

CASE 3888: Application of AMERADA
FOR A DUAL, SALT WATER DISPOSAL,
AND TUBING EXCEPTION, LEA COUNTY.

Case Number

3888

Application

Transcripts.

Small Exhibits

ETC.

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1968 JAN 17 AM 3 34

BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
October 9, 1968

EXAMINER HEARING

IN THE MATTER OF:

Application of Amerada
Petroleum Corporation for
a dual completion, salt
water disposal and tubing
exception, Lea County,
New Mexico.

Case No. 3888

BEFORE: Elvis A. Utz, Examiner

TRANSCRIPT OF HEARING

MR. UTZ: Case 3888.

MR. HATCH: Case 3888, application of Amerada Petroleum Corporation for a dual completion, salt water disposal and tubing exception, Lea County, New Mexico.

MR. EKLLAHIN: Jason Kellahin, Kellahin and Fox, Santa Fe, appearing for the Applicant, and we have one witness which I'd like to have sworn.

(Witness sworn.)

(Whereupon, Applicant's Exhibits Numbers One through Five, inclusive, were marked for identification.)

JOHN H. SWENDIG

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 John H. Swendig, Amerada Petroleum Corporation, Hobbs, New Mexico.

Q How do you spell that, Mr. Swendig?

A S-w-e-n-d-i-g.

Q Have you testified before the Oil Conservation Commission and made your qualifications a matter of record, Mr. Swendig?

A Yes, I have.

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

MR. UTZ: Yes, they are.

Q (By Mr. Kellahin) Mr. Swendig, are you familiar with the application of Amerada Petroleum Corporation in Case No. 3888?

A Yes, sir, I am.

Q Briefly, what is proposed by Amerada in this application?

A Amerada proposes to make a dual completion for a dual salt water and Devonian oil producing well, single well bore and asks it be allowed to set the tubing more than 250 feet above the uppermost perforation.

Q Now, referring to what has been marked as Amerada's Exhibit Number One, would you identify that Exhibit?

A This is a location and ownership plat in the north Echols-Devonian Pool showing that Amerada's State "EB" Number 1 was the last producing well in the field, that all other wells in the area have been abandoned, all of them have been plugged and abandoned.

Q Now, it's my understanding that you propose to dispose of salt water in this well. Is that salt water produced

from the Devonian formation in the same well before?

A Yes, the produced water will be produced from the Number One Well and will be disposed in the Number One Well.

Q Referring to what has been marked as Exhibit Number Two, would you identify and discuss that Exhibit?

A Exhibit Number Two is the schematic diagram of the State "EB" Number 1, the installation as proposed, and the Exhibit shows thirteen and three-eighths inch casing set at 340 feet. This casing had cement circulated. The fresh water in the area is at a maximum depth of about 220 feet, so this casing string does protect the fresh water.

There's eight and five-eighths inch casing set at 4270, top of cement of 2444, five and a half inch casing set at 11,930 with the top of the cement being at 11,100.

The proposed disposal interval will be through perforations with five and a half inch casing from 5220 to 5250. The Devonian producing perforations are 11,755 to 11,834.

The installation would consist of a tapered tubing string. It would be two and seven-eighths inch tubing to a depth of 3224, which is the approximate pumping depth of the well at present, two and three-eighths inch tubing set at

approximately 5300 in a permanent type packer. This packer will be equipped with a seeding nipple. It's such that a standing valve can be run prior to pulling the tubing to prevent any cross flow from the disposal perforations to the producing perforations.

Q Now, do you propose to load the annulus with an inert fluid?

A When the well was completed, the drilling mud was left in the annulus and we intend to attempt to break circulation from surface through the perforations and, if possible, we'll leave an inert fluid behind the pipe in a hydrostatically balanced system.

Q Do you anticipate you'll have some trouble in the breaking of the --

A It's doubtful that we will be able to circulate down this annulus.

Q As I understand it, there is mud behind the pipe in the interval where there is no cement, is this correct?

A Yes, sir, this is correct.

Q Have you had any experience with that particular mud in this area?

A Some of the other wells were completed about the same time with the same type of mud system. We found that even though we did not have cement behind the five and a half, we were unable to recover the five and a half inch casing more than 100 to 200 feet below the intermediate string. The mud that was left there made a reasonably good cement. We were unable to recover it.

Q In other words, it's a fairly effective cement, in your opinion, is this correct?

A Yes.

Q In your opinion, will the well, as completed, adequately protect all the fresh water zones?

A Yes, sir, it will.

Q And will it adequately protect any possible producing zones encountered in that well bore from contamination from the salt water you are injecting?

A Yes, sir. There are no productive formations in the interval we're talking about. It will be open to potential disposal.

Q Now, you are going to dispose in the San Andres formation, are you not?

A Yes, sir. The interval that we plan to dispose in, the intervals from 5220 to 5250, was a lost circulation zone in the Number 2 Well.

Number 1 was drilled with mud. The Number 2 Well was drilled with water, and we expect this zone to take the water on vacuum.

Q Is the San Andres productive within a two-mile radius of this well?

A No, sir, it is not, to my knowledge.

Q Now, referring to what has been marked as Exhibit Number Three, would you identify that Exhibit?

A Exhibit Number Three is a water analysis. It was run by Baroid. It shows this to be a sour water, the chlorides, 37,000. With particular interest, the hydrosulfide is 17.3 parts per million. This is a very corrosive water. It is sour. We will have to treat this water for corrosion and for scale.

Q Will treating the water, in your opinion, adequately protect the casing string from corrosion?

A Yes, sir. With our treatment, we will have corrosion coupons at the surface where we can monitor the effectiveness of our treatment and we will maintain an effective treatment as possible.

Q Now, this is Devonian water you are reinjecting. What volumes are you talking about?

A Approximately 500 barrels per day.

Q Has that been a fairly stable production of

water from this well?

A Yes, sir. For about the last year and a half, it has been about 500 barrels per day.

Q Where is the water now?

A It's being disposed of in surface pits.

Q And in order to comply with the Commission order, you must put this water underground not later than January first, is this correct?

A This is true.

Q Now, referring to what has been marked as Exhibit Number Four, will you identify that Exhibit?

A This is a portion of the electric log that was run on the well. There's no top zone here. This is within the San Andres interval. It shows the proposed perforations at 5220 to 5250, and the approximate location of 5300 to the permanent packer that will be set.

Q Referring to what has been marked as Exhibit Number Five, will you identify that Exhibit?

A Exhibit Number Five is a tabulation of all the drillstem tests and the production tests of zones other than the Devonian within the area shown on Exhibit One, the plat of the field, showing there were no shows of oil and gas from the San Andres to the Mississippian Formation.

Q Then, the only production in the area at the present time is the Devonian production, is this correct?

A The only production is the one well, the State "EB" Number 1 Well.

Q Were Exhibits One through Five prepared by you or under your supervision?

A Yes, sir, they were.

MR. KELLAHIN: At this time I'd like to offer into evidence Exhibits One through Five, inclusive.

MR. UTZ: Without objection, Exhibits One through Five will be entered into the record in this case.

(Whereupon, Applicant's Exhibits One through Five, inclusive, were admitted in evidence.)

MR. KELLAHIN: Do you have anything further, Mr. Swendig?

THE WITNESS: No, sir, that's all.

MR. KELLAHIN: That completes our direct examination, Mr. Utz.

CROSS EXAMINATION

BY MR. UTZ:

Q Mr. Swendig, what is the purpose of the two sizes of tubing?

A This is, since we do have a corrosion or

potential scaling problem, to run two and seven-eighths all the way to bottom if we do run into a scale or corrosion problem in and around the perforation, this would limit our working space. We just tapered it so it can give us more working space in case we do run into a problem.

Q Now, what is your reason for requesting the tubing to be set as high as you have it?

A We'd like to have that permanent packer as close as possible underneath the disposal perforation so as not to leave a dead fluid immediately around our production tubing.

Q Where did you say the oil was standing at the present time?

A The static fluid level will stand at approximately 1200 feet and we are presently at about 3200 feet.

Q Now, this mud you were speaking of, that's behind the five and a half?

A Yes, sir, it's outside the five and a half.

Q And it's from 1101 to the surface?

A Yes, sir. We have pressured up on this, the last, about two years ago on the surface to see, and we were unable to pump into it, and the annulus is full with this mud.

Q Now, what do you intend to do, perforate through the mud?

A Yes, sir, perforate, and then acidize. Perforate the casing and then acidize, hopefully, into the San Andres interval we want to dispose into.

Q In other words, you've not at all sure this is going to take water?

A No, sir. The only indication we have that it will take water is that it was a lost circulation zone in the Number 2 Well which is offset.

Q In the event you're not able to dispose of in this well, then what?

A We would squeeze these perforations off, and on the tabulations, there were some other zones down, deeper zones that we would test at the time we were doing this work. The Pennsylvanian shows to have given up large amounts of water on drillstem test and the Wolfcamp gave up quite a bit of water on drillstem test, and while we were working, we would go in and test these intervals and then ask to have the order amended.

Q Have you had quite a lot of experience with this Baker on-off sealing connector --

A No, sir, not for this.

Q -- for separating formations?

A To my knowledge, we don't have any of these particular installations as we were talking about here, but

we do have a number of dual completions where we have a Model "D" Packer where we've used a sealing device to separate the zones and have had good success with them.

Q In the event this frame should fail and you didn't have your tubing pulled, you're going to have trouble with the producing formation, aren't you?

A Probably no more than what we are now when we shut the well in, with the water production that the well makes from the very high bottom hole pressure, it takes quite awhile to pump the water off so this would have the effect of killing the well, but I don't believe we'd put any water into the formation with the pressure we have available in the Devonian.

Q I see.

MR. UTZ: Are there other questions? The witness may be excused. Are there any statements in this case?

MR. KELLAHIN: That's all.

MR. UTZ: We'll take the case under advisement.

I N D E XWITNESS

JOHN H. SWENDIG

Direct Examination by Mr. Kellahin

Cross Examination by Mr. Utz

PAGE

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EXHIBITApplicant's 1
through 5MARKED

2

OFFERED AND
ADMITTED

9

STATE OF NEW MEXICO)
) ss
 COUNTY OF BERNALILLO)

I, Charlotte J. Macias, Court Reporter 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.

Charlotte Macias
 Court Reporter

I do hereby certify that the foregoing is
 a complete record of the proceedings in
 the Executive hearing of Case No. 3878,
 heard by me on Oct. 9, 1968.
Thos. P. [Signature], President
 New Mexico Oil Conservation Commission

GOVERNOR
DAVID S. 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

October 23, 1968

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

Re: Case No. 3888
Order No. R-3532
Applicant: Amerada 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 order also sent to:

Hobbs OCC x

Artesia OCC

Aztec OCC

Other 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. 3888
Order No. R-3532

APPLICATION OF AMERADA PETROLEUM
CORPORATION FOR A DUAL COMPLETION,
SALT WATER DISPOSAL AND TUBING
EXCEPTION, LEA COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

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

NOW, on this 23rd day of October, 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, Amerada Petroleum Corporation, seeks
authority to complete its State E "B" Well No. 1, located in Unit
E of Section 27, Township 10 South, Range 37 East, NMPM, Lea
County, New Mexico, as a dual completion to produce oil from the
North Echols-Devonian Pool through 2 3/8-inch tubing set at
approximately 5300 feet and to dispose of produced salt water
down the annulus between said tubing and the 5 1/2-inch produc-
tion casing into the San Andres formation, with injection into
the perforated interval from approximately 5220 feet to 5250
feet, separation of the zones to be by a packer set at approxi-
mately 5300 feet.

(3) That the applicant also seeks an exception to the tubing
requirements of Rule 107 to permit said 2 3/8-inch tubing to be
set more than 250 feet above the top of said pay.

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CASE No. 3888

Order No. R-3532

(4) That the subject well is a pumping well; that the fluid level in the well stands at approximately 3200 feet. That approval for the setting of the 2 3/8-inch tubing and the packer more than 250 feet above the Devonian perforations will not cause waste and will in fact reduce the hydrostatic head of the disposal water on said packer.

(5) That the mechanics of the proposed dual completion are feasible and in accord with good conservation practices.

(6) That the produced salt water should be continuously treated prior to injection to prevent casing and tubing corrosion and coupon corrosion tests should be conducted continuously on said well and the results thereof filed quarterly with the Commission until further notice from the Secretary-Director of the Commission.

(7) That approval of the dual completion and salt water disposal as set out above will prevent the drilling of unnecessary wells, and will otherwise prevent waste and protect correlative rights.

IT IS THEREFORE ORDERED:

(1) That the applicant, Amerada Petroleum Corporation, is hereby authorized to complete its State E "B" Well No. 1, located in Unit E of Section 27, Township 10 South, Range 37 East, NMPM, Lea County, New Mexico, as a dual completion to produce oil from the North Echols-Devonian Pool through 2 3/8-inch tubing set at approximately 5300 feet and to dispose of produced salt water down the annulus between said tubing and the 5 1/2-inch production casing into the San Andres formation, with injection into the perforated interval from approximately 5220 feet to 5250 feet, separation of the zones to be by a packer set at approximately 5300 feet;

PROVIDED HOWEVER, that the produced salt water shall be continuously treated prior to injection to prevent casing and tubing corrosion, and provided further, that coupon corrosion tests shall be conducted continuously on said well and the results thereof filed quarterly with the Commission until further notice from the Secretary-Director of the Commission;

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CASE No. 3888

Order No. R-3532

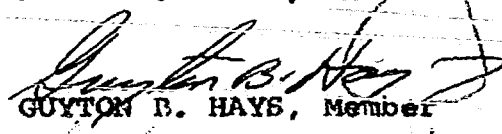
PROVIDED FURTHER, that the applicant shall submit monthly reports of its disposal operations in accordance with Rules 704 and 1120 of the Commission Rules and Regulations.


(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


GUYTON B. HAYS, Member


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



esr/

Case 3888

Heard 10-9-68

Rec. 10-15-68

Grant Amara Inc request for permission to inject SW into the San Andreas zone from 5220-5250 thru perforations. Injection shall be down the tubing - 5 1/2 casing annulus.

The SW shall be treated ^{with} corrosion inhibitor before injection.

2 7/8 tubing shall be run from surface to 3224 + 2 7/8 from ~~3000~~ to 5300'. packer shall be set @ 5300'. or 50' below SW injection pipe.

This should be allowed only due to the fact that the well is a very marginal well (stripper) + the cost of rework would cause loss of oil (waste).

Thos A. H.

Docket No. 29-68
DOCKET: EXAMINER HEARING - WEDNESDAY - OCTOBER 9, 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 3872: Application of Union Oil Company of California for a dual completion and salt water disposal, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to equally complete its Federal "A" Well No. 1 located in Unit P of Section 12, Township 15 South, Range 34 East, Lea County, New Mexico, in such a manner as to permit the production of oil from the Morton-Wolfcamp Pool and the disposal of produced salt water through the intermediate casing-production casing annulus into the San Andres and such other formations as may occur in the open-hole interval from approximately 4620 to 7350 feet.

CASE 3873: Application of R. G. McPherson for salt water disposal, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the San Andres formation in the open-hole interval from approximately 5250 feet to 5854 feet in his S. P. Johnson Well No. 1 located 990 feet from the West line and 1650 feet from the South line of Section 5, Township 18 South, Range 39 East, South Carter-San Andres Pool, Lea County, New Mexico.

CASE 3874: Application of Gulf Oil Company - U. S. for downhole commingling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to commingle production from the Paddock and Blinbry Oil Pools in the well-bore of its C. L. Hardy Well No. 2 located in Unit N of Section 20, Township 21 South, Range 37 East, Lea County, New Mexico, with the provision that no more than one single allowable will be produced from said well.

CASE 3875: Application of Pan American Petroleum Corporation for an unorthodox oil well location, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to drill a well in exception to the Fowler-Ellenburger Rules at an unorthodox location 910 feet from the North line and 1980 feet from the West line of Section 15, Township 24 South, Range 37 East, Lea County, New Mexico.

- CASE 3876: Application of Newmont Oil Company for a unit agreement, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of the Young (Queen) Unit Area comprising 1320 acres, more or less, of federal and state lands in Township 18 South, Range 32 East, Young (Queen) Pool, Lea County, New Mexico.
- CASE 3877: Application of Newmont Oil Company for a waterflood project, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project in its Young (Queen) Unit Area by the injection of water into the Queen formation through 17 wells located in Sections 9, 16, 17, 19, 20, 21, and 29, Township 18 South, Range 32 East, Young (Queen) Pool, Lea County, New Mexico.
- CASE 3878: Application of General American Oil Company of Texas for a waterflood project, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project by the injection of water into the Premier sand through two injection wells located in Unit M of Section 8, and Unit G of Section 17, Township 16 South, Range 30 East, West Henshaw-Grayburg Pool, Eddy County, New Mexico.
- CASE 3879: Application of Walter Duncan Oil Properties for an unorthodox oil well location, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks authority to drill a well at an unorthodox oil well location 1000 feet from the North line and 1242 feet from the East line of Section 36, Township 32 North, Range 18 West, San Juan County, New Mexico. Said well would be projected to the Dakota formation.
- CASE 3880: Application of Anne Burnett Windfohr, dba Windfohr Oil Company, for salt water disposal, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the Abo formation in the perforated interval from approximately 6970 feet to 7028 feet in the Windfohr Oil Company Jackson "B" Well No. 23 located in Unit J of Section 24, Township 17 South, Range 30 East, Jackson-Abo Pool, Eddy County, New Mexico.
- CASE 3881: Application of J. M. Huber Corporation for the creation of a new oil pool and for special pool rules, Roosevelt County, New Mexico. Applicant, in the above-styled cause, seeks the creation of a new Devonian oil pool for its Lone Star Federal Well No. 1 located in the NE/4 NE/4 of Section 20, Township 8 South, Range 36 East, Roosevelt County, New Mexico, and for the promulgation of special rules therefor including a provision for 80-acre proration units.

- CASE 3882: Application of Solar Oil Company for a special gas-oil ratio limitation, Lea County, New Mexico. Applicant, in the above-styled cause, seeks an exception to Rule 506 of the Commission Rules and Regulations to provide for a limiting gas-oil ratio of 6,000 cubic feet of gas per barrel of oil in the Teague Blinebry Pool, Lea County, New Mexico.
- CASE 3883: Application of Solar Oil Company for a special gas-oil ratio limitation, Lea County, New Mexico. Applicant, in the above-styled cause, seeks an exception to Rule 506 of the Commission Rules and Regulations to provide for a limiting gas-oil ratio of 6,000 cubic feet of gas per barrel of oil in the Imperial Tubb-Drinkard Pool, Lea County, New Mexico.
- CASE 3884: Application of Marathon Oil Company for a unit agreement, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval of the Miller Ranch Unit Area comprising 5,276 acres, more or less, of State, Federal and Fee lands in Townships 21 and 22 South, Range 25 East, Eddy County, New Mexico.
- CASE 3885: Application of Sinclair Oil & Gas Company for a waterflood expansion, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to expand its Turner "B" Grayburg-Jackson Waterflood Project, Grayburg-Jackson Pool, by the conversion to water injection of 12 additional injection wells located in Sections 20, 29, and 30, Township 17 South, Range 31 East, Eddy County, New Mexico.
- CASE 3886: Application of Sinclair Oil & Gas Company for the amendment of a unit agreement, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks amendment of its Guadalupe Ridge Unit Agreement, unitizing certain lands in Eddy County, New Mexico, and approved by Order No. R-3471, to conform to certain requirements of the Director of the United States Geological Survey. In the absence of objection, the case will be submitted and an order issued upon the basis of the application and exhibits attached thereto.
- CASE 3887: Application of Kersey & Company for a waterflood project, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project by the injection of water into the Premier sand of the Grayburg formation through two wells to be located in Units E and K of Section 12, Township 18 South, Range 28 East, Artesia Pool, Eddy County, New Mexico. Applicant further proposes to produce oil from the Upper Grayburg through parallel strings of tubing, if said zones are productive in the subject wells.

October 9, 1968, Examiner Hearing

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Docket No. 29-68

CASE 3888:

Application of Amerada Petroleum Corporation for a dual completion, salt water disposal and tubing exception, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to dually complete its State E "B" Well No. 1 located in Unit E of Section 27, Township 10 South, Range 37 East, Lea County, New Mexico, in such a manner as to permit the production of oil from the North Echols-Devonian Pool and the disposal of produced salt water through the tubing-casing annulus into the San Andres formation through perforations in said casing from approximately 5220 feet to 5250 feet. Applicant also seeks an exception to the tubing requirements of Commission Rule 107 in that said tubing would be set more than 250 feet above the upper most Devonian perforation.

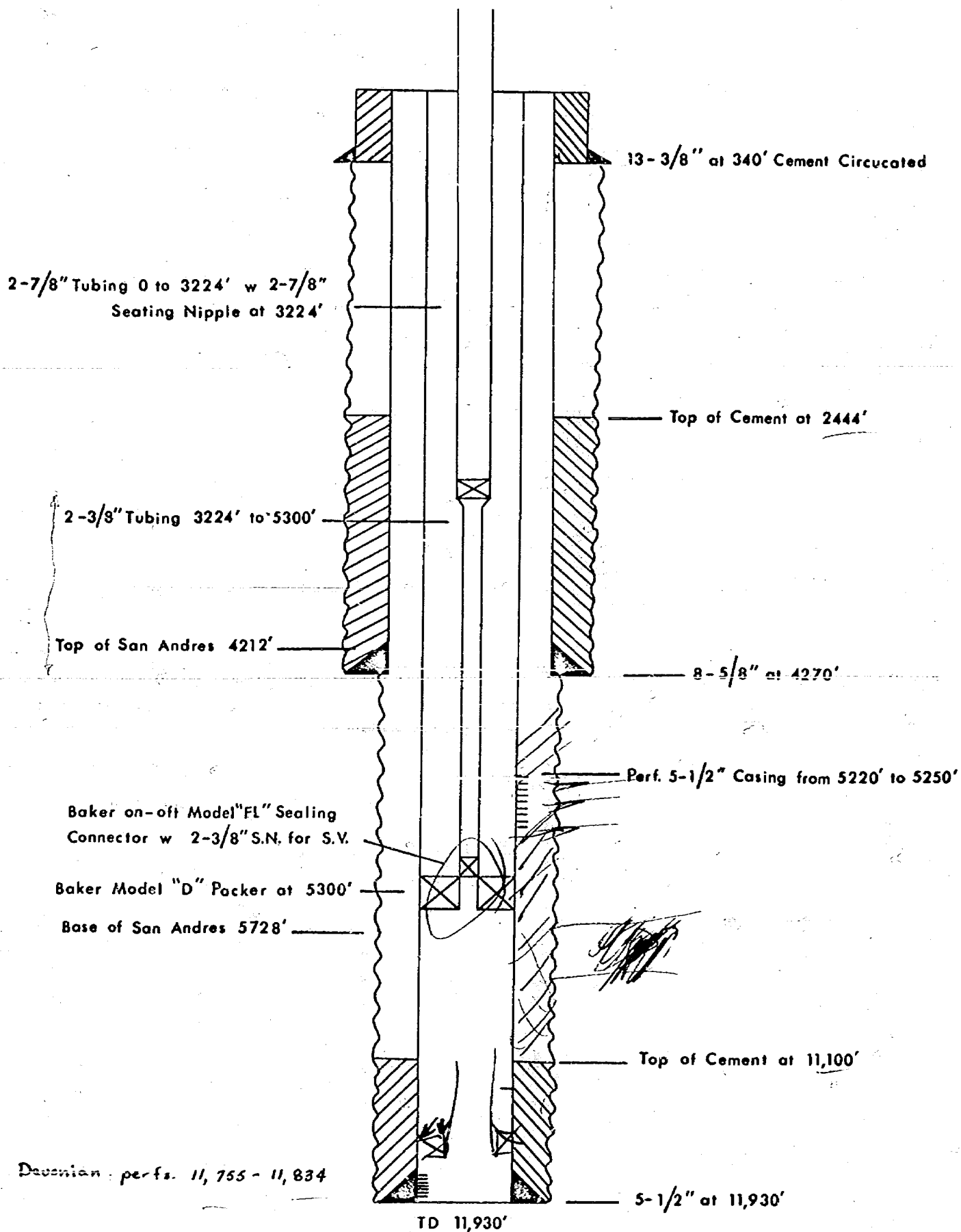
CASE 3889:

Application of BTA Oil Producers for the creation of a new pool and special pool rules, Lea and Roosevelt Counties, New Mexico. Applicant, in the above-styled cause, seeks the creation of a new pool for the production of oil from the Bough C zone of the Pennsylvanian formation for its well located in Section 5, Township 9 South, Range 36 East, Lea County, New Mexico, and for the promulgation of special rules therefor including a provision for 160-acre proration units and for the assignment of an 80-acre allowable factor of 4.77.

CASE 3890:

Application of Pan American Petroleum Corporation for special pool rules and a non-standard gas proration unit, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks the promulgation of special pool rules for the Empire-Pennsylvanian Gas Pool, Eddy County, New Mexico, including a provision for 320-acre spacing units with wells to be located in either the northwest quarter or the southeast quarter of the section. Applicant further seeks approval of a 280-acre non-standard gas proration unit comprising the SE/4, S/2 SW/4, and the NW/4 SW/4 of Section 30, Township 17 South, Range 28 East, Empire-Pennsylvanian Gas Pool, to be dedicated to its State V Com Well No. 1 located 990 feet from the South and East lines of said Section 30.

AMERADA PETROLEUM CORPORATION



STATE E "B" No. 1

North Echols Devonian Field

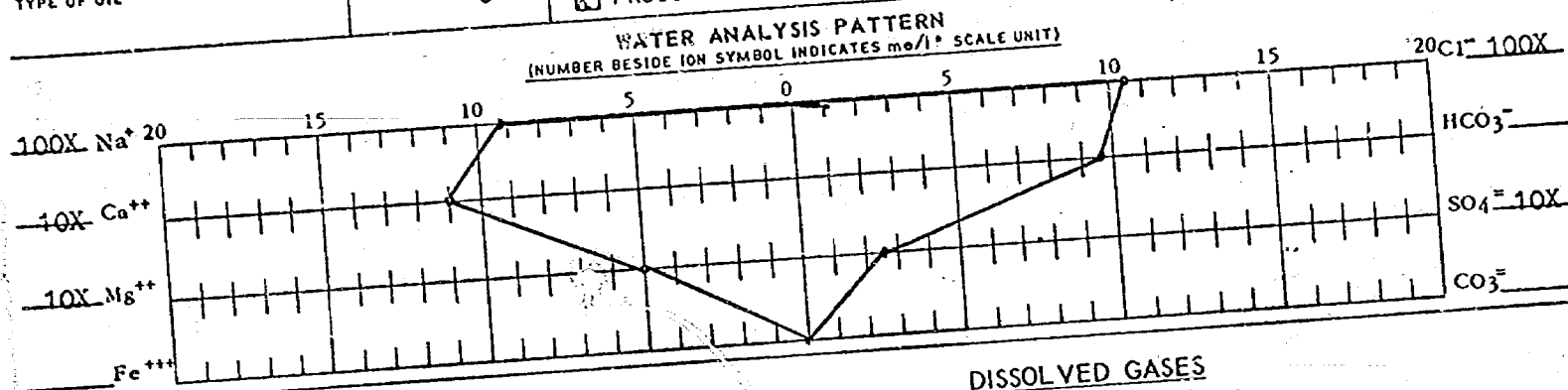
BEFORE EXAMINER UTZ	
OIL CONSERVATION COMMISSION	
EXHIBIT NO.	2
CASE NO.	3888



BAROID DIVISION
NATIONAL LEAD COMPANY
PETROLEUM INDUSTRY CHEMICALS

WATER ANALYSIS TEST REPORT

COMPANY Amerada Petroleum Corp.				COUNTY OR PARISH Lea		SHEET NUMBER	
FIELD Echols - Sec. 27-10S-37E				WATER SOURCE (FORMATION) Devonian		DATE 9-11-68	
LEASE OR UNIT State E "B"				WELL(S) NAME OR NO. No. 1		STATE New Mexico	
DEPTH, FT.		BHT, F		TEMP, F		OIL, BBL/DAY	
		Well Head		500		30	
TYPE OF OIL		API GRAVITY		TYPE OF WATER		GAS, MMCF/DAY	
		0		<input checked="" type="checkbox"/> PRODUCED WATER <input type="checkbox"/> INJECTION WATER <input type="checkbox"/> OTHER			



DISSOLVED SOLIDS

CATIONS	me/l *	mg/l *
Total Hardness	160	21,134
Sodium, Na ⁺ (calc.)	918	2,200
Calcium, Ca ⁺⁺	110	600
Magnesium, Mg ⁺⁺	50	.6
Iron (Total), Fe ⁺⁺⁺	.032	
ANIONS		
Chloride, Cl ⁻	1,042.2	37,000
Sulfate, SO ₄ ⁼	25	1,200
Carbonate, CO ₃ ⁼	NP	NP
Bicarbonate, HCO ₃ ⁼	9.76	595
Hydroxyl, OH ⁻	NP	NP
Sulfide, S ⁼	1.	17.
Phosphate - Meta, PO ₃ ⁼		
Phosphate - Ortho, PO ₄ ⁼		

DISSOLVED GASES

Hydrogen Sulfide, H ₂ S	17.3	mg/l *
Carbon Dioxide, CO ₂	NR	mg/l *
Oxygen, O ₂	NR	mg/l *

PHYSICAL PROPERTIES

pH	6.35	
Eh (Redox Potential)	NR	MV
Specific Gravity	1.40	
Turbidity, JTU Units	25	
Total Dissolved Solids (Calc.)		mg/l *
Stability Index	0.50 F	-0.67
	0.140 F	+0.43
CaSO ₄ Solubility	0.86 F	4027
	0.140 F	3955
Max. CaSO ₄ Possible (Calc.)	1702	mg/l *
Max. BaSO ₄ Possible (Calc.)		mg/l *
Residual Hydrocarbons		ppm (Vol/Vol)

SUSPENDED SOLIDS (QUALITATIVE)

Iron Sulfide ☐ Iron Oxide ☐ Calcium Carbonate ☐ Acid Insoluble ☐

REMARKS AND RECOMMENDATIONS:

BEFORE EXAMINER UTZ
OIL CONSERVATION COMMISSION

EXHIBIT NO. 3
CASE NO. 3888
Lovington, New Mexico

PIC ENGINEER H. E. Stewart	DIST. NO. 21	DATE 9-11-68	OFFICE PHONE 396-2013	HOME PHONE 396-4840
TESTED BY [Signature]	DISTRIBUTION <input checked="" type="checkbox"/> CUSTOMER <input checked="" type="checkbox"/> PIC ENGINEER OR <input type="checkbox"/> PIC LAB		<input type="checkbox"/> AREA OR <input checked="" type="checkbox"/> DISTRICT OFFICE <input checked="" type="checkbox"/> PIC SALES SUPERVISOR	

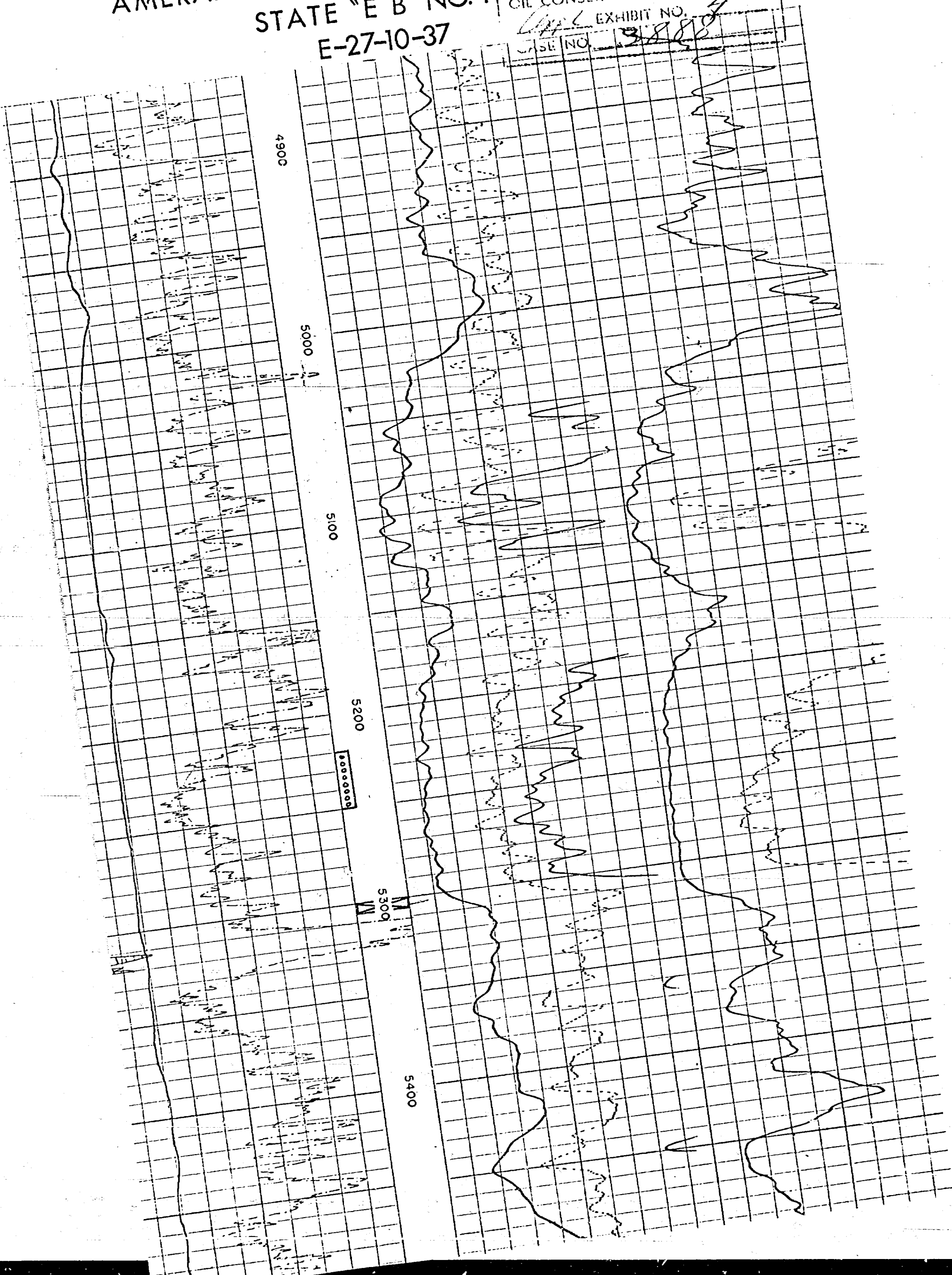
AMERADA PETROLEUM CORPORATION
STATE "E B" NO. 1
E-27-10-37

BEFORE EXAMINER UTZ
OIL CONSERVATION COMMISSION

EXHIBIT NO.

CASE NO.

3888



DRILL STEM TESTS
NORTH ECHOLS AREA

BEFORE EXAMINER UTZ	
OIL CONSERVATION COMMISSION	
EXHIBIT NO. <u>5</u>	
CASE NO. <u>3888</u>	

Formation	Well Name	Location	Drill Stem Tests
San Andres	Rowan & Nichols State No. 1	C-22-10-37	Production Tested - Plugged & Abandoned
	Texaco State "AY" No. 1	H-26-10-37	4978' - 5060' Rec. 330' Mud
Clearfork	No Test		
Tubb	Texaco State "AY" No. 1	H-26-10-37	7440' - 7586' Rec. 1035' SW
Abo	No Test		
Wolfcamp	Union State No. 1	J-22-10-37	8990' - 9071' Rec. 35' Mud
	Texaco State "AV" No. 1	D-35-10-37	9350' - 9550' Rec. 6800' SW
Pennsylvanian	Texaco State "AW" No. 1	J-21-10-37	11,165' - 11,550' Rec. 330' Mud
	Texaco State "AY" No. 1	H-26-10-37	9980' - 10,880' Rec. 210' Mud
	Amerada State "EB" No. 1	E-27-10-37	9320' - 9406' Rec. 110' Mud 9830' - 10,000' Rec. 270' Mud & 360' SW
	Texaco Gulf - State No. 1	A-28-10-37	10,046' - 10,144' Rec. 75' Mud 10,520' - 10,655' Rec. 30' Mud
	Texaco State "AV" No. 1	D-35-10-37	10,115' - 10,219' Rec. 8130' SW 10,460' - 10,540' Rec. 800' SW 11,405' - 11,486' Rec. 900' SW
Mississippian	Texaco Gulf - State No. 1	A-28-10-37	11,113' - 11,330' Rec. 30' Mud

GENERAL OFFICE
Box 2040
TULSA, OKLA. 74102

AMERADA PETROLEUM CORPORATION
Box 668
HOBBS, NEW MEXICO 88249

September 18, 1968

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

Re: Application of Amerada Petroleum
Corporation for Salt Water
Disposal in the State E"B" No. 1
in the North Echols Devonian
Field, Lea County, New Mexico.

Gentlemen:

Amerada Petroleum Corporation requests administrative approval to dispose of produced salt water into the San Andres Formation in the State E"B" No. 1, Unit "E", Section 27, T-10-S, R-37-E. It is proposed to dispose of the water into the San Andres Formation by injecting down the annulus between the tubing and the 5-1/2" casing.

In support of the application, the following information is submitted:

(1) Applicant is owner and operator of the State E"B" Lease described as the North half of Section 27, T-10-S, R-37-E, Lea County, New Mexico.

(2) The State E"B" No. 1 is the last producing well in the field. August average production was 29 barrels of oil and 493 barrels of water per day.

(3) All other wells in the field which could potentially be used for salt water disposal have been plugged and abandoned. The cost to re-enter these wells will be prohibited.

(4) To transport produced water to existing salt water disposal facilities is uneconomical.

(5) Proposed installation will be equipped with permanent type packer immediately below the San Andres perforations and will be equipped such that a plug can be run and set prior to pulling the tubing, therefore, eliminating any danger of fluids flowing from one zone to another.

(6) The water to be disposed of is to be treated for both scale and corrosion.

DOCKET MAILED

Date 9-26-68

New Mexico Oil Conservation
Commission

Page 2

September 18, 1968

(7) The formation between the proposed San Andres perforations and the top of the cement outside the 5-1/2" casing are all non-productive of oil or gas based on drill stem tests.

(8) The State E"B" No. 2 encountered a lost circulating zone in the proposed disposal interval, therefore, it is anticipated that injection will be on a vacuum.

(9) If circulation can be established in the annulus between the 5-1/2" and 8-5/8" casing this annulus will be filled with treated oil.

(10) All potential fresh water zones are protected by 13-3/8" casing set at 340' on which cement was circulated.

(11) The annulus between the 13-3/8" and the 8-5/8" casing and the annulus between the 8-5/8" and the 5-1/2" will be equipped with pressure gauges.

In order to prevent premature abandonment on the State E"B" No. 1, administrative approval is requested on this application.

Yours very truly,

John H. Swendig
John H. Swendig

Attachments: Application to Dispose of Salt Water
Schematic of State E"B" No. 1
Map of North Echols Field

cc: N.M.O.C.C. - Santa Fe (Original and 2)
N.M.O.C.C. - Hobbs (2)
Commissioner of Public Lands - P.O. Box 1148 - Santa Fe, N.M.
State Engineer Office - State Capitol - Santa Fe, N.M.
Ralph Lowe - P.O. Box 832 - Midland, Texas
John Bates - P.O. Box 5022 - Midland, Texas
Pan American Petroleum Corp. - P.O. Box 68 - Hobbs, N.M.
Warren American - P.O. Box 971 - Midland, Texas
U.S. Smelting - P.O. Box 1877 - Midland, Texas

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

Case 3888

APPLICATION
TO DISPOSE OF SALT WATER BY INJECTION INTO A POROUS FORMATION
NOT PRODUCTIVE OF OIL OR GAS

Operator Amerada Petroleum Corporation Address P. O. Box 668 - Hobbs, N.M.
Lease State E"B" Well No. 1 County Lea
Unit E Section 27 Township 10-S Range 37-E

This is an application to dispose of salt water produced from the following pool(s):

North Echols Devonian

Name of Injection Formation(s): San Andres

Top of injection zone: 5220' Bottom of injection zone: 5250'

Give operator, lease, well no., and location of any other well in this area using this same

zone for disposal purposes: None

CASING PROGRAM

	Diameter	Setting Depth	Sacks Cement	Top of Cement
Surface	13-3/8"	340'	250	Circulated
Intermediate	8-5/8"	4270'	1500	2444'
Long String	5-1/2"	11,930'	200	11,100'

Will injection be through tubing, casing, or annulus? Annulus

Size tubing 2-7/8"-2-3/8" Setting depth: 3224-5300' Packer set at. 5300'

Name and Model No. of packer Baker Model "D"

Will injection be through perforations or open hole? Perforations

Proposed interval(s) of injection: 5220-5250'

Well was originally drilled for what purpose? Devonian producer

Has well ever been perforated in any zone other than the proposed injection zone? Yes

List all such perforated intervals and sacks of cement used to seal off or squeeze each:

11,755' to 11,834' - Perforations are presently open.

Give depth of bottom of next higher zone which produces oil or gas: None

Give depth of top of next lower zone which produces oil or gas: None

Give depth of bottom of deepest fresh water zone in area: 200

Expected volume of salt water to be injected daily (barrels): 500

Will injection be by gravity or pump pressure? Gravity Estimated pressure: -

Is system open or close type? Close Is filtration or chemical treatment necessary? Yes

Is the water to be disposed of mineralized to such a degree as to be unfit for domestic, stock, irrigation, and/or other general use? Yes

Is any water occurring naturally within the proposed disposal formation mineralized to such a degree as to be unfit for domestic, stock, irrigation, and/or other general use? _____

List all offset operators to the lease on which this well is located and their mailing address

Ralph Lowe - P. O. Box 832 - Midland, Texas

John Bates - P. O. Box 5022 - Midland, Texas

Pan American - P. O. Box 68 - Hobbs, New Mexico

U. S. Smelting - Box 1877 - Midland, Texas

Warren American - P. O. Box 971 - Midland, Texas

Name and address of surface owner State of New Mexico

Have copies of this application been sent by registered mail or given to all offset operators, surface owners, and to the New Mexico State Engineer? Yes

Is a complete electrical log of this well attached? No

Operator: Amerada Petroleum Corporation

By: John H. Swendig

Title: District Engineer

STATE OF New Mexico)
) ss.
County of Lea)

BEFORE ME, The undersigned authority, on this day personally appeared John H. Swendig known to me to be the person whose name is subscribed to the above instrument, who being by me duly sworn on oath states that he is duly authorized to make the above report and that he has knowledge of the facts stated therein and that said report is true and correct.

SUBSCRIBED AND SWORN TO before me this the 18th day of September, 19 68

Emma Lou Hensley
Notary Public in and for the County of Lea

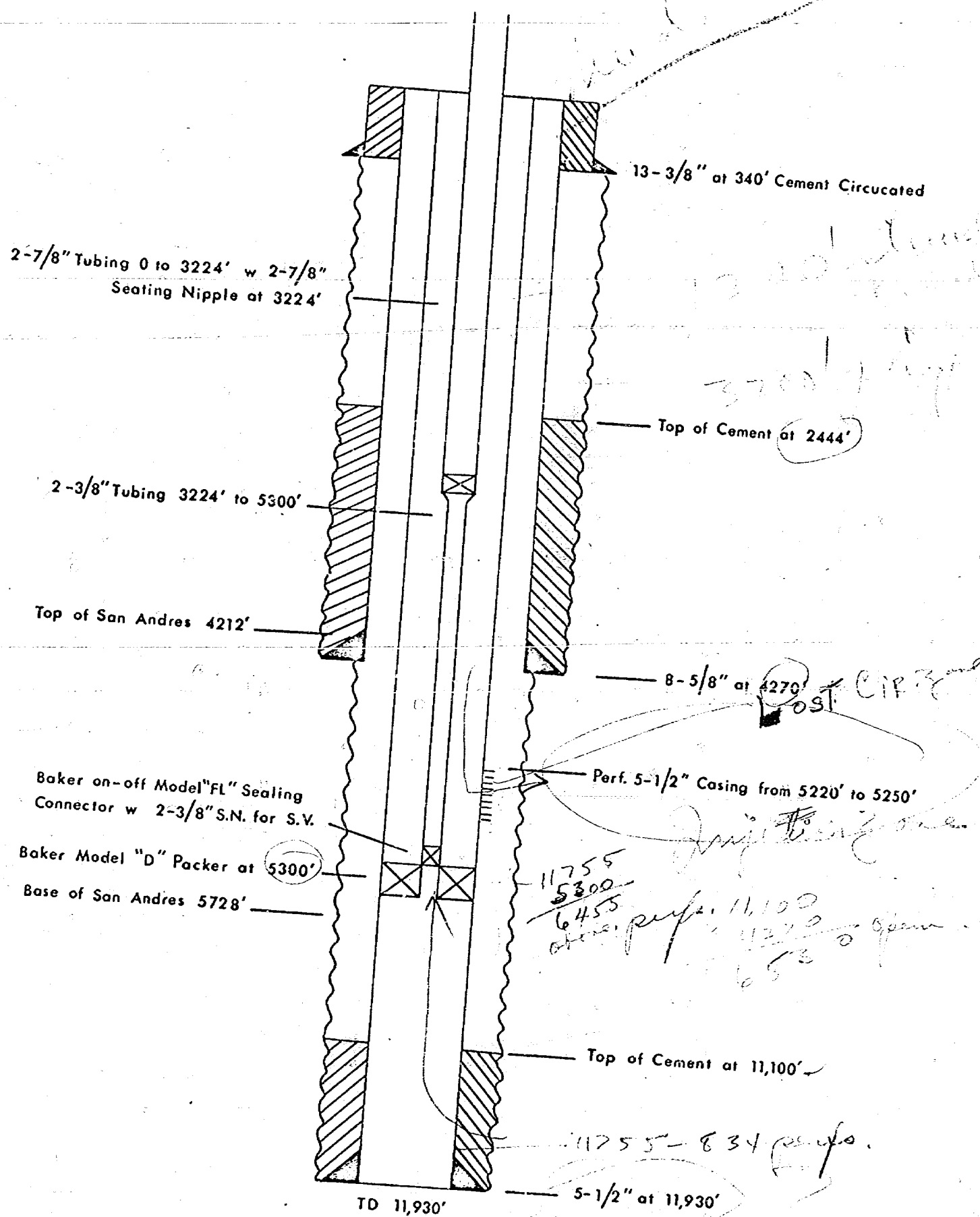
EMMA LOU HENSLEY, NOTARY
MY COMMISSION EXPIRES JULY 26, 1972
My Commission Expires

NOTE:

Should waivers from all offset operators, the surface owner, and the State Engineer not accompany an application, the New Mexico Oil Conservation Commission will hold the application for a period of fifteen (15) days from date of receipt by the Commission's Santa Fe office. If at the end of said fifteen-day period, no protest nor request for hearing is received by the Santa Fe office, the application will then be processed.

ir/

AMERADA PETROLEUM CORPORATION



STATE E "B" No. 1

North Echols Devonian Field

DRAFT

GMH/esr
10-18-68

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. 3888

Order No. R-3532

APPLICATION OF AMERADA PETROLEUM
CORPORATION FOR A DUAL COMPLETION,
SALT WATER DISPOSAL AND TUBING
EXCEPTION, LEA COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

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

NOW, on this day of October, 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, Amerada Petroleum Corporation, seeks
authority to complete its State E "B" Well No. 1, located in Unit
E of Section 27, Township 10 South, Range 37 East, NMPM, Lea
County, New Mexico, as a dual completion to produce oil from the
North Echols-Devonian Pool through 2 3/8-inch tubing set at
approximately 5300 feet and to dispose of produced salt water
down the annulus between said tubing and the 5 1/2-inch produc-
tion casing into the San Andres formation, with injection into
the perforated interval from approximately 5220 feet to 5250 feet,
separation of zones to be by a packer set at approximately
5300 feet.

(3) That the applicant also seeks an exception to the tubing requirements of Rule 107 to permit said 2 3/8-inch tubing to be set more than 250 feet above the top of said pay.

(4) That the subject well is a pumping well; that the fluid level in the well stands at approximately 3200 feet. That approval for the setting of the 2 3/8-inch ~~the~~ tubing and the packer more than 250 feet above the Devonian perforations will not cause waste and will in fact reduce the hydrostatic head of the disposal water on said packer.

until further notice from the Secretary-Director of the Commission.

(7) That approval of the dual completion and salt water disposal as set out above will prevent the drilling of unnecessary wells, and will otherwise prevent waste and protect correlative rights.

IT IS THEREFORE ORDERED:

(1) That the applicant, Amerada Petroleum Corporation, is hereby authorized to complete its State E "B" Well No. 1, located in Unit E of Section 27, Township 10 South, Range 37 East, NMPM, Lea County, New Mexico, as a dual completion to produce oil from the North Echols-Devonian Pool through 2 3/8-inch tubing set at approximately 5300 feet and to dispose of produced salt water down the annulus between said tubing and the 5 1/2-inch production casing into the San Andres formation, with injection into the perforated interval from approximately 5220 feet to 5250 feet, separation of zones to be by a packer set at approximately 5300 feet;

order for 586
↑

-3-

CASE No. 3888

PROVIDED HOWEVER, that the produced salt water shall be continuously treated prior to injection to prevent casing^{and tubing} corrosion, and provided further, that coupon corrosion tests shall be conducted continuously on said well and the results thereof filed quarterly with the Commission until further notice from the Secretary-Director of the Commission;

PROVIDED FURTHER, that the applicant shall submit monthly reports of its disposal operations in accordance with Rules 704 and 1120 of the Commission Rules and Regulations.

(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.