contained in the application?

A Yes, sir.

MR. MALONE: Would the qualifications of this witness be satisfactory?

MR. UTZ: Yes, sir.

Q Going to your Exhibit 1, would you state what this shows, please, sir?

A Exhibit 1 is a plat of the Bough area showing all producers within a two mile radius of our proposed salt water disposal well. Our proposed well is indicated by the red arrow, our Federal Well Number 3. We show three Bough-Devonian producing wells and three Bough-Permo Pennsylvanian producing wells.

Q The Devonian is indicated in what color?

A The Devonian producers are indicated in red. The Permo-Penn producers are in blue.

Q And your proposed injection of disposal water here is in the Penn, is that correct?

A Yes, sir.

Q What other Penn wells are there in the area, please, sir?

A Pan American's Read Number 1 located in Section 18. Pan American's T. E. Flake Number 1 located in Section 17, and BTA's Northcott Federal B Number 1 located in Section 5 to the north. st.

Q From which of these wells shown on the plat do you contemplate the immediate disposal of produced water?

A Our initial disposal will be from our Read Number 1 and our Flake Number 1. The Flake Number 1 currently produces about 40 barrels of water a day, and the Read Number 1 will produce from Zero to ten barrels of water per day.

Q These are the two wells shown in blue on the right side of the plat?

A Right, in Sections 17 and 18.

Q And in the future, do you intend to dispose of produced water from any of the other wells indicated?

A Yes, sir, we anticipate in the future that we will have need to dispose of approximately 400 barrels of water per day from our Hood Federal Number 2, our Federal A Number 4 and 5, which are all three Devonian wells. This 400 barrels per day figure includes the two Permo-Penn wells to the east.

MR. UTZ: Where are those wells located?

THE WITNESS: The two Permo-Penn wells?

MR. UTZ: Yes.

THE WITNESS: In Sections 17 and 18.

MR. UTZ: Well, I mean the Devonian wells you just spoke of.

THE WITNESS: In Section 13 in the Northwest Quarter and the Southwest Quarter. They're the three red color coded wells.

Q What is the nature of the production of oil from the Permo-Penn in this area? How many wells are producing?

A Currently, there are only three wells producing from the Permo-Penn. Our Read and Flake wells and BTA's well to the northeast, Section 5. Our Read produces about 150 barrels or has a capacity of 150 barrels of oil per day. Our Flake will produce about 110 barrels of oil per day.

Q And will you place that third well that you mentioned which is a Penn producer?

A Section 5, Northeast corner of the map, Range 36 East, Township, I believe that's 9.

UTZ: Yes, sir. Mine shows 9.

Q That would be the well marked in blue in the extreme upper right-hand corner of the plat, is that correct?

A Yes, sir.

Q So, as I understand your testimony, the only production of oil from the Penn in which you hope to dispose of this produced water are the two wells in the center of the map on the right side and the one well in the extreme right-hand top corner of the plat.

A We don't necessarily intend to dispose of produced water from BTA's well in the northeast corner.

Q I didn't make my question clear. I'm sorry. You are planning here, if the application is approved, to dispose of water into the Penn, is that correct?

A Yes, sir.

Q And as I understand your testimony, the only production of oil from [illegible]t Pennsylvanian Formation are the three wells marked in blue to the right and the upper right-hand corner of the plat?

A Yes, sir.

Q The nearest well there is one mile, and the farthest about three miles, is that correct?

A Yes, sir.

MR. UTZ: What are the wells circled in the same blue color?

THE WITNESS: Those are plugged and abandoned Permo-Penn producers.

MR. UTZ: I see.

Q What is the history of this injection well, Mr. Wells?

A This Federal Well Number 3 was originally completed as a Bough-Permo Penn producer by Mobil in 1953. It has produced some 254,000 barrels of oil from the Permo-Penn. Pan American acquired the lease and after the well was plugged.

Q Re-plugged in the Penn?

A Right. Mobil had plugged it in the Penn and when Pan American acquired the lease, we recompleted to the San Andres gas zone, Bough-San Andres.

Q What is the status of the San Andres production which you obtained?

A We have produced approximately .8 bcf from the San Andres in this well. The well is temporarily abandoned in the San Andres right now. It's shut-in.

Q Is there anything else with respect to Exhibit 1?

A No, sir, I believe that covers it.

Q Would you go to Exhibit 2, the log of the injection well and describe what that reflects?

A This is a log, electric log of our Federal A Well Number 3, the proposed disposal well. All we have shown on this log is the top of the Permo-Penn at 9580.

Q Going on to Exhibit 3, which is the schematic diagram of the completion for the injection well, would you discuss it?

A Yes. Our proposed disposal interval will be from the base of the five and a half inch liner at 9590 to our total depth at 9634, the open hole interval between those points. We have a five and a half inch liner which was set from 4188 to 9590 and it's cemented with 925 sacks of cement, was circulated. In determining that the cement was circulated, it was reported circulated initially. We have perforated at 4852. We're not able to pump into the perforations at 5600 pounds. A theoretical calculation of the cement volume shows it was circulated.

Q What is the status of the cement above the five and a half liner?

A Cement was circulated behind all three strings of pipe. We have a seven and five-eighths inch pipe set at 4200. It was cemented with 1548 sacks. It was circulated. We have surface pipe set at 325 -- I'm sorry, 465 feet, cemented with 325 sacks which was also circulated.

Q In your opinion and in the opinion of Pan American, do you have a complete and tight cement job from top to bottom in this hole?

A Yes. We have good cement from surface to the base of the liner.

Q What do you plan to do about the annulus between the casing and the tubing shown on the diagram?

A The annulus will be loaded with an inhibited fluid and we plan to install a pressure gauge on the annulus at the surface. Our injection will be through two and three-eighths inch internally plastic coated tubing set in a packer at approximately 4900 feet. This will be a retrievable tension packer.

Q What is the nature of the injection interval; that is, the formation where the injection is proposed?

A From looking at our log, we have approximately 30 feet of clean interval between the base of the five and a half inch liner in total depth. This was the producing interval from the Bough-Penn that produced approximately 250,000 barrels of oil. Our micro-log shows eight to ten feet of good permeability in this zone.

Q In your opinion and in the opinion of Pan American, will this injection zone satisfactorily take the produced water which you plan to inject?

A Yes, sir.

Q Is there anything else with respect to this exhibit?

A No, sir, other than we will pressure test the five and

a half inch liner to conversion to salt water disposal.

Q Going then to your Exhibit 4, what does it show, please?

A Exhibit 4 is a pertinent data sheet of our proposed salt water disposal operation showing the disposal interval to be in the Permo-Penn at a depth of 9590 to 9634, open hole interval. The fluid to be injected will be produced water with a chloride content ranging, or approximately 60 to 70,000 parts per million.

Our initial rate will be 50 to 100 barrels water per day with an anticipated inflow rate of four to 500 barrels of water per day. The source, the eventual source of our produced water will be from our Flake A Well Number 1, our Read A Well Number 1.

Q To interrupt you, those are the two Penn wells on the east side of the plat?

A Yes, sir. Both color coded in blue. Our Federal A Wells Numbers 4 and 5 are two Devonian producers in Section 13 located in the Southwest quarter, and from our Hood Federal Well Number 2, our Devonian producer located in 13 in the Northwest Quarter, colored in red.

Q Were these four exhibits prepared by you or under your direct supervision?

A Yes, sir.

Q Do you have anything further for your testimony in this case?

A We feel that conservation would be served by granting us this request. As a result of the January 1st no-pit order, we would be required to either shut-in or haul produced water from our Flake and Read Wells to the east of the proposed disposal well if we were not allowed to dispose of it in our Federal A Well Number 3.

MR. MALONE: We would like to move the admission of Exhibits 1 through 4.

MR. UTZ: Without objection, Exhibits 1 through 4 will be entered in to the record in this case.

MR. MALONE: That completes our direct examination.

CROSS EXAMINATION

BY MR. UTZ:

Q Mr. Wells, how old is the five and a half inch liner in this well?

A Pardon me?

Q How old is the casing in the five and a half inch liner?

A The liner was set in 1953.

Q About 15 years old?

A Yes, sir.

Q And you will pressure test it?

A Yes, sir.

Q Do you intend to inhibit the injected water in any way?

A No, sir, we don't.

Q Have you had any corrosion problems with this water that you know of in the area?

A Not to my knowledge, no, sir.

Q The water is 60 to 70 parts per million?

A Right.

Q How about any producing formations behind the packer, below the packer?

A The only formations which have produced in this area, as shown on our map, are the Devonian, which is below the Permo-Penn and the San Andres, which is way above it. Chloride content of the water in these zones ranges from 60 to 150 thousand parts per million. It's non-potable. No damage could be caused, we don't feel, by injection into this inverval. We don't anticipate any problems with this due to our cement job.

Q How much longer do you anticipate that you will need to use this well as an injection well?

A I don't know what the life, remaining life of the

six or the five producing wells, producing water, is. An off-hand number would probably be ten years.

Q You anticipate the five and a half inch liner will stand up for ten years, then.

A Yes, sir. We also feel that because of the cement job and the nature of the formations behind the liner that minimal problems would occur should there be some failure of the pipe.

Q Do you estimate that the water will go back in by vacuum without any pressure?

A Initially, yes, sir. From history in this area, we feel that it may, through complete operation of the system, the total life of the system.

Q Now, your reason for setting the packer as 4900, at this bottom, is an economy measure?

A Yes, sir. We estimate that it would cost us approximately $5,000.00 more to run the tubing clear to 100 feet above the disposal interval.

MR. UTZ: Are there any other questions of the witness? The witness may be excused. Any statements in this case? The case will be taken under advisement.

I N D E X

E X H I B I T S

Number	Marked for Identification	Received in Evidence
Applicant's Exhibits 1, 2, 3, 4	2	11

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

I, CHARLOTTE MACIAS, 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 2nd day of October, 1968.

Charlotte Macias
Notary Public

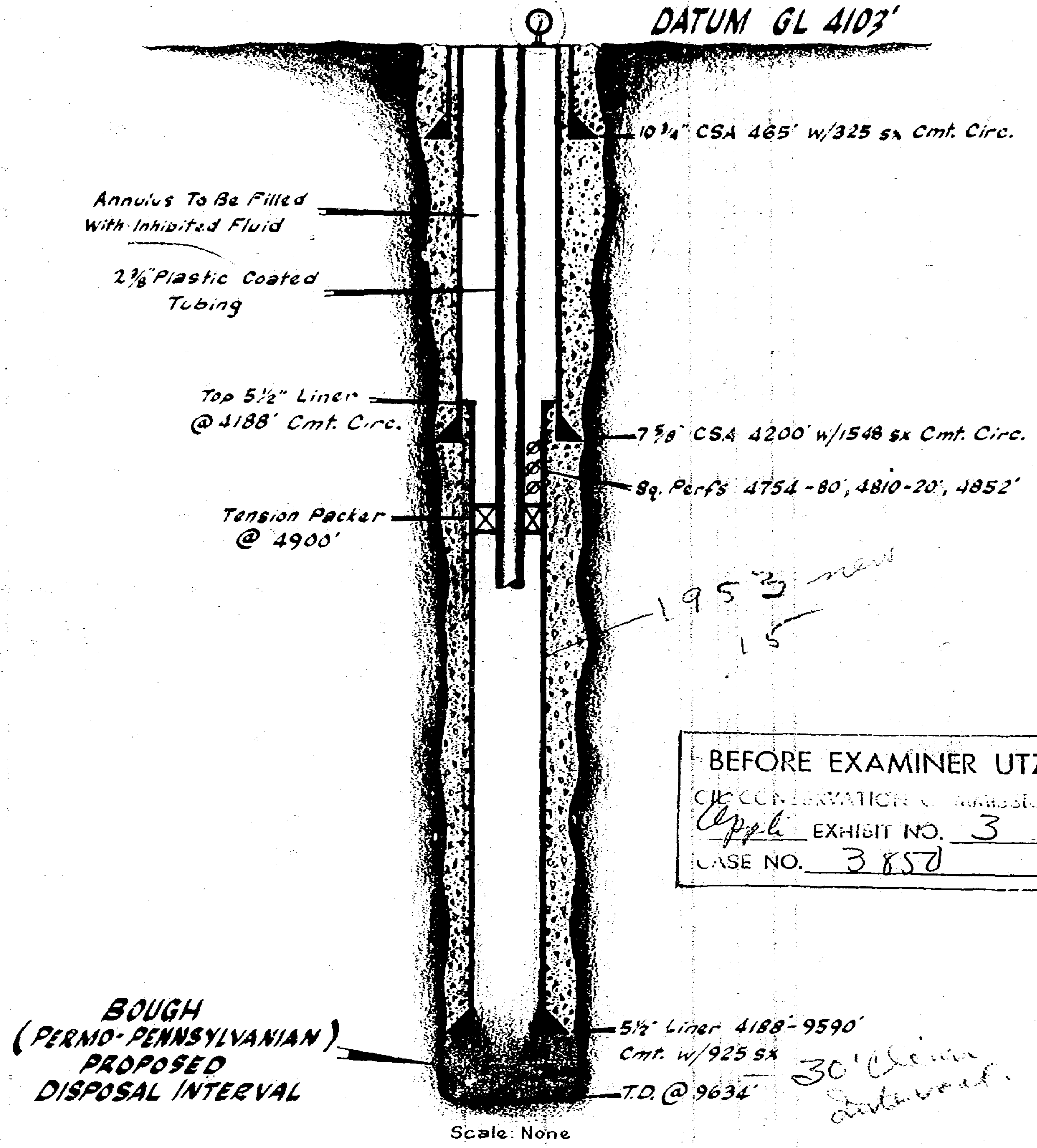
My Commission Expires:

February 10, 1971.

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 3850, heard by me on Sept. 19 68.

, Examiner
New Mexico Oil Conservation Commission

BOUGH SWD WELL
NO. 1
(FED. "A" NO. 3)



Scale: None

BEFORE EXAMINER UTZ
OIL CONSERVATION COMMISSION
Appl. EXHIBIT NO. 3
CASE NO. 3850

PERTINENT DATA

PAN AMERICAN PETROLEUM CORPORATION
PROPOSED SALT WATER DISPOSAL
FEDERAL "A" WELL NO. 3
BOUGH (PERMO-PENNSYLVANIAN) POOL
LEA COUNTY, NEW MEXICO

I. Disposal Interval

a. Bough (Permo-Pennsylvanian)

b. Depth - 9590'-9634'

II. Fluid to be Injected

a. Produced water with a chloride content of approximately 60,000-70,000 ppm

b. Initial rate 50-100 BWPD
Anticipated eventual rate - 400-500 BWPD

c. Source: Pan American's T. E. Flake "A" Well No. 1
" " T. L. Reed "A" Well No. 1
" " Federal "A" Wells No. 4 and 5
" " Hood Federal Well No. 2

DOWELL DIVISION OF THE DOW CHEMICAL COMPANY

WATER ANALYSIS

Date 8/2/68 Lab no.

PAN AMERICAN Lab. Location HOBBS S. no. 2

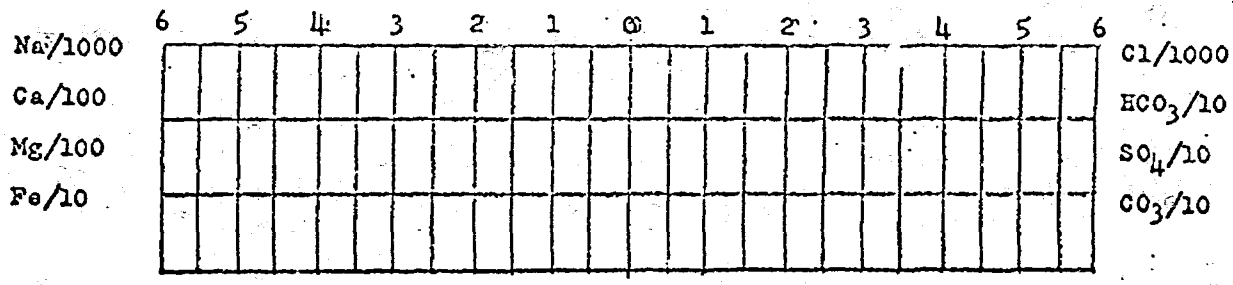
HOBBS, N.M.

LEA N.M.

Pool PERMO-PENN	Formation BOUGH "C"	
Legal Description FLAKE 21	BHT	Depth

Source (C. HARMAN)	Total Solids		pH 6.4	Specific Gravity 1.070 @ 76 °F	
Constituents	mg/L	meq/L	Constituents	mg/L	meq/L
Sodium	32340	1407	Chloride	62,130	1750
Calcium	4800	240	Bicarbonate	120	2
Magnesium	1380	115	Sulfate	550	11
Iron	9	1	Carbonate	0	0

Stiff Diagram
(meq/L)



Remarks:

not introduced
Case 3850
Ex #5

Analysis Based On API Recommended Procedure